The Effect of Non-Audit Fees and Industry Specialization on the Prevalence and Accuracy of Auditor's Going-Concern Reporting Decisions

Marshall A. Geiger *
University of Richmond, USA
mgeiger@richmond.edu
102 UR Drive
University of Richmond
Richmond, VA 23173
804-437-1940

Ilias G. Basioudis
Aston Business School, UK
i.g.basioudis@aston.ac.uk

Paul DeLange
University of, Tasmania, Tasmania
pa.delange@utas.edu.au

* Contact author

ABSTRACT
The issue of auditors impairing their independence when providing non-audit services (NAS) to audit clients continues to be subject of global regulatory concern. However, the profession has long argued that knowledge gained from providing NAS can spill over to other areas and can serve to improve audit quality. Accordingly, we revisit the effect that NAS have on the likelihood of an auditor issuing a going concern modified opinion (GCMO) to distressed clients, as well as the accuracy of those opinions. We also examine whether industry specialization is associated with GCMO decisions and their accuracy. Our analysis of Australian audits finds a significant negative association between auditors rendering a GCMO and the magnitude of NAS fees, and that increasing NAS fees are associated with fewer GCMO-related reporting misclassifications. Our analyses also find no strong evidence of an industry specialist auditor effect on GCMO reporting or report accuracy. In sum, our analysis of audit reporting decisions in Australia supports the concerns of regulators regarding reduced GCMOs when NAS fees increase; but also supports the contention of the accounting profession that the provision of NAS improves the quality of audit decision-making, leading to improved accuracy of GCMO reporting decisions.

Keywords: going concern, non-audit fees, audit reporting accuracy, audit firm specialization, auditor independence

JEL Classification: M42

1. Introduction

Auditor provision of non-audit services (NAS) to audit clients has long been a contentious issue around the world for the public accounting profession. In fact, in 2019 the UK Parliament launched an inquiry into the future of the external audit and proposed a structural split between the audit and non-audit practices of large audit firms, where a "full, clean legal separation" is recommended (BEIS 2019). In the midst of this, three of the Big 4 firms (KPMG, PwC and EY) in the U.K. announced that they have decided to stop performing non-audit work for FTSE 350 clients aiming at restoring public trust in the audit sector (Jones 2019). Precipitating the UK Parliamentary inquiry, there have been several recent UK and international accounting scandals (e.g., Carillion in the UK, Steinhoff International Holdings in South Africa, Petrobras in Brazil), and the continued domination of the Big 4 in the global public company audit market. Further, international audit firms now get more revenue from the provision of NAS than from audit services (Marriage 2018; Rapoport 2018).

Similar outcry has also been heard in Australia (Fels, 2019; West, 2020), with the Australian Parliamentary Joint Committee proposing to enhance auditor independence through prohibition of certain NAS (Australian Parliament, 2020). These recent actions epitomize a long-held contention of global audit regulators that the receipt of NAS fees can potentially impair auditor independence, leading to reduced audit quality (Federation of European Accountants, 1996; Levitt, 1996; US House of Representatives, 2002; CLERP 9, 2004; European Commission, 2010; The Treasury, 2010; European Parliament, 2014; Croteau, 2015; Australian Parliament, 2020). Therefore, separating the auditing function from consulting activities would eliminate this potential tension. The request is also consistent with the tenor of the recently instituted European Parliament (EP) Directive that prohibits certain

types of auditor-provided NAS and establishes a hard limit on NAS fees to be no more than 70 percent of audit fees (Barnier, 2013; EP, 2014; ICEAW, 2018).[1]

In stark contrast, however, the majority of audit practitioners have argued that providing NAS to audit clients enables them to obtain a broader and more detailed knowledge of the client and their business, risks, and processes (Wallman, 1996; Melancon, 2000; ICAEW, 2018). This enhanced knowledge, then, allows auditors to improve the quality of their audit. Therefore, any limits on NAS would also have the unintended consequence of limiting the auditor's ability to gain knowledge of the client company, and thereby ultimately restrict audit quality.

Prior research has examined these opposing views, in part, by assessing the association between NAS fees and auditor decision-making, and particularly auditor going concern modified opinion (GCMO) decisions (Craswell, 1999; Ye et al., 2011; Sharma, 2014). However, there have been only a few studies examining the accuracy of auditor reporting decisions in the context of NAS fees, and as of yet, no study has fully incorporated auditor industry specialization into these analyses. Accordingly, in this study we examine the association between Australian auditors GCMO decisions and the level of NAS fees. We also examine the accuracy of those decisions, and extend the literature by examining whether industry specialization plays a role in those relationships. We study these associations in Australia as Australian standards create a relatively less constrained environment regarding the types and amounts of NAS that can be provided to audit clients, and, unlike most countries, non-Big 4 audit firms have a significant presence auditing public companies, which enables us to examine these possible effects on a more varied pool of audit firms.

Our analysis of 1,791 financially stressed and GCMO Australian companies from 2004-2013 finds an overall negative association between the magnitude of NAS fees and the

[1] The Directive limits NAS fees to 70 percent of the average audit fees over the prior three years.

likelihood of a GCMO. These findings are congruent with earlier research suggesting a possible impairment of auditor independence in the presence of high NAS fees (Sharma & Sidhu 2001; Basioudis et al., 2008; Ye et al., 2011; Blay & Geiger, 2013; Singh et al., 2019). In contrast to findings of Lim and Tan (2008) in the US who conclude U.S. industry specialist auditors were more likely than non-specialists to issue GCMOs when NAS fees increase, we find little evidence that industry specialist auditors differ compared to non-specialist auditors.

Additionally, we find an overall positive association between the magnitude of NAS fees and the accuracy of GCMO decisions. Our findings suggest that NAS fees are associated with more accurate auditor reporting decisions in general, and with fewer type I and type II reporting misclassifications. Further, we again find that industry specialist auditors generally do not make more accurate GCMO decisions than non-specialists as NAS fees increase. Our GCMO accuracy results are consistent with prior research finding positive effects of NAS spillovers in other auditing contexts (Knechel and Sharma 2012; De Simone, Ege, and Stomberg 2015), and lend support to the profession's argument that provision of NAS enables auditors to gain a better understanding of the client, which leads to improved auditing decisions.

Our study extends the literature in several important ways. First, it examines the association between NAS fees and both the likelihood and the accuracy of auditor GCMO reporting decisions for financially stressed companies. As such we present an assessment of the possible NAS knowledge spillover effect by examining the accuracy of audit reporting decisions. Second, we examine the effect of industry specialization on the relationship between NAS and auditor GCMO decision-making. While industry specialization has been examined in several settings, it has received little research attention in the context of auditor reporting decisions, and none with respect to GCMO reporting accuracy. Third, in contrast to earlier studies on Australian auditor reporting decisions, we present a focused analysis of the

association between NAS fees and GCMO decisions by excluding other types of report modification often combined with GCMOs for analysis (Barkness & Simnett, 1994; Firth, 2002) in Australian studies. Fourth, our study examines only financially stressed Australian companies for which the GCMO reporting decision is likely to be a plausible reporting option (Blay & Geiger, 2013; Carson et al., 2016).[2] Last, our study contributes to the literature on audit quality by examining the possibility of NAS knowledge spillovers as a way to improve audit quality by improving reporting accuracy (Lim & Tan, 2008; Knechel & Sharma, 2012; De Simone et al., 2015).

The remainder of the paper is organised as follows. The next section provides additional background, reviews the relevant literature and develops our hypotheses. We then discuss the sample and data selection issues, followed by a section on research method. The empirical results are then presented and a final section summarizes and concludes the study.

2. Background, Prior Research and Hypothesis Development

2.1 Auditor independence, NAS fees and reporting decisions

The argument that significant amounts of NAS fees have the potential to impair auditor independence is not new. It has been raised by audit regulators and academics around the world for decades (Mautz & Sharaf, 1961; AICPA, 1978; Simunic, 1984; Federation of European Accountants, 1996; Levitt, 1996; US House of Representatives, 2002; CLERP 9, 2004; European Commission, 2010; The Treasury, 2010; European Parliament, 2014; Croteau, 2015; Fels, 2019; West, 2020). In fact, prior to the UK Parliament's recent proposal, the most poignant manifestation of the global scrutiny of auditor-provided NAS is the Audit Directive adopted in 2014 by the European Parliament/Union (EP). The Directive not only prohibits certain types of auditor-provided NAS, but also institutes a hard limit on NAS fees

[2] As noted in DeFond et al. (2002), Basioudis et al. (2008), Blay and Geiger (2013) and Carson et al. (2013, 2016), when examining GCMO reporting decisions, it is only appropriate to: 1) assess GCMO opinions separated from other forms of audit report modifications, and 2) only for companies in moderate financial distress for which the GCMO audit opinion may be reasonably considered by the auditor.

beginning July 2016 to be no more than 70 percent of audit fees (Barnier, 2013; EP, 2014; ICAEW, 2018).[3]

Similar to Europe, the UK, and the US, the public accounting profession in Australia has undergone increased scrutiny over the level of NAS auditors provide to audit clients starting around 2001, the period of several large public business frauds and failures in Australia (e.g., HIH Insurance, One.Tel). Scrutiny by the media, public and legislators of both the existing financial reporting practices and the public accounting profession's role in the financial reporting process in Australia eventually led to the publication of the Ramsay Report in 2001 and the CLERP 9 proposal for reform in 2002 (Ramsay, 2001). A major issue in this debate was the provision of NAS to audit clients (Fargher & Jiang, 2006; Hossain, 2013). As finally adopted in 2004, CLERP 9 does not specifically ban any NAS provided by an external auditor to their audit client (CLERP 9, 2004; Hossain, 2013). However, it requires the auditor to identify potential threats to independence that could arise by providing NAS and to ensure either safeguards are in place to reduce this risk to an acceptable level, or to abstain from providing those NAS services. This is also consistent with Australian auditor's ethical responsibilities to abstain from providing services that would impair their independence.[4] CLERP 9 also amends the Corporation Act 2001 to require a statement from the auditor attesting to their independence and one from the company stating it is satisfied that any NAS provided by the auditor is compatible with the auditor's obligation to maintain their independence. Thus, while CLERP 9 does not specifically preclude any NAS, it heightens the company's and auditor's responsibility to ensure that any NAS provided does

[3] In addition, European Union member states can impose even tighter restrictions, and Spain, for example, has considered a cap on NAS fees of 15 percent of audit fees for public interest entities (Tornero, 2014). Regulators like the International Federation of Accountants, though their International Ethics Standards Board for Accountants (IESBA), have also released updated guidelines regarding the provision of NAS services for attest clients (IESBA, 2015).

[4] Paragraphs 290.156 to 290.219 of APES 100 provide detailed considerations that auditors must take into account prior to delivery of a non-audit service, including specific services that auditors are unable to provide for their clients.

not impair the auditor's ability to maintain their independence. Therefore, it is essentially the responsibility of the auditor and the company directors to determine if the NAS provided, at least from their perspectives, might impair auditor judgement and independence during the conduct of the audit (Hossain 2013).

In addition, the Australian regulator, the Australian Securities & Investments Commission's (ASIC) audit inspection program commenced in 2004-05, and reviewed compliance with audit quality and auditor independence requirements (Australian Government 2005). These inspections have led the accounting firms to be more conservative, to focus on improving audit quality and the consistency of audit execution which in turn have led to changes in the auditors' work (Kend and Basioudis 2018).

However, in 2020, and following SOX in the U.S. and the recent EP rules on NAS, the Australian Parliamentary Joint Committee has recommended a ban on certain non-audit services (Australian Parliament 2020) to be implemented by the end of 2020-21. However, no specific list of prohibited NAS is provided in the report. A revision of the Australian Code of Ethics and the Corporations Act 2001 is also recommended to be undertaken at the same time.

With respect to auditor responsibility for assessing going concern uncertainty, similar to other jurisdictions like the US and EU, audit reporting standards in Australia require auditors to assess the continued viability of their clients in every audit engagement (ASA No. 570). If there remains significant doubt in the auditor's mind regarding the ability of the client to continue in business as a going-concern, after considering management's plans and mitigating circumstances, then the auditor must disclose such doubt in their audit opinion. The going concern assessment, and the evaluation of the appropriateness and probability of

the success of management's plans,[5] along with the final decision to issue a report that is "modified" to include the auditor's concerns about the entity's ability to continue as a going concern,[6] all involve highly subjective judgments.

Negotiations between the auditor and client regarding the type of audit opinion to be issued (i.e., GCMO versus unmodified) can be very sensitive, and are made all the more problematic in the case of a financially stressed client (Kida, 1980; Hopwood et al., 1994; Mutchler et al., 1997). In addition, these difficult discussions may become particularly contentious if the client believes that, based on management's plans, that the receipt of a GCMO audit opinion is not warranted, or that it will increase their financial difficulties and become a 'self-fulfilling prophesy' (Kida, 1980; Geiger et al., 1998; Vanstraelen, 2003; Carey et al., 2008).

As highlighted by the CLERP 9 mandated independence statement by management, the fundamental issue we examine is whether the economic bond created by auditors earning additional NAS revenues creates a situation where the auditor becomes too closely aligned with the client and then begins to lose independent objectivity, which in-turn adversely affects their professional judgment. Suggesting that auditors who perform significant amounts of NAS for audit clients have a heightened economic incentive to please the client in order to retain them, along with the additional fees, possibly at the risk of deciding difficult

[5] Mutchler et al., (1997), Behn et al., (2001), Geiger and Rama (2003), Basioudis et al., (2008), Bruynseels et al., (2011, 2013), and Bruynseels and Willekens (2012) find that GCMO decisions are significantly related to management's plans and contributing/mitigating circumstances.

[6] A "modified" audit report in Australia is defined as any audit report other than a standard unqualified (i.e., clean) opinion, including any type of qualified audit report, or any unqualified reports containing explanatory paragraphs. An unqualified audit report may contain explanatory paragraphs that provide additional information that draws attention to issues affecting the financial statements. In this reporting context, one type of unqualified audit report modification referred to as the "going-concern modified opinion" (GCMO) which includes additional explanatory paragraphs relating to fundamental uncertainties affecting the ability of the organisation to continue and the auditor's doubt about the company to remain a going concern in the future. There are several other possible audit report modifications in Australia in addition to those related to going concern. Other modified audit reports are issued for reasons including limitations on scope of the examination (lack of audit evidence-disclaimer of opinion), and disagreements regarding the accounting treatment or disclosure of specific items (adverse opinion). These reports may include explanatory paragraphs relating to fundamental uncertainties not directly affecting the ability of the organisation to continue as a going concern.

issues in the client's favour (Kida, 1980; Citron & Taffler, 1992; Ezzamel et al., 1996, 1999; Levitt, 2000; Carcello & Neal, 2003; Ye et al., 2011; Chasan, 2014). Using this reasoning, regulators and others have repeatedly argued that NAS fees have the potential to adversely impact auditor decision-making, especially when audit decisions involve a substantial amount of professional judgment (Buijink et al., 1996; Federation of European Accountants, 1996; Levitt, 1996; SEC, 2000a, 2000b; Department of Trade and Industry, 2003; European Commission, 2010; The Treasury, 2010; Chasan, 2014; Croteau, 2015; Fels, 2019; West, 2020).

In contrast to the view of regulators, the public accounting profession has argued that providing NAS services does not, in actual practice, impair auditor judgement or independence. Proponents argue that the provision of NAS actually enable auditors to obtain a better understanding of the audited company's business, along with its systems, personnel, methods and processes resulting in improved audit quality (Wallman, 1996; Melancon, 2000; Lim & Tan, 2008; Sharma, 2014; De Simone et al., 2015). In fact, as argued by the ICAEW, not allowing auditors to perform NAS unjustifiably denies auditors the ability to obtain this valuable client-specific knowledge and the "knowledge spillovers" derived as a result of conducting the NAS work (ICAEW, 2018). Accordingly, NAS proponents argue that the more the auditor knows about their client, including the knowledge obtained through the provision of NAS, the greater the likelihood for improved overall audit quality, including the audit reporting decision (Wallman, 1996; Lim & Tan, 2008).

2.2 Prior research and hypothesis development

2.2.1 NAS and GCMOs

Prior research in numerous jurisdictions globally has examined the relationship between auditor reporting decisions and the fees auditors collect. In fact, several researchers have argued that the most direct test of the effects of NAS fees on auditor independence is the

examination of auditor reporting decisions (c.f., Abdel-khalik, 1990; Craswell, 1999; Reynolds & Francis, 2001; Firth, 2002; DeFond & Francis, 2005). Since GCMO decisions often require highly subjective judgements, these researchers reason that audit-reporting decisions could be affected, consciously or unconsciously, by the level of NAS fees obtained from the client.

While most studies find that GCMOs are associated with higher audit fees (Carson et al., 2013; Geiger, 2014), the association of GCMOs and NAS fees is decidedly less clear. For example, studies of the initial fee disclosures in the US for the year 2000 by DeFond et al. (2002) and Geiger and Rama (2003), and for the period 2001-2005 by Callaghan et al. (2009) find no significant association between NAS fees and GCMO reporting decisions. However, when examining the later period of 2004-2006, Blay and Geiger (2013) find a negative association between the magnitude of NAS fees and GCMO decisions. Blay and Geiger (2013) also demonstrate that the difference in their results compared to prior US research is due to examination of a later time period and not to methodological differences. In contrast, Read (2015) finds no significant association between NAS fees and GCMOs prior to bankruptcy for US companies in the extended period of 2002-2013.

Mixed results on the relationship between NAS fees and GCMO reporting are also found in other countries. For example, in the UK, Lennox (1999) finds that NAS fees were not significantly associated with auditors GCMO opinion decisions.[7] Yet, Firth (2002) finds a significant negative association between NAS fees and qualified opinions. However, Firth (2002) assessed all types of audit report qualifications, making generalizations to GCMO reporting behaviour problematic. A broad study of audit reporting by Ireland (2003) finds no association of NAS fees and GCMO opinions in the UK for either private or public

[7] Earlier studies by Brinn et al. (1994), Ezzamel et al. (1996; 1999) and Firth (1997a, b) examined audit fee determinants in the UK audit market. However, these pricing studies focused on modelling the level of audit fees or the proportion of NAS fees in relation to audit fees and not the relationship between NAS fees and audit reporting decisions.

companies. However, her examination of GCMO reporting was not restricted to companies in financial stress that would be likely candidates for a GCMO. Studies by Basioudis et al. (2008) and Geiger and van der laan Smith (2017) find a significant negative association between the magnitude of NAS fees and the issuance of a GCMO in the UK. Yet, after controlling for audit committee characteristics, Wu et al. (2016) find no significant overall relationship between NAS fees and the likelihood of a UK firm receiving a GCMO prior to failure. Additionally, Ratzinger-Sakel (2013) examines a sample of financially stressed manufacturing companies in Germany and finds no overall association between NAS and GCMOs.

The results of NAS fee and GCMO reporting research in Australia have been similarly mixed. Specifically, an early study by Wines (1994) finds evidence of a negative association between NAS fees and the issuance of any type of qualified audit report over the period 1980-1989. Yet, in several large sample studies of fees and reporting decisions, Barkess and Simnett (1994), Craswell (1999), Barkness et al. (2002), and Craswell et al. (2002) find no significant association between NAS fees and Australian audit report modifications. However, a limitation of these early studies is that they examine all types of report modifications, and not solely those for going concern uncertainty.[8] In a series of studies, Sharma (2001) and Sharma and Sidhu (2001) examine a sample of 49 bankrupt Australian companies and conclude that higher NAS fees were associated with a lower likelihood of receiving GCMO reports in the period immediately preceding bankruptcy.[9] Additionally, Ye et al. (2011) examine Australian GCMO decisions in 2002 and find the magnitude of NAS fees is negatively related to auditor GCMO decisions, but only in cases when audit partner tenure is long. In their examination of partner tenure and audit quality,

[8] Hay et al. (2006) perform a similar examination of NAS fees and all types of report modifications and qualifications in New Zealand for the years 1999-2001 and also find no association of NAS fees and reporting decisions.
[9] Wang and Hay (2013) find similar results when examining all public companies in New Zealand for the 2011 reporting year. However, they include all 99 non-financial public companies regardless of level of financial stress.

Carey and Simnett (2006) include the ratio of NAS to total fees as a control variable and find it not significantly associated with GCMO reporting decisions.

In sum, the aggregate evidence regarding the association between NAS fees and auditor GCMO reporting decisions in Australia is mixed and often confounded by examining multiple types of report modifications, focusing on audit fees and including NAS fees as a control or supplemental analysis, and relying on fairly small sample sizes. Thus, generalization of these earlier findings to the overall association between NAS fees and GCMO decisions in Australia is problematic. Accordingly, we directly assess the association between NAS fees and the likelihood that Australian auditors render a GCMO opinion to a financially stressed client using a large sample over an extended period. Based on the mixed evidence from prior research, we present our first hypothesis in the null form as follows:

> *H_1: There is no association between non-audit service fees and audit opinions modified for going concern uncertainty.*

2.2.2 NAS and GCMO accuracy

Improved audit quality through the knowledge gained by rendering NAS to clients – the knowledge spillover effect - has been argued by the profession as the most important reason to allow auditors to provide NAS services (Melancon, 2000; ICAEW, 2018). As noted previously, proponents of NAS argue that providing NAS services to audit clients not only benefits the client, but it allows the auditor to obtain additional client-specific knowledge, enabling them to perform a better audit (Wallman, 1996; Knechel & Sharma, 2012; De Simone et al., 2015; ICAEW, 2018). In a GCMO reporting context, knowledge spillovers from NAS should also provide the auditor with additional information regarding the ability of management to accomplish their plans and objectives directed toward alleviating the issues causing the auditor to question their ability to remain a going concern. This, in turn, should result in more accurate GCMO reporting decisions.

In support of the positive effects of NAS are prior researchers that have found a positive association between NAS fees and the client's financial reporting quality (Kinney et al., 2004; Gleason & Mills, 2011; Lisic et al., 2019), and internal control systems quality (De Simone et al., 2015). In an auditing context, Knechel and Sharma (2012) find a positive association between NAS and reduced audit time, suggesting NAS knowledge increases audit efficiency. If NAS knowledge spill-overs are informative to the audit, we would expect more accurate auditor GCMO decisions when auditors provide more NAS services.[10] Accurate GCMO decisions on financially distressed companies would be when auditors render a GCMO to companies prior to bankruptcy and do not render a GCMO in situations where the financially distressed client is able to remain viable (Lennox, 1999a, 1999b; Geiger & Rama, 2006; Carson et al., 2013). In fact, prior researchers have defined a type I reporting misclassification (or type I reporting "error") as a situation where the client company survives, however the auditor issued a GCMO on the financial statements in the preceding year (Koh, 1991; Lennox, 1999a, b, c). Similarly, a type II reporting misclassification (or type II reporting "error") has been defined as a situation when a client company fails and their auditor does not issue a GCMO on the financial statements immediately preceding the company's failure.[11]

The association between auditor GCMO decisions and the accuracy of those decisions in the context of NAS fees has been largely unexamined (Carson et al., 2013; Sharma, 2014) and has yet to be explored in the Australian context (Carson et al., 2014). We are aware of only a few prior studies in the US that have empirically examined whether higher NAS fees improve audit reporting quality. In one study, Robinson (2008) finds that high NAS fees for

[10] This assumes that higher NAS fees reflect greater amounts of NAS work which provides the auditor with increased opportunities to obtain additional, often privileged, client-specific knowledge.
[11] We note, however, that these are not technically reporting "errors" or "misclassifications" as professional standards do not require auditors to predict the subsequent survival or failure of their clients. However, we follow prior research and consider instances where the auditor appears to have rendered the "wrong" opinion (i.e., either rendering a GCMO to a subsequently viable client or a non-GCMO to a subsequently failed client) as instances of reporting misclassification.

tax services are associated with fewer type II reporting misclassifications. However, Callaghan et al. (2009) and Read (2015) find no significant association between NAS fees and GCMOs prior to bankruptcy for US firms.

Building on these few studies, we provide a more robust examination of the association of GCMO decisions and NAS fees and evaluate overall reporting accuracy by assessing both type I and type II reporting misclassifications. Based on the mixed results of prior US research and the lack of similar research in Australia, we present our second hypothesis in null form as follows:

> *H_2: There is no association between going concern modified opinion accuracy and non-audit service fees.*

2.2.3 NAS, GCMOs, and industry specialization

Prior literature argues that auditors specializing in a specific industry would build expertise in that industry and make greater investments in building a reputation for superior quality (Craswell et al., 1995; Owhoso et al., 2002; Lim & Tan, 2008; DeFond & Zhang, 2014). Accordingly, we examine whether industry specialists are differentially associated with NAS fees and GCMO decisions, and any benefit from knowledge spillover gained from providing NAS that would lead to more accurate GCMO decisions. We would expect that industry specialist auditors have greater broad-based industry knowledge structures on which to build, and are more likely to properly integrate additional knowledge of the client and their business risks gleaned from providing NAS than are non-industry specialist auditors (Solomon et al., 1999).

Prior research has examined auditor industry specialization in a number of contexts (DeFond and Zhang 2014; Jeter 2014). In a reporting context, Reichelt and Wang (2010) and Bills, Jeter and Stein (2015) find that industry specialist auditors are more likely to issue GCMOs. In contrast, studies by Basioudis et al. (2012), Minutti-Meza (2013), Sundgren and

Svanström (2014), and Gaver and Utke (2019) find no significant differences in GCMO decisions between industry specialist and non-specialist auditors for public companies. Hardies et al. (2018) examine private companies in Belgium and similarly find no association of GCMOs with industry specialists. Further, Dunn et al. (2012) find no difference between US specialist and non-specialist Big N auditors with respect to issuing proper GCMOs prior to bankruptcy.

With respect to NAS fees, Lim and Tan (2008) present the only examination of the effect of industry specialization on the association between NAS and GCMO decisions. They find a positive association between NAS fees and GCMOs in the US and that this association was stronger for industry specialist auditors compared to non-specialist auditors. However, they did not examine the accuracy of the GCMO decisions. We are not aware of any prior study that has assessed the effect of industry specialization on the accuracy of GCMO reporting decisions in the context of NAS fees.

Therefore, based on the generally mixed results of prior research and the absence of similar research in Australia, we examine whether the association between NAS and the propensity to issue GCMOs, as well as the accuracy of GCMO decisions, is different for industry specialist and non-specialist auditors. Thus, our final set of hypotheses:

> *H_{3a}: Non-audit service fees effect the issuance of going concern modified opinions similarly for industry specialist and non-specialist auditors.*
>
> *H_{3b}: Non-audit service fees effect the accuracy of going concern modified opinions similarly for industry specialist and non-specialist auditors.*

3. Research method and design

3.1 Sample and data

To identify our sample of GCMO companies, we begin with the 15,425 non-financial companies listed on the Australian Stock Exchange (ASX) from 2004-2013. We then

examine annual report filings and audit reports for all available firms using the *Connect4* and *Osiris* databases.[12] Using the search engine in *Connect4*, we were able to identify 3,423 Australian companies receiving a GCMO during our 10-year study period. We eliminate 1,613 companies with missing financial or audit report data.[13] Then, following prior research, we eliminate 14 observations with zero or missing audit fee data and 699 observations with GCMO opinions in the preceding year so that we perform our analyses on first-time GCMO reporting decisions (Mutchler, 1985; Hopwood et al., 1994; Mutchler et al., 1997; Geiger & Rama, 2003; Fargher & Jiang, 2008), arriving at our final sample of 1,097 first-time GCMO companies.

Prior researchers have argued that proper comparison of any GCMO sample should be made only to other financially stressed companies that could have, but did not receive a GCMO opinion (McKeown et al., 1991; Hopwood et al., 1994; Blay & Geiger, 2013). These companies form the control sample of non-GCMO report companies (i.e., the NGCMO sample). Following prior research (Mutchler et al., 1997; Geiger & Rama, 2003; Basioudis et al., 2008; Blay & Geiger, 2013), we consider a company as being in financial stress if it meets both of the following criteria: 1) negative working capital at the end of the year, and 2) bottom line loss for the year.[14] We require companies to meet both stress criteria to ensure that we identify companies in enough financial stress to be valid candidates for a GCMO from their auditor.[15] Our initial screening yielded 1,764 observations of non-financial companies that exhibited both signs of financial stress but did not receive a GCMO. We then

[12] *Connect4* provides access to the complete annual reports of Australian publicly listed companies, which can be searched, downloaded and printed. *Osiris* is a comprehensive database for Australian publicly listed companies maintained by *Bureau Van Dijk*.
[13] Companies were eliminated due to missing or incomplete financial statement data needed to calculate the measure of financial distress, or for missing or incomplete information on any of the control variables discussed in the next section.
[14] We acknowledge that our definition of financially distressed companies is stringent and eliminates a number of companies with lesser distress levels. However, only moderate to severely distressed firms are typically candidates for GCMOs.
[15] All of the GCMO companies exhibited at least one of the financial stress criteria, and 1,052 exhibited both stress criteria. Removing the 45 GCMO firms without both stress criteria does not substantively change our results and all of our inferences remain unchanged.

eliminate 1,048 observations with missing financial or audit report data and 22 observations for not reporting any audit fees, resulting in a final sample of 694 financially distressed non-GCMO (NGCMO) companies. Thus, our final sample for the 2004-2013 period is 1,791.[16] Our sample selection procedures are summarized in Table 1.

Insert Table 1 Here

We examine reporting quality and NAS fees (H_2 and H_{3b}) by first assessing the overall reporting accuracy on our full sample of 1,791 firms. We then separately assess type I and type II reporting misclassifications. To determine reporting accuracy, we determine subsequent viability through the ensuing two fiscal years and determine whether the company remained viable or failed and was no longer a going concern.[17] Following prior research (Lennox, 1999a; Citron & Taffler, 2001; Weber & Willenborg, 2003; Carson et al., 2016) we consider a company as failed and no longer a going concern if they were taken into receivership or administration, or were involuntarily forced to cease operations by creditors or outside parties, or permanently de-listed their securities. Non-failed, viable companies were those that subsequently issued financial statements that did not indicate company failure. Of the 1,791 sample firms, we identify 1,694 non-failed, subsequently viable firms and 97 failed firms.

Following Koh (1991) and Lennox (1999a, b), we perform type I misclassification tests on the sample of 1,694 non-failed firms and examine their audit opinions in the preceding year. Of the non-failed firms, 1,034 (61.0%) received a GCMO in the preceding

[16] Our sample contains a high proportion of GCMO companies to NGCMO companies. This is due to the fact that we have attempted to identify companies with relatively high levels of stress, and in our Australian context the majority of these companies receive a GCMO. Our sample of GCMO firms is smaller than the 3,239 companies used in Carson et al. (2016) examining a similar time period due to the fact that: 1) data on several of our control variables must be available in the annual reports and disclosures that must be hand collected, and 2) we follow our distressed companies through subsequent years in order to determine future viability. Any company not providing adequate financial, company, audit, and survival information is not included in our study.

[17] We perform analyses of subsequent viability and misclassifications for both one-year and two-year subsequent viability periods and obtain substantively similar results. In order to maximize our number of failed firms for our misclassification tests, we report the results of the two-year analyses in our main analyses.

year and 660 (39.0%) received a NGCMO.[18] Similarly, for our type II misclassification tests we examine the audit opinions of the failed companies in the year preceding failure. While some of our firms failed in the second subsequent year (*n*=35), we use financial and audit data from the year preceding failure, consistent with the other sample company data. Of the 97 failed firms, 58 (59.8%) received a GCMO in the preceding year and 39 (40.2%) received a NGCMO.[19]

3.2 Empirical models

3.2.1 GCMO decisions

Following prior research (Geiger & Rama, 2003; Basioudis et al., 2008), we employ the following models to examine H_1 and H_{3a}:

$$GCMO = b_0 + b_1 SIZE + b_2 BKTPRB + b_3 DEFAULT + b_4 COSTRED + b_5 MITIGATE + b_6 REPORTLAG + b_7 BIG4/OTHERBIG4 + b_8 TIER2 + b_9 lnAFEE + b_{10} lnNAFEE + b_{11} SPECIALIST + b_{12} lnNAFEE*SPECIALIST + b_{13} lnNAFEE*OTHERBIG4 + b_{14} lnNAFEE*TIER2 + \text{standard error} \quad (1)$$

$$GCMO = b_0 + b_1 SIZE + b_2 BKTPRB + b_3 DEFAULT + b_4 COSTRED + b_5 MITIGATE + b_6 REPORTLAG + b_7 BIG4/OTHERBIG4 + b_8 TIER2 + b_9 NASRATIO + b_{10} SPECIALIST + b_{11} NASRATIO*SPECIALIST + b_{12} NASRATIO*OTHERBIG4 + {}_{13} NASRATIO*TIER2 + \text{standard error} \quad (2)$$

The variables are defined in Appendix A.

In model (1) we examine the absolute magnitude of NAS fees (*lnNAFEE*), and in model (2) we examine the relative magnitude of NAS fees compared to audit fees (*NASRATIO*). We determine industry specialization (*SPECIALIST*) and consider only the audit firm with the highest total audit fees in each two-digit industry code to be the industry specialist. To examine the effect of industry specialization on the association of NAS fees

[18] A chi-square test of proportions indicates that the proportions are significantly different at $p < .01$. The raw type I misclassification rate in our sample (39.0%) is higher than the 0.0% reported in Koh (1991) or 1.5% reported by Lennox (1999a, b) as we focus on instances of GCMO and firm financial stress in our study while these prior researchers examined much broader samples of firms not in financial stress and much less likely to get a GCMO.

[19] A chi-square test of proportions indicates that the proportions are significantly different at $p < .01$. The raw type II misclassification rate in our sample (40.2%) is very similar to prior research that has examined auditor reporting on failed firms and obtained similar results (Geiger & Rama, 2006; Read, 2015: Carson et al., 2016).

and GCMO decisions, we follow Lim and Tan (2008) and interact our NAS fee measures with our industry specialist indicator. Accordingly, in models (1) and (2), the variables *lnNAFEE*SPECIALIST* and *NASRATIO*SPECIALIST*, respectively, are our variables of interest to test H_{3a}.[20] The interaction terms isolate the association of NAS fees and industry specialization on GCMO decisions. In order to assess the full interactive model of the possible effects of NAS fees on industry specialist and non-specialist auditors, we include the interactions for non-specialist Big 4 firms as well as the second-tier audit firms. Specifically, since all industry specialists are Big 4 audit firms, for models including interaction terms, we use a modified *BIG4* variable, *OTHERBIG4*, to represent only the non-specialist Big 4 audit firms. In addition, we also include an audit fee variable (*lnAFEE*) in model (1) to control for the effects of audit service fees on GCMO reporting decisions (Abdel-khalik, 1990; DeFond et al., 2002; Firth, 2002). All models also include year and industry (GICS two-digit) fixed effects to control for time and industry differences across our sample.

We include the following types of control factors in our analysis: (a) company specific variables, (b) company management plans and mitigating factors, and (c) auditor related factors. Prior research suggests that there is a negative association between the likelihood of a GCMO audit opinion and company size (Mutchler et al. 1997; DeFond et al 2001; Geiger and Raghunandan 2001). Thus, we include company size (*SIZE*) as a control factor and expect a negative association. We measure *SIZE* using the natural log of total assets (in millions of Australian dollars). In addition, and following prior research in this area (Geiger and Rama 2003; Basioudis et al. 2008), even though our selection procedures are

[20] Similar to prior studies (e.g. DeFond et al., 2002; Ashbaugh et al., 2003), we measure *lnNAFEE* for zero-NAS companies as 1. In the GCMO (NGCMO) subsample there are 506 (260) companies that report audit fees but do not report NAS fees in their financial statements. In order to assess any effect of these observations on our results, we re-estimate our models after including an indicator variable for the $0 NAS companies. The results of these models, untabulated, are substantively the same as those reported in the paper. Specifically, the signs and significance levels for the *lnNAFEE, NASRATIO* and interaction variables are essentially the same as reported in the tables. In addition, we also perform analyses after excluding these zero-NAS companies and the untabulated results are substantively the same as those reported in the tables and none of our inferences are changed.

designed to select NGCMO companies that are also in financial stress, we provide additional control for the level of financial stress by including the bankruptcy probability score (*BKTPRB*) based on Zmijewski (1984). Further, prior GCMO research (Chen and Church 1992; Hopwood et al. 1994; Geiger and Rama 2003) finds default on debt is related to GCMO issuance. Therefore, we include default status (*DEFAULT*) of the company in our model.[21] We consider cases where the company is either in technical default of loan covenants or in payment default to be indicators of additional financial stress and capture both of these in our *DEFAULT* measure.

Professional standards require auditors to evaluate client management plans when there is uncertainty regarding the client's ability to continue as a going-concern. Behn et al. (2001) find that the ability of a company to raise capital and borrow funds to finance its operations is negatively associated with the likelihood of receiving a GCMO opinion. Further, Behn et al. (2001) and Reynolds and Francis (2001) find that the actions of the company raising equity capital, borrowing funds, or selling significant assets are also negatively associated with the likelihood of receiving a GCMO opinion. Findings in Geiger and Rama (2003), Bruynseels et al. (2011) and Bruynseels and Willekens (2012) further suggest that GCMO companies are more likely to have entered into significant cost reduction efforts. Hence, we take into consideration the importance of management plans by examining company filings and annual reports in the *Connect4* database in order to include these additional control factors. Following Reynolds and Francis (2001), we include an indicator variable for mitigating factors (*MITIGATE*) to control for whether the company entered into the sale of significant assets (e.g., selling a segment of the business, a significant profitable contract or agreement, patent or copyright), issued new debt or issued new equity

[21] In order to code our *DEFAULT* variable, we searched online the sample annual reports in the *Connect4* database for terms like "default," "covenant," "violation" and "missed," as well as read the debt footnotes and auditor's report for evidence of default.

during the year. Second, following Behn et al. (2001) and Geiger and Rama (2003) we include an indicator variable (*COSTRED*) for companies entering into a significant cost reduction plan (e.g., announcing significant cost reduction plans, engaging in plant closings or significant work force reductions) to control for companies engaging in substantial cost reduction plans during the year. These control variables, along with data for *DEFAULT*, are gathered manually from the accounts, notes and management's discussion provided in the company's annual report on *Connect4*.

Prior research suggests that audit reporting lag (i.e., the time between the company's fiscal year-end and the date of the audit report) is associated with the type of audit report given to financially stressed companies (Francis 1984; Chen and Church 1992; Behn et al. 2001). GCMO opinions typically take longer for the auditor to issue than non-modified clean audit reports. Also, financially stressed companies pose higher risk to auditors and their audit may take more time to complete than the audit of financially healthier companies. As a consequence, we manually obtain the date the auditor signed each report and calculate the time between the end of the company's fiscal year and the date the auditor issued their final opinion on the financial statements (*REPORTLAG*). We include *REPORTLAG* to control for the timeliness of audit opinions on stressed companies. Prior research finds audit firm size may be related to the type of audit opinion issued to distressed clients (Carson et al. 2013; Carson et al. 2016). As noted previously, the Australian market for audit services for public companies is not entirely dominated by the Big 4 audit firms, but has a diverse set of audit firm sizes (Carson et al. 2014). Accordingly, we include a Big 4 indicator variable (*BIG4/OTHERBIG4*) for the Big 4 audit firms and a second-tier indicator variable (*TIER2*) for the second-tier firms (BDO Seidman, Grant Thornton, and Crowe Horwath) to control for

audit firm size effects.[22]

3.2.2 GCMO reporting accuracy

To test H_2 and $H3_b$ regarding the association of NAS and the accuracy of the GCMO reporting decisions, we perform several analyses. First, we obtain the subsequent viability of all of our GCMO and distressed NGCMO firms to determine whether they subsequently failed or survived. We then employ equations (1) and (2) after replacing GCMO as the dependent variable with a "correct" audit report indicator variable (*CORRECT*). *CORRECT* is coded 1 if either: (a) the company subsequently survives and the auditor issued a prior NGCMO, or (b) the company subsequently fails and the auditor issued a prior GCMO. A positive coefficient on our NAS fee variable suggests that reporting accuracy increases as NAS fees increase. A positive coefficient on our NAS fee and industry specialist interaction terms (*lnNAFEE*SPECIALIST; NASRATIO*SPECIALIST*) indicates industry specialists are more likely than non-specialists to issue a correct audit opinion as NAS fees increase.

However, since companies receiving a GCMO are historically more likely to survive than fail in the subsequent year, our CORRECT analyses may be a statistical artifact of including a large number of non-failed firms. Accordingly, we further perform separate analyses for both type I and type II misclassifications. For the type I misclassification analysis, we follow prior research (Koh, 1991; Lennox, 1999a, b, c) and estimate our GCMO models using only the 1,694 surviving companies. A positive coefficient on our NAS fee variables and interaction terms indicates a positive association with a prior GCMO, and thereby greater type I misclassifications as NAS fees increase. Since our sample size of failed firms is relatively small (*n*=97), for the type II misclassification tests we include an indicator variable for failed firms (*FAIL*) in our GCMO models and interact *FAIL* with the other

[22] Based on the top 100 accounting firms in Australia in 2013, as published by Bottrell Consultants, BDO Seidman, Grant Thornton, and Crowe Horwath were distinctively different from the rest of the non-Big 4 accounting firms in terms of number of partners and total revenue in Australia. https://www.bottrellaccounting.com.au/top-100-accounting-firms-2013/

variables of interest in models (1) and (2). A positive coefficient on our interaction terms *lnNAFEE*FAIL* and *NASRATIO*FAIL* suggests that auditors are more likely to correctly give a failed firm a prior GCMO as NAS fees increase, resulting in lower type II misclassifications. Similarly, a positive coefficient on our *lnNAFEE*SPECIALIST*FAIL* and *NASRATIO*SPECIALIST*FAIL* interaction terms suggest that specialist auditors are more likely than non-specialist auditors to correctly give a failed firm a prior GCMO as NAS fees increase.

4. Results

4.1 Descriptive statistics

Table 2 reports the descriptive statistics for the full sample and for the GCMO subsample compared to the NGCMO subsample, and the failed firms compared to the non-failed firms. On average our sample firms paid AUS $183,696 in audit fees and $61,650 in NAS fees, which is significantly ($p < .01$) less than the untabulated average of $325,916 and $203,218, respectively, for all ASX firms during our examination period of 2004–2013, suggesting that our sample consists of relatively smaller ASX firms in financial distress.

Univariate comparisons of the GCMO and NGCMO groups in Panel B of Table 2 reveal that our GCMO sample companies are more likely to be smaller (*SIZE*), to be in default *(DEFAULT)*, to have entered into a significant cost reduction programme *(COSTRED)*, to have shorter audit reporting lags (*REPORTLAG*), and to have a second-tier auditor (*TIER2*). The GCMO sample companies are less likely to have an industry specialist auditor (*SPECIALIST*) or a Big 4 (*BIG4*) auditor. As evidence of our attempt to create an appropriately distressed NGCMO comparison sample, we find no difference on the level of financial stress (*BKTPRB*) between the groups. We also find that they are similar with respect to mitigation efforts (*MITIGATE*) and audit fees (*AFEE*). However, we find that NAS fees

(*lnNAFEE* and *NASRATIO*) are considerably higher for the NGCMO group compared to the GCMO group.

Insert Table 2 Here

Comparing the failed and non-failed samples in Panel C of Table 2 reveals that the failed firms are more likely to be in default (*DEFAULT*), enter into material cost reduction efforts (*COSTRED*), have longer audit reporting lags (*REPORTLAG*) and to have lower NAS fees as measured by *lnNAFEE*. However, the samples are similar with respect to company size (*SIZE*), probability of bankruptcy (*BKTPRB*), mitigation efforts (*MITIGATE*), audit fees (*AFEE*, *lnAFEE*), raw NAS fees (*NAFEE*), Big 4 representation (*BIG4*), second tier auditor representation (*TIER2*), number of industry specialists (*SPECIALIST*) and mean level of the NAS fee ratio (*NASRATIO*).

Table 3 reports the correlations between the variables used in our regression models. Although most of the correlations are significantly greater than zero, the magnitudes of the correlations are generally regarded as relatively small. Judge et al. (1988) suggest that correlations below 0.8 are not likely to substantively increase multicollinearity. In addition, we further diagnose multicollinearity in the regressions using variance inflation factors (VIFs) and find that VIFs for the variables in our models do not exceed 3.9, and are typically less than 2.0, well below the cut-off of 10.0 usually used to identify potential multicollinearity issues. Thus, it appears that conclusions drawn from our analysis are not likely to be significantly affected by adverse multicollinearity issues.

Insert Table 3 Here

4.2 NAS fees, industry specialization and GCMO reporting decisions

Table 4 reports the logistic regression results of models (1) and (2) used to test H_1. As noted in Panel A, model (1) is significant (chi-square = 476.337, $p < .001$) and appears to adequately fit the data. From the control variables, we find, consistent with prior research,

the *SIZE* variable is negative and significant ($p < .01$) indicating a continued company size bias in favour of larger companies being less likely to receive a GCMO. Consistent with prior research, *COSTRED* is positive and significant ($p < .10$); however, the *BKTPRB*, *DEFAULT* and *MITIGATE* variables are positive but not significant ($p > .10$).

Insert Table 4 Here

Contrary to our expectation, the coefficient on audit report lag (*REPORTLAG*) is negative and significant ($p < .01$) indicating a GCMO is less likely with longer reporting lags, possibly signalling the auditor's confidence in the client's survival after having spent additional time on the audit engagement. We also find that the *BIG4* variable is not significant ($p > .10$), but the *TIER2* variable is positive and significant ($p < .01$), indicating a greater overall tendency of the second-tier firms, but not the Big 4 audit firms, to render a GCMO opinion compared to the local/national audit firms.

Panel A also reveals that, consistent with prior research, *lnAFEE* is positive and significantly ($p < .01$) associated with GCMO decisions. However, our variable of interest, *lnNAFEE*, is negative and significant ($p < .01$), indicating that as the magnitude of NAS fees increase the probability of a company receiving a GCMO generally decreases. Further, in order to examine whether the relative magnitude of NAS fees to audit fees effects GCMO decisions, in model (2) we remove the *lnAFEE* and *lnNAFEE* variables and replace them with *NASRATIO* (i.e., NAS fees/audit fees). In the first *NASRATIO* regression in Panel C of Table 4, consistent with the absolute magnitude results, we find a negative overall association of *NASRATIO* with GCMOs ($p < .01$), suggesting that as the ratio of NAS fees to audit fees increases the likelihood of auditors rendering a GCMO decreases. Hence, these results cause us to reject the null hypothesis in H_1 as we find a significant negative association between GCMOs and NAS fees in our Australian audit reporting context.

To address H_{3a} regarding auditor industry specialization, our second regression in Panel B of Table 4 adds the *SPECIALIST* and *lnNAFEE*SPECIALIST* interaction terms to the model, along with the *lnNAFEE*BIG4*[23] and *lnNAFEE*TIER2* interactions terms in order to complete the model. Our results indicate that the coefficient on *SPECIALIST* is positive but not significant ($p > .10$), suggesting that in the absence of auditor provided NAS, specialist auditors render GCMOs similarly to non-specialist auditors. However, the coefficient on *lnNAFEE*SPECIALIST* is negative and significant ($p < .10$), suggesting that as NAS fees increase, national specialist auditors are less likely to render GCMOs than non-specialist auditors. It is worth noting that the coefficient on *lnNAFEE* remains negative and significant ($p < .05$) in our interaction model in Panel B. The coefficients on *lnNAFEE*OTHERBIG4* and *lnNAFEE*TIER2* are not significant ($p > .10$), suggesting increasing NAS fees effect GCMO reporting decisions similarly among the non-specialist Big 4, second-tier and national/local audit firms. However, we do find a positive and significant ($p < .10$) coefficient on *TIER2*, indicating a continued greater likelihood of second tier auditors to issue GCMOs when there are no NAS fees compared to local/national audit firms.

In the *NASRATIO* interaction model in Panel D we find that all auditor groups exhibit a positive association with the issuance of a GCMO as NAS fees increase. However, only the coefficients on the non-specialist Big 4 (*OTHERBIG4*) and second-tier audit firm interaction terms are positive and significant ($p < .05$ and .01, respectively), while the coefficient on the *NASRATIO*SPECIALIST* term is not significant ($p > .10$). Our *NASRATIO* results suggest that, overall, industry specialist auditors render GCMOs similar to non-specialist local/national auditors when the *NASRATIO* is increasing, but that non-specialist Big 4 and

[23] As noted previously, since all of the national specialist auditors are Big 4 firms, in the interaction models our *BIG4* variable is changed to *OTHERBIG4* in order to represent only non-specialist Big 4 auditors.

second-tier auditors are more sensitive to the increasing *NASRATIO* and are more likely to render GCMOs as *NASRATIO* increases.

In sum, our Australian company sample results present strong evidence to reject H_1, as we consistently find that as NAS fees increase, the likelihood of a GCMO significantly decreases. In addition, we find weak evidence to reject H_{3a}, as we find mixed evidence that industry specialist auditors are less likely to issue a GCMO as NAS fees increase. However, our findings are in contrast to those of Lim and Tan (2008) who found US industry specialist auditors were *more* likely to render GCMOs as NAS fees increased. In support of regulators' concerns, our results suggest that the magnitude of NAS fees may have an overall unfavourable impact on auditor independence as reflected in reduced GCMO probabilities, and that auditor industry specialization does not attenuate this association, and may, in fact, slightly exacerbate it.

4.3 NAS fees, industry specialization and GCMO reporting accuracy

In order to assess H_2 and H_{3b} regarding the association of NAS fees and industry specialization with the accuracy of auditor GCMO reporting decisions, for our first analysis we replace the dependent variable *GCMO* in equations (1) and (2) with *CORRECT*, our "correct" audit report indicator variable. Results of these overall reporting accuracy tests are presented in Table 5.

Insert Table 5 Here

Panel A of Table 5 reveals that the magnitude of NAS fees (*lnNAFEE*) is significantly positively associated with *CORRECT* ($p < .01$), providing evidence of improved accuracy of GCMO decisions when NAS fees increase. When replacing auditor and NAS fees with *NASRATIO* in Panel C, we find *NASRATIO* is also significantly positively associated with *CORRECT* ($p < .01$). These results suggest that higher levels of NAS fees are generally associated with more accurate GCMO-related reporting decisions.

When we introduce the specialist and interaction terms when examining absolute NAS fees, Panel B reveals that the positive association of *lnNAFEE* fees and *CORRECT* still holds ($p < .05$), however, we find no significant association between *CORRECT* decisions and the *lnNAFEE*SPECIALIST* interaction term ($p > .10$). These findings suggest that the accuracy of industry specialist auditor decisions are similarly affected by NAS fees as non-specialist auditors. We also find no significant association between *CORRECT* decisions and *lnNAFEE*OTHERBIG4* and *lnNAFEE*TIER2* ($p > .10$), suggesting GCMO decision accuracy is similarly affected by absolute NAS fees across all auditor firm sizes.

When we replace audit and NAS fees with our relative NAS fee measure, *NASRATIO,* and include the *NASRATIO* interaction terms in Panel D, we find *NASRATIO* remains significantly positively associated with *CORRECT* ($p < .01$), and similar to the absolute NAS fees results, there is no significant association between *NASRATIO*SPECIALIST* and *CORRECT* ($p > .10$). We also find that correct GCMO decisions of non-specialist Big 4 firms (*OTHERBIG4*) are not differentially affected by *NASRATIO* compared to national/local firms. Yet, we find second-tier audit firms are significantly ($p < .01$) less likely to issue a correct opinion when the *NASRATIO* increases. In sum, our combined *CORRECT* analyses results indicate that higher NAS fees are associated with more accurate reporting decisions and that industry specialization does not have a significant effect on auditor GCMO reporting accuracy in our sample of Australian firms.

Because our overall *CORRECT* results above could be driven by auditors simply issuing fewer GCMOs when NAS fees increase, we perform separate type I and type II misclassification tests. As noted previously, to examine type I misclassifications we assess auditor reporting using our GCMO models (1) and (2) on only the 1,694 surviving firms. Essentially, we determine which companies survived and then assess whether they previously received a GCMO (i.e., a type I misclassification) or a correct NGCMO. To examine type II

misclassifications, since our sample of failed firms is only 97, precluding the unmodified use of our GCMO models,[24] as noted previously, we modify our models by including an indicator variable (*FAIL*) for whether the company failed (*FAIL*=1) or survived (*FAIL*=0), and interact it with the other variables of interest in the expanded models. Since both sets of misclassification analyses use GCMO as the dependent variable, a positive coefficient in the type I misclassification analyses would indicate *more* type I misclassifications (i.e., surviving firms receiving a prior GCMO), while a positive coefficient in the type II misclassification analyses would indicate *less* type II misclassifications (i.e., failing firms receiving a prior GCMO). Results of these separate misclassification analyses are presented in Tables 6 and 7.

Insert Table 6 and 7 Here

The regression results for type I misclassifications in Table 6 indicate in Panel A that *lnNAFEE* is negative and significant ($p < .01$), and in Panel C that *NASRATIO* is also negative and significantly ($p < .01$) associated with the likelihood of GCMOs for our sample of surviving firms. These results suggest that higher levels of absolute and relative NAS fees are associated with fewer type I misclassifications. As before, when we introduce the *SPECIALIST* and the NAS fee and specialist interaction terms (*lnNAFEE*SPECIALIST* and *NASRATIO*SPECIALIST*) to the models in Panels B and D, the coefficients on *lnNAFEE* and *NASRATIO* remain negative and significant ($p < .05$ and $< .01$, respectively). We also find that the coefficient on the interaction term *lnNAFEE*SPECIALIST* is negative and significant ($p < .10$), indicating that as absolute NAS fees increase, industry specialist auditor type I misclassifications decrease. However, we find no significant association of type I misclassifications for industry specialist auditors when assessing relative NAS fee levels in Panel D. Additionally, we find a significant positive association between *TIER2*NASRATIO*

[24] Reliably estimating our logistic models using only the failed firms is problematic as the overall models are not significant ($p > .10$) and we find complete or quasi-complete separation of data points and that maximum likelihood estimates may not exist. We also obtain similar results if we remove the year and industry fixed-effects from the models.

and type I misclassifications in Panel D, suggesting second tier audit firms have greater type I misclassifications than national/local audit firms as *NASRATIO* increases. In sum, our results provide consistent evidence that as NAS fees increase, type I misclassifications decrease. Similar to Table 4 results, we also find some weak evidence that this relationship is stronger for industry specialist auditors.

Table 7 presents the results of our type II misclassification tests. Again, the dependent variable is GCMO for these tests, and we include all sample firms with failed firms represented by the *FAIL* indicator variable. As reported in Panel A of Table 7, *lnNAFEE*FAIL* is positive and significantly ($p < .01$) associated with the likelihood of a prior GCMO for the failed firms. These results, consistent with those of Robinson (2008), suggest that higher levels of absolute NAS fees are associated with fewer type II misclassifications for failed firms. In Panel C, *NASRATIO*FAIL* is also positive but insignificant ($p > .10$). As in the previous analyses, when we introduce *SPECIALIST* to the models and interact them with *FAIL*, Panels B and D indicate that the coefficients on *lnNAFEE* and *NASRATIO* remain positive and significant ($p < .01$), but the coefficients on the interaction terms *lnNAFEE*SPECIALIST *FAIL* and *NASRATIO*SPECIALIST *FAIL* are both not significant ($p > .10$). These findings suggest that type II misclassifications for industry specialist auditors are not significantly affected by the level of absolute or relative NAS fees. Overall, our type II misclassification analyses find that when absolute NAS fees increase, auditors are better able to distinguish failed from surviving companies and are more likely to issue those failed firms an appropriate GCMO prior to failure, whether they are industry specialist or non-specialist auditors.

In sum, our reporting accuracy results reject the null hypotheses of H_2 as we find a consistent positive association between NAS fees and lower reporting misclassifications. Our findings provide support for the auditing profession's contention that NAS may enable

auditors to make higher quality audit decisions, and in our context, more accurate reporting decisions. However, we do not find consistent evidence to reject H_{3b} regarding improved reporting accuracy of industry specialist auditors as NAS fees increase.

Collectively, our results find that, consistent with regulator concerns, the Australian auditors in our study are less likely to issue a GCMO to firms from whom they receive increasing NAS fees. However, in support of audit practitioner arguments regarding the benefits of auditor-provided NAS, we find repeated evidence of higher NAS fees being positively associated with higher audit quality through more accurate reporting decisions. We also find little evidence of an industry specialist auditor effect, or support for the argument that industry specialist auditors are better able to withstand independence concerns when NAS fees are high, or that higher NAS fees enable industry specialists to more accurately report on distressed clients.

4.4 Additional and Sensitivity Analyses

Along with the additional analyses already discussed in the text or noted in the footnotes, we perform the following additional and sensitivity tests to determine the robustness of our main results.

4.4.1 Big 4 sample

Our GCMO and NGCMO samples include companies audited by Big 4 and non-Big 4 auditors. However, our industry specialist designations are only for Big 4 audit firms. Accordingly, we reperform our analyses only on the sub-sample of companies audited by Big 4 auditors (n=609). These analyses, untabulated, reveal substantively similar results to those presented in Tables 4 – 7, with the exception that *lnNAFEE* and *NASRATIO* in Table 4 are significant at $p < .10$ in the Big 4 analyses and not $p < .01$, as reported for the full sample. We also find that in the industry specialist interaction models, that no industry specialist interaction terms (*lnNAFEE*SPECIALIST*, *NASRATIO*SPECIALIST*,

*lnNAFEE*SPECIALIST*FAIL*, *NASRATIO*SPECIALIST*FAIL*) are significant in any analysis. These Big 4 only results provide further support for the lack of industry specialist effects in our GCMO reporting context.

4.4.2 Eliminating smaller companies

Our GCMO and NGCMO samples also include many smaller companies, as small companies are more likely to be in distress and to receive a GCMO from their auditor. In order to determine if our main results presented in Tables 4 - 7 are significantly influenced by the small companies in our sample, we reperform our analyses after eliminating: 1) the lower quartile based on *SIZE* (*n*=448), and 2), and companies below the median *SIZE* (*n*=895). Results of these sensitivity analyses, untabulated, reveal substantively similar findings to those presented in Tables 4 – 7, with the exception that in the above-median company size analyses the *NASRATIO*SPECIALIST* interaction term is positive and significant ($p < .10$) in Tables 4 and 6. The positive findings in Table 4 are consistent with those of Lim and Tan (2008) and suggest industry specialist auditors in this reduced sample increase the likelihood of a GCMO when NAS fees relative to audit fees increase. However, the changed results in Table 6 suggest that the increase in GCMO probability found in Table 4 leads industry specialist auditors to have higher type I misclassifications as *NASRATIO* increases. In sum, these analyses on restricted samples of larger firms is generally consistent with the overall sample results, except we find some evidence of reduced quality auditor GCMO decisions in the reduced, above-median sample.

4.4.3 Effects of the global financial crisis

Xu et al. (2011, 2013) and Carson et al. (2016) find that GCMO reporting decisions in Australia changed considerably during and even after the Global Financial Crisis (GFC) of 2007-2009. Since our examination period includes the GFC period and the periods surrounding it, we separate our sample into observations from the pre-GFC period (2004 –

2006; *n*=384), GFC period (2007-2009; *n*=663) and post-GFC period (2010 – 2013; *n*=744), and separately re-estimate our main models for each period. Results, untabulated, of re-estimating the GCMO opinion decision models presented in Table 4 separately for each of the three time periods reveal substantively similar results except that significance levels are generally not as strong as in the combined sample results and that *lnNAFEE* is not significant ($p > .10$) in the pre-GFC period.

When we re-estimate our reporting accuracy models separately for each period, we again find generally similar results as the combined sample results with slightly reduced significance levels and that the *lnNAFEE* variable continues to be not significant in the pre-GFC period in all analyses. We also find that l*nNAFEE*FAIL* and *NASRATIO*FAIL* in Table 7 are not significant ($p > .10$) in the GFC period, and that l*nNAFEE*SPECIALIST*FAIL* is negative and significant ($p < .05$) in the post-GFC period. These results suggest NAS fees were generally not associated with reporting decisions or their accuracy in the pre-GFC period and that specialist auditors may make more type II misclassifications in the post-GFC period as NAS fees increase. In sum, however, our overall results appear fairly robust across the three periods examined, with the notable exception of the non-significant *lnNAFEE* results in the pre-GFC period.

4.4.4. Effects of total audit fees

In addition to examining GCMO opinion decisions and absolute and relative levels of NAS fees, Lim and Tan (2008) also examine total audit fees. If we replace *NASRATIO* in model (2) with total fees (*lnTOTALFEE*) and re-estimate the models in Tables 4 - 7, we find that l*nTOTALFEE*SPECIALIST* is negative and significant ($p < .10$) in Table 4, in contrast to Lim and Tan (2008) who find a significant positive association. In addition, although Lim and Tan (2008) did not assess reporting accuracy, we find that *lnTOTALFEE*FAIL* is positive and significant in Table 7. All other total fee coefficients of interest in Tables 4 – 7

are found to be not significant ($p > .10$). Accordingly, with the exceptions noted, we find little evidence of a total fee effect on GCMO decisions or the accuracy of those decisions, both for specialist and non-specialist auditors, in our Australian sample.

4.4.5. Over 70 percent NAS ratio

In order to assess the possible effectiveness of the 70 percent NAS-to-audit fee cap adopted recently in the EU, we split our sample into observations below the 70 percent threshold (n=1,520) and above the threshold (n=271) and re-estimate our regression models. Untabulated results of the below threshold regressions reveal non-significant ($p > .10$) associations between *lnNAFEE* and *NASRATIO* and GCMOs, suggesting that NAS fees may not adversely affect GCMO decisions for the firms paying auditors NAS fees that are less than 70 percent of audit fees. Further, we find that reporting accuracy is still positively associated both with *lnNAFEE* and *NASRATIO* in our *CORRECT* ($p < .10$), type I misclassification ($p < .10$), and type II misclassification ($p < .05$) analyses for the below 70 percent threshold group.

In our untabulated above threshold regressions, we do not find a significant association ($p > .10$) between *lnNAFEE* and *NASRATIO* for any of our GCMO or reporting accuracy regressions. Additionally, we find no evidence of significant ($p > .10$) industry specialist effects in any of our above or below threshold analyses. Collectively, these results suggest that implementing the 70 percent threshold may be an effective means in Australia to reduce the threats to auditor independence that lead to fewer GCMOs, but still maintain the positive knowledge spillovers leading to improved GCMO reporting accuracy.

4.4.6. Specification of industry specialists

Following prior research (Mohd et al. 2018), we relax our definition of industry specialist auditor from the single top industry leader to any audit firm with greater than 30 percent of total industry audit fees, and our modified results, untabulated, remain

substantively unchanged.[25] Additionally, following research in auditor industry specialization using the joint national-city framework developed by Ferguson et al. (2003), we include various indicator variables to capture different levels of auditor industry specialization, such as Big 4 auditors that are both national industry leaders and city-specific industry leaders (*n*=78); Big 4 auditors that are national leaders but not city-specific industry leaders (*n*=101); and Big 4 auditors that are city-specific industry leaders but not national industry leaders (*n*=78). Further, we have tested the effect of the city-specific industry leadership alone (*n*=156). Untabulated results of these models clearly indicate that there is no city specialization or combined city and national specialization effect on GCMO auditor reporting decisions or accuracy in Australia for the period examined.

4.4.7. Only highly stressed firms

Finally, we examine reporting decisions only on those companies that are more severely financially stressed for which the GCMO is most likely a possible reporting outcome from the auditor (Blay & Geiger, 2013). The median score for the bankruptcy probability measure in our study (*BKTPRB*) is 0.45 and so we examine only those companies with probabilities of bankruptcy greater than 0.45 (*n*=895). The untabulated results of the reduced sample remain substantively the same as those reported in the main Tables. Thus, our overall results do not appear to be substantially adversely impacted by the relatively less stressed firms in the study.

5. Discussion and conclusion

Recent investigations in the UK on the future of auditing, and calls for increased scrutiny of NAS fees by the FRC, and the fee restrictions imposed by the European Parliament, along with signs of growing concern by the Securities and Exchange Commission

[25] In these analyses we identify one non-Big 4 industry specialist. Otherwise, all industry specialist auditors remain Big 4 audit firms.

(SEC) in the US regarding increasing NAS fee levels (Croteau 2015), clearly indicate that the debate regarding the joint supply of audit and NAS services is not a settled issue. More recently, in 2020, the Australian Parliamentary Committee has recommended prohibition of some types of NAS. Given this continued regulatory interest and the importance of both auditor independence and the ability to provide NAS by the profession, we re-examine the association between NAS fees and auditor GCMO reporting decisions, and extend the literature by investigating the accuracy of those reporting decisions for financially stressed companies in Australia during the period 2004-2013. Our analyses also expand this area of research to assess whether auditor industry specialization is associated with GCMO decisions and the accuracy of those decisions.

Consistent with audit regulator's concerns, our results indicate that Australian auditors are less likely to issue GCMOs when NAS fees are high, and that industry specialist auditors are equally as likely as non-specialists to reduce GCMOs when NAS fees are high. These GCMO decision results suggest that auditors may be willing to compromise their independence in order to appease and retain clients paying higher NAS fees. However, our reporting accuracy analyses reveal that the magnitude of NAS fees is significantly positively associated with more accurate GCMO decisions. These findings regarding reporting accuracy lend support to the contention of audit practitioners regarding the benefits of auditor-provided NAS, as we find higher NAS fees are associated with higher quality, more accurate reporting decisions. Further, we find no compelling evidence that industry specialist auditors are able to make more accurate GCMO reporting decisions as NAS increases. In sum, our results support both the concerns of audit regulators, as well as the position of audit practitioners that the provision of more NAS leads to a lower likelihood of a GCMO, however, it may also provide knowledge spillover benefits that enhance the quality of audit decision-making, at least as reflected in the accuracy of GCMO reporting decisions.

Our study is subject to the limitations of our sample observations, the data available, the time period studied, and the fact that we only examined the Australian market for audit services of public companies. Using our selection criteria to identify distressed firms results in a sample containing relatively small companies that pay fairly little (or no) NAS fees to their auditors. Thus, although our selection criteria are appropriate for studying GCMO decisions, our sample companies may not be representative of the population of companies with respect to NAS fees paid to auditors. Consequently, it could be argued that there is little expectation that auditors would impair their independence trying to appease clients paying so little for NAS fees as that found in our sample. However, the fact that we find a significant association between GCMO decisions and their accuracy with NAS fee levels for our sample firms makes our results all the more note-worthy. In addition, another limitation of our study is that our data source for NAS fees did not differentiate between different types of NAS (e.g., tax, transaction support, etc.), and we were not able to obtain data on auditor tenure and possibly other factors that may also affect the NAS and GCMO decision and accuracy relationships. Additionally, our sample period ends in 2013. Thus, future research could evaluate samples from more recent periods, and from other countries to determine if our results hold in other reporting jurisdictions in more recent settings.

Further, examining what, if any, specific types of NAS fees (i.e., tax, systems work, consulting, etc.) appear to be driving the potential impairments of auditor independence, as well as any improvements in auditor decision-making, would be useful extensions of our study. In addition, our results suggest other avenues for future research. For example, following the EP Directive, what might be the implications if Australian standard-setters imposed hard limits on the NAS services currently provided by audit firms for their clients? Would limiting NAS fees similar to the recent EP Directive lead to more or less accurate GCMO reporting decisions, or reporting accuracy? And if adopted, are any effects the same

in the short term and in the long-term? Examining these and other questions would further our understanding of the effects of NAS fees on auditor independence and decision-making, as well as the possible NAS knowledge spillover effects to the audit and would be informative to auditing firms, audit regulators, and investors regarding the provision of NAS by auditors to clients.

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Table 1
Sample Selection Procedures Australian Stock Exchange Firms from 2004-2013

	Number of Firm-Year Observations
GCMO Companies	
Non-Financial Companies in 2004-2013	15,425
Did Not Receive a GCMO	(12,002)
Missing Financial or Report Data	(1,613)
Missing Fee Data	(14)
GCMO Companies with All Data	1,796
GCMO in Prior Year	(699)
Final GCMO Sample	1,097
Non-GCMO Companies	
Non-Financial Companies in 2004-2013	15,425
Received a current or prior year GCMO	(3,423)
Not in Financial Distress	(10,238)
Missing Financial or Report Data	(1,048)
Missing Fee Data	(22)
Final Non-GCMO Sample	694
Full Sample	
GCMO Companies	1,097
Non-GCMO (NGCMO) Companies	694
Total	1,791

Table 2
Descriptive Statistics

Panel A: Final sample (*n* = 1,791)			
	Mean	**Median**	**Std. Deviation**
Total Assets	157,031,036	6,216,000	988,274,674
SIZE	15.85	16.02	2.77
BKTPRB	0.47	0.45	0.09
DEFAULT	0.07	0	0.25
COSTRED	0.29	0	0.45
MITIGATE	0.91	1	0.28
REPORTLAG	129.59	90.00	86.87
BIG4	0.34	0	0.47
TIER2	0.22	0	0.42
AFEE	183,696	48,000	2,856,921
lnAFEE	10.68	10.78	1.85
NAFEE	61,650	4,000	332,680
lnNAFEE	6.17	8.29	4.64
NASRATIO	0.38	0.08	1.12
SPECIALIST	0.1	0	0.30

See Appendix A for variable definitions.

Table 2, cont.

Panel B: GCMO compared to NGCMO firms								
	GCMO sample (*n* = 1,097)			**NGCMO sample (*n* = 593)**			**Mean Difference**	
	Mean	**Median**	**Std. Deviation**	**Mean**	**Median**	**Std. Deviation**	***t*-test**	***p*-value**
Total Assets ($)	109,486,299	5,932,000	767,734,941	232,184,604	6,789,000	1,257,513,603	-2.312	0.021
SIZE	15.73	15.89	2.61	16.04	16.36	3.00	-2.815	0.029
BKTPRB	0.47	0.44	0.1	0.47	0.45	0.08	-0.187	0.852
DEFAULT	0.08	0	0.28	0.04	0	0.20	3.65	< 0.001
COSTRED	0.33	0	0.47	0.21	0	0.41	5.631	< 0.001
MITIGATE	0.92	1	0.28	0.91	1	0.28	0.400	0.689
REPORTLAG	123.55	90.00	79.11	140.01	90.00	95.90	-3.780	< 0.001
BIG4	0.31	0	0.46	0.38	0	0.49	-2.946	0.003
TIER2	0.26	0	0.44	0.16	0	0.37	4.854	< 0.001
Audit Fee ($)	213,966	49,000	3,640,248	135,848	47,000	347,826	0.706	0.481
lnAFEE	10.78	10.8	1.54	10.5	10.76	2.31	2.974	0.003
NAS Fee ($)	37,259	2,000	156,314	100,205	6,000	494,771	-3.25	0.001
lnNAFEE	5.32	7.6	5.04	6.80	8.7	4.70	-4.511	< 0.001
NASRATIO	0.31	0.05	1.19	0.50	0.16	0.99	-3.521	< 0.001
SPECIALIST	0.08	0	0.28	0.13	0	0.33	-2.746	0.006

See Appendix A for variable definitions.

Table 2, cont.

Panel C: Failed compared to Non-Failed								
	Failed company sample (n=97)			**Non-Failed company sample (*n* =1,694)**			**Mean Difference**	
	Mean	**Median**	**Std. Deviation**	**Mean**	**Median**	**Std. Deviation**	***t*-test**	***p*-value**
Total Assets ($)	48,532,965	1,865,000	212,028,769	163,243,735	6,519,845	1,014,585,417	-3.505	0.001
SIZE	15.72	15.88	2.81	15.86	16.02	2.77	-0.476	0.635
BKTPRB	0.47	0.44	0.11	0.47	0.45	0.09	0.161	0.872
DEFAULT	0.19	0	0.39	0.06	0	0.24	3.126	0.002
COSTRED	0.38	0	0.49	0.28	0	0.45	1.955	0.053
MITIGATE	0.9	1	0.31	0.91	1	0.28	-0.569	0.57
REPORTLAG	182.79	117	149.4	126.9	90	80.31	3.654	< 0.001
BIG4	0.41	0	0.49	0.34	0	0.47	1.484	0.141
TIER2	0.19	0	0.39	0.22	0	0.42	-0.932	0.353
Audit Fee ($)	97,862	66,342	139,933	188,610	47,976	2,937,360	-1.247	0.213
lnAFEE	10.77	11.1	1.76	10.67	10.78	1.86	0.527	0.599
NAS Fee ($)	44,894	0	147,214	62,610	4,000	340,251	-1.037	0.301
lnNAFEE	5.17	1	4.81	6.23	8.29	4.62	-2.114	0.037
NASRATIO	0.51	0	2.23	0.38	0.09	1.02	0.601	0.549
SPECIALIST	0.14	0	0.35	0.1	0	0.3	1.283	0.202

See Appendix A for variable definitions.

Table 3

Correlation Matrix: Pearson (Spearman) Correlations Above (Below) Diagonal (n = 1,791)

	GC	*CORRECT*	*SIZE*	*BKTPRB*	*DEFAULT*	*COSTRED*	*MITIGATE*	*REPORTLAG*	*BIG4*	*TIER2*	*lnAFEE*	*lnNAFEE*	*NASRATIO*	*SPECIALIST*
GC	1	-.887**	-.053*	-0.004	.080**	.128**	0.010	-.095**	-.070**	.110**	.077**	-.107**	-.080**	-.067**
CORRECT	-.887**	1	.057*	-0.003	-.058*	-.118**	-0.003	.066**	.069**	-.110**	-.054*	.117**	.097**	.075**
SIZE	-.082**	.083**	1	-0.025	.066**	.172**	.188**	-.054*	.301**	-0.040	.497**	.384**	.105**	.120**
BKTPRB	-.124**	.098**	-.204**	1	-.070**	-0.027	-0.018	-0.005	0.034	0.011	-.072**	-0.016	0.002	-0.024
DEFAULT	.080**	-.058*	.105**	-.159**	1	.067**	0.011	0.007	0.015	-0.009	.103**	0.028	-0.030	0.045
COSTRED	.128**	-.118**	.171**	-.088**	.067**	1	0.045	-0.021	.073**	0.020	.207**	.087**	-0.020	.047*
MITIGATE	0.010	-0.003	.174**	-0.035	0.011	0.045	1	-0.002	.048*	-0.014	.172**	.074**	0.031	0.023
REPORTLAG	-0.026	0.020	-.082**	.070**	0.008	-0.033	0.010	1	-0.015	0.001	-0.046	-.077**	-0.008	0.007
BIG4	-.070**	.069**	.359**	-0.041	0.015	.073**	.048*	-.059*	1	-.383**	.290**	.254**	.102**	.464**
TIER2	.110**	-.110**	-.050*	-0.013	-0.009	0.020	-0.014	-0.002	-.383**	1	-0.042	-0.037	-0.021	-.178**
lnAFEE	0.029	-0.005	.650**	-.285**	.154**	.268**	.149**	-0.036	.290**	-0.042	1	.346**	.055*	.159**
lnNAFEE	-.115**	.122**	.456**	-.101**	0.034	.105**	.078**	-.118**	.254**	-0.037	.470**	1	.381**	.160**
NASRATIO	-.133**	.140**	.299**	-0.024	-0.012	0.030	.060*	-.117**	.102**	-0.021	.234**	.930**	1	.057*
SPECIALIST			.149**	-0.028	0.045	.047*	0.023	-0.035	.464**	-.178**	.209**	.179**	.135**	1

See Appendix A for variable definitions.

Table 4 - Logistic Regression Results for Auditor Going Concern Reporting Decisions – Dependent Variable: GCMO

	Panel A			Panel B			Panel C			Panel D		
	Coeff.	Wald	*p*-value	Coeff.	Wald	*p*-value	Coeff.	Wald	*p*-value	Coeff.	Wald	*p*-value
Constant	1.715	5.815	0.016	1.643	5.278	0.022	2.822	18.272	0.000	2.808	17.882	0.000
SIZE	-0.101	13.936	0.000	-0.098	13.318	0.000	-0.079	11.789	0.001	-0.078	11.377	0.001
BKTPRB	0.613	0.873	0.350	0.569	0.741	0.389	0.432	0.443	0.505	0.454	0.475	0.490
DEFAULT	0.371	2.109	0.146	0.374	2.143	0.143	0.389	2.327	0.127	0.377	2.182	0.140
COSTRED	0.263	3.716	0.054	0.262	3.634	0.057	0.303	5.021	0.025	0.305	5.045	0.025
MITIGATE	0.097	0.230	0.632	0.088	0.191	0.662	0.196	0.986	0.321	0.224	1.284	0.257
REPORTLAG	-0.002	6.553	0.010	-0.002	6.306	0.012	-0.002	5.833	0.016	-0.002	5.753	0.016
BIG4/OTHERBIG4	-0.028	0.041	0.839	0.022	0.007	0.934	0.024	0.033	0.856	0.030	0.036	0.849
TIER2	0.501	10.703	0.001	0.462	3.081	0.079	0.491	10.461	0.001	0.338	4.431	0.035
lnAFEE	0.154	16.333	0.000	0.156	16.605	0.000						
lnNAFEE	-0.050	12.486	0.000	-0.043	4.686	0.030						
NASRATIO							-0.152	7.058	0.008	-0.539	9.876	0.002
SPECIALIST				0.315	0.593	0.441				-0.245	1.119	0.290
*lnNAFEE*SPECIALIST*				-0.073	2.753	0.097						
*lnNAFEE*OTHERBIG4*				0.006	0.031	0.859						
*lnNAFEE*TIER2*				0.005	0.021	0.886						
*NASRATIO*SPECIALIST*										0.236	0.790	0.374
*NASRATIO*OTHERBIG4*										0.381	4.031	0.045
*NASRATIO*TIER2*										0.523	7.594	0.006
Sample size		1,791			1,791			1,791			1,791	
Fixed Effects (industry, year)		YES			YES			YES			YES	
Chi-square	476.337, p < 0.001			483.181, p < 0.001			459.155, p < 0001			472.139, p < 0.001		
Nagelkerke R2		0.317			0.321			0.307			0.314	
Hosmer & Lemeshow	8.187, p = 0.415			6.616, p = 0.579			9.037, p = 0.339			5.254, p = 0.730		
-2 Log Likelihood		1915.1			1908.2			1932.2			1919.3	

See Appendix A for variable definitions. p-values are two-tail.

Table 5 - Logistic Regression Results for Audit Reporting Accuracy – Dependent Variable: CORRECT

	Panel A			Panel B			Panel C			Panel D		
	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value
Constant	-1.652	5.797	0.016	-1.616	5.483	0.019	-2.574	16.133	0.000	-2.596	16.141	0.000
SIZE	0.085	10.808	0.001	0.085	10.634	0.001	0.073	10.491	0.001	0.072	10.011	0.002
BKTPRB	-0.680	1.145	0.285	-0.622	0.944	0.331	-0.560	0.784	0.376	-0.548	0.717	0.397
DEFAULT	-0.126	0.282	0.595	-0.138	0.340	0.560	-0.125	0.279	0.597	-0.139	0.343	0.558
COSTRED	-0.200	2.256	0.133	-0.197	2.170	0.141	-0.222	2.829	0.093	-0.216	2.637	0.104
MITIGATE	-0.035	0.031	0.860	-0.030	0.023	0.880	-0.118	0.362	0.548	-0.131	0.446	0.504
REPORTLAG	0.001	2.580	0.108	0.001	2.346	0.126	0.001	1.991	0.158	0.001	1.949	0.163
BIG4/OTHERBIG4	-0.016	0.014	0.906	-0.165	0.405	0.524	-0.057	0.190	0.663	-0.232	1.935	0.164
TIER2	-0.495	10.963	0.001	-0.380	2.226	0.136	-0.483	10.511	0.001	-0.327	4.305	0.038
lnAFEE	-0.122	11.188	0.001	-0.125	11.758	0.001						
lnNAFEE	0.053	14.648	0.000	0.050	6.495	0.011						
NASRATIO							0.220	9.823	0.002	0.521	9.350	0.002
SPECIALIST				-0.016	0.002	0.967				0.352	2.467	0.116
*lnNAFEE*SPECIALIST*				0.036	0.717	0.397						
*lnNAFEE*OTHERBIG4*				0.004	0.015	0.902						
*lnNAFEE*TIER2*				-0.018	0.268	0.605						
*NASRATIO*SPECIALIST*										-0.361	2.047	0.153
*NASRATIO*OTHERBIG4*										-0.039	0.029	0.865
*NASRATIO*TIER2*										-0.531	7.439	0.006
Sample size		1,791			1,791			1,791			1,791	
Fixed Effects (industry, year)		YES			YES			YES			YES	
Chi-square	424.449, p < 0.001			430.192, p < 0.001			416.915, p < 0.001			436.599, p < 0.001		
Nagelkerke R2		0.285			0.289			0.281			0.293	
Hosmer & Lemeshow	2.501, p = 0.962			1.695, p = 0.989			4.644, p = 0.795			5.745, p = 0.676		
-2 Log Likelihood		1983.5			1977.8			1991.0			1971.3	

See Appendix A for variable definitions. p-values are two-tail.

Table 6 Logistic Regression Results for Type I Error Analysis (Surviving Firms) - Dependent Variable: GCMO

	Panel A			Panel B			Panel C			Panel D		
	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value
Constant	2.133	7.840	0.005	2.035	7.046	0.008	3.167	19.630	0.000	3.125	18.881	0.000
SIZE	-0.118	16.608	0.000	-0.115	15.875	0.000	-0.099	16.002	0.000	-0.095	14.856	0.000
BKTPRB	1.061	2.274	0.132	1.020	2.064	0.151	0.907	1.689	0.194	0.932	1.690	0.194
DEFAULT	0.546	3.603	0.058	0.549	3.644	0.056	0.583	4.142	0.042	0.572	3.967	0.046
COSTRED	0.336	5.473	0.019	0.334	5.331	0.021	0.360	6.357	0.012	0.354	6.079	0.014
MITIGATE	0.039	0.033	0.855	0.023	0.012	0.913	0.130	0.395	0.529	0.144	0.480	0.488
REPORTLAG	-0.001	2.169	0.141	-0.001	2.193	0.139	-0.001	1.508	0.219	-0.001	1.522	0.217
BIG4/OTHERBIG4	0.065	0.206	0.650	0.210	0.562	0.453	0.108	0.590	0.442	0.260	2.103	0.147
TIER2	0.577	12.995	0.000	0.538	3.690	0.055	0.555	12.215	0.000	0.389	5.390	0.020
lnAFEE	0.149	14.291	0.000	0.152	14.721	0.000						
lnNAFEE	-0.058	15.073	0.000	-0.047	5.087	0.024						
NASRATIO							-0.225	6.846	0.009	-0.557	9.975	0.002
SPECIALIST				0.439	1.003	0.317				-0.230	0.873	0.350
*lnNAFEE*SPECIALIST*				-0.084	3.208	0.073						
*lnNAFEE*OTHERBIG4*				-0.006	0.028	0.867						
*lnNAFEE*TIER2*				0.004	0.012	0.913						
*NASRATIO*SPECIALIST*										0.231	0.677	0.411
*NASRATIO*OTHERBIG4*										0.082	0.112	0.738
*NASRATIO*TIER2*										0.547	7.752	0.005
Sample size		1,694			1,694			1,694			1,694	
Fixed Effects (industry, year)		YES			YES			YES			YES	
Chi-square	497.418, p < 0.001			505.456, p < 0.001			482.081, p < 0.001			419.619, p < 0.001		
Nagelkerke R2		0.345			0.350			0.336			0.347	
Hosmer & Lemeshow	2.745, p = 0.949			8.387, p = 0.397			2.742, p = 0.950			4.665, p = 0.793		
-2 Log Likelihood		1763.2			1755.1	.		1778.5			1761.0	

See Appendix A for variable definitions. p-values are two-tail.

Table 7 **Logistic Regression Results for Type II Error Analysis - Dependent Variable: GCMO**

	Panel A			Panel B			Panel C			Panel D		
	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value	Coeff.	Wald	*p* -value
Constant	1.740	5.954	0.015	1.741	5.913	0.015	2.789	17.701	0.000	2.794	17.583	0.000
SIZE	-0.096	12.925	0.000	-0.101	13.830	0.000	-0.077	11.258	0.001	-0.079	11.480	0.001
BKTPRB	0.606	0.852	0.356	0.588	0.797	0.372	0.469	0.523	0.469	0.424	0.425	0.514
DEFAULT	0.392	2.339	0.126	0.396	2.373	0.123	0.425	2.780	0.095	0.414	2.652	0.103
COSTRED	0.273	3.978	0.046	0.283	4.221	0.040	0.301	4.939	0.026	0.311	5.225	0.022
MITIGATE	0.098	0.236	0.627	0.100	0.241	0.623	0.198	1.008	0.315	0.186	0.880	0.348
REPORTLAG	-0.001	3.978	0.046	-0.001	4.080	0.043	-0.001	3.745	0.053	-0.001	3.977	0.046
BIG4/OTHERBIG4	-0.011	0.006	0.938	0.127	0.685	0.408	0.039	0.084	0.772	0.150	1.011	0.315
TIER2	0.514	11.165	0.001	0.550	12.381	0.000	0.489	10.340	0.001	0.512	11.137	0.001
lnAFEE	0.152	15.746	0.000	0.155	16.371	0.000						
lnNAFEE	-0.061	17.424	0.000	-0.060	16.605	0.000						
NASRATIO							-0.228	7.167	0.007	-0.219	6.750	0.009
FAIL	-1.376	13.459	0.000	-1.431	12.873	0.000	-0.696	6.886	0.009	-0.827	7.552	0.006
*lnNAFEE*FAIL*	0.141	7.339	0.007	0.205	7.122	0.008						
*NASRATIO*FAIL*							0.289	1.488	0.223	1.428	1.198	0.274
SPECIALIST				-0.299	2.052	0.152				-0.250	1.492	0.222
*SPECIALIST*FAIL*				0.683	0.349	0.555				0.940	1.331	0.249
*lnNAFEE*SPECIALIST*FAIL*				-0.086	0.371	0.543						
*lnNAFEE*OTHERBIG4*FAIL*				-0.091	1.058	0.304						
*lnNAFEE*TIER2*FAIL*				-0.176	2.522	0.112						
*NASRATIO*SPECIALIST*FAIL*										-1.307	0.875	0.350
*NASRATIO*OTHERBIG4*FAIL*										-1.032	0.573	0.449
*NASRATIO*TIER2*FAIL*										-2.562	1.592	0.207
Sample size		1,791			1,791			1,791			1,791	
Fixed Effects (industry, year)		YES			YES			YES			YES	
Chi-square	489.6658, p < 0.001			496.238, p < 0.001			467.290, p < 0.001			473.999, p < 0.001		
Nagelkerke R2		0.325			0.328			0.312			0.316	
Hosmer & Lemeshow	6.505, p = 0.591			8.953, p = 0.346			2.833, p = 0.944			4.662, p = 0.793		
-2 Log Likelihood		1901.7			1895.2			1924.1			1917.4	

See Appendix A for variable definitions. p-values are two-tail.

Appendix A

Variable Definitions

BIG4 = coded 1 if company was audited by a Big 4 audit firm else 0,

BKTPRB = probability of bankruptcy from Zmijewski's (1984) model,

CORRECT = coded 1 if the company survives and received a prior NGCMO or if it failed and received a prior GCMO, else 0,

COSTRED = coded 1 if company entered into a significant cost reduction program, else 0,

DEFAULT = coded 1 if company the company was in technical or payment default on debt, else 0,

FAIL = coded 1if the company fails in the subsequent two years, else 0,

GCMO = coded 1 if the company received an opinion modified for going concern uncertainty, else 0,

lnAFEE = natural log of fees paid for audit services,

lnNAFEE = natural log of fees paid for non-audit services,

MITIGATE = coded 1 if company announced sales of significant assets, issued new debt or new equity during the year, else 0,

NASRATIO = the ratio of NAS fees to audit fees for the year,

OTHERBIG4 = coded 1 if company was audited by a non-specialist Big 4 audit firm, else 0,

REPORTLAG = number of days from the end of the year to the audit report date,

SIZE = natural log of total assets (in millions of Australian dollars),

SPECIALIST = coded 1 if auditor was the national industry leader determined by total industry (two-digit GICS code) audit fees, else 0,

TIER2 = coded 1 if company was audited by a National non-Big 4 audit firm, else 0.