MANAGERIAL ABILITY AND THE GOING CONCERN OPINION

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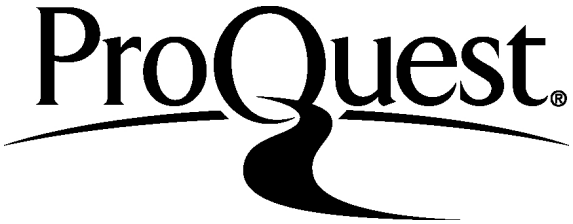

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GOING CONCERN OPINION

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Abstract: Current audit guidance (AU-C § 570) requires the auditor to modify their opinion in the presence of significant doubt about the firm's ability to continue as a going concern. Prior literature has examined firm and auditor characteristics that act as determinants of the auditor's reporting choice. This paper extends the literature by examining the dynamic role of managerial ability in the auditor's reporting decision. Managerial ability refers to the idiosyncratic impact of management on firm performance. In order to proxy for managerial ability, I use a contemporary measurement that estimates the incremental impact of management on the firm's ability to generate revenues from operational inputs. I posit that managerial ability improves the accuracy of the auditor's opinion through its positive impact on the accuracy of the prospective financial information utilized by the auditor. However, documented results demonstrate that high managerial ability is associated with a clean opinion regardless of the subsequent viability of the firm, simultaneously decreasing the occurrence of false positives and increasing the occurrence of false negatives. I also posit that managerial ability impacts the auditor's reporting decision by changing the way that the auditor utilizes financial condition information. Documented results demonstrate that the auditor's opinion is less sensitive to prominent signals of financial distress when managerial ability is high than when managerial ability is low. My analyses contribute broadly to literature examining managerial ability as well as literature examining the determinants and accuracy of the going concern modified audit report.

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CHAPTER I

INTRODUCTION

Empirical research in the areas of accounting, management, and finance provides evidence that managers impact firm operations and financial reporting (Bertrand and Schoar 2003; Dyreng, Hanlon, and Maydew 2010; Bamber, Jiang, and Wang 2010; Ge, Matsumoto, and Zhang 2011). Contemporary works quantify managerial ability by estimating the idiosyncratic impact of management on firm performance (Demerjian, Lev, and McVay 2012; Demerjian, Lev, Lewis, and McVay 2013). Analyses of managerial ability in the research literature primarily focus on firm-specific outputs (e.g. earnings management, earnings forecasts, and tax strategies) that are clear products of management decisions (Demerjian et al. 2013; Baik, Farber, and Lee 2011; Francis, Sun, and Wu 2013). A contemporary work by Krishnan and Wang (2014) breaks from this focus and documents that managerial ability influences the decisions of a key external stakeholder – the independent auditor. I extend this literature and examine in detail the ways in which managerial ability impacts the auditor's going concern reporting decision.

Within the U.S. financial reporting environment, financial statements are presented under the assumption that the firm will continue as a going concern in future periods. Current audit guidance requires the auditor to assess this assumption using information obtained while performing audit procedures as well as other relevant information obtained from management (AU-C § 570). If the auditor concludes that there is substantial doubt about the firm's ability to

continue as a going concern, he or she is responsible to express this doubt through a modified going concern audit report (GCAR). Prior research demonstrates that the GCAR is relevant and useful for market valuation of firm securities (Fleak and Wilson 1994; Jones 1996; Menon and Williams 2010; Shipman, Swanquist, and Whited 2013; Carson et al. 2013). As such, it is valuable to understand the factors that influence the type of opinion issued (clean or GCAR) as well as the accuracy of the audit opinion.

The auditor's objective is to issue an opinion that minimizes the expected costs of client dissatisfaction from the issuance of an incorrect GCAR and litigation, censure, and reputation loss from the issuance of an incorrect clean opinion (Carson et al. 2013; Matsumura, Subramanyam, and Tucker 1997; Tucker, Matsumura, and Subramanyam 2003). To meet this objective, the auditor strives to form an accurate prediction of the firm's future viability. Prior literature demonstrates that the auditor's reporting decision is sensitive to information that signals firm viability or distress. Current audit guidance directs the auditor to work with management when assessing the going concern assumption (AU-C § 570) and practitioner interviews reveal that audit partners consider their assessment of management to be a critical input into their reporting decision (Mutchler 1984; Kleinman and Anandarajan 1999).

Krishnan and Wang (2014) document evidence that managerial ability is positively associated with the issuance of a clean audit opinion. I extend their work and explore how managerial ability impacts the auditor's going concern reporting decision. My work first examines the association between managerial ability and the accuracy of the audit opinion. When financial conditions raise initial doubt about the ability of the company to continue as a going concern, extant audit guidance directs the auditor to consider management's plans to mitigate threats to the firm's viability (AU-C § 570.10). The guidance notes that management-prepared prospective information may be a critical component of such plans that the auditor must evaluate (AU-C § 570.10). Current research demonstrates that managers of high ability are associated with more

accurate prospective information relative to managers of low ability (Demerjian et al. 2013, Baik et al. 2011). I posit that, to the extent that managerial ability improves the accuracy of prospective information available to the auditor, managerial ability improves the reporting accuracy of the auditor.

My work also examines the impact of managerial ability on the auditor's use of financial condition information. Theoretical, experimental, and some archival studies indicate that the auditor interacts information, prioritizes information, and utilizes information differently under different environmental conditions (Brown and Solomon 1990; Rosman, Seol, and Biggs 1999; Bonner 2008; Leone, Rice, Weber, and Willenborg 2013; Goh, Krishnan, and Li 2013). However, archival analyses of the going concern opinion have not prominently explored how the auditor may utilize the most prominent indicators of financial distress (i.e. constrained cash and high leverage) differently under different environments. Given that prior literature demonstrates a pervasive impact of management on firm practices and viability, I posit that high managerial ability impacts the environment in which the auditor makes their going concern opinion decision and causes the auditor to be less sensitive to indicators of distressed financial conditions.

Finally, my work examines the moderating role of auditor independence in the relationship between managerial ability and the issuance of a GCAR. Auditor-client negotiation literature demonstrates that managers may retain agency and bargaining power by acting proactively in their identification of accounting issues and in their communication regarding accounting issues (McCracken, Salterio, and Gibbins 2008). Empirical findings within the literature are consistent with the premise that managers of high ability act proactively (Baik et al. 2011; Andreou, Ehrlich, and Louca 2013; Wang 2013). As such, the negative relationship documented between managerial ability and the issuance of a GCAR may be due, in part, to the bargaining power that high ability managers maintain in their negotiations with the auditor. Audit quality literature documents that auditor reporting varies according to auditor- and engagement-specific

characteristics (e.g. auditor size, engagement economic significance, auditor industry specialization, and auditor tenure). I posit that these prominent proxies for auditor independence moderate the documented negative relationship between managerial ability and the issuance of a GCAR.

I test my hypotheses by estimating a multivariate model with the auditor's opinion as the dependent variable. In order to proxy for managerial ability, I use the measurement developed by Demerjian, Lev, and McVay (2012). These authors measure firm efficiency (relative to other firms in the same industry) based on the firm's transformation of resources into revenues. They then estimate the management-specific component of this firm efficiency score and use this as a measurement of managerial ability. Subsequent research supports the validity of this measurement as a proxy for managerial ability (Demerjian et al. 2013; Baik et al. 2011; Andreou et al. 2013; Wang 2013). I model the auditor's opinion as a function of managerial ability (along with control variables) and estimate the model under sub-samples of firm-years that subsequently remain viable and firm-years that subsequently fail in order to examine the relationship between managerial ability and opinion accuracy. I also model the interaction of managerial ability with prominent financial characteristics and with auditor independence proxies to examine the dynamic relationship between managerial ability and the audit opinion.

The results of my analyses demonstrate that managerial ability is associated with a clean audit opinion regardless of the firm's subsequent bankruptcy status. That is, managerial ability is simultaneously associated with a decrease in Type 1 reporting errors ("false positives" - the auditor incorrectly issues a GCAR) and an increase in Type 2 reporting errors ("false negatives" - the auditor incorrectly issues a clean opinion). My results also demonstrate that previously-documented relationships between financial condition variables (cash levels, leverage, operating cash flows, and bankruptcy probability) and the auditor's opinion are moderated by managerial ability. This indicates that managerial ability impacts the way in which the auditor utilizes

financial condition information in performing their assessment. The auditor appears to be less sensitive to prominent signals of distress when managerial ability is high than when managerial ability is low. Finally, I find no evidence that auditor independence moderates the negative relationship between managerial ability and the issuance of a GCAR.

My work contributes to extant accounting literature in several ways. First, my work contributes to research examining the determinants of the auditor's opinion. Surveyed audit partners identify management performance as a prominent cue impacting their reporting decision (Mutchler 1984). Archival GCAR studies have not prominently examined management characteristics as determinants of the auditor's opinion. Kleinman and Anandarajan (1999) posit that analysis of the role of management is missing in the literature partly because the auditor's knowledge of management is subjective and difficult to model. Krishnan and Wang (2014) provide a critical step forward in the literature by demonstrating a baseline relationship between managerial ability and the auditor's reporting decision. I extend the literature by documenting evidence of the dynamic way in which management impacts the auditor's use of financial condition information.

Second, my work highlights the importance of modeling interactions among variables when examining auditor reporting. Theoretical and experimental studies prominently demonstrate that the auditor interacts information, prioritizes information, and utilizes information differently under different environmental conditions (Brown and Solomon 1990; Rosman et al. 1999; Bonner 2008). However, such analyses using archival data are rare. Using interaction terms in the estimation of a multivariate model, I find evidence that the strength of prominent determinants of the auditor's opinion varies according to managerial ability levels. This demonstrates that it is valuable and appropriate to consider interactions and environmental conditions in order to better understand the varying ways in which the auditor utilizes information to formulate their opinion.

Finally, my work contributes to discussion of GCAR error rates. Carson et al. (2013) provide summary statistics for financial reporting from 2000 to 2010. They note that 98.31% of GCARs are false positives (Type 1 errors) while only 0.21% of clean opinions are false negatives (Type 2 errors). The Center for Audit Quality identifies the high proportion of false positives (Type 1 errors) as an area of concern that prior research has not fully explored (CAQ 2012). A Type 1 error occurs when the auditor is overly-conservative in their assessment of firm viability. My analyses indicate that managerial ability influences the auditor to report less conservatively. While this is generally desirable, my analyses also demonstrate that the relationship holds even in situations where the auditor should report conservatively (i.e. when the firm subsequently files for bankruptcy). My analyses are beneficial to practitioners as they assess the sensitivity of their judgments to management's influence.

This paper is organized as follows: In section II, I review prior literature related to the going concern opinion and managerial ability. In section III, I develop hypotheses of the potential ways that managerial ability impacts the audit opinion. These hypotheses relate to the impact of managerial ability on audit opinion accuracy, the interaction of managerial ability with financial condition information, and the interaction of managerial ability with auditor independence. In section IV, I develop multivariate models to test the hypotheses, describe my sample selection procedures, and discuss sample descriptive statistics. In section V, I discuss the results of my multivariate analyses. I discuss additional analyses in section VI and summarize my results, including a discussion of future research implications, in section VII.

CHAPTER II

REVIEW OF LITERATURE

The Going Concern Opinion

The term "going concern" refers to a company's ability to remain viable and continue operations in future periods without significant intervention.[1] Financial statements are prepared under the assumption that the entity will continue as a going concern. Current audit guidance (AU-C § 570, formerly SAS 59) requires the auditor to assess the ability of the client to continue as a going concern for a reasonable period of time (not more than one year) following the financial statement date. If the auditor concludes that the going concern assumption is not reasonable, they are responsible to modify their opinion to express such doubt. The modified opinion is known as a going concern audit report (GCAR). Based on a large sample of audit reports from 2000 to 2010, Carson et al. (2013) show that 16% of U.S. audit reports are GCARs.

Current audit guidance (AU-C § 570) provides a framework for the auditor's decision to issue a GCAR. The framework can be expressed as a two-step process. The first step requires the

[1] AU-C § 570.02 explains that information that contradicts the going concern assumption is that which relates to "the entity's inability to continue to meet its obligations as they become due without substantial disposition of assets outside the ordinary course of business, restructuring of debt, externally forced revisions of its operations, or similar actions."

auditor to assess information obtained through completed audit procedures (i.e. planning and field-work). If this information raises no substantial doubt about the going concern assumption, the auditor's responsibility is complete and they may issue a clean opinion. If this information raises substantial doubt, the auditor continues to the second step. The second step requires the auditor to obtain additional information from management regarding their plans to mitigate any conditions that threaten firm viability. The auditor evaluates this information and, if the doubt is alleviated, may issue a clean opinion. If substantial doubt continues, the auditor is responsible to modify their opinion to include an explanatory paragraph expressing this doubt (i.e. issue a GCAR). The auditor is also responsible to communicate their assessment to those charged with governance and review the financial statements for appropriate disclosure of conditions that threaten firm viability.

The auditor's reporting decision is inherently subjective and requires the auditor to exercise professional judgment. Extant audit literature notes that the auditor's decision is sensitive to two types of potential costs (Carson et al. 2013). If the auditor issues a GCAR, they face the potential costs of client dissatisfaction and dismissal. These costs are only realized if the firm remains viable in the subsequent period. That is, they only occur when the modified opinion is in error (i.e. a "False Positive" or "Type 1 Error"). If the auditor issues a clean opinion, they face the potential costs of litigation, censure, and reputation loss. These potential costs of a clean opinion are only realized if the client subsequently fails to remain viable. That is, they only occur when the clean opinion is in error (i.e. a "False Negative" or "Type 2 Error"). The auditor's objective is to issue an opinion that minimizes the expected costs (Matsumura, Subramanyam, and Tucker 1997; Tucker et al. 2003). As such, their reporting decision is sensitive to factors that influence the magnitude of the two types of costs as well as information that helps them to predict the client's future viability.

A robust stream of literature examines the determinants of the auditor's reporting decision. Mutchler (1984) reports the results of audit partner interviews and questionnaires. She finds that auditors consider certain key financial condition metrics to be useful in predicting the firm's future viability. These metrics include cash flows from operations, the current ratio, firm net worth, long-term and total liabilities, and net income. In a follow-up work, Mutchler (1985) examines archival data and reports that these key financial ratios act as strong determinants of the audit opinion. Given the prominent role of these ratios, extant studies investigating the determinants of the auditor's reporting decision commonly include variations of such financial ratios as control variables in multivariate models of the reporting decision (Reynolds and Francis 2001; DeFond, Raghunandan, and Subramanyam 2002; Reichelt and Wang 2010; Goh et al. 2013; Krishnan and Wang 2014).

In Mutchler's (1984) survey, audit partners also identify management performance as a prominent cue impacting their going concern assessment. The assessed importance of this cue is lower than cash flow projections and mitigating factors, but is higher than the assessed importance of management plans, ratio trends, firm age, and firm size.[2] Mutchler summarizes the following from her discussion with audit partners:

> ***All respondents stressed the importance of intimate knowledge about management.*** *This intimate knowledge allowed insights to be gained about management performance and its impact on the company before any effects would be seen through the financial statements. The respondents did not, however, believe that this information would ever be reported as such. They found it difficult to picture a day when specific comments about management performance would appear in the audit report or anywhere else in the financial statements.*

[2] In the Mutchler (1984) survey, "Mitigating Factors" are those listed in the AICPA's SAS No. 34 (1981). These broadly refers to asset, debt, cost, and equity factors that mitigate threats to the company's ability to continue as a going concern. Some specific examples from SAS No. 34 include the "Availability of unused lines of credit or similar borrowing capacity" and the "Capability of obtaining additional equity capital." Current audit guidance (AU-C 570) continues to direct auditors to consider mitigating factors but classifies the specific factors under "Management's Plans."

Kleinman and Anandarajan (1999) also interview audit partners at a Big Six firm and document that intimate knowledge of management is one of the three broad indicators influencing the going concern assessment. However, the authors conclude that this category is "subjective and difficult to model" and do not investigate further in their archival analyses of auditor reporting.

Lennox (2005) and Ye, Carson, and Simnett (2011) examine "alumni" affiliations, where financial executives had previously been employed at the engaged audit firm. These studies document evidence that such relationships are negatively associated with the propensity of the auditor to issue a modified audit report. These archival studies and the preceding discussion of audit partner interviews demonstrate that the auditor-client relationship is of critical importance to the auditor's going concern reporting decision. In the following section, I review contemporary managerial ability literature and discuss a measurement that is well-suited to investigate the relationship between managerial ability and the audit opinion.

Managerial Ability

Managerial ability refers to the idiosyncratic impact of management on the firm's performance. It is not immediately clear that variation in managerial ability explains variation in corporate operations. Management's opportunities to influence the firm's financial position are constrained by a number of governing entities (board of directors, corporate charters, shareholders, governments, the IRS, etc…). One may expect that there is little room for idiosyncratic differences in managerial ability to impact the firm. Bertrand and Schoar (2003) articulate this view as follows: "While executives might differ in their preferences, risk-aversion or skill levels, none of this translates into actual corporate policies, if a single person cannot easily affect these policies." Bertrand and Schoar (2003) characterize this expectation as representative of an implicit neoclassical view of the firm. Neoclassical economics focuses on how the firm rationally responds to market conditions in ways that maximize firm utility. It implies that individual

managers are rather interchangeable and that the influence of market conditions will dominate over the influence of individual managers.

Over the past two decades, accounting, management, and finance research has examined whether individual executive characteristics have predictable relationships with firm actions. Some prominent studies in accounting and finance include Bertrand and Schoar (2003), Dyreng et al. (2010), Bamber et al. (2010), and Ge et al. (2011). By examining individual managers that transition between two separate firms, these studies support the conclusion that individual managers and their idiosyncratic differences influence firm policies and practices (e.g. cash holdings, tax avoidance, earnings forecasts, and earnings management).

Building upon these studies, Demerjian, Lev, and McVay (2012) (hereafter DLM) note that managerial ability is difficult to quantify in a way that is useful to address many research questions. They note that the previously-mentioned analyses require limited sample sizes in order to separate individual manager effects from firm effects. To address this limitation, they develop a new measure of managerial ability based on an input/output view of firm operations. The DLM framework expresses managerial ability as a component of the firm's ability to efficiently transform firm resources (inputs) into revenues (outputs). In the first stage, the authors use data envelopment analysis to measure firm efficiency. The methodology assigns weights to seven corporate resources that are subject to managerial discretion (net PP&E, net operating leases, net R&D, purchased goodwill, other intangible assets, cost of inventory, and SG&A) such that the firm-specific weights maximize the ratio of revenues to weighted inputs relative to other firms in the industry. This ratio is standardized to a maximum value of one across firms and represents their firm efficiency measure. In the second stage, the authors regress the firm efficiency score on six firm characteristics that are less subject to managerial discretion (firm size, firm market

share, cash availability, life cycle, operational complexity, and foreign operations). The residuals from this estimation are the DLM managerial ability measurement.[3]

A number of studies use DLM's measurement and support its validity as a proxy for managerial ability. In their initial work, DLM find that the measurement is positively associated with the effective use of proceeds from equity issuances and positively associated with subsequent firm performance. In a follow-up paper, Demerjian et al. (2013) find that the measurement is positively associated with firm earnings quality, including fewer subsequent restatements, higher earnings and accruals persistence, lower errors in the bad debt provision, and higher-quality accrual estimations. Baik et al. (2011) note that the measurement is positively associated with the likelihood of issuing a management earnings forecast as well as the frequency and accuracy of those forecasts. Andreou et al. (2013) find that the measurement is positively associated with firm performance during the 2008 financial crisis. Wang (2013) uses the DLM measurement and reports evidence that managers of high ability time their personal ownership trading activities more optimally than managers of low ability. Most relevant to my work, Krishnan and Wang (2014) use the DLM measurement to examine auditor risk assessment. They document that auditors charge lower audit fees and are less likely to issue a GCAR when managerial ability is high than when managerial ability is low.

Prior studies that examine management's role in financial reporting often use relatively small sample sizes and estimate the impact of individual executives on firm financial characteristics (Dyreng et al. 2010; Bamber et al. 2010; Ge et al. 2011).[4] DLM, by contrast, use a large sample

[3] Demerjian, Lev, and McVay (2012) note that larger firms may attract higher-ability manangers and that market share may be a function of managerial ability. Thus, the inclusion of these variables in the second stage of their analyses may reduce the variation in firm efficiency that is attributed to managerial ability. The authors conclude the following: "We opt to err on the side of attributing manager characteristics to the firm, to maximize the likelihood that the residual is largely attributable to the manager."

[4] These works build their samples based on observable career moves of top managers from one firm to another. This methodology is poorly suited for GCAR analyses because such sampling is constrained to larger firms (Bertrand and Schoar 2003; Bamber et al. 2010; and Ge et al. 2011 each report that their sample firms are larger than their respective populations). As discussed later, GCAR analyses focus on

of 177,134 firm-year observations from 1980 to 2009.[5] The DLM measurement is designed to capture the impact of the whole management team on operational efficiency. However, DLM and Wang (2013) find that the measurement helps to explain the market's reaction to individual top executive transitions and the market's reaction to the security purchasing behavior of individual top executives. These findings demonstrate that the DLM measurement captures manager quality characteristics that are salient to investors. For the purposes of my analyses, it is not necessary to assume that the DLM measurement is descriptive of specific individual executives. I only assume that it is descriptive of the managers that interact with the auditor when the auditor assesses the going concern assumption. In the following section I develop hypotheses for the relationships between managerial ability and the auditor's opinion.

distressed firm-years because the auditor's reporting decision is most salient when initial doubt about the firm's ability to continue as a going concern is raised. Descriptive statistics in Table 2 indicate that distressed sample firm-years tend to be smaller than non-distressed sample firm-years. As such, I expect that applying executive fixed-effects sampling methodology to a sample of distressed firm-years would yield a very small sample.

[5] Dr. Peter Demerjian provides updated values for the measurement using 186,499 firm-year observations from 1980 through 2011. This is the dataset used for my analyses.

CHAPTER III

HYPOTHESIS DEVELOPMENT

Audit Opinion Accuracy

As previously discussed, the auditor faces potential costs of client dissatisfaction/dismissal from issuing a report that is a Type 1 error (false positive) and faces potential costs of litigation, censure, and reputation loss from issuing a report that is a Type 2 error (false negative). To minimize these costs, the auditor strives to form an accurate prediction of the firm's future viability and release an accurate opinion. When there is initial doubt about the company's ability to continue as a going concern, audit guidance directs the auditor to obtain information regarding management's plans to mitigate any noted threats to the firm's viability (AU-C § 570.10). The guidance notes that management-prepared prospective information may be a critical component of such plans (AU-C § 570.11):

> *When **prospective financial information** is particularly significant to management's plans, the auditor should request management to provide that information and should consider the adequacy of support for significant assumptions underlying that information. The auditor should give particular attention to assumptions that are*
>
> - *material to the prospective financial information.*
> - *especially sensitive or susceptible to change.*
> - *inconsistent with historical trends.*

> *The auditor's consideration should be based on knowledge of the entity, its business, and its management and should include (a) reading the prospective financial information and the underlying assumptions and (b) comparing prospective financial information from prior periods with actual results and comparing prospective information for the current period with results achieved to date. If the auditor becomes aware of factors, the effects of which are not reflected in such prospective financial information, the auditor should discuss those factors with management and, if necessary, request revision of the prospective financial information.*

Prior managerial ability analyses demonstrate a positive relationship between managerial ability and the accuracy of prospective information. Demerjian et al. (2013) document that high managerial ability is associated with fewer subsequent restatements, lower errors in the bad debt provision, and higher quality accruals estimates. The authors note that this is consistent with high-ability managers being "more knowledgeable about the firm and the industry, as well as better able to synthesize information into reliable forward-looking estimates." Baik et al. (2011) document direct evidence that managerial ability is related to the accuracy of prospective information as they estimate a positive relationship between managerial ability and the accuracy of management earnings forecasts. To the extent that this improvement in the accuracy of prospective information helps the auditor accurately assess future viability, I posit H1 as a directional hypothesis:

H1: Auditor GCAR reporting is more accurate when managerial ability is high.

Interaction with Financial Condition Information

As noted in surveys of audit partners, metrics capturing the firm's financial condition are critical determinants of the auditor's going concern assessment (Mutchler 1984; Kleinman and Anandarajan 1999). Prior archival analyses document evidence of strong relationships between prominent financial condition information and the issuance of a GCAR. For example, high cash and investment holdings signal firm viability and are negatively associated with the issuance of a GCAR. Bankruptcy scores (commonly calculated based on Altman's 1968 or Zmijewski's 1984

models) signal firm distress and are positively associated with the issuance of a GCAR.[6] These estimated directional relationships consistently hold in multivariate analyses across the literature (Reynolds and Francis 2001; DeFond et al. 2002; Reichelt and Wang 2010; Goh et al. 2013; Krishnan and Wang 2014).

Several experimental studies note that the auditor interacts various pieces of information (i.e. configural processing) or prioritizes and utilizes information differently in different environments. Brown and Solomon (1990; 1991), Maletta and Kida (1993), and Hooper and Trotman (1996) find that the auditor interacts control presence and strength, the results of audit procedures, changes in financial conditions, and internal audit quality as they assess misstatement risk and plan audit procedures. Trotman and Sng (1989) and Rosman et al. (1999) find that the auditor-assessed importance of various pieces of information in their GCAR assessment varies according to task- and firm-specific conditions, including hypothesis framing, signals in prior information, and the firm's stage of development.

Bonner (2008) notes that a decision-maker may utilize information in their decision-making process using either a compensatory process or noncompensatory process. Under the compensatory process, the decision-maker assigns weights to each piece of information and then sums the weighted values to reach a decision. Under the noncompensatory process, the decision-maker may ignore certain pieces of information based on the values of other pieces of information. Linear modeling of the GCAR opinion (without interactions) implicitly assumes that the auditor uses a compensatory process. Martens, Bruynseels, Baesens, Willekens, and Vanthienen (2008) use advanced data mining analysis to model the auditor's opinion decision as

[6] Note that the construct of bankruptcy score may vary by research design such that high or low values capture high or low probability of future bankruptcy. For example, "PROBANKZ" in Goh et al. (2013) is constructed to be positively associated with the probability of bankruptcy, whereas "ALTMAN" in Reichelt and Wang (2010) is constructed to be negatively associated with the probability of bankruptcy. However, the estimated directional relationship between these scores and the issuance of a GCAR is consistently estimated such that high probability of bankruptcy is positively associated with the issuance of a GCAR.

a decision tree. While their decision tree largely represents a compensatory process, there are instances that reflect a non-compensatory process. For example, when retained earnings are low and net income is negative, they find that variance in the values of other determinants (e.g. size, current ratio, liabilities, and working capital) does not impact the opinion. This demonstrates that auditors prioritize and interact information when forming their opinion.

Archival GCAR studies commonly use linear models of the auditor's decision and do not prominently model interactions of GCAR determinants.[7] Some studies examine interactions between auditor attributes (e.g. audit firm size and industry specialization) and specific determinants or regime changes (Lim and Tan 2008; Ruiz-Barbadillo, Gomez-Aguilar, and Carrera 2009; Bruynseels, Knechel, and Willekens 2011; Bruynseels and Willekens 2012; Kaplan and Williams 2012; Leone et al. 2013; Myers, Schmidt, and Wilkins 2013). These studies demonstrate that different types of auditors will utilize specific pieces of information and respond to environmental conditions differently. However, very few GCAR studies model interactions between GCAR determinants or look at broad changes in the way that the auditor utilizes known financial condition determinants.[8]

As discussed previously, accounting and finance research demonstrates that management has a pervasive impact on firm practices and viability (Bertrand and Schoar 2003; DLM). As such, I posit that managerial ability impacts the environment under which the auditor forms his or her

[7] Most archival GCAR analyses use logistic regression to estimate reporting models. This methodology allows for a non-linear relationship between the independent variable(s) and the probability of occurrence for the dichotomous dependent variable. However, this is accomplished by estimating the linear relationship between the independent variable(s) and the logit transformation of the probability of occurrence. In summary, while the estimation is non-linear, the model is linear and still assumes a compensatory function if interactions are not included in the model.

[8] Two noted studies that include interaction analyses are Leone et al. (2013) and Goh et al. (2013). Leone et al. (2013) examine the interaction of venture capital backing and rush-to-market timing for a sample of IPOs. Goh et al. (2013) estimate the GCAR model under sub-samples separated by time (pre- and post-SOX 404 reporting requirements) as part of their additional analyses. The authors focus on differences in the estimated coefficient for their variable of interest (SOX Section 302 reported material weaknesses) and do not discuss broader changes in the role of identified determinants over time.

opinion and changes the way that the auditor utilizes financial condition information. Negative financial condition information (such as low cash holdings or negative operating cash flows) signals conditions of financial distress. These conditions threaten the firm's viability by constraining management's ability to operate effectively. The DLM measurement is specifically designed to capture the ability of management to operate efficiently under financial constraints. Andreou et al. (2013) use the DLM measurement to examine corporate activities during the financial crisis, a period when businesses were broadly constrained by frozen credit markets. The authors document evidence that managers of high ability tend to invest more in new projects during the period of financial crisis relative to managers of low ability. The authors conclude that managers of high ability are less constrained by poor economic conditions and thus avoid underinvestment problems.

If the auditor perceives that managers of higher ability can operate effectively under conditions of financial constraint, the financial condition information may be less relevant to the auditor's decision when managers are of higher ability. I posit H2 as a directional hypothesis:

H2: The strength of the relationships between observed financial distress indicators and the probability that the auditor will issue a GCAR is weaker when managerial ability is high.

Interaction with Auditor Independence

A robust stream of literature examines auditor-client negotiation over financial reporting issues (Beattie, Fearnley, and Brandt 2004). McCracken et al. (2008) document two prominent classifications of executive-auditor relationships that are based on management's actions: proactive and reactive. In a proactive relationship, the executive identifies accounting issues and promptly consults the auditor with the goal of achieving correct accounting treatment and disclosure. In a reactive relationship, the executive waits to inform the auditor or does not consult with the auditor at all. In the proactive relationship, the executive retains the agency

responsibility. In the reactive relationship, the executive cedes agency to the auditor and defers to the auditor's interpretation of GAAP compliance.

Documented relationships between managerial ability and business practices provide evidence consistent with the premise that managers of high ability act more proactively than managers of low ability. Managerial ability is positively associated with earnings forecast issuance, positively associated with investment activity in a period of financial crisis, and associated with timely positioning of personal equity ownership (Baik et al. 2011; Andreou et al. 2013; Wang 2013). As such, it is reasonable to expect that managers of high ability retain agency and bargaining power in auditor-client negotiation. In the context of the audit opinion, such an increase in bargaining power causes the client's threat of auditor dismissal for the issuance of a false positive to be stronger when managerial ability is high.

Auditing regulations and literature warn against inappropriate levels of client influence over the auditor. The Public Company Accounting Oversight Board (PCAOB 2003) standards of ethics and independence prohibit members from "knowingly […] subordinating his or her judgment when performing professional services." Numerous studies on audit quality report evidence of varying levels of subordination according to auditor- and engagement-specific characteristics (Francis 2004). In this section, I review relevant proxies for auditor independence and posit hypotheses for the moderating role of auditor independence in the previously-documented relationship between managerial ability and the auditor's opinion.

Auditor Size

DeAngelo (1981) posits that large auditors (those with a large number of clients) tend to withstand client pressure better than small auditors for two reasons. First, the loss of a single client is less significant to a large auditor than a small auditor. Second, the negative impact of an audit failure on auditor reputation is of greater concern for a large auditor than a small auditor.

Francis (2004) notes that a number of studies use the Big N/non-Big N distinction to proxy for auditor size. These studies provide rather robust evidence that a Big N auditor is associated with higher audit quality than a non-Big N auditor. Specific to GCAR analysis, Francis and Krishnan (1999) and Boone, Khurana, and Raman (2010) find evidence that a Big N auditor is more likely to issue a GCAR than a non-Big N auditor.[9] This is consistent with a Big N auditor's ability to act more independently than a non-Big N auditor.[10] I posit H3-1 as a directional hypothesis:

H3-1: The negative relationship between managerial ability and the issuance of a GCAR is **weaker** when the auditor is Big N than when the auditor is non-Big N.

Engagement Economic Significance

DeAngelo (1981) notes the potential for the auditor to grow dependent on client fees and, in order to maintain the engagement, fail to report discovered accounting issues. Reynolds and Francis (2001) and Li (2009) proxy for fee dependence by measuring the client's size relative to total engagements in the auditor's office.[11] They posit that this higher economic significance may impair independence and reduce the probability that the auditor will issue a GCAR to a distressed company. Their results do not support a direct relationship between economic significance and

[9] Boone et al. (2010) are careful to control for the potential self-selection bias. This is the risk that noted distinctions between auditor types may be due to underlying firm characteristics that determine the auditor selection. The authors follow methodology recommended by Lennox, Francis, and Wang (2012) to control for this risk. They perform analyses on a propensity-score matched-pair sample with strict criteria for identifying appropriate matches.

[10] This argument is based on auditor independence. An alternative argument can also be expressed focusing on auditor technical capability. A Big N auditor may have access to more information (from the other clients they audit) than a non-Big N auditor. As such, a Big N auditor's assessment may be less influenced by information provided by management than a non-Big N auditor's assessment.

[11] Francis (2004) posits that it is valuable to analyze auditor distinctions at the office level for large accounting firms because "individual audit engagements are administered by an office based engagement partner who is typically located in the same city as the client's headquarter." While an individual client may not appear significant at the national level, it may be very significant at the local office level and influence auditor behavior. By way of example, the author notes that Enron represented less than 2% of Arthur Andersen's (AA) national revenues from publically listed clients but over 35% of such revenues for AA's Houston office.

auditor reporting.[12] However, it is still valuable to investigate the role of client economic significance as a moderating variable in the relationship between managerial ability and the auditor's opinion. I posit H3-2 as a directional hypothesis:

H3-2: The negative relationship between managerial ability and the issuance of a GCAR is **stronger** when the economic significance of the client to the auditor is high than when economic significance is low.

Industry Specialization

Another prominent auditor characteristic is the audit firm's level of industry specialization. The auditor gains industry specialization primarily through direct industry-specific engagement experiences (Solomon, Shields, and Whittington 1999). These experiences contribute to an industry-specific knowledge base that the auditor is able to apply in practice. Francis (2004) notes that extant accounting research provides robust evidence that industry specialization is positively associated with audit quality. Specific to GCAR analysis, Reichelt and Wang (2010) document evidence that industry specialist auditors are more likely to issue a GCAR than non-industry specialist auditors. The authors note that this conservative reporting is consistent with an industry-specialist auditor's added incentive to protect their reputation within their primary industry. Given this evidence that an industry specialist auditor acts more independently than a non-industry specialist auditor, I posit H3-3 as a directional hypothesis:

[12] Reynolds and Francis (2001) and Li (2009) actually detect a positive relationship between fee significance and the propensity to issue a GCAR. Reynolds and Francis (2001) acknowledge that it is possible that their proxies and models contain measurement error and/or misspecification. Reynolds and Francis (2001) and Li (2009) also posit that the costs of an incorrect clean opinion (litigation, censure, and reputation loss) are higher for large clients, leading to more conservative reporting. Reynolds and Francis (2001) conclude that the positive relationship suggests that "reputation protection dominates auditor behavior."

H3-3: The negative relationship between managerial ability and the issuance of a GCAR is **weaker** when the auditor is an industry specialist than when the auditor is not an industry specialist.

Auditor Tenure

Prior research investigates the impact of auditor tenure on audit quality. Legislators and standard setters express concern that auditor independence may be impaired as tenure increases because the auditor becomes more captive to clients. As a counter-argument, many expect that years of client-specific experience contributes to a client-specific knowledge base that improves audit quality. Francis (2004) reviews empirical studies on the relationship between auditor tenure and financial reporting quality (as a proxy for audit quality) and notes that research largely provides evidence that long tenure either improves or has minimal impact on financial reporting quality.

Evidence regarding the relationship between auditor tenure and the issuance of a GCAR is somewhat mixed. In studies that include auditor tenure as a control variable in large-sample analyses (where the majority of firm-year observations remain viable in the subsequent period) the estimated direction of the coefficient for tenure varies from study to study (Boone et al. 2010; Reichelt and Wang 2010; Gramling, Krishnan, and Zhang 2011; Kaplan and Williams 2012). However, Geiger and Raghunandan (2002) estimate a positive relationship between tenure and the issuance of a GCAR when using a sample of only firm-years that subsequently file for bankruptcy. Knechel and Vanstraelen (2007) also estimate a positive (though not statistically significant) coefficient for tenure in a sample of firms that subsequently fail and estimate a strong negative coefficient in a matched sample of firms that subsequently remain viable. These studies

support the premise that long tenure improves the ability of the auditor to evaluate the firm's financial condition.[13] As such, I posit H3-4 as a directional hypothesis:

H3-4: The negative relationship between managerial ability and the issuance of a GCAR is **weaker** when auditor tenure is long than when audit tenure is short.

[13] Note that this discussion is specific to audit firm tenure, not audit partner tenure. Carey and Simnett (2006) examine a sample of Australian reporting firms and document evidence that audit partner tenure is negatively associated with the propensity of the audit firm to issue a GCAR. Data for audit partner tenure is not publically available for observations in this paper's sample. As such, the relationship between managerial ability and audit partner tenure in audit reporting is beyond the scope of this paper.

CHAPTER IV

METHODOLOGY AND SAMPLING

Estimation Models

To test the relationship between managerial ability and the auditor's going concern reporting decision, I begin with the following multivariate model of the probability that the auditor will issue a GCAR as a function of firm and auditor characteristics:

$$PR(GCAR = 1)_{i,t} = \lambda_0 + \lambda_1 MGRL\ ABILITY_{i,t} + \sum_{z=2}^{z=8} \lambda_z\ Financial\ Condition\ Variables_{i,t} + \sum_{z=9}^{z=12} \lambda_z\ Auditor\ Characteristic\ Variables_{i,t} + \lambda_{13} REPORT\ LAG_{i,t} + \lambda_{14} GCAR_{i,t-1} + Year\ Fixed\ Effects + FF\ Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (1)$$

The dependent variable, *GCAR*, is an indicator variable that equals 1 if the auditor issues a going concern modified audit report; 0 otherwise. The first independent variable, *MGRL ABILITY*, is the measurement of managerial ability developed by Demerjian, Lev, and McVay (2012). The next seven variables in the model are proxies for the firm's financial condition. These include characteristics prominently identified as determinants of the auditor's reporting decision in archival GCAR analyses (Goh et al. 2013; Krishnan and Wang 2014). *SIZE* (the natural logarithm of firm total assets at year-end), *CASH* (cash and short-term investments scaled by total

assets at year-end), *LEV* (total liabilities scaled by total assets at year-end), and *CLEV* (the change in *LEV* from the prior to the current period) capture key elements of the firm's balance sheet position. *LOSS* (an indicator variable that equals 1 if the firm experiences negative operating income after depreciation, 0 otherwise) and *OCF* (operating cash flows scaled by total liabilities at year-end) capture key elements of the firm's operations. *ZSCORE* is a variable based on Altman's (1968) bankruptcy score and captures variation in the probability of subsequent bankruptcy based on various balance sheet, income statement, and market pricing metrics (see definition in Table 1 for further details).

Of the seven financial condition variables, three are signed such that a higher value is consistent with firm viability (*SIZE*, *CASH*, and *OCF*) while the others are signed such that a higher value is consistent with firm distress. For ease of interpretation of results in the upcoming interacted model, I transform these three variables in my multivariate analyses so that the expected direction of the estimated coefficients are consistent with firm distress across the financial condition variables. I multiply the values for each of these variables by negative one and label the transformed versions as *NEG SIZE*, *NEG CASH*, and *NEG OCF*.

The next four variables in the model are proxies for auditor independence. These include *BIGN* (an indicator variable that equals 1 if a big 4 auditor performs the audit, 0 otherwise), *SIGNIFICANCE* (the company's total fees paid to the auditor scaled by the total revenue of the auditor's local office for the reported fiscal year), *SPECIALIST* (an indicator variable that equals 1 if the audit firm is an industry specialist at both the national and local level, 0 otherwise), and *TENURE* (the length of consecutive years that the auditor has been engaged to provide the firm's audit). *SPECIALIST* is calculated following Reichelt and Wang's (2010) assertion that national and local industry specialization jointly determine audit quality (see definition in Table 1 for further details). Based on relationships documented in prior literature, *BIGN*, *SIGNIFICANCE*, and *SPECIALIST* are expected to be positively related to the probability that the auditor will issue

a GCAR. Prior literature does not demonstrate a consistent directional relationship between *TENURE* and the issuance of a GCAR.

I include *REPORT LAG* (the number of days between the fiscal year-end and the signature date of the audit opinion) and the lagged value of *GCAR* in the model. These are commonly-used control variables in going concern analyses, though they do not serve as clear proxies for the firm's financial condition. I also include year indicator variables and industry indicator variables identified according to Fama and French's (1997) 48 industry classifications. Table 1 lists the variables and provides details about their calculation.

[Insert Table 1 Here]

In order to test H1, I estimate Model (1) using two separate sub-samples. My sample of firm-years is split between those where the firm remains viable in the twelve months following the financial statement date and firm-years where the firm files for bankruptcy in the twelve months following the financial statement date. This methodology is a common way of testing auditor reporting by error type (Geiger and Rama 2006; Myers et al. 2013).[14] In the sub-sample of firm-years that subsequently files for bankruptcy, I include *BANKRUPTCY LAG* (the number of days between the audit report filing date and the bankruptcy filing date) as an extra explanatory variable. H1 predicts that managerial ability is associated with GCAR reporting accuracy. For firm-years where the firm subsequently remains viable, an estimated negative coefficient for

[14] A Type 1 error occurs when the auditor issues a GCAR and the firm subsequently remains viable. A Type 2 error occurs when the auditor issues a clean opinion and the firm subsequently fails. Consistent with prior literature, I use an identified bankruptcy filing as my proxy for firm failure. Lennox (1999) notes the possibility that events causing bankruptcy are truly not predictable when the auditor makes their opinion assessment. In other words, researchers may classify clean audit opinions as Type 2 errors even though the clean opinion was appropriate at the time it was released. Lennox (1999) concludes that subsequent bankruptcy is an imperfect but reasonable benchmark for analyzing variation in auditor reporting accuracy.

MGRL ABILITY is consistent with H1. For firm-years where the firm subsequently fails, an estimated positive coefficient for *MGRL ABILITY* is consistent with H1.

In order to test H2, I modify Model (1) to include interactions between *MGRL ABILITY* and the seven financial condition variables:

$$
\begin{aligned}
&PR(GCAR = 1)_{i,t} \\
&\quad = \lambda_0 + \lambda_1 MGRL\ ABILITY_{i,t} + \sum_{z=2}^{z=8} \lambda_z\ Financial\ Condition\ Variables_{i,t} \\
&\quad + \sum_{z=9}^{z=15} \lambda_z\ (MGRL\ ABILITY_{i,t} \times Financial\ Condition\ Variables_{i,t}) \\
&\quad + \sum_{z=16}^{z=19} \lambda_z\ Auditor\ Characteristic\ Variable_{i,t} + \lambda_{20} REPORT\ LAG_{i,t} \\
&\quad + \lambda_{21} GCAR_{i,t-1} + Year\ Fixed\ Effects + FF\ Industry\ Fixed\ Effects + \varepsilon_{i,t}
\end{aligned}
\tag{2}
$$

As noted previously, the financial condition variables are all signed such that a higher value is consistent with firm distress. As such, I expect that the estimated coefficients for each of these main effects are positive when estimating both Model (1) and Model (2). H2 predicts that the estimated coefficients for the interaction terms in Model (2) are negative (i.e. the opposite of the estimated coefficients for the financial condition variable main effects).

In order to test H3-1 through H3-4, I modify Model (1) to include interactions between *MGRL ABILITY* and the four auditor characteristic variables:

$$PR(GCAR = 1)_{i,t} = \lambda_0 + \lambda_1 MGRL\ ABILITY_{i,t} + \sum_{z=2}^{z=8} \lambda_z\ Financial\ Condition\ Variables_{i,t} + \sum_{z=9}^{z=12} \lambda_z\ Auditor\ Characteristic\ Variables_{i,t} + \sum_{z=13}^{z=16} \lambda_z MGRL\ ABILITY_{i,t} \times Auditor\ Characteristic\ Variables_{i,t} + \lambda_{17} REPORT\ LAG_{i,t} + \lambda_{18} GCAR_{i,t-1} + Year\ Fixed\ Effects + FF\ Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (3)$$

These hypotheses predict that the negative relationship between managerial ability and the issuance of a GCAR is weaker when the auditor is Big N, when economic significance is low, when the auditor is an industry specialist, and when tenure is long. Since the relationship between managerial ability and the issuance of a GCAR is demonstrated to be negative, the hypotheses predict that the estimated coefficients for the interaction terms between *MGRL ABILITY* and *BIGN*, *SIGNIFICANCE*, *SPECIALIZATION*, and *TENURE* are positive, negative, positive, and positive respectively.

Sampling

Data for my analyses come from multiple sources. I obtain data for the *MGRL ABILITY* variable from Dr. Peter R. Demerjian's web-site.[15] The dataset contains values for firm-years from 1980 through 2011. Geiger, Raghunandan, and Rama (2005) and Myers et al. (2013) document evidence that auditors are more likely to issue GCARs after the Sarbanes Oxley Act of 2002 (SOX).[16] While SOX does not specifically address GCARs, the authors of these studies conclude that the change in GCAR reporting is due to the overall increased scrutiny of the audit profession

[15] Data available for download at https://community.bus.emory.edu/personal/PDEMERJ/Pages/Download-Data.aspx

[16] Myers et al. (2013) detect this increase in propensity to issue a GCAR only for a sample of non-Big N auditors.

following the financial reporting and auditing failures of the early 2000's. Therefore, I restrict my sample to post-SOX observations from fiscal year 2002 through 2011. Data for the *GCAR* variable and various auditor variables come from Audit Analytics. Financial statement variables are constructed based on data from Compustat. I identify firm bankruptcies using the UCLA LoPucki Bankruptcy database, Mergent FISD, and Bloomberg. I obtain data from prior to 2002 to calculate variables that require lagged observations. I drop financial firms (SIC 6000-6999), very small firms (total assets less than $500k), firm-years where the audit report filing date is subsequent to an identified bankruptcy filing date, and firm-years that have a public debt issuance in default. The full sample contains 30,417 observations with data for all necessary variables.

Studies that examine GCARs frequently restrict the sample to financially distressed firms (Raghunandan and Rama 1995; Reynolds and Francis 2001; DeFond et al. 2002; Gramling et al. 2011; Bruynseels et al. 2011; Bruynseels and Willekens 2012; Myers et al. 2013). Reynolds and Francis (2001) explain that this is done to focus on a sample of firms "for which the going concern report is a more salient decision." I follow DeFond et al. (2002) and classify firm-years as financially distressed if either reported operating earnings or reported operating cash flows are negative for the firm-year. From the full sample, 11,453 firm-years meet this definition of distress.[17]

Table 2 reports the descriptive statistics for the full sample in the first column.

[Insert Table 2 Here]

The second and third columns report descriptive statistics for non-distressed and distressed sub-samples respectively. The final column reports differences in mean values between the non-distressed and distressed sub-samples. Consistent with the classification criteria, distressed firm-

[17] This sample size is comparable to the 11,257 financially distressed firm-year observations used for the multivariate going concern analysis in Krishnan and Wang (2014).

years have lower operating cash flows and are more likely to have incurred a loss than non-distressed firm-years. Distressed firm-years are more likely to receive a GCAR, are smaller, have higher leverage, and have higher predicted probabilities of bankruptcy (*ZSCORE*).

The descriptive statistics show that the mean value of *MGRL ABILITY* is higher for non-distressed firm-years (0.016) than distressed firm-years (-0.058). Figure 1 shows the distribution of *MGRL ABILITY* under the two sub-samples visually.

[Insert Figure 1 Here]

The reported standard deviations in Table 2 and visual inspection of the distributions at Figure 1 show that there is significant variance in *MGRL ABILITY* among both distressed and non-distressed firm-years.

Table 3 reports the Pearson correlations for the sample.

[Insert Table 3 Here]

The first column documents the correlations between the independent variables and the issuance of a GCAR. Univariate correlations show that the variable of interest, *MGRL ABILITY*, is negatively related to the issuance of a GCAR. The variables reflecting the financial condition of the company are correlated with *GCAR* in predictable ways, with negative correlations measured for *SIZE*, *CASH*, and *OCF* and positive correlations measured for *LEV*, *CLEV*, *LOSS*, and *ZSCORE*. The univariate correlations between the auditor characteristics variables and *GCAR* are not all consistent with the theoretical relationships predicted in section III. For example, Table 3 notes negative correlations for *BIGN* and *SPECIALIST*. However, these two variables are positively correlated with *SIZE*, a known negative determinant of GCAR. This underscores the importance of multivariate analysis to estimate the marginal effect of auditor size on the propensity of the auditor to issue a GCAR. Table 3 also notes a positive correlation for

SIGNIFICANCE. While this is not consistent with the theoretical prediction that economic significance may impair auditor independence, it is consistent with the directional relationship documented by Reynolds and Francis (2001) and Li (2009). The correlation between $GCAR_{t-1}$ and *GCAR* is very strong at 0.668, consistent with the sticky nature of the opinion modification.

CHAPTER V

RESULTS OF MAIN ANLYSES

Audit Opinion Accuracy

Table 4 reports the estimated coefficients for Model (1) and the results of the test of H1.

[Insert Table 4 Here]

The first column of Table 4 presents the estimated coefficients for Model (1) using the full sample of distressed firm-years. This serves as a baseline model. The estimated coefficient for *MGRL ABILITY* is negative, consistent with Krishnan and Wang (2014). The estimated coefficients for each of the seven financial condition variables (*NEG SIZE* through *ZSCORE*) are positive, consistent with the variables' constructs that higher values reflect distressed financial conditions. The estimated fit statistic of the model and sample is a Pseudo-R^2 of 41.9%. By way of comparison, the Pseudo-R^2 of the estimated models in DeFond et al. (2002) range from 40% to 41%.

The second (third) column of Table 4 presents the estimated coefficients for Model (1) using the sub-sample of distressed firm-years where the firm remains viable (files for bankruptcy) in the twelve months following the firm-year financial statement date. Of the 11,453 distressed firm-years, 147 file for bankruptcy in the twelve months following the financial statement date. H1 predicts that managerial ability is associated with GCAR reporting accuracy. For firm-years

where the firm subsequently remains viable, an estimated negative coefficient for *MGRL ABILITY* is consistent with H1. For firm-years where the firm subsequently fails, an estimated positive coefficient for *MGRL ABILITY* is consistent with H1. Table 4 documents that the estimated coefficient for *MGRL ABILITY* is negative in both sub-samples. As such, the results demonstrate that higher managerial ability is simultaneously associated with a decrease in false positives (Type 1 errors) and an increase in false negatives (Type 2 errors).

The relationship between managerial ability and reporting accuracy is subject to the reader's perspective. It is true that a clean opinion is an accurate opinion for the vast majority of audit reports. From this perspective the negative estimated coefficient in the sample of firm-years that subsequently remain viable demonstrates that managerial ability is positively associated with reporting accuracy. However, I prefer to make conclusions on the determinants of reporting accuracy based on the relationships in both samples, following the practice of Lennox (1999), Geiger and Rama (2006), and Myers et al. (2013). From this perspective, I conclude that the documented relationships do not provide convincing evidence that managerial ability is associated with improved auditor reporting accuracy. Rather, the documented relationships are consistent with managerial ability strictly influencing the auditor towards a clean opinion, regardless of the subsequent viability of the firm.

These documented relationships contribute to the discussion of audit reporting errors. Descriptive statistics in Carson et al. (2013) show that the auditor frequently issues a GCAR to a company that does not file for bankruptcy in the subsequent twelve months (Type 1 errors). In fact, their work documents that, from 2000 to 2010, Type 1 errors outnumber correctly-issued GCARs by a ratio of 58 to 1. The Center for Audit Quality identifies the high number of false positives as a key area of concern for the auditing profession (CAQ 2012). Such conservative reporting suggests that the auditor's expected costs of litigation, censure, and reputation loss for a Type 2 error are greater than the auditor's expected costs of client dismissal due to a Type 1 error

(Hopwood et al. 1994, Tucker et al. 2003).[18] Documented results demonstrate that high managerial ability influences the auditor to report less conservatively. However, this relationship holds even when conservative reporting is desirable. As such, the implications of the relationship between managerial ability and the issuance of a GCAR are subject to the reader's sensitivity to the cost of Type 1 errors versus the cost of Type 2 errors.

Interaction with Financial Condition Information

Table 5 reports estimated coefficients for Model (2) and the results of the test of H2.

[Insert Table 5 Here]

The first column presents the estimated coefficients for the main effects of each variable in Model (2). As expected, the estimated coefficients for the main effects of the seven financial condition variables (*NEG SIZE* through *ZSCORE*) are positive and statistically significant. The next column presents the estimated coefficients for interactions between *MGRL ABILITY* and the corresponding financial condition variables. For six of the seven interactions, the estimated coefficients are negative. The negative estimated coefficients are statistically significant at traditional levels for four of these interactions – *MGRL ABILITY* interacted with *NEG CASH*, *LEV*, *NEG OCF*, and *ZSCORE*.[19]

The estimated coefficients for three of the seven interactions are not statistically significant at the traditional levels – *MGRL ABILITY* interacted with *NEG SIZE*, *CLEV*, and *LOSS*. The interaction

[18] There are a number of documented instances where auditors incur litigation costs due to Type 2 errors. In 2008, the United States Court of Appeals for the Third Circuit upheld a $119.9 million jury verdict and a $182.9 million judgment against PricewaterhouseCoopers for failing to issue a GCAR. KPMG is currently faces litigation regarding twelve clean opinions issued for New Century. See Carcello and Palmrose (1994) and Kaplan and Williams (2012) for further discussion of litigation on Type 2 errors. However, we know of no documented instances where auditors incur litigation costs due to Type 1 errors.

[19] As an alternate variable specification, I construct the *ZSCORE* variable based on Zmijewski's (1984) bankruptcy probability model. The interaction between *MGRL ABILITY* and *ZSCORE* is not statistically significant using this alternate specification (un-tabulated).

with *NEG SIZE* may not be statistically significant because firm size captures a number of aspects of the company, including client bargaining power with the auditor (Goh et al. 2013). The interaction with *CLEV* may not be statistically significant because *CLEV* is positively correlated with *LEV* (0.27 correlation reported at Table 3). In un-tabulated analyses, I remove *LEV* and its interaction with *MGRL ABILITY* from Model (2). In this alternate model form, the estimated coefficient for the interaction between *MGRL ABILITY* and *CLEV* is negative and statistically significant at 0.05. The interaction with *LOSS* may not be statistically because the sampling methodology limits variation for this variable. Consistent with prior literature, I classify a firm-year as distressed if the firm reports either a loss or negative operating cash flows in that year. In the sample of distressed firm-years, *LOSS* equals 1 for 86.7% of the observations. While the estimated coefficient for the main effect of *LOSS* is statistically significant, there may not be enough observations where *LOSS* equals 0 to estimate a statistically significant negative coefficient for the interaction term.

The estimated coefficients of interaction terms must be interpreted very carefully when using logistic regression. Hoetker (2007) explains that "Unlike OLS, the marginal effect of an interaction between two variables in a logit model is not simply the coefficient of their interaction." Instead, the marginal effect is a function of the coefficient for the interaction, the coefficients for each interacted variable, and the values of all variables. Both the sign and statistical significance of the estimated coefficient for the interaction may not accurately reflect the marginal effect across all values of the two variables (Ai and Norton 2003; Hoetker 2007). Hoetker (2007) recommends graphical analysis of the relationship for correct interpretation. Following this best practice, Figure 2 presents contour plots of the predicted probability of the issuance of a GCAR across the range of values for the two interacted variables.[20]

[20] The predicted probabilities are based on variation in the two interacted variables only. All other independent variables are set to their sample mean values.

[Insert Figure 2 Here]

In each plot the financial condition variable appears on the Y-Axis and *MGRL ABILITY* appears on the X-Axis. To interpret these plots, first remember that the financial condition variables are each signed so that higher values are consistent with firm distress. As such, I expect the predicted probability curves to increase along the Y-Axis. Each plot is consistent with this expectation. Next, consider the plot of the interaction between *NEG SIZE* and *MGRL ABILITY*. The estimated coefficient of the interaction between these two variables in Table 5 is not statistically significant. The plot of the interaction reveals that the marginal increase in PR(*GCAR* = 1) for a unit increase in *NEG SIZE* (along the Y-Axis) is approximately constant across the range of values for *MGRL ABILITY* (along the X-Axis). This is consistent with no interaction effect and validates the estimated coefficients and p-values in Table 5. A similar pattern is noted for the interaction with *LOSS*, consistent with the results reported in Table 5.

Now consider the plot of the interaction between *NEG CASH* and *MGRL ABILITY*. The estimated negative coefficient for this interaction in Table 5 is negative and statistically significant. The plot reveals that, at the low end of *MGRL ABILITY*, low cash and investments can increase PR(*GCAR* = 1) from below 2.5% to above 12.5%. However, at the high end of *MGRL ABILITY*, low cash and investments can only increase PR(*GCAR* = 1) between the range of 5% and 7.5%. This clearly demonstrates the moderating effect of managerial ability posited in H2 and emphasizes the practical significance of the interaction effect. Similar patterns in the probability curves are noted for interactions with *LEV*, *CLEV*, *NEG OCF*, and *ZSCORE*. The plotted interaction between *MGRL ABILITY* and *CLEV* suggests that the interaction effect, though not statistically significant at traditional levels (Table 5), is very practically significant as a determinant of the probability that the auditor will issue a GCAR. In summary, the estimated coefficients reported in Table 5 combined with the plots in Figure 1 provide support for H2.

They demonstrate that managerial ability moderates the sensitivity of the auditor's opinion to prominently-identified financial conditions.

The results demonstrate the importance of modeling interactions among variables when examining auditor reporting. Theoretical and experimental studies prominently demonstrate that the auditor interacts information, prioritizes information, and utilizes information differently under different environmental conditions (Brown and Solomon 1990; Rosman et al. 1999; Bonner 2008). However, archival analyses of the auditor rarely interact determinants of the audit opinion and do not document circumstances in which the auditor changes their use of the most prominent indicators of financial distress (i.e. constrained cash and high leverage). The results of my study demonstrate that the auditor's use of these prominent indicators of financial distress varies according the level of managerial ability that exists within the firm. This provides additional insight into the negative relationship between managerial ability and the issuance of a GCAR documented by Krishnan and Wang (2014).

Interaction with Auditor Independence

Table 6 reports estimated coefficients for Model (3) and the results of the tests of H3-1 through H3-4.

[Insert Table 6 Here]

The estimated coefficients for the interaction terms are presented to the right of the estimated coefficients for the auditor characteristics variables. None of the estimated coefficients for the interaction terms are statistically significant at traditional levels. Reviewing the graphical presentation of the predicted probability of receiving a going concern opinion across the interacted variables does not demonstrate any practical significance of the interaction effect (un-tabulated). As such, my analyses provide no support for H3-1 through H3-4.

It is worth noting that there are confounding effects related to many of the auditor independence variables. For example, H3-1 predicts that *BIGN* moderates the auditor's sensitivity to *MGRL ABILITY* because large auditors are more sensitive to the reputation damage from a single client reporting failure than they are to the lost revenue from a single dissatisfied client. However, it is also possible that the opinions of large auditors are more sensitive to managerial ability (relative to small auditors) because their ability to withstand litigation allows them to utilize non-financial cues in their opinion formation. H3-2 predicts that the negative relationship between *MGRL ABILITY* and the auditor's opinion is strongest when *SIGNIFICANCE* is high because of the potential for fee dependence to impair auditor independence. However, Reynolds and Francis (2001) and Li (2009) note that the metric is confounded by client profile which increases the auditor's sensitivity to Type 2 errors and influences them to report more conservatively. H3-4 predicts that *TENURE* moderates the sensitivity to *MGRL ABILITY* because the client-specific knowledge base of a long-tenure auditor enables them to act more independently. However, it is also possible that the opinions of long-tenure auditors are more sensitive to managerial ability (relative to short-tenure auditors) because the auditor requires a certain length of tenure in order to even evaluate management's ability. In summary, the lack of results for H3-1 through H3-4 may be due to confounding effects inherent in the auditor independence proxies.

CHAPTER VI

ADDITIONAL ANALYSES

Alternate Variable Specification

Lagged and Rolling Managerial Ability

Certain financial statement variables (sales, COGS, SG&A, PPE, R&D, Goodwill, and Other Intangible Assets) simultaneously impact the DLM managerial ability measurement and the model's control variables. This simultaneity suggests an endogeneity concern. To investigate further, I use one-year lagged values of *MGRL ABILITY* as well as a rolling three-year average of *MGRL ABILITY*. These values should be more exogenous to the auditor's current-period reporting decision.

[Insert Table 7 Here]

Table 7 reproduces the analyses at Table 4 using these alternate specifications. For the sample of firms that remain viable in the subsequent period, the estimated coefficient for *MGRL ABILITY* is negative and statistically significant using both alternate specifications. For the sub-sample of firms that file for bankruptcy in the subsequent period, the estimated coefficient for *MGRL ABILITY* is negative but only statistically significant using the three-year rolling average. In summary, analyses using these alternate specifications continue to demonstrate that high

managerial ability influences the auditor towards a clean opinion regardless of subsequent viability.

[Insert Table 8 Here]

Table 8 reproduces the analyses in Table 5 using these alternate specifications. Using these alternate specifications, the estimated coefficients are largely consistent with those reported in Table 5. The estimated coefficients of the interactions between *MGRL ABILITY* and *NEG OCF* are not statistically significant. However, the estimated negative coefficients for the interactions between *MGRL ABILITY* and *CLEV* are now statistically significant at traditional levels. Visual inspection of the PR(*GCAR* = 1) as a function of the interacted variables using alternate specifications (un-tabulated) is consistent with the plots reported at Figure 2. In summary, analyses using these alternate specifications provides support for H2.

[Insert Table 9 Here]

Table 9 reproduces the analyses in Table 6 using these alternate specifications. Using these alternate specifications, the estimated coefficients are largely consistent with those reported at Table 6. However, the estimated coefficient for the interaction between *MGRL ABILITY* and *SIGNIFICANCE* is negative and statistically significant when using the lagged value of *MGRL ABILITY*. This provides some support for H3-2, demonstrating that the negative relationship between *MGRL ABILITY* and the issuance of a GCAR is strongest when *SIGNIFICANCE* is high. Visual inspection of the PR(*GCAR* = 1) as a function of the interacted variables using alternate specifications (un-tabulated) supports the statistical significance of the estimated coefficients reported at Table 9.

Factor Analysis of Financial Condition Variables

The financial condition variables are highly interrelated. For example, total assets impacts *SIZE*, *CASH*, *LEV*, *CLEV*, and *ZSCORE*. Revenues impacts *LOSS*, *OCF*, and *ZSCORE*. It is valuable to consider the impact of these interrelations on my analyses. I perform exploratory principal component analyses to estimate the underlying factors of these financial condition variables. This methodology is consistent with archival corporate governance analyses which attempt to discern the underlying factors that drive the multitude of corporate governance variables (Larcker, Richardson, and Tuna 2007; Dey 2008; Hossain, Mitra, Rezaee, and Sarath 2011).

[Insert Table 10 – Panel A Here]

Table 10 – Panel A reports the estimated factors of the seven variables. The first three factors each have eigenvalues greater than unity. However, their cumulative proportion of variance explains only totals 63.1%. Five factors are necessary in order to exceed 80% of total variance explained. As such, this demonstrates that there is not serious multicollinearity among the financial condition variables. I create variables based on the first three factors and modify Models (1) and (2) to include these factors rather than the financial condition variables. Table 10 – Panel A reports the factor loadings to create these factors as functions of the financial condition variables.

[Insert Table 10 – Panel B Here]

Table 10 – Panel B reports the estimated coefficients for Models (1) and (2) using the three factors as alternate variables. The three factors all serve as statistically significant determinants of the probability that the auditor will issue a GCAR. The estimated coefficients of the

interactions between *MGRL ABILITY* and the factors are statistically significant for two of the three factors. It is important to note that the factors are not signed such that higher values are consistent with financial distress.[21] Rather, they are non-directional measurements of the shared variance of the financial condition variables. The estimated coefficients for the interaction terms hold the opposite signs of the estimated coefficients for the main effects of the factors. This supports the moderating role of *MGRL ABILITY* expressed in H2, but does not directly test H2 because it cannot demonstrate a baseline relationship between distressed financial conditions and the issuance of a GCAR. This baseline relationship must be assumed, but is reasonable given the consistent directional relationships demonstrated in prior literature and in the analyses in Tables 4, 5, and 6.

Alternate Model Specification

Audit Fees

Krishnan and Wang (2014) document that managerial ability is negatively associated with the likelihood that the auditor will issue a GCAR and negatively associated with audit fees. They conclude that these relationships are consistent with a negative relationship between managerial ability and auditor-assessed business risk (i.e. the risk of subsequent poor firm performance and failure) and risk of material misstatement. While audit fees are rarely included as explanatory variables in GCAR models, two prominent studies do examine their role as determinants. DeFond et al. (2002) and Geiger and Rama (2003) each examine non-audit service fees and total

[21] This is especially true for *FACTOR3*. Table 10 – Panel A reports that *FACTOR3* is a negative function of four of the seven financial condition variables.

audit fees as factors that may impair auditor independence.[22] Each of these studies reports no significant association between non-audit service fees and the issuance of a GCAR. However, Geiger and Rama (2003) do document a positive association between audit fees and the issuance of a GCAR. As such, audit fees may represent an omitted independent variable correlated with *MGRL ABILITY*. I modify models (1) and (2) to include *LAUDIT* (the natural logarithm of audit fees) and re-perform my analyses.

[Insert Table 11 – Panel A Here]

Table 11 – Panel A presents the estimation of Model (1) with *LAUDIT* included. The first column presents the baseline analysis using all distressed firm-years. The estimated coefficient for *LAUDIT* is positive and statistically significant, consistent with Geiger and Rama (2003). The estimated coefficient for *MGRL ABILITY* is negative and statistically significant. The second and third columns present the estimation of Model (1) on sub-samples of firms that remain viable and file for bankruptcy (respectively). The estimated coefficient for *MGRL ABILITY* is negative and statistically significant in both sub-samples, consistent with the results reported in Table 4.

[Insert Table 11 – Panel B Here]

Table 11 – Panel B presents the estimation of Model (2) with *LAUDIT* included. The estimated coefficient for *LAUDIT* is positive and statistically significant. The estimated coefficients for the

[22] The variables of interest in DeFond et al. (2002) include non-audit service fees at the client level scaled by total fees at the client level and the sum of audit and non-audit fees with no scaling. The variables of interest in Geiger and Rama (2003) include audit fees and non-audit services fees, each without scaling. My models include. *SIGNIFICANCE*, calculated as total fees at the client level scaled by total fees at the auditor office level. All of these variables are designed to capture the auditor's economic dependence on client-specific audit fees (DeAngelo 1981).

interaction terms are consistent with those reported in Table 5, supporting H2. In summary, the results of my analyses are robust to the inclusion of audit fees in the model.

[Insert Table 11 – Panel C Here]

Table 11 – Panel C presents the estimation of Model (3) with *LAUDIT* included. The estimated coefficient for *LAUDIT* is positive and statistically significant. The estimated coefficients for the interaction terms are consistent with those reported in Table 6, providing no support for H3-1 through H3-4.

Combine Models (2) and (3)

Model (2) includes interactions between *MGRL ABILITY* and the seven financial condition variables, while Model (3) includes interactions between *MGRL ABILITY* and the four auditor independence variables. As an alternate specification, I include all of these interactions in the same model.

[Insert Table 12 Here]

Table 12 reports the results of the estimation. The estimated coefficients of the interaction terms are consistent with those reported at Tables 5 and 6.

Additional Analysis of Auditor Independence Hypotheses

As noted in Table 6, the estimated coefficients for the interaction terms between *MGRL ABILITY* and the four auditor independence variables are not statistically significant at traditional levels and do not support H3-1 through H3-4. Table 3 documents moderate correlations among the

auditor independence variables. For example, the correlations between *BIGN* and *SIGNIFICANCE*, *SPECIALIST*, and *TENURE* are -.389, .268, and .243 respectively. It is possible that multicollinearity is too strong to properly detect the moderating role of auditor independence using a fully-interacted model. As an alternate specification, I re-estimate Model (3) four times. Each time I include only one of the auditor independence variables and its interaction with *MGRL ABILITY*. I note no statistically significant estimated coefficients for the interaction terms (un-tabulated). I also estimate models with *SIGNIFICANCE*, *SPECIALIST*, and *TENURE* (including their interactions with *MGRL ABILITY*) separately under samples where *BIGN*=1 and *BIGN*=0. I still note no statistically significant estimated coefficients for the interaction terms (untabulated).

Alternate Sampling

Expanded Definition of Subsequent Firm Failure

To test H1, I examine a sub-sample of firms that file for bankruptcy in the subsequent period. This serves as my proxy for the firm's failure to remain viable and continue operations in future periods without significant intervention. However, this sample is very small (147 observations reported at Table 4). In order to improve my analysis of Type 2 errors, I expand the definition of subsequent firm failure to include securities that are delisted in the subsequent period due to liquidation or other reasons that indicate firm failure.[23]

[23] I utilize the delisting code (DLSTCD) in CRSP to identify these instances. I include those that delist due to liquidation (DLSTCD 400-490, 572), due to lack of compliance with exchange requirements (DLSTCD 560-561, 580-584), or for protection of investors and the public interest (DLSTCD 585).

[Insert Table 13 Here]

Table 13 reproduces the analyses at Table 4 using these alternate sampling specifications. The sample of firms that subsequently fail using this alternate specification expands to 244 observations. The estimated coefficient for *MGRL ABILITY* is negative and statistically significant in both sub-samples. This alternate sampling specification confirms the conclusion that managerial ability influences the auditor to issue a clean opinion regardless of the subsequent viability of the firm.

CHAPTER VII

CONCLUSION

Motivated by extant archival and experimental literature, my research examines the dynamic role of managerial ability in the auditor's reporting decision. I posit that high managerial ability improves the accuracy of the auditor's opinion through improved accuracy of the prospective information available to the auditor. The results of my analyses demonstrate that the negative relationship between managerial ability and the issuance of a GCAR holds regardless of the ex-post realized viability of the firm. As such, managerial ability is simultaneously associated with a decrease in Type 1 reporting errors and an increase in Type 2 reporting errors. I also posit that managerial ability impacts the auditor's assessment by changing the way that the auditor utilizes the company's financial condition information. The results of my analyses demonstrate that the auditor is less sensitive to prominent indicators of financial distress when managerial ability is high than when managerial ability is low. Finally, I posit that auditor independence may moderate the negative relationship between managerial ability and the issuance of a going concern. The results of my analyses do not support such an effect.

My work contributes to the discussion of audit reporting errors. Auditors desire to issue an accurate audit opinion but tend to report overly-conservatively (Carson et al. 2013; CAQ 2012). Documented results demonstrate that high managerial ability influences the auditor to report less

conservatively, even when conservative reporting is desirable. As such, the implications of the relationship between managerial ability and the issuance of a modified opinion are subject to the reader's sensitivity to false positives versus false negatives. My work motivates future research that examines the costs of false positives and false negatives to firms, managers, auditors, and debt and equity market participants.

My first hypothesis predicts that managerial ability improves the auditor's ability to issue a GCAR to firms that fail in the subsequent period. My results document the opposite of this expected relationship. The expectation is based on the positive relationship between managerial ability and the accuracy of prospective information documented by Demerjian et al. (2013) and Baik et al. (2011). However, these studies do not directly examine the relationship between managerial ability and the accuracy of prospective information by information type – good news versus bad news. It is possible that the documented relationship only holds for good news and does not hold (or is even negative) for bad news. My work motivates analysis of the relationships between managerial ability and the bias of prospective information or the accuracy of prospective information by type. Such analyses would assist auditors as they assess and utilize management-prepared prospective information.

My work primarily contributes to extant archival literature that examines the determinants of the audit opinion. Theoretical and experimental studies prominently demonstrate that the auditor interacts information, prioritizes information, and utilizes information differently under different environmental conditions (Brown and Solomon 1990; Rosman et al. 1999; Bonner 2008). However, such analyses using archival data are rare. In particular, archival analyses of the going concern opinion have not prominently explored how the auditor utilizes the most prominent indicators of financial distress (i.e. constrained cash and high leverage) differently under different environments. My results demonstrate that managerial ability moderates the sensitivity of the auditor's opinion to prominent indicators of financial conditions. Consistent with theoretical and

experimental literature, my work provides evidence that the auditor's decision-making process is best-described as non-compensatory rather than compensatory (Bonner 2008).

The results demonstrate the value of modeling interactions between a variable of interest and prominently-identified determinants of the auditor's opinion when there is reason to believe that the variable of interest changes the environment in which the auditor forms his or her reporting decision. Future research models that do not allow interactions between financial condition information and environmental conditions may be miss-specified and fail to capture the dynamic nature of the audit environment. My work motivates researchers to explore how the auditor's utilization of financial condition information varies according to pervasive firm-level characteristics (e.g. historical trends), environment characteristics (e.g. regime changes or economic conditions), and auditor characteristics (e.g. industry specialization). While some of these characteristics have been included as determinants in traditional linear models, the literature would benefit from models that examine their dynamic impact on the auditor's utilization of financial condition information.

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TABLE 1

Variable Definitions

Dependent Variable	
GCAR	An an indicator variable that equals 1 if the auditor issues a going concern modified audit report; 0 otherwise.
Variable of Interest	
MGRL ABILITY	The managerial ability metric developed by Demerjian et al. (2012).
Financial Condition Variables	
SIZE[A]	The natural logarithm of total assets at year-end.
CASH[A]	Cash and short-term investments scaled by total assets at year-end.
LEV	Total liabilities scaled by total assets at year-end.
CLEV	The change in *LEV* from the prior to the current period.
LOSS	An indicator variable that equals 1 if the company experiences negative net income, 0 otherwise.
OCF[A]	Operating cash flows scaled by total liabilities at year-end.
ZSCORE	A variable based on Altman's (1968) bankruptcy score where *ZSCORE* = When 2 Altman Z < 1.81 1 1.81 =< Altman Z < 3.00 0 3.00 =< Altman Z Altman Z = (1.2 x working capital/total assets) + (1.4 x retained earnings/total assets) + (3.3 x earnings before interest and taxes/total assets) + (.6 x market value equity/book value of total debt) + (.999 x sales/total assets). A higher value of *ZSCORE* is consistent with a higher likelihood of firm failure.
Auditor Characteristics Variables	
BIG4	An indicator variable that equals 1 if the auditor is a "Big 4" auditor (PwC, E&Y, KPMG, D&T), 0 otherwise.
SIGNIFICANCE	The company's total fees paid to the auditor scaled by the total revenue of the auditor's local office (measured at the MSA level) for the reported fiscal year.
SPECIALIST	An indicator variable that equals 1 if the auditor has both 30% of the national industry market share and 50% of the local industry market share (measured at the MSA level) for the fiscal year; 0 otherwise. Industry market size is measured as the sum of total fees for each of Fama and French's (1997) 48 industry groups.
TENURE	The length of consecutive years that the auditor has been engaged by the company.
Other Control Variables	
REPORT LAG	The number of days between the fiscal year-end and the signature date of the audit opinion.

[A] For multivariate analyses, *SIZE, CASH,* and *OCF* are multiplied by (-1) so that higher values represent distressed financial conditions. The transformed versions are named *NEG SIZE*, *NEG CASH*, and *NEG OCF* respectively.

TABLE 2

Descriptive Statistics

	Full Sample		Non-Distressed		Distressed		
Variable	**Mean**	**Std Dev**	**Mean**	**Std Dev**	**Mean**	**Std Dev**	**Difference**
GCAR	0.080	0.271	0.008	0.089	0.200	0.400	0.191 ***
MGRL ABILITY	-0.012	0.151	0.016	0.140	-0.058	0.158	-0.074 ***
SIZE	5.381	2.256	6.273	1.959	3.903	1.912	-2.371 ***
CASH	0.226	0.235	0.172	0.182	0.317	0.281	0.145 ***
LEV	0.547	0.468	0.491	0.281	0.640	0.661	0.149 ***
CLEV	0.004	0.273	-0.013	0.137	0.034	0.406	0.047 ***
LOSS	0.408	0.491	0.130	0.336	0.867	0.339	0.737 ***
OCF	0.028	0.856	0.366	0.373	-0.533	1.102	-0.898 ***
ZSCORE	0.825	0.891	0.556	0.771	1.269	0.899	0.713 ***
BIGN	0.691	0.462	0.794	0.405	0.522	0.500	-0.272 ***
SIGNIFICANCE	0.107	0.196	0.106	0.189	0.109	0.206	0.003
SPECIALIST	0.121	0.327	0.151	0.358	0.073	0.260	-0.078 ***
TENURE	8.732	7.474	9.872	8.270	6.845	5.420	-3.028 ***
REPORT LAG	66.159	23.110	61.664	19.868	73.602	25.999	11.939 ***
Number of Obs	30417		18964		11453		

Variables are defined in Table 1. The first column reports descriptive statistics for all available firm-years in the full sample. The second and third columns report descriptive statistics for non-distressed and distressed sub-samples. A firm-year is classified as distressed if either reported operating earnings or reported operating cash flows are negative for the firm-year. The final column reports the difference between the non-distressed and distressed median values for each variable. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 3

Pearson Correlation Matrix using the Sample of Distressed Firm-Years (N = 11453)

	1 -	***2 -***	***3 -***	***4 -***	***5 -***	***6 -***	***7 -***	***8 -***
1 - *GCAR*	1.00000							
2 - *MGRL ABILITY*	-0.02530 0.0068	1.00000						
3 - *SIZE*	-0.46518 <.0001	-0.11539 <.0001	1.00000					
4 - *CASH*	-0.20287 <.0001	-0.07336 <.0001	0.00079 0.9331	1.00000				
5 - *LEV*	0.44746 <.0001	0.05097 <.0001	-0.36089 <.0001	-0.19826 <.0001	1.00000			
6 - *CLEV*	0.04374 <.0001	-0.08188 <.0001	0.00333 0.7213	-0.10032 <.0001	0.26668 <.0001	1.00000		
7 - *LOSS*	0.12381 <.0001	-0.20141 <.0001	-0.11513 <.0001	0.10838 <.0001	0.06716 <.0001	0.07629 <.0001	1.00000	
8 - *OCF*	-0.11193 <.0001	0.14544 <.0001	0.27614 <.0001	-0.38880 <.0001	0.13589 <.0001	0.10637 <.0001	-0.13801 <.0001	1.00000
9 - *ZSCORE*	0.31522 <.0001	-0.13338 <.0001	-0.16912 <.0001	-0.16276 <.0001	0.33098 <.0001	0.11153 <.0001	0.27044 <.0001	0.07112 <.0001
10 - *BIGN*	-0.29911 <.0001	-0.10051 <.0001	0.55028 <.0001	0.25998 <.0001	-0.21861 <.0001	0.03951 <.0001	0.01229 0.1886	0.03663 <.0001
11 - *SIGNIFICANCE*	0.12356 <.0001	0.04917 <.0001	-0.16227 <.0001	-0.19709 <.0001	0.09429 <.0001	-0.01802 0.0537	-0.02003 0.0321	0.05049 <.0001
12 - *SPECIALIST*	-0.07154 <.0001	-0.03202 0.0006	0.16374 <.0001	0.05428 <.0001	-0.05324 <.0001	0.01180 0.2067	-0.00553 0.5538	-0.00687 0.4621
13 - *TENURE*	-0.06346 <.0001	-0.00165 0.8597	0.20973 <.0001	-0.03684 <.0001	-0.02078 0.0262	0.02068 0.0269	-0.06944 <.0001	0.08086 <.0001
14 - *REPORT LAG*	0.26592 <.0001	0.03434 0.0002	-0.22389 <.0001	-0.20707 <.0001	0.22047 <.0001	0.04803 <.0001	0.00633 0.4984	0.03828 <.0001
15 - $GCAR_{t-1}$	0.66873 <.0001	0.01285 0.1692	-0.46430 <.0001	-0.15363 <.0001	0.43622 <.0001	-0.06629 <.0001	0.08433 <.0001	-0.08926 <.0001

(continued on next page)

TABLE 3 (Continued)

	9 -	***10 -***	***11 -***	***12 -***	***13 -***	***14 -***	***15 -***
9 - *ZSCORE*	1.00000						
10 - *BIGN*	-0.10460 <.0001	1.00000					
11 - *SIGNIFICANCE*	0.04737 <.0001	-0.38973 <.0001	1.00000				
12 - *SPECIALIST*	-0.05006 <.0001	0.26804 <.0001	-0.09031 <.0001	1.00000			
13 - *TENURE*	-0.04594 <.0001	0.24365 <.0001	-0.03010 0.0013	0.07269 <.0001	1.00000		
14 - *REPORT LAG*	0.15022 <.0001	-0.25033 <.0001	0.14562 <.0001	-0.05808 <.0001	-0.04907 <.0001	1.00000	
15 - $GCAR_{t-1}$	0.24215 <.0001	-0.31927 <.0001	0.13149 <.0001	-0.08398 <.0001	-0.07467 <.0001	0.19871 <.0001	1.00000

Variables are defined in Table 1. P-values are below the coefficients.

TABLE 4

Logit Estimation of Model (1) on All Observations and Separated by Subsequent Bankruptcy Status
Dependent Variable is PR(*GCAR* = 1)

Variables		*All Observations* Coef.	Wald χ^2		*Subsequently Remain Viable* Coef.	Wald χ^2		*Subsequently Declare Bankruptcy* Coef.	Wald χ^2	
Intercept		*-4.613*	*154.2*	***	*-4.413*	*136.1*	***	*30.911*	*0.0*	
MGRL ABILITY	***(-)***	***-0.909***	***14.2***	***	***-0.902***	***13.3***	***	***-99.69***	***3.0***	*
NEG SIZE	*(+)*	*0.406*	*176.0*	***	*0.455*	*201.8*	***	*10.400*	*4.3*	**
NEG CASH	*(+)*	*2.428*	*174.8*	***	*2.382*	*162.3*	***	*37.227*	*1.3*	
LEV	*(+)*	*0.730*	*112.7*	***	*0.630*	*84.0*	***	*-4.682*	*0.6*	
CLEV	*(+)*	*0.079*	*2.8*	*	*0.073*	*2.4*		*20.739*	*2.1*	
LOSS	*(+)*	*0.629*	*15.4*	***	*0.591*	*13.3*	***	*28.853*	*0.0*	
NEG OCF	*(+)*	*0.415*	*172.1*	***	*0.392*	*149.7*	***	*6.378*	*0.4*	
ZSCORE	*(+)*	*0.823*	*186.2*	***	*0.821*	*179.6*	***	*20.933*	*1.9*	
BIGN	*(+)*	*0.112*	*1.0*		*0.092*	*0.7*		*3.498*	*0.4*	
SIGNIFICANCE	*(-)*	*0.008*	*0.0*		*0.025*	*0.0*		*160.900*	*3.0*	*
SPECIALIST	*(+)*	*0.234*	*1.8*		*0.339*	*3.7*	*	*22.499*	*0.0*	
TENURE	*(?)*	*0.015*	*3.2*	*	*0.017*	*4.0*	**	*0.444*	*0.1*	
REPORT LAG	*(+)*	*0.012*	*112.1*	***	*0.012*	*111.2*	***	*-0.403*	*1.0*	
$GCAR_{t-1}$	*(+)*	*2.848*	*1066.5*	***	*2.866*	*1054.2*	***	*49.217*	*4.6*	**
BANKRUPTCY LAG	*(-)*							*-5.345*	*3.2*	*
Industry Fixed Effects		Included			Included			Included		
Year Fixed Effects		Included			Included			Included		
Number of Obs		11453			11306			147		
Percent *GCAR* =1		20.0%			19.3%			67.3%		
Likelihood Ratio		6216.68			6118.98			177.90		
Pr > χ2		<.0001			<.0001			<.0001		
Percent Concordant		94.7%			94.9%			100.0%		
Pseudo R^2%		41.9%			41.8%			70.2%		

Variables are defined in Table 1. *BANKRUPTCY LAG* is the number of days between the audit report filing date and the bankruptcy filing date. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(*GCAR* = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 5

Logit Estimation of Model (2)
Dependent Variable is PR(*GCAR* = 1)

Variables		Main Effects Coef.	Wald χ^2		Interactions w/*MGRL ABILITY* Coef.	Wald χ^2	
Intercept		*-4.682*	*156.0*	***			
MGRL ABILITY	***(-)***	***0.972***	***0.9***				
NEG SIZE	*(+)*	*0.402*	*164.8*	***	*-0.069*	*0.2*	
NEG CASH	*(+)*	*2.291*	*148.5*	***	*-2.826*	*11.3*	***
LEV	*(+)*	*0.731*	*115.4*	***	*-0.718*	*4.8*	**
CLEV	*(+)*	*0.080*	*2.8*	*	*-0.274*	*2.2*	
LOSS	*(+)*	*0.669*	*16.5*	***	*0.104*	*0.0*	
NEG OCF	*(+)*	*0.402*	*127.9*	***	*-0.376*	*5.2*	**
ZSCORE	*(+)*	*0.784*	*162.7*	***	*-1.354*	*18.5*	***
BIGN	*(+)*	*0.095*	*0.7*				
SIGNIFICANCE	*(+)*	*0.005*	*0.0*				
SPECIALIST	*(+)*	*0.254*	*2.1*				
TENURE	*(?)*	*0.016*	*3.9*	**			
REPORT LAG	*(+)*	*0.012*	*109.2*	***			
$GCAR_{t-1}$	*(+)*	*2.847*	*1055.1*	***			
Industry Fixed Effects			Included				
Year Fixed Effects			Included				
Number of Obs			11453				
Likelihood Ratio			6262.49				
Pr > χ2			<.0001				
Percent Concordant			94.8%				
Pseudo R^2%			42.1%				

Variables are defined in Table 1. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 6

Logit Estimation of Model (3)
Dependent Variable is PR(*GCAR* = 1)

Variables		Main Effects Coef.	Main Effects Wald χ^2		Interactions w/*MGRL ABILITY* Coef.	Interactions w/*MGRL ABILITY* Wald χ^2
Intercept		*-4.610*	*153.2*	***		
MGRL ABILITY	***(-)***	***-0.651***	***2.2***			
NEG SIZE	*(+)*	*0.405*	*174.9*	***		
NEG CASH	*(+)*	*2.424*	*174.0*	***		
LEV	*(+)*	*0.732*	*112.7*	***		
CLEV	*(+)*	*0.078*	*2.7*	*		
LOSS	*(+)*	*0.630*	*15.4*	***		
NEG OCF	*(+)*	*0.415*	*171.7*	***		
ZSCORE	*(+)*	*0.824*	*186.3*	***		
BIGN	*(+)*	*0.109*	*0.8*		*-0.065*	*0.0*
SIGNIFICANCE	*(-)*	*-0.012*	*0.0*		*-0.552*	*0.4*
SPECIALIST	*(+)*	*0.217*	*1.0*		*-0.110*	*0.0*
TENURE	*(?)*	*0.013*	*2.2*		*-0.023*	*0.2*
REPORT LAG	*(+)*	*0.012*	*112.4*	***		
$GCAR_{t-1}$	*(+)*	*2.848*	*1066.3*	***		
Industry Fixed Effects			Included			
Year Fixed Effects			Included			
Number of Obs			11453			
Likelihood Ratio			6217.34			
Pr > χ2			<.0001			
Percent Concordant			94.7%			
Pseudo R^2 %			41.9%			

Variables are defined in Table 1. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 7

Logit Estimation of Model (1) on All Observations and Separated by Subsequent Bankruptcy Status
Alternate Specification of *MGRL ABILITY*
Dependent Variable is PR(*GCAR* = 1)

		MGRL ABILITY **= 1 Year Lagged Value**				***MGRL ABILITY*** **= 3 Year Rolling Avg**			
		Subsequently Remain Viable		***Subsequently Declare Bankruptcy***		***Subsequently Remain Viable***		***Subsequently Declare Bankruptcy***	
Variables		**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**
Intercept		*-4.508*	*137.5* ***	*-1.809*	*0.0*	*-4.642*	*133.5* ***	*10.688*	*0.0*
MGRL ABILITY	***(-)***	***-0.695***	***8.0*** ***	***-8.470***	***2.5***	***-1.231***	***14.6*** ***	***-23.057***	***5.4*** **
NEG SIZE	*(+)*	*0.438*	*180.7* ***	*1.620*	*3.1* *	*0.451*	*176.5* ***	*3.238*	*2.8* *
NEG CASH	*(+)*	*2.356*	*151.6* ***	*7.350*	*1.9*	*2.267*	*131.2* ***	*10.319*	*1.8*
LEV	*(+)*	*0.618*	*78.1* ***	*-0.036*	*0.0*	*0.678*	*83.6* ***	*-1.935*	*1.5*
CLEV	*(+)*	*0.055*	*1.2*	*2.745*	*1.7*	*0.058*	*1.1*	*7.436*	*2.5*
LOSS	*(+)*	*0.653*	*15.7* ***	*17.795*	*0.0*	*0.593*	*12.1* ***	*15.110*	*0.0*
NEG OCF	*(+)*	*0.414*	*159.3* ***	*1.483*	*1.7*	*0.408*	*135.7* ***	*1.810*	*1.5*
ZSCORE	*(+)*	*0.799*	*157.4* ***	*4.164*	*2.2*	*0.776*	*133.2* ***	*9.538*	*2.5*
BIGN	*(+)*	*0.049*	*0.2*	*2.718*	*1.3*	*0.086*	*0.5*	*0.145*	*0.0*
SIGNIFICANCE	*(-)*	*-0.064*	*0.1*	*34.593*	*5.2* **	*-0.039*	*0.0*	*46.690*	*4.3* **
SPECIALIST	*(+)*	*0.349*	*3.8* *	*-4.085*	*0.0*	*0.352*	*3.7* *	*-9.298*	*0.0*
TENURE	*(?)*	*0.015*	*3.3* *	*-0.204*	*1.0*	*0.017*	*3.8* *	*-0.104*	*0.2*
REPORT LAG	*(+)*	*0.013*	*120.7* ***	*-0.052*	*0.7*	*0.014*	*120.3* ***	*-0.159*	*1.6*
$GCAR_{t-1}$	*(+)*	*2.900*	*1011.9* ***	*7.033*	*3.5* *	*2.940*	*957.6* ***	*17.448*	*3.3* *
BANKRUPTCY LAG	*(-)*			*-1.081*	*5.6* **			*-1.654*	*5.0* **
Industry Fixed Effects		Included		Included		Included		Included	
Year Fixed Effects		Included		Included		Included		Included	
Number of Obs		10948		143		10399		134	
Percent *GCAR* =1		18.9%		67.1%		18.5%		67.2%	
Likelihood Ratio		5821.05		143.31		5479.64		140.32	
Pr > χ2		<.0001		<.0001		<.0001		<.0001	
Percent Concordant		94.9%		99.1%		94.9%		99.2%	
Pseudo R^2%		41.2%		63.3%		41.0%		64.9%	

Variables are defined in Table 1. *BANKRUPTCY LAG* is the number of days between the audit report filing date and the bankruptcy filing date. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 8

Logit Estimation of Model (2)
Alternate Specification of *MGRL ABILITY*
Dependent Variable is PR(*GCAR* = 1)

		MGRL ABILITY **= 1 Year Lagged Value**				***MGRL ABILITY*** **= 3 Year Rolling Avg**			
		Main Effects		**Interactions w/*MGRL ABILITY***		**Main Effects**		**Interactions w/*MGRL ABILITY***	
Variables		**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**
Intercept		*-4.754*	*158.4* ***			*-4.926*	*156.5* ***		
MGRL ABILITY	***(-)***	***0.850***	***0.6***			***0.788***	***0.3***		
NEG SIZE	*(+)*	*0.389*	*150.3* ***	*0.028*	*0.0*	*0.391*	*137.7* ***	*-0.190*	*1.1*
NEG CASH	*(+)*	*2.354*	*147.3* ***	*-1.063*	*1.4*	*2.217*	*117.7* ***	*-1.919*	*2.9* *
LEV	*(+)*	*0.715*	*106.4* ***	*-0.935*	*8.1* ***	*0.767*	*109.2* ***	*-1.011*	*4.9* **
CLEV	*(+)*	*0.068*	*1.7*	*-0.521*	*4.8* **	*0.067*	*1.4*	*-0.900*	*7.1* ***
LOSS	*(+)*	*0.713*	*19.1* ***	*0.618*	*0.4*	*0.670*	*15.7* ***	*0.378*	*0.1*
NEG OCF	*(+)*	*0.447*	*154.6* ***	*-0.135*	*0.6*	*0.446*	*117.1* ***	*-0.161*	*0.5*
ZSCORE	*(+)*	*0.779*	*148.8* ***	*-0.910*	*7.5* ***	*0.742*	*119.5* ***	*-1.510*	*12.0* ***
BIGN	*(+)*	*0.058*	*0.3*			*0.099*	*0.7*		
SIGNIFICANCE	*(+)*	*-0.064*	*0.1*			*-0.035*	*0.0*		
SPECIALIST	*(+)*	*0.243*	*1.9*			*0.253*	*1.9*		
TENURE	*(?)*	*0.015*	*3.1* *			*0.016*	*3.8* *		
REPORT LAG	*(+)*	*0.013*	*123.6* ***			*0.013*	*123.8* ***		
$GCAR_{t-1}$	*(+)*	*2.885*	*1016.9* ***			*2.931*	*964.8* ***		
Industry Fixed Effects			Included				Included		
Year Fixed Effects			Included				Included		
Number of Obs			11091				10533		
Likelihood Ratio			5954.76				5614.96		
Pr > χ2			<.0001				<.0001		
Percent Concordant			94.8%				94.8%		
Pseudo R^2%			41.5%				41.3%		

Variables are defined in Table 1. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 9

Logit Estimation of Model (3)
Alternate Specification of *MGRL ABILITY*
Dependent Variable is PR(*GCAR* = 1)

		MGRL ABILITY **= 1 Year Lagged Value**				***MGRL ABILITY*** **= 3 Year Rolling Avg**			
		Main Effects		**Interactions w/*MGRL ABILITY***		**Main Effects**		**Interactions w/*MGRL ABILITY***	
Variables		**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**	**Coef.**	**Wald χ^2**
Intercept		*-4.712*	*155.0* ***			*-4.829*	*149.8* ***		
MGRL ABILITY	***(-)***	***-0.149***	***0.1***			***-1.087***	***3.4*** *		
NEG SIZE	*(+)*	*0.386*	*153.3* ***			*0.401*	*152.5* ***		
NEG CASH	*(+)*	*2.409*	*163.3* ***			*2.318*	*141.7* ***		
LEV	*(+)*	*0.723*	*106.6* ***			*0.784*	*111.9* ***		
CLEV	*(+)*	*0.061*	*1.4*			*0.066*	*1.4*		
LOSS	*(+)*	*0.688*	*17.8* ***			*0.615*	*13.3* ***		
NEG OCF	*(+)*	*0.440*	*183.2* ***			*0.435*	*157.1* ***		
ZSCORE	*(+)*	*0.808*	*164.7* ***			*0.787*	*140.8* ***		
BIGN	*(+)*	*0.041*	*0.1*	*-0.553*	*0.9*	*0.151*	*1.4*	*0.383*	*0.3*
SIGNIFICANCE	*(+)*	*-0.135*	*0.5*	*-1.852*	*4.4* **	*-0.052*	*0.1*	*-0.559*	*0.2*
SPECIALIST	*(+)*	*0.200*	*0.8*	*-0.136*	*0.0*	*0.216*	*0.9*	*-0.079*	*0.0*
TENURE	*(?)*	*0.013*	*2.2*	*-0.008*	*0.0*	*0.014*	*2.0*	*-0.024*	*0.1*
REPORT LAG	*(+)*	*0.013*	*122.6* ***			*0.013*	*121.9* ***		
$GCAR_{t-1}$	*(+)*	*2.889*	*1025.2* ***			*2.923*	*969.2* ***		
Industry Fixed Effects			Included				Included		
Year Fixed Effects			Included				Included		
Number of Obs			11091				10533		
Likelihood Ratio			5926.26				5574.17		
Pr > χ2			<.0001				<.0001		
Percent Concordant			94.7%				94.7%		
Pseudo R^2%			41.4%				41.1%		

Variables are defined in Table 1. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 10 - Panel A

Principal Component Analysis of Financial Condition Variables

Variance Explained

Factors	Eigenvalue	Proportion	Cumulative
FACTOR 1	1.8262	0.2609	0.2609
FACTOR 2	1.5660	0.2237	0.4846
FACTOR 3	1.0231	0.1462	0.6308
FACTOR 4	0.9287	0.1327	0.7634
FACTOR 5	0.6392	0.0913	0.8547
FACTOR 6	0.5889	0.0841	0.9389
FACTOR 7	0.4278	0.0611	1.0000

Factor Loadings

Variables	*FACTOR 1*	*FACTOR 2*	*FACTOR 3*
NEG SIZE	0.4219	0.5780	-0.5509
NEG CASH	0.4717	-0.5779	-0.1761
LEV	0.7824	0.0756	-0.2762
CLEV	0.4600	-0.1191	0.2721
LOSS	0.2751	0.4897	0.6660
NEG OCF	-0.2805	0.7821	-0.1301
ZSCORE	0.6690	0.1630	0.2791

Variables are defined in Table 1.

TABLE 10 - Panel B

Logit Estimation of Models (1) and (2)
Financial Condition Variables Transformed using Factor Analysis
Dependent Variable is PR(*GCAR* = 1)

Variables		Model (1) Coef.	Model (1) Wald χ^2		Model (2) Main Effects Coef.	Model (2) Main Effects Wald χ^2		Model (2) Interactions w/*MGRL ABILITY* Coef.	Model (2) Interactions w/*MGRL ABILITY* Wald χ^2	
Intercept		*-4.554*	*209.1*	***	*-4.578*	*210.4*	***			
MGRL ABILITY	***(-)***	***-1.279***	***30.0***	***	***-0.774***	***7.7***	***			
FACTOR 1	*(+)*	*1.511*	*731.8*	***	*1.475*	*699.6*	***	*-1.645*	*40.0*	***
FACTOR 2	*(+)*	*0.799*	*319.6*	***	*0.818*	*310.5*	***	*-0.406*	*3.2*	*
FACTOR 3	*(+)*	*-0.486*	*85.8*	***	*-0.468*	*78.5*	***	*0.222*	*1.0*	
BIGN	*(+)*	*0.044*	*0.2*		*0.051*	*0.2*				
SIGNIFICANCE	*(+)*	*0.033*	*0.0*		*0.043*	*0.1*				
SPECIALIST	*(+)*	*0.198*	*1.3*		*0.223*	*1.7*				
TENURE	*(?)*	*0.016*	*4.0*	**	*0.017*	*4.4*	**			
REPORT LAG	*(+)*	*0.013*	*141.1*	***	*0.013*	*137.6*	***			
$GCAR_{t-1}$	*(+)*	*2.906*	*1198.8*	***	*2.898*	*1182.7*	***			
Industry Fixed Effects		Included			Included					
Year Fixed Effects		Included			Included					
Number of Obs		11453			11453					
Likelihood Ratio		6055.17			6094.35					
Pr > χ2		<.0001			<.0001					
Percent Concordant		94.4%			94.5%					
Pseudo R^2 %		41.1%			41.3%					

Variables are defined in Table 1. See Table 10 - Panel A for details on how FACTOR1, FACTOR2, and FACTOR 3 are constructed based on financial condition information variables. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 11 - Panel A

Logit Estimation of Model (1) on All Observations and Separated by Subsequent Bankruptcy Status
***LAUDIT* Included in Model**
Dependent Variable is PR(*GCAR* = 1)

Variables		*All Observations* Coef.	Wald χ^2		*Subsequently Remain Viable* Coef.	Wald χ^2		*Subsequently Declare Bankruptcy* Coef.	Wald χ^2	
Intercept		*-6.790*	*81.0*	***	*-6.552*	*72.0*	***	*-230.3*	*0.0*	
MGRL ABILITY	***(-)***	***-0.931***	***14.7***	***	***-0.934***	***14.1***	***	***-134.70***	***6.7***	***
NEG SIZE	*(+)*	*0.508*	*132.3*	***	*0.553*	*146.8*	***	*22.396*	*3.5*	*
NEG CASH	*(+)*	*2.467*	*177.3*	***	*2.426*	*165.6*	***	*33.708*	*0.7*	
LEV	*(+)*	*0.703*	*103.6*	***	*0.607*	*77.3*	***	*5.247*	*0.1*	
CLEV	*(+)*	*0.065*	*1.8*		*0.060*	*1.6*		*-4.324*	*0.0*	
LOSS	*(+)*	*0.605*	*14.1*	***	*0.568*	*12.1*	***	*8.431*	*0.0*	
NEG OCF	*(+)*	*0.408*	*164.2*	***	*0.385*	*142.9*	***	*7.573*	*0.5*	
ZSCORE	*(+)*	*0.800*	*172.6*	***	*0.796*	*165.9*	***	*12.788*	*0.4*	
LAUDIT	*(+)*	*0.216*	*10.9*	***	*0.212*	*9.9*	***	*25.585*	*0.9*	
BIGN	*(+)*	*-0.002*	*0.0*		*-0.019*	*0.0*		*-7.437*	*0.2*	
SIGNIFICANCE	*(-)*	*0.013*	*0.0*		*0.031*	*0.0*		*125.00*	*3.2*	*
SPECIALIST	*(+)*	*0.247*	*2.0*		*0.350*	*3.9*	**	*35.244*	*0.9*	
TENURE	*(?)*	*0.016*	*3.9*	**	*0.018*	*4.6*	**	*1.258*	*0.5*	
REPORT LAG	*(+)*	*0.012*	*104.8*	***	*0.012*	*105.2*	***	*-0.407*	*1.2*	
$GCAR_{t-1}$	*(+)*	*2.840*	*1056.6*	***	*2.856*	*1042.8*	***	*52.953*	*4.6*	**
BANKRUPTCY LAG	*(-)*							*-6.992*	*4.9*	**
Industry Fixed Effects		Included			Included			Included		
Year Fixed Effects		Included			Included			Included		
Number of Obs		11419			11275			144		
Percent *GCAR* =1		19.8%			19.2%			66.7%		
Likelihood Ratio		6182.34			6086.38			181.69		
Pr > χ2		<.0001			<.0001			<.0001		
Percent Concordant		94.8%			94.9%			100.0%		
Pseudo R^2 %		41.8%			41.7%			71.7%		

Variables are defined in Table 1. *LAUDIT* is the natural logarithm of audit fees. *BANKRUPTCY LAG* is the number of days between the audit report filing date and the bankruptcy filing date. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 11 - Panel B

Logit Estimation of Model (2)
***LAUDIT* Included in Model**
Dependent Variable is PR(*GCAR* = 1)

Variables		Main Effects Coef.	Main Effects Wald χ^2		Interactions w/*MGRL ABILITY* Coef.	Interactions w/*MGRL ABILITY* Wald χ^2	
Intercept		*-6.930*	*83.0*	***			
MGRL ABILITY	***(-)***	***1.018***	***0.9***				
NEG SIZE	*(+)*	*0.509*	*127.3*	***	*-0.054*	*0.1*	
NEG CASH	*(+)*	*2.335*	*151.5*	***	*-2.754*	*10.6*	***
LEV	*(+)*	*0.701*	*105.1*	***	*-0.697*	*4.4*	**
CLEV	*(+)*	*0.067*	*1.9*		*-0.278*	*2.3*	
LOSS	*(+)*	*0.649*	*15.4*	***	*0.028*	*0.0*	
NEG OCF	*(+)*	*0.394*	*121.2*	***	*-0.368*	*4.9*	**
ZSCORE	*(+)*	*0.758*	*149.5*	***	*-1.327*	*17.4*	***
LAUDIT	*(+)*	*0.224*	*11.5*	***			
BIGN	*(+)*	*-0.021*	*0.0*				
SIGNIFICANCE	*(+)*	*0.008*	*0.0*				
SPECIALIST	*(+)*	*0.265*	*2.3*				
TENURE	*(?)*	*0.018*	*4.6*	**			
REPORT LAG	*(+)*	*0.012*	*101.0*	***			
$GCAR_{t-1}$	*(+)*	*2.840*	*1046.8*	***			
Industry Fixed Effects			Included				
Year Fixed Effects			Included				
Number of Obs			11419				
Likelihood Ratio			6225.89				
Pr > χ2			<.0001				
Percent Concordant			94.9%				
Pseudo R^2 %			42.0%				

Variables are defined in Table 1. *LAUDIT* is the natural logarithm of audit fees. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 11 - Panel C

Logit Estimation of Model (3)
***LAUDIT* Included in Model**
Dependent Variable is PR(*GCAR* = 1)

Variables		Main Effects Coef.	Main Effects Wald χ^2		Interactions w/*MGRL ABILITY* Coef.	Interactions w/*MGRL ABILITY* Wald χ^2
Intercept		*-6.787*	*80.8*	***		
MGRL ABILITY	***(-)***	***-0.644***	***2.2***			
NEG SIZE	*(+)*	*0.507*	*131.7*	***		
NEG CASH	*(+)*	*2.463*	*176.5*	***		
LEV	*(+)*	*0.705*	*103.5*	***		
CLEV	*(+)*	*0.064*	*1.8*			
LOSS	*(+)*	*0.607*	*14.2*	***		
NEG OCF	*(+)*	*0.408*	*163.6*	***		
ZSCORE	*(+)*	*0.800*	*172.6*	***		
LAUDIT	*(+)*	*0.216*	*10.9*	***		
BIGN	*(+)*	*-0.008*	*0.0*		*-0.106*	*0.0*
SIGNIFICANCE	*(-)*	*-0.009*	*0.0*		*-0.604*	*0.5*
SPECIALIST	*(+)*	*0.219*	*1.0*		*-0.209*	*0.0*
TENURE	*(?)*	*0.015*	*2.8*	*	*-0.024*	*0.2*
REPORT LAG	*(+)*	*0.012*	*105.1*	***		
$GCAR_{t-1}$	*(+)*	*2.840*	*1056.4*	***		
Industry Fixed Effects			Included			
Year Fixed Effects			Included			
Number of Obs			11419			
Likelihood Ratio			6183.13			
Pr > χ2			<.0001			
Percent Concordant			94.8%			
Pseudo R^2 %			41.8%			

Variables are defined in Table 1. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

TABLE 12

Logit Estimation of Combined Models (2) and (3)
Dependent Variable is PR(*GCAR* = 1)

Variables		Main Effects Coef.	Main Effects Wald χ^2		Interactions w/*MGRL ABILITY* Coef.	Interactions w/*MGRL ABILITY* Wald χ^2	
Intercept		*-4.683*	*155.4*	***			
MGRL ABILITY	***(-)***	***1.027***	***0.8***				
NEG SIZE	*(+)*	*0.400*	*159.6*	***	*-0.094*	*0.3*	
NEG CASH	*(+)*	*2.286*	*146.9*	***	*-2.866*	*11.1*	***
LEV	*(+)*	*0.732*	*115.4*	***	*-0.708*	*4.6*	**
CLEV	*(+)*	*0.080*	*2.8*	*	*-0.265*	*2.1*	
LOSS	*(+)*	*0.671*	*16.6*	***	*0.105*	*0.0*	
NEG OCF	*(+)*	*0.401*	*127.2*	***	*-0.374*	*5.1*	**
ZSCORE	*(+)*	*0.784*	*162.5*	***	*-1.352*	*18.4*	***
BIGN	*(+)*	*0.082*	*0.5*		*-0.194*	*0.1*	
SIGNIFICANCE	*(+)*	*-0.004*	*0.0*		*-0.297*	*0.1*	
SPECIALIST	*(+)*	*0.222*	*1.1*		*-0.265*	*0.1*	
TENURE	*(?)*	*0.016*	*3.3*	*	*-0.005*	*0.0*	
REPORT LAG	*(+)*	*0.012*	*109.0*	***			
$GCAR_{t-1}$	*(+)*	*2.847*	*1054.6*	***			
Industry Fixed Effects			Included				
Year Fixed Effects			Included				
Number of Obs			11453				
Likelihood Ratio			6262.79				
Pr > χ2			<.0001				
Percent Concordant			94.8%				
Pseudo R^2%			42.1%				

Variables are defined in Table 1. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

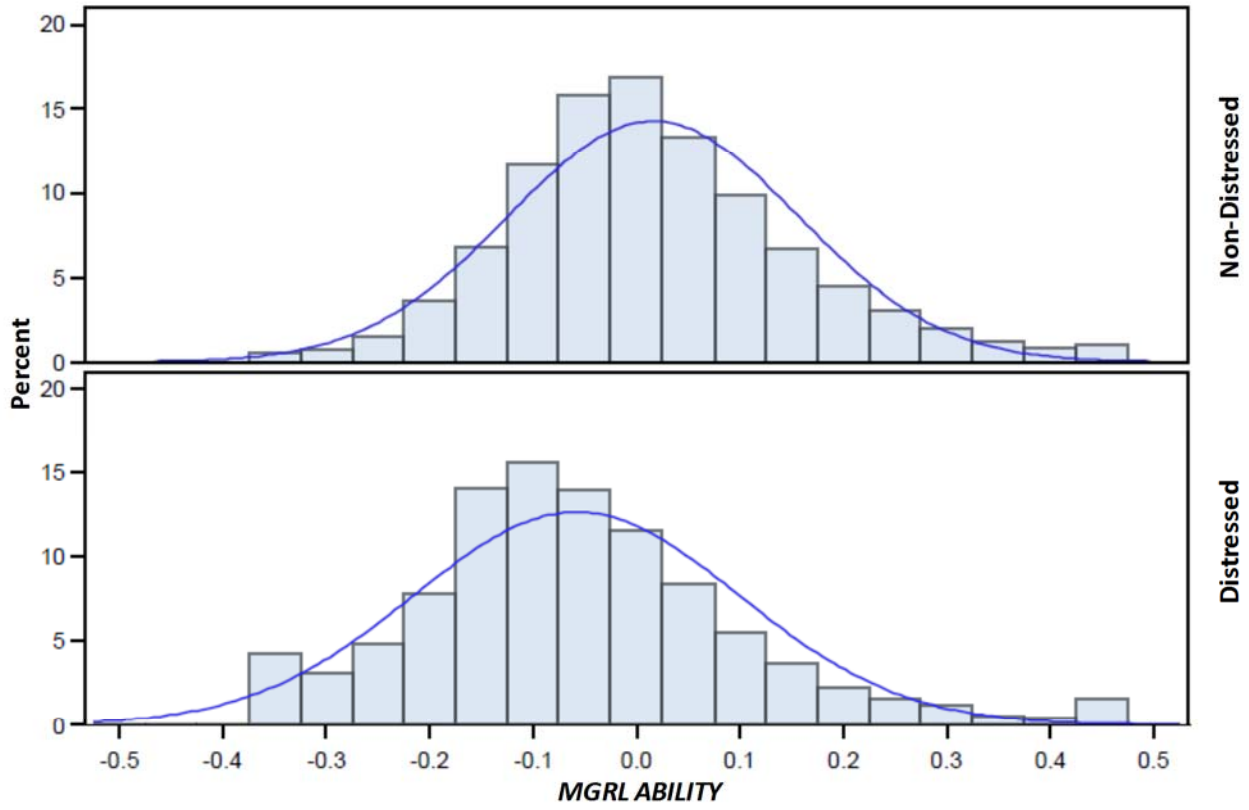
TABLE 13

Logit Estimation of Model (1) on All Observations and Separated by Subsequent Viability Status
Dependent Variable is PR(*GCAR* = 1)

Variables		*Subsequently Remain Viable* Coef.	Wald χ^2		*Subsequently Declare Bankruptcy, Liquidate, or Delist for Firm Failure* Coef.	Wald χ^2	
Intercept		*-4.359*	*130.1*	***	*-7.106*	*4.6*	**
MGRL ABILITY	***(-)***	***-0.888***	***12.5***	***	***-4.907***	***7.8***	***
NEG SIZE	*(+)*	*0.453*	*195.4*	***	*0.438*	*4.4*	**
NEG CASH	*(+)*	*2.444*	*165.1*	***	*2.482*	*4.1*	**
LEV	*(+)*	*0.630*	*82.5*	***	*1.408*	*4.1*	**
CLEV	*(+)*	*0.065*	*1.9*		*0.174*	*0.0*	
LOSS	*(+)*	*0.574*	*12.2*	***	*1.722*	*0.9*	
NEG OCF	*(+)*	*0.392*	*146.2*	***	*0.710*	*6.1*	**
ZSCORE	*(+)*	*0.824*	*175.6*	***	*0.829*	*2.3*	
BIGN	*(+)*	*0.104*	*0.8*		*1.181*	*2.6*	
SIGNIFICANCE	*(-)*	*0.073*	*0.2*		*-1.480*	*1.2*	
SPECIALIST	*(+)*	*0.326*	*3.3*	*	*1.763*	*0.8*	
TENURE	*(?)*	*0.016*	*3.5*	*	*0.039*	*0.4*	
REPORT LAG	*(+)*	*0.012*	*103.7*	***	*0.049*	*10.4*	***
$GCAR_{t-1}$	*(+)*	*2.888*	*1050.5*	***	*4.264*	*14.9*	***
BANKRUPTCY LAG	*(-)*				*-0.143*	*3.8*	*
Industry Fixed Effects		Included			Included		
Year Fixed Effects		Included			Included		
Number of Obs		11209			244		
Percent *GCAR* =1		19.0%			61.5%		
Likelihood Ratio		6062.26			179.39		
Pr > χ2		<.0001			<.0001		
Percent Concordant		95.0%			93.9%		
Pseudo R^2 %		41.8%			52.1%		

Variables are defined in Table 1. *BANKRUPTCY LAG* is the number of days between the audit report filing date and the bankruptcy filing date or delisting date. Signs in parentheses indicate the expected directional relationship between the independent variable and the dependent variable PR(GCAR = 1). ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels respectively.

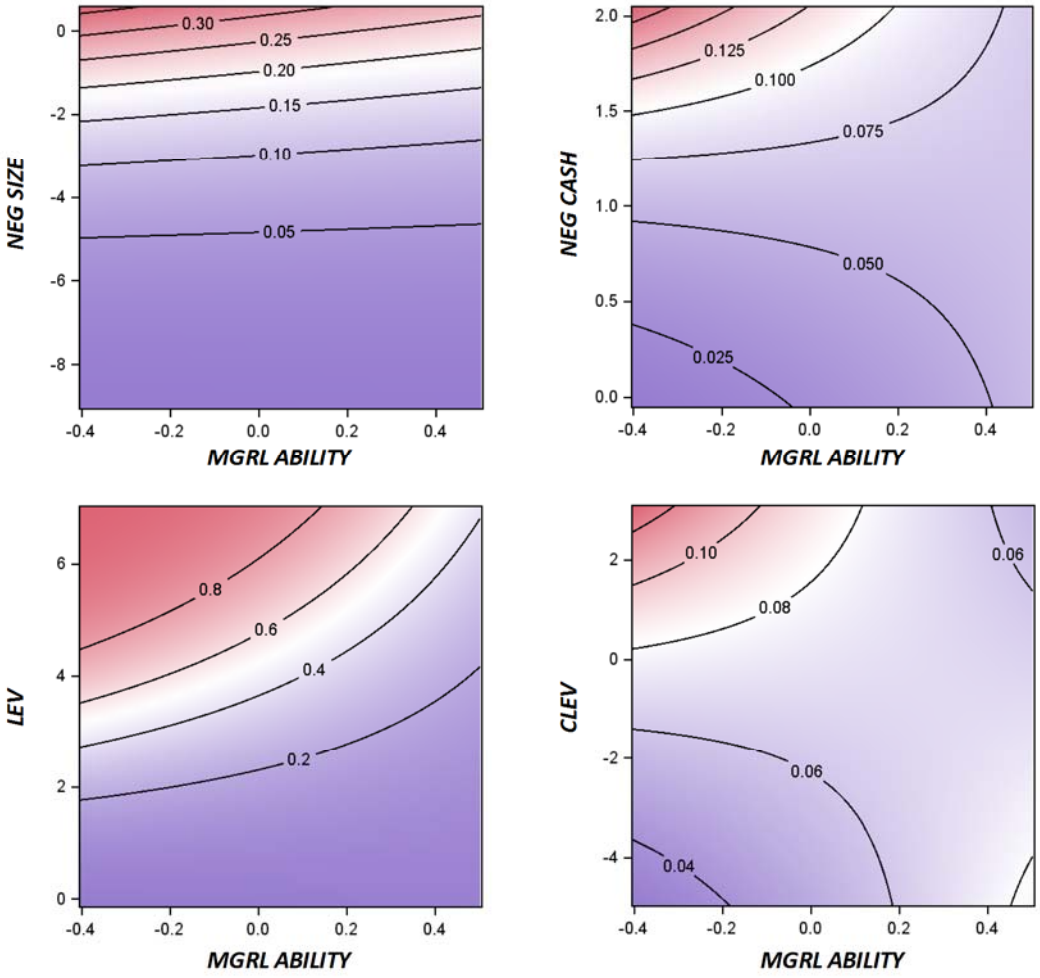
FIGURE 1
Distribution Analysis



The above graphs plot the distribution of *MGRL ABILITY* for sub-samples of non-distressed and distressed firm-years respectively. A firm-year is classified as distressed if either reported operating earnings or reported operating cash flows are negative for the firm-year.

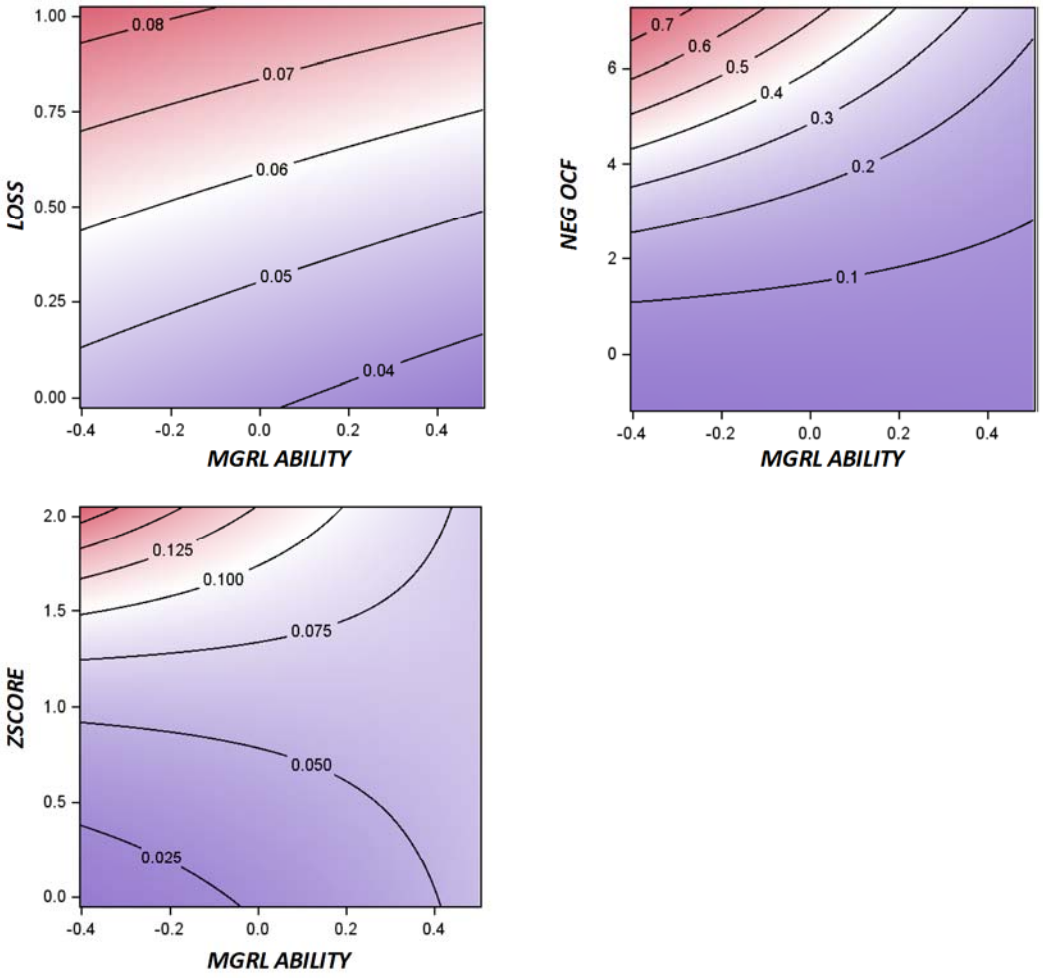
FIGURE 2

Interaction Effect Plots



(continued on next page)

FIGURE 2 (Continued)



Variables are defined in Table 1. The plots present the predicted PR(*GCAR* = 1) across the range of values for the two interacted terms. To estimate the predicted probability, all other independent variables are set to their sample mean values. Estimates are based on the results for Model (2) presented in Table 4.

VITA

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