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Managerial Ability, Financial Distress, and Audit Fees

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SYNOPSIS: This study examines whether the relationship between managerial ability and audit fees is conditional on financial distress. We find that higher managerial ability increases audit fees in financially distressed firms and decreases audit fees in non-distressed firms. We also observe that financially distressed firms with higher-ability managers display lower accrual quality and a higher likelihood of restatement. Moreover, higher-ability managers in distressed firms engage more in opportunistic financial reporting to concurrently maximize equity-based compensation and cope with debt refinancing pressures, which increases audit risks and results in greater audit fees. We confirm our results using a battery of sensitivity and additional analyses.

Keywords: managerial ability; financial distress; audit fees; financial reporting quality.

INTRODUCTION

Prior literature suggests that high managerial ability has favorable effects on corporate policies and financial reporting outcomes (Bamber, Jiang, and Wang 2010; Dyreng, Hanlon, and Maydew 2010; Ge, Matsumoto, and Zhang 2011). More specifically, Demerjian, Lev, Lewis, and McVay (2013) find a positive association between high managerial ability and better financial reporting quality,[1] and Krishnan and Wang (2015) provide evidence that high managerial ability lowers audit fees, due to the lower audit risks of better financial reporting quality. In this study we extend this literature and examine whether the documented relationship between managerial ability and audit fees is conditional on financial distress. We examine this issue since prior studies such as Hendry (2002, 2005), Tian (2014), and Cheung, Naidu, Navissi, and Ranjeeni (2017) argue and empirically show that high-ability managers can more ably engage in enriching their wealth at the detriment of shareholders. For example, high-ability managers engage in greater net insider sales (Wang 2013) and manipulate loan terms to increase incentive payout (Frank and Obloj 2014). Further, Wolfe and Hermanson (2004) and Dellaportas (2013) argue that high-ability managers can leverage on their better understanding of financial reporting practices and the firm's internal control weaknesses to exploit fraud opportunities and design corresponding concealment strategies. While providing the evidence of rent seeking by high-ability managers, this literature does not specify the circumstances that facilitate such rent-seeking behaviors. Our study proposes financial distress as a context that could motivate more able managers to opt for such opportunistic behavior.

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[1] Managerial ability refers to the efficiency of managers in generating higher revenues for a given level of resources or, conversely, the efficiency in minimizing the resources employed for a given level of revenue (i.e., maximizing the efficiency of the resources used) relative to their industry peers (Demerjian, Lev, and McVay 2012).

Statement on Auditing Standards (SAS) No. 99 (AICPA 2002) and AS 2401 (PCAOB 2015) (formerly AU Section 316, *Consideration of Fraud in a Financial Statement Audit* [PCAOB 2002]) suggest incentive/pressure, opportunity, and rationalization/attitude as three conditions that give rise to fraud and financial reporting irregularities, which are also known as the fraud triangle (Hogan, Rezaee, Riley, and Velury 2008).[2] Financial distress refers to a situation where firms exhibit an inability to discharge financial and other obligations when they fall due (Baldwin and Mason 1983; Wruck 1990), increasing the likelihood of default or bankruptcy (Ohlson 1980; Shumway 2001). Financial distress provides incentives for both high- and low-ability managers to behave opportunistically, since difficult times can encourage managerial opportunism to meet market expectations, maximize managerial short-term remuneration, and influence firm outcomes (Jensen and Meckling 1976; Altman 1984; Efendi, Srivastava, and Swanson 2007; Besancenot and Vranceanu 2009). For example, Wolfe and Hermanson (2004) and Dellaportas (2013) argue that managerial intellectual and cognitive traits and abilities allow managers to identify, implement, and conceal a fraud opportunity. Specifically, more able managers, leveraging on their intelligence, expertise, and better grasp of financial reporting practices and the firm's internal control weaknesses, are in a better position to exploit fraud opportunities, override the internal control, and conceal the manipulation/fraud, relative to less able managers.

We provide more specific evidence of the self-serving behavior of more able managers suggested in prior studies by relying on the link between managerial ability and audit fees conditioned on financial distress. Auditors have access to, and use an array of, internal firm information to assess audit risk that is generally not available to other external parties. As such, audit fees can be an indicator of managerial activities and internal firm information beyond financial reporting proxies such as discretionary accruals. Our study also responds to Beasley, Carcello, Hermanson, and Neal (2010), who call for future research on individual attributes that influence fraudulent financial reporting, based on the finding that approximately 90 percent of accounting fraud cases in U.S. public firms involve the CEO and/or the CFO. Demerjian et al. (2013) also acknowledge that higher-ability managers may successfully manage earnings, urging future studies to examine this aspect and identify relevant incentives.

We obtain managerial ability scores from the Demerjian et al. (2012) website[3] and measure financial distress using the Ohlson (1980) bankruptcy probability model. Based on 50,058 firm-year observations spanning 2000–2012, we find that high managerial ability is associated with lower audit fees, as documented in Krishnan and Wang (2015). However, the association is conditional on financial distress; namely, increased audit fees in distressed firms and decreased audit fees in non-distressed firms. The economic significance for the full sample, without conditioning on financial distress, is a 6.53 percent (or about $69,255) reduction in audit fees for observations in the top decile of managerial ability relative to that in the bottom decile, which is close to the 6.85 percent (about $89,000) reported in Krishnan and Wang (2015). For the distressed (non-distressed) subsample, audit fees increase (decrease) by 12.50 (6.11) percent or about $33,550 ($71,328). While the increase in audit fees in distressed firms is almost two times greater than the decrease in audit fees in non-distressed firms, the economic significance is relatively small and may reflect the second order effect of managerial ability on audit fees.

We address endogeneity issues and confirm our main results with several robustness checks, including propensity score matching. To corroborate our findings, we extend our analysis to financial reporting quality and provide evidence that the positive effect of managerial ability on financial reporting quality, measured by accrual quality and restatements, is significantly weaker for distressed firms. Separate analyses for non-distressed and distressed firms show that for non-distressed firms, high managerial ability is associated with better accrual quality, but for distressed firms there is no such relationship. Further, we observe that non-distressed (distressed) firms with high-ability managers exhibit a lower (higher) likelihood of restatements. Overall, these results are consistent with the audit fee analysis. Finally, we find that both agency problems of equity and debt are relevant to our setting, whereby high-ability managers in distressed firms engage more in opportunistic financial reporting to concurrently maximize equity compensation and cope with debt refinancing pressures, leading to greater audit effort and fees.

Our study contributes to the evolving literature on managerial ability and audit fees by showing that the pricing of auditor services as a result of higher managerial ability is contingent on financial distress. We also contribute to the managerial ability and human capital literature, which tends to treat managerial competence as a panacea (Becker 1962; Amit and Schoemaker 1993), since, as we suggest, this notion is premature in the presence of financial distress. As such our results contribute to a better understanding of the incentives that motivate high-ability managers to act opportunistically, which subsequently affects auditors' risk assessment in the audit process. Overall, our results are in line with Hendry (2002, 2005) and Frank and Obloj (2014), who argue and provide evidence supporting the "dark" side of managerial ability, and provide support for "the fraud diamond" proposed by Wolfe and Hermanson (2004),[4] since we show managerial ability as a critical factor in audit and fraud assessments.

[2] We present our discussion around the incentive and opportunity factors, since prior studies (e.g., Hogan et al. 2008) have provided empirical evidence on these two factors, while the rationalization factor lacks a reasonable archival proxy (Bentley, Omer, and Sharp 2013).

[3] The data are available at: http://faculty.washington.edu/pdemerj/data.html

[4] Wolfe and Hermanson (2004) expand the fraud triangle, with managerial capability as the fourth factor.

RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

The idea that managerial ability leads to positive firm outcomes is not new. Prior studies show that higher-ability managers reduce agency conflicts with appropriate use of resources and choice of investment (Bhojraj and Sengupta 2003) and drive superior firm performance (Demerjian et al. 2012). Moreover, a growing body of literature in accounting and finance provides evidence that firms with more able managers exhibit more accurate management earnings forecasts (Baik, Farber, and Lee 2011), more robust internal control systems (R. Hoitash, U. Hoitash, and Johnstone 2012), less restatements (Plumlee and Yohn 2010), a lower likelihood of receiving an adverse internal control opinion (Li, Sun, and Ettredge 2010), less distress risk (Leverty and Grace 2012), and a lower cost of debt (Rahaman and Zaman 2013).

Of particular interest to our study are two studies by Demerjian et al. (2013) and Krishnan and Wang (2015). Demerjian et al. (2013) find that firms with high managerial ability exhibit better financial reporting quality based on proxies such as fewer restatements and higher-quality accrual estimations. In conclusion, Demerjian et al. (2013, 494) argue that "the more capable the manager, the better able he/she is to estimate accruals, and it suggests that firms can improve their earnings quality by employing higher ability managers," and therefore reduce the firm's information risk. In line with this reasoning, Krishnan and Wang (2015) offer evidence that high-ability-manager firms pay lower audit fees. Nevertheless, the inferences made by the above studies on managerial ability, corporate decisions, financial reporting, and audit fees do not consider the likelihood of the rent-seeking behaviors of high-ability managers that could be triggered by different conditions and incentives for them to act opportunistically. In this study, we consider financial distress as one such condition.

SAS No. 99 (AICPA 2002) and AS 2401(PCAOB 2015) (formerly AU Section 316 [PCAOB 2002]) consider incentive or pressure to commit fraud, opportunity to commit fraud, and the ability to rationalize wrongdoing—the fraud triangle—as conditions that give rise to financial reporting irregularities. We argue that while both high- and low-ability managers in financially distressed firms have incentives to behave opportunistically, the scope for opportunistic behavior is more pronounced for high-ability managers due to their greater competence and guile in exploiting the opportunities for rent seeking and misreporting.

Incentive/Pressure

Prior studies identify financial distress as an incentive that motivates managers to behave opportunistically and engage in financial misreporting (Jensen and Meckling 1976; Hogan et al. 2008). The corporate financial distress literature suggests that during times of financial difficulties, managers may have a tendency to resort to dishonest communication to maximize short-term compensation, obtain more favorable contracting terms, and reduce default premiums (Altman 1984; Wruck 1990; Andrade and Kaplan 1998; Efendi et al. 2007; Besancenot and Vranceanu 2009). For instance, managers in financially distressed firms tend to manage earnings upward to avoid a breach of debt covenant that can otherwise trigger unfavorable outcomes including acceleration of debt maturity, financial penalties, operational inflexibility, and loss of key stakeholders' support (Sweeney 1994; Opler and Titman 1994; Dichev and Skinner 2002; Purnanandam 2008). Charitou, Lambertides, and Trigeorgis (2011) suggest that managers in financially distressed firms manage earnings upward to secure employment or to temporarily inflate share price for more compensation. H. DeAngelo, L. DeAngelo, and Skinner (1994) find evidence that in financially distressed firms, managers intentionally reduce reported earnings further to highlight financial difficulties in the expectation of obtaining better terms following renegotiations. Relatedly, Jaggi and Lee (2002) find that managers of financially distressed firms use income-increasing (decreasing) discretionary accruals if they are able (unable) to obtain waivers for debt covenant violations.[5] Finally, Frost (1997) and Rogers and Stocken (2005) claim that managers in financially distressed firms issue optimistic forecasts to reduce the likelihood of bankruptcy, acquisition, or takeover.[6]

Opportunity

High managerial ability introduces an opportunity for managers to exploit and conceal opportunism.[7] Wolfe and Hermanson (2004) propose the fourth factor, namely managerial capability, to the fraud triangle. They argue that managerial

[5] Other studies also document that when external monitoring is greater or when auditors issue a going-concern qualification, managers in distressed firms tend to decrease earnings and be more conservative (DeFond and Jiambalvo 1994; Rosner 2003; Leuz, Nanda, and Wysocki 2003; Charitou, Lambertides, and Trigeorgis 2007).

[6] Lang and Stulz (1992), John, Lang, and Netter (1992), and Khanna and Poulsen (1995) find managers of financially distressed firms are not less skilled than their counterparts. However, Leverty and Grace (2012) find that managerial ability is inversely related to the amount of time a firm spends in financial distress, the likelihood of a firm's failure, and the costs of failure.

[7] Evans, Hannan, Krishnan, and Moser (2001) posit that managers often face an ethical dilemma in reporting decisions, namely self-interest maximization via opportunistic reporting versus social preference to do the right thing via honest reporting. Similarly, Hendry (2002, 2005) posits the dilemma in agency problems between "honest incompetence" and the "competent self-seeking" of managers. While Demerjian et al. (2013) suggest that less able managers tend to be associated with opportunistic financial reporting, Hendry (2005) argues that these less able managers, albeit leading to poorer firm performance, may behave ethically and not engage in private rent extraction. Conversely, while more able managers tend to drive superior firm performance and are associated with better financial reporting quality, they may be in a better position to obscure their self-serving behavior from outside stakeholders.

capability, including intellectual and cognitive traits and abilities, allows managers to recognize internal control weaknesses and exploit fraud opportunities. This notion also extends to managerial ability to coerce others to commit or conceal fraud and to lie effectively, given their position, function, expertise, and authority. Similarly, Dellaportas (2013) argues that deeper knowledge and understanding of systems and processes allow managers to manipulate and evade internal control procedures, as well as avoiding detection.[8] Boyle, DeZoort, and Hermanson (2015) view opportunities including weaknesses in a firm's governance and controls as the fraud target, and the personal traits and expertise needed to identify and exploit the opportunities as the fraud source. They observe higher auditors' assessments of fraud risk under a fraud diamond than under a fraud triangle.

Consistent with the preceding arguments, Wang (2013) finds that high-ability managers can better predict changes in their firm performance, which allows them to engage in greater net insider sales and trades prior to the release of information, in order to reduce regulatory attention and avoid losses. Demerjian et al. (2013) argue that more able managers may induce intentional errors in earnings for efficient information signaling, or rent extraction, for instance through sales acceleration. Frank and Obloj (2014) find greater productivity for managers with better organizational knowledge, however they also find that high-ability managers are more capable of exploiting incentive systems for private gain. Tian (2014) argues that CEO expertise can be the source of information asymmetry, because CEOs possess superior skills to collect, process, and interpret information to make investment decisions, and such skills create an information advantage for them to make self-serving decisions at the expense of shareholders. Demerjian, Lewis-Western, and McVay (2016) find that the best managers tend to smooth income via discretionary reporting and real earnings management. Finally, Cheung et al. (2017) show that high-ability managers afforded with greater discretion improve firm outcomes only when they are closely monitored, suggesting that managerial ability does not unambiguously result in favorable firm outcomes absent effective monitoring.

Hypothesis

While managers in financially distressed firms, regardless of high or low ability, have incentives to behave opportunistically to meet market expectations, maximize short-term compensation, and conceal distress (Sweeney 1994; Dichev and Skinner 2002; Jaggi and Lee 2002; Efendi et al. 2007; Purnanandam 2008), high-ability managers are more adept to exploit fraud opportunities, override the internal control, and develop concealment strategies, relative to low-ability managers (Wolfe and Hermanson 2004; Hendry 2005; Dellaportas 2013). Further, auditors have been criticized for failing to issue going-concern modified reports to alert the market of an impending client bankruptcy (Raghunandan and Rama 1995; Geiger and Raghunandan 2001; Bruynseels, Knechel, and Willekens 2011). In response to such criticisms in the auditing profession and the greater opportunities for high-ability managers in financially distressed firms to extract rent and misreport, auditors should be more conservative with their audit risk assessment to reduce audit failure (Boyle et al. 2015). The above evidence suggests that the negative association between managerial ability and audit fees documented by Krishnan and Wang (2015) is likely to be conditional on financial distress; namely, the relationship should be less pronounced or even positive for financially distressed firms. Based on the preceding discussion, we formulate the following directional hypothesis:

H: The negative association between managerial ability and audit fees is weaker for financially distressed firms.

RESEARCH DESIGN

Audit Fee Model

To examine whether the negative association between audit fees and managerial ability is less pronounced for financially distressed firms, we employ the following ordinary least squares regression:

$$\begin{aligned} Ln\_AF_{i,t} = {} & \alpha + \beta_1 MGR\_ABILITY_{i,t} + \beta_2 DISTRS_{i,t} + \beta_3 MGR\_ABILITY_{i,t} * DISTRS_{i,t} + \beta_4 Ln\_SIZE_{i,t} + \beta_5 FOREIGN_{i,t} \\ & + \beta_6 Sqrt\_SEG_{i,t} + \beta_7 INVREC_{i,t} + \beta_8 ROA_{i,t} + \beta_9 LOSS_{i,t} + \beta_{10} LEV_{i,t} + \beta_{11} QUICK_{i,t} + \beta_{12} SGROWTH_{i,t} \\ & + \beta_{13} EQ_{i,t} + \beta_{14} YE_{i,t} + \beta_{15} BIG\_N_{i,t} + \beta_{16} SPECIALIST_{i,t} + \beta_{17} Ln\_ATENURE_{i,t} + \beta_{18} AOPINION_{i,t} \\ & + \beta_{19} Ln\_NAF_{i,t} + \beta_{20} INSTO_{i,t} + IND\_EFFECT + YEAR\_EFFECT + \varepsilon \end{aligned} \quad (1)$$

All variables are defined in Appendix A and discussed below. Regression results presented in this study are based on a two-tailed test.

[8] For instance, in his interviews with several white-collar offenders, Dellaportas (2013) documents that an inmate abused his knowledge of checking account clearing protocols to commit fraud, while another inmate abused a loosely administered internal audit procedure to transfer company money to his personal bank accounts using unmodified bank-approved documents unconfined for a period of seven years. These frauds require offenders to have a deep understanding of a firm's internal control weaknesses and possess great ability to override these controls and develop corresponding concealment strategies.

Dependent Variable

Consistent with prior audit fee studies (e.g., Gul and Goodwin 2010; Donohoe and Knechel 2014),[9] we measure audit fees using the natural log of audit fees (*Ln_AF*).

Test Variables

We obtain Demerjian et al.'s (2012) managerial ability scores and their industry-year decile rank from Demerjian's website (see, http://faculty.washington.edu/pdemerj/data.html). We use the industry-year decile rank of managerial ability scores (*MGR_ABILITY*) to reduce the concerns of outliers and to ensure that managerial ability measures are more compatible with industries and years (Demerjian et al. 2013).[10] Demerjian et al. (2012) employ a two-step process to compute the managerial ability score. First, they use data envelopment analysis (DEA) to estimate firm efficiency by optimizing firms' sales revenue with seven firm-specific inputs: cost of inventory; selling, general, and administrative expenses; property, plant, and equipment; operating leases; research and development expenditure; purchased goodwill; and other intangible assets. The optimization generates a score of firm efficiency (θ) ranging from 0, which denotes the least efficiency, to 1, which denotes the greatest efficiency. Because firm efficiency is affected by both firm-specific factors and management characteristics, subsequently they estimate a Tobit regression of a firm efficiency score on six firm-specific factors by industry: firm size, market share, positive free cash flow, firm age, business segment concentration, and international operations. Firm-specific residuals from this regression model capture the managerial ability score. This measure of managerial ability is related to manager fixed effects (Demerjian et al. 2013), and is more robust because it is manager specific, as opposed to industry specific, and it has been employed in prior research such as Baik et al. (2011), Krishnan and Wang (2015), and Cheung et al. (2017). The measure also outperforms alternative measures of managerial ability including historical stock returns, historical ROA, managerial compensation, managerial tenure, and media citations (Demerjian et al. 2013).

We measure financial distress (*DISTRS*) based on the Ohlson (1980) bankruptcy probability model that has been extensively used in the literature (e.g., Bhagat, Moyen, and Suh 2005; Mola, Rau, and Khorana 2013; Irvine, Park, and Yildizhan 2016). Specifically, pseudo-bankruptcy probabilities ($\acute{P}$) are estimated based on Models (2) and (3):

$$\acute{P} = \frac{1}{1 + e^{-\hat{\gamma}i,t}} \tag{2}$$

$$\begin{aligned}\hat{\gamma}_{i,t} = {} & -1.32 - 0.407{*}SIZE_{i,t} + 6.03{*}TLTA_{i,t} - 1.43{*}WCTA_{i,t} + 0.0757{*}CLCA_{i,t} - 2.37{*}NITA_{i,t} - 1.83FUTL_{i,t} \\ & + 0.285{*}INTWO_{i,t} - 1.72{*}OENEG_{i,t} - 0.521{*}CHIN_{i,t}\end{aligned} \tag{3}$$

where *SIZE* is the log of total assets to the GNP price-level index ratio; *TLTA* is total liabilities divided by total assets; *WCTA* is working capital divided by total assets; *CLCA* is current liabilities divided by current assets; *NITA* is net income divided by total assets; *FUTL* is funds from operations divided by total liabilities; *INTWO* equals 1 if net income is negative in the previous two years, and 0 otherwise; *OENEG* equals 1 if total liabilities are greater than total assets, and 0 otherwise; and $CHIN = (NI_t - NI_{t-1})/(|\,NI_t\,| - |\,NI_{t-1}\,|)$, where *NI* is net income. *DISTRS* is coded 1 if the pseudo-bankruptcy probability ($\acute{P}$) in Model (2) is greater than or equal to 50 percent, and 0 otherwise.

Following Krishnan and Wang (2015), the coefficient on *MGR_ABILITY* should be negative to suggest that high managerial ability is associated with lower audit fees. Our variable of interest is the interactive variable *MGR_ABILITY* $*$ *DISTRS*. We conjecture that financial distress provides high-ability managers with the incentive for opportunism that can lead to greater audit risk, effort, and fees. To support our hypothesis that the negative relationship between managerial ability and audit fees is weaker in the presence of financial distress, we predict a significant and positive coefficient for *MGR_ABILITY* $*$ *DISTRS*.

Control Variables

Based on prior research (e.g., Whisenant, Sankaraguruswamy, and Raghunandan 2003; Hogan and Wilkins 2008; Bentley et al. 2013; Krishnan and Wang 2015), we control for other determinants of audit fees, namely firm complexity using firm size (*Ln_SIZE*), foreign operations (*FOREIGN*), and business segments (*Sqrt_SEG*). We also control for audit inherent risk by asset structure (*INVREC*), and use several auditor business risk proxies in the model, such as a loss indicator (*LOSS*) and leverage

[9] The use of the ratio of audit fees (*RATIO_AF*) as an alternative dependent variable yields consistent results (not reported).

[10] As a robustness check, we also use the raw managerial ability scores and observe results (not reported) qualitatively and quantitatively similar to the results we have reported in the paper.

(*LEV*), as well as return on assets (*ROA*), the quick ratio (*QUICK*), and sales growth (*SGROWTH*). Our earnings quality (*EQ*) measure is based on Dechow and Dichev (2002), modified by McNichols (2002), and is calculated as the five-year standard deviation of residuals from the regressions of a firm's current accruals on its lead, lag, and current operating cash flow, change in revenues, and current property, plant, and equipment across each year and Fama and French (1997) 48-industry classifications. We multiply the standard deviation of residuals by minus one so that the higher (lower) values of this measure represent higher (lower) quality earnings.

We also control for a December 31 year-end (*YE*), auditor size (*BIG_N*), industry specialists (*SPECIALIST*), audit tenure (*Ln_ATENURE*), audit opinion (*AOPINION*), and non-audit fees (*Ln_NAF*). We include the percentage of institutional shareholdings (*INSTO*) as a proxy for external monitoring. Finally, we include Fama and French (1997) industry classification codes (*IND_EFFECT*) and the year indicators representing our study period (*YEAR_EFFECT*) to control for the industry and time effects. We cluster standard errors by firm and year, following Petersen (2009) and Krishnan and Wang (2015).

DATA DESCRIPTION

We obtain the data from several sources. Managerial ability data are from Demerjian's website (see, http://faculty.washington.edu/pdemerj/data.html), and the data for audit fees, control variables, and additional test variables are from Audit Analytics, Compustat, Thomson Reuters Institutional Holdings (13F), Institutional Shareholder Services, CRSP, and Execucomp. Table 1 presents data-collection procedures and statistics on the industry and year distributions.

As reported in Panel A of Table 1, we commence our sample formation with 72,293 firm-year observations with available managerial ability data spanning 2000–2012. The sample is reduced by (1) 10,040 firm-years when merging managerial ability data with audit-related data from Audit Analytics, and (2) 12,195 missing firm-years when merging with the data on the financial distress measure and control variables from Compustat and Thomson Reuters Institutional Holdings (13F). This yields 50,058 firm-year observations, wherein 11.99 (88.01) percent of the observations are distressed (non-distressed).

Panel B of Table 1 reports the sample distribution by Fama and French (1997) 48-industry classifications. Our sample firm-years come from 43 industries, since Demerjian et al. (2012) excluded firm-years in the following industries in computing their managerial ability scores: utilities, banks, insurance, real estate, and finance. Business services, electronic equipment, and pharmaceutical products represent 15.33, 8.11, and 7.88 percent of our total sample, respectively, followed by eight industries with sample firm-years ranging from 3.38 percent (transportation) to 5.56 percent (retail). The remaining 32 industries collectively form 33.30 percent of sample firm-years. Notably, business services and pharmaceutical products have relatively more distressed firms than other industries.

Next, in Panel C of Table 1 we report the year distribution of our sample firms. The minimum number of firms occurs in 2000 (4.85 percent), and the maximum number of firms is in 2003 (9.42 percent). The sample firm distribution across 2000 to 2012 is fairly even, with no individual year representing in excess of 10 percent of the sample firms. We observe similar year distributions for the distressed and non-distressed subsamples. Nevertheless, we control for both the effects of year and industry in our models.

Panel D of Table 1 reports managerial ability distribution. Using the industry-year median as the splitting point, we notice that 49.73 percent of observations have low-ability managers wherein 6.96 (42.77) percent are distressed (non-distressed), as opposed to 50.27 percent of high-ability managers with 5.03 (45.24) percent in distressed (non-distressed) firms. A handful of high managerial ability observations in distressed firms (5.03 percent) indicates two possibilities. First, high-ability managers are recruited by, or choose to work for, distressed firms to rescue the firm's performance (Brickley 2003; Jenter and Kanaan 2015). To rule out the effect of this self-selection bias on our results, we employ propensity score matching following Francis, Hasan, and Wu (2013) and Prawitt, Sharp, and Wood (2012) in our robustness analyses. Second, our statistics reinforce prior studies (e.g., Hendry 2005; Cheung et al. 2017) by showing that high-ability managers engage in rent seeking and do not unequivocally maximize firm value.

RESULTS

Descriptive Statistics

Table 2 reports descriptive statistics on the dependent and test variables (Panel A), control variables (Panel B), and other variables used in robustness and additional analyses (Panel C) for the full sample, as well as distressed and non-distressed subsamples. We winsorize continuous variables at the 1st and 99th percentiles.

The average audit fee (*AF*) for the full sample is $1,059,500, ranging from $163,700 in Quartile 1 to $1,254,000 in Quartile 3. The average *Ln_AF* (dependent variable) for the full sample is −0.7471, with an interquartile range between −1.8096 and 0.2263, resembling that reported in Donohoe and Knechel (2014). The mean of *Ln_SIZE* for non-distressed firms (5.8729) is

TABLE 1
Sample Selection and Distribution

Panel A: Sample Selection

Firm-years with Demerjian et al.'s (2012) managerial ability data from 2000 to 2012	72,293
Less missing firm-years from Audit Analytics when merging with the managerial ability dataset	(10,040)
Less missing firm-years from Compustat and Thomson Reuters Institutional Holdings (13F) when merging financial distress measures and control variables with the managerial ability dataset	(12,195)
Final firm-year observations	50,058

Panel B: Industry Distribution

	Full Sample		Distressed		Non-Distressed	
Industry	**n**	**%**	**n**	**%**	**n**	**%**
Business Services	7,674	15.33	1,257	2.51	6,417	12.82
Electronic Equipment	4,060	8.11	381	0.76	3,679	7.35
Pharmaceutical Products	3,944	7.88	1,166	2.33	2,778	5.55
Retail	2,781	5.56	102	0.20	2,679	5.36
Petroleum and Natural Gas	2,464	4.92	175	0.35	2,289	4.57
Telecommunications	2,415	4.82	280	0.56	2,135	4.26
Computers	2,388	4.77	374	0.75	2,014	4.02
Medical Equipment	2,090	4.18	389	0.78	1,701	3.40
Wholesale	1,985	3.97	122	0.24	1,863	3.73
Machinery	1,893	3.78	143	0.29	1,750	3.49
Transportation	1,694	3.38	69	0.14	1,625	3.24
32 Other Industries	16,670	33.30	1,546	3.09	15,124	30.21
Total	50,058	100.00	6,004	11.99	44,054	88.01

Panel C: Year Distribution

	Full Sample		Distressed		Non-Distressed	
Year	**n**	**%**	**n**	**%**	**n**	**%**
2000	2,428	4.85	264	0.53	2,164	4.32
2001	3,979	7.95	526	1.05	3,453	6.90
2002	4,516	9.02	576	1.15	3,940	7.87
2003	4,714	9.42	565	1.13	4,149	8.29
2004	4,586	9.16	583	1.16	4,003	8.00
2005	4,325	8.64	548	1.09	3,777	7.55
2006	4,170	8.33	544	1.09	3,626	7.24
2007	3,915	7.82	505	1.01	3,410	6.81
2008	3,756	7.50	508	1.01	3,248	6.49
2009	3,649	7.29	418	0.84	3,231	6.45
2010	3,511	7.01	344	0.69	3,167	6.33
2011	3,376	6.74	320	0.64	3,056	6.10
2012	3,133	6.26	303	0.61	2,830	5.65
Total	50,058	100.00	6,004	11.99	44,054	88.01

(continued on next page)

TABLE 1 (continued)

Panel D: Managerial Ability Distribution

	Full Sample		Distressed		Non-Distressed	
High- versus Low-Ability Managers	**n**	**%**	**n**	**%**	**n**	**%**
Low-ability managers (*MGR_ABILITY* below the industry-year median)	24,895	49.73	3,485	6.96	21,410	42.77
High-ability managers (*MGR_ABILITY* above the industry-year median)	25,163	50.27	2,519	5.03	22,644	45.24
Total	50,058	100.00	6,004	11.99	44,054	88.01

Panel A presents the sample selection procedure. Panels B to D present industry composition (based on Fama and French [1997] 48-industry groups), year distribution, and managerial ability distribution, respectively, for the full sample, and distressed versus non-distressed subsamples.
Refer to Appendix A for variable definitions.

TABLE 2

Descriptive Statistics

Panel A: Dependent and Test Variables

	Full Sample								
	n	**Mean**	**Q1**	**Median**	**Q3**	**Std. Dev.**	**Distressed Mean**	**Non-Distressed Mean**	**t-statistic**
AF (in millions)	50,058	1.0595	0.1637	0.4620	1.2540	1.4261	0.2684	1.1674	91.67***
Ln_AF	50,058	−0.7471	−1.8096	−0.7722	0.2263	1.4297	−2.0406	−0.5708	93.42***
RATIO_AF	50,058	0.0044	0.0008	0.0020	0.0051	0.0058	0.0138	0.0031	−102.17***
MGR_ABILITY (Score)	50,058	−0.0159	−0.1088	−0.0242	0.0673	0.1497	−0.0514	−0.0110	16.98***
MGR_ABILITY (Rank)	50,058	0.5359	0.3000	0.5000	0.8000	0.2767	0.4763	0.5441	16.99***
DISTRS	50,058	0.1199	0.0000	0.0000	0.0000	0.3249			

Panel B: Control Variables

	Full Sample								
	n	**Mean**	**Q1**	**Median**	**Q3**	**Std. Dev.**	**Distressed Mean**	**Non-Distressed Mean**	**t-statistic**
Ln_SIZE	50,058	5.4296	3.7978	5.5107	7.0799	2.4331	2.1767	5.8729	130.73***
FOREIGN	50,058	0.2602	0.0000	0.4619	0.5000	0.2585	0.1897	0.2698	22.63***
Sqrt_SEG	50,058	1.2397	1.0000	1.0000	1.7321	0.7473	1.1262	1.2551	14.80***
INVREC	50,058	0.2597	0.1004	0.2245	0.3766	0.1948	0.2420	0.2621	6.53***
ROA	50,058	−0.0652	−0.0092	0.0938	0.1553	0.8199	−1.1605	0.0841	47.73***
LOSS	50,058	0.5869	0.0000	1.0000	1.0000	0.4924	0.9883	0.5322	−165.79***
LEV	50,058	0.5518	0.2962	0.4896	0.6874	0.3722	1.0796	0.4799	−74.75***
QUICK	50,058	2.0458	0.8612	1.4056	2.4987	1.8669	1.5335	2.1156	20.17***
SGROWTH	50,058	0.1223	−0.0521	0.0706	0.2203	0.3888	0.0900	0.1267	4.37***
EQ	50,058	−0.0832	−0.0929	−0.0494	−0.0271	0.1015	−0.2208	−0.0645	67.84***
YE	50,058	0.6890	0.0000	1.0000	1.0000	0.4629	0.7302	0.6834	−7.62***
BIG_N	50,058	0.7082	0.0000	1.0000	1.0000	0.4546	0.3503	0.7570	62.69***
SPECIALIST	50,058	0.4982	0.0000	0.0000	1.0000	0.5000	0.2402	0.5334	48.83***
Ln_ATENURE	50,058	1.6778	1.3863	1.7918	2.1972	0.7581	1.5286	1.6982	16.30***
AOPINION	50,058	0.4129	0.0000	0.0000	1.0000	0.4924	0.6424	0.3816	−39.09***
Ln_NAF	50,058	10.3573	9.8627	11.4375	12.7923	4.1227	7.6671	10.7239	48.28***
INSTO	50,058	0.3341	0.0000	0.2063	0.6602	0.3471	0.0819	0.3684	103.05***

(continued on next page)

TABLE 2 (continued)

Panel C: Other Variables Used in the Tabulated Robustness and Additional Analyses

	Full Sample						Distressed Mean	Non-Distressed Mean	t-statistic
	n	Mean	Q1	Median	Q3	Std. Dev.			
RESTATE	49,074	0.1060	0.0000	0.0000	0.0000	0.3078	0.0865	0.1073	4.03***
MJDA	49,074	0.3632	0.0355	0.0997	0.2863	0.9724	0.5678	0.3489	−9.10***
stdCFO	49,074	0.0973	0.0310	0.0548	0.1021	0.1408	0.3359	0.0806	−48.91***
stdSALE	49,074	0.2124	0.0765	0.1405	0.2534	0.2554	0.3365	0.2037	−18.27***
OCYCLE	49,074	4.5980	4.1737	4.6633	5.0929	0.8214	4.7480	4.5875	−7.85***
NEGEARN	49,074	0.3584	0.0000	0.2000	0.6000	0.3610	0.8632	0.3232	−134.79***
INTINT	49,074	0.1281	0.0000	0.0243	0.1222	0.2651	0.5578	0.0981	−52.07***
CAPINT	49,074	0.2556	0.0741	0.1748	0.3738	0.2315	0.1744	0.2613	24.78***
ABRET	49,074	0.0750	−0.3041	−0.0331	0.2750	0.6292	−0.2562	0.0982	28.50***
ROLLR	15,317	0.0216	0.0000	0.0018	0.0146	0.6168	0.5081	0.0145	−1.44
DELTA	9,253	0.0316	0.0000	0.0094	0.0328	0.0789	0.0157	0.0317	3.80***
VEGA	9,253	0.0210	0.0000	0.0063	0.0213	0.0653	0.0106	0.0210	4.16***

*** Denotes a two-tailed p-value of less than 0.01.
Panels A and B present the descriptive statistics for dependent, test, and control variables in the main analysis, respectively. Panel C presents the descriptive statistics for other variables used in the robustness and additional analysis.
Variable definitions are provided in Appendix A.

significantly higher than that of distressed firms (2.1767), which suggests that firm size serves as a critical explanation for the higher means of *AF* and *Ln_AF* for non-distressed relative to distressed firms. When we scale audit fees by firm size and compare the ratio of audit fees to total assets (*RATIO_AF*), distressed firms exhibit significantly higher *RATIO_AF* than non-distressed firms (0.0138 versus 0.0031).

The mean (median) managerial ability raw score is −0.0159 (−0.0242) and the interquartile range is between −0.1088 and 0.0673. The industry-year decile rank of managerial ability score (*MGR_ABILITY*) has a mean (median) of 0.5359 (0.5000), and an interquartile range between 0.3000 and 0.8000. The means of *MGR_ABILITY* score and rank are significantly higher for non-distressed than distressed firms. The mean for *DISTRS* is 0.1199, which indicates that 11.99 percent of our sample consists of distressed firms. The statistics for control variables and other variables used in robustness and additional analyses are mostly compatible with those reported in prior studies. For instance, similar to Bentley et al. (2013), 58.69 percent of firm-years have reported losses in any of the past three years (*LOSS*),[11] and 41.29 percent of firm-years have received an audit opinion (*AOPINION*) other than a standard, unqualified opinion, for the full sample. We also observe that 70.82 percent of firm-years are audited by large audit firms (*BIG_N*),[12] and 49.82 percent of firm-years employ city-industry specialist auditors (*SPECIALIST*), for the full sample.

In Table 3 we report the Pearson (Spearman) correlation matrix for variables in the main analysis at the lower (upper) diagonal. The Pearson correlation between *MGR_ABILITY* and *Ln_AF* is negative yet not economically large (−0.0203), while the Spearman correlation between these two variables is insignificant, highlighting the importance of controlling for other determinants of audit fees, particularly firm size, in the analysis. *DISTRS* and *Ln_AF* are significantly and positively correlated as indicated by the Pearson (Spearman) correlation of 0.3884 (0.3408), which suggests that financially distressed firms incur higher audit fees. *MGR_ABILITY* and *DISTRS* are significantly and negatively correlated as indicated by the Pearson (Spearman) correlation of −0.0796 (−0.0802). Multicollinearity is not likely to be a problem, given that the highest variance inflation factor (VIF) is 3.40, pertinent to *Ln_SIZE* (Kennedy 1992).

[11] This figure is approximately 41 percent when we use firm-years that have reported a loss in the past year, with no significant impact on our reported results. Furthermore, we find that using a proportionate measure of loss instead of a dichotomous variable has no effect on the results.

[12] We re-estimate our main analysis in the Big N versus non-Big N auditor subsamples to ensure that our results are not sensitive to auditor size or quality. Our untabulated results show that the negative relationship between managerial ability and audit fees is less pronounced for distressed firms, irrespective of audit services being procured from big or small audit firms.

TABLE 3

Pearson and Spearman Correlations and Variance Inflation Factors

Panel A: Correlation Variables *Ln_AF* to *SGROWTH*

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
V1: *Ln_AF*		−0.0042	**0.3408**	**0.8424**	**0.1092**	**0.1288**	**−0.0531**	**0.3346**	**−0.2775**	**0.1270**	**−0.0415**	**0.0330**
V2: *MGR_ABILITY*	**−0.0203**		**−0.0802**	**0.0356**	**0.0136**	**−0.0095**	**0.2015**	**0.3072**	**−0.2170**	−0.0055	**0.0113**	**0.1487**
V3: *DISTRS*	**0.3884**	**−0.0796**		**−0.4458**	**−0.0969**	**−0.0684**	**−0.0699**	**−0.4465**	**0.3010**	**0.3086**	**−0.2293**	**−0.1016**
V4: *Ln_SIZE*	**0.8484**	**0.0090**	**−0.4936**		**0.1045**	**0.1226**	**−0.1296**	**0.4672**	**−0.4011**	**0.1134**	**−0.0666**	**0.0760**
V5: *FOREIGN*	**0.1132**	**0.0144**	**−0.1006**	**0.1136**		**0.0682**	**0.0550**	**0.0729**	**−0.0592**	**−0.0249**	**0.0109**	**−0.0583**
V6: *Sqrt_SEG*	**0.1146**	**−0.0104**	**−0.0560**	**0.1048**	**0.0479**		**0.0814**	**0.0643**	**−0.0466**	**0.0413**	**−0.0373**	**−0.0196**
V7: *INVREC*	**−0.1065**	**0.1998**	**−0.0335**	**−0.1712**	**0.0392**	**0.0484**		**0.1098**	**−0.0876**	**0.0793**	**−0.1490**	**−0.0315**
V8: *ROA*	**0.2638**	**0.0784**	**−0.4932**	**0.4336**	**0.0901**	**0.0488**	**0.0446**		**−0.5869**	**−0.0564**	**−0.0148**	**0.2081**
V9: *LOSS*	**−0.2796**	**−0.2164**	**0.3010**	**−0.3969**	**−0.0619**	**−0.0371**	**−0.0569**	**−0.2309**		**0.1486**	**−0.0396**	**−0.1361**
V10: *LEV*	**−0.0290**	0.0019	**0.5234**	**−0.1470**	**−0.0621**	0.0023	**0.0802**	**−0.3803**	**0.2105**		**−0.6908**	**−0.0831**
V11: *QUICK*	**−0.1365**	**−0.0246**	**−0.1013**	**−0.1023**	**−0.0119**	**−0.0575**	**−0.2408**	**0.0746**	**0.0265**	**−0.5282**		**0.0600**
V12: *SGROWTH*	**−0.0338**	**0.1172**	**−0.0306**	0.0075	**−0.0472**	**−0.0357**	**−0.0510**	**0.0376**	**−0.0233**	**−0.0524**	**0.0404**	
V13: *EQ*	**0.4065**	**−0.0376**	**−0.5006**	**0.5568**	**0.1076**	**0.0719**	**−0.1194**	**0.5009**	**−0.2960**	**−0.3811**	**0.1012**	**−0.0266**
V14: *YE*	**0.0679**	**−0.0201**	**0.0329**	**0.0564**	**0.0201**	−0.0006	**−0.1592**	**−0.0266**	**0.0520**	**0.0621**	**0.0155**	**0.0626**
V15: *BIG_N*	**0.5074**	**−0.0122**	**−0.2907**	**0.5747**	**0.0856**	**0.0436**	**−0.1518**	**0.2269**	**−0.1983**	**−0.1299**	**0.0365**	**−0.0095**
V16: *SPECIALIST*	**0.3185**	−0.0014	**−0.1905**	**0.3700**	**0.2131**	**0.0847**	**−0.0384**	**0.1490**	**−0.1347**	**−0.0624**	**−0.0114**	**−0.0235**
V17: *Ln_ATENURE*	**0.2404**	0.0069	**−0.0727**	**0.2023**	−0.0087	**0.0185**	**−0.0407**	**0.0275**	**−0.1382**	**−0.0144**	−0.0075	**−0.0236**
V18: *AOPINION*	**0.1064**	**−0.0480**	**0.1721**	**0.0243**	**0.0785**	**0.0511**	**−0.0392**	**−0.1446**	**0.0706**	**0.2259**	**−0.1488**	**−0.0430**
V19: *Ln_NAF*	**0.4413**	0.0013	**−0.2409**	**0.4920**	**0.0799**	**0.0558**	**−0.0353**	**0.2158**	**−0.1772**	**−0.0711**	**−0.0501**	**−0.0100**
V20: *INSTO*	**0.4217**	**0.0334**	**−0.2682**	**0.4270**	**0.0790**	**0.0310**	**−0.0747**	**0.1803**	**−0.2482**	**−0.1730**	**0.0741**	0.0067

Panel B: Correlation Variables *EQ* to *INSTO*

	V13	V14	V15	V16	V17	V18	V19	V20	VIF
V1: *Ln_AF*	**0.4279**	**0.0689**	**0.5145**	**0.3159**	**0.2746**	**0.1110**	**0.6057**	**0.4018**	
V2: *MGR_ABILITY*	**−0.0298**	**−0.0202**	**−0.0114**	−0.0006	0.0023	**−0.0477**	**0.0171**	**0.0156**	1.15
V3: *DISTRS*	**−0.3668**	**0.0329**	**−0.2907**	**−0.1905**	**−0.0802**	**0.1721**	**−0.2800**	**−0.2653**	2.09
V4: *Ln_SIZE*	**0.5550**	**0.0591**	**0.5759**	**0.3697**	**0.2389**	**0.0581**	**0.6708**	**0.3985**	3.40
V5: *FOREIGN*	**0.0753**	**0.0175**	**0.0835**	**0.2042**	**−0.0137**	**0.0751**	**0.0949**	**0.0731**	2.07
V6: *Sqrt_SEG*	**0.0652**	−0.0014	**0.0527**	**0.1019**	**0.0280**	**0.0580**	**0.0939**	**0.0320**	1.34
V7: *INVREC*	**−0.2197**	**−0.1685**	**−0.1154**	**−0.0094**	**−0.0171**	**−0.0391**	**−0.0147**	**−0.0336**	1.89
V8: *ROA*	**0.3673**	**−0.0285**	**0.2565**	**0.1754**	**0.1262**	**−0.0886**	**0.2884**	**0.2346**	1.65
V9: *LOSS*	**−0.3459**	**0.0520**	**−0.1983**	**−0.1347**	**−0.1478**	**0.0706**	**−0.2369**	**−0.2226**	1.40
V10: *LEV*	**−0.0888**	**0.0697**	**−0.0189**	**0.0149**	0.0074	**0.1996**	**0.1002**	**−0.1311**	2.32
V11: *QUICK*	**0.0614**	**0.0165**	**0.0956**	**0.0198**	0.0004	**−0.1798**	**−0.0360**	**0.1636**	1.85
V12: *SGROWTH*	**0.0737**	**0.0579**	**0.0335**	0.0023	**−0.0209**	**−0.0528**	**0.0288**	**0.0550**	1.08
V13: *EQ*		**0.0198**	**0.3397**	**0.2092**	**0.1595**	**−0.0284**	**0.3205**	**0.2853**	1.90
V14: *YE*	**−0.0135**		**0.0679**	**0.0365**	**−0.0670**	**0.0343**	**0.0114**	0.0006	1.12
V15: *BIG_N*	**0.3647**	**0.0679**		**0.6396**	**0.2375**	**0.0393**	**0.4879**	**0.3228**	2.66
V16: *SPECIALIST*	**0.2339**	**0.0365**	**0.6396**		**0.0916**	**0.1129**	**0.3598**	**0.1692**	2.31
V17: *Ln_ATENURE*	**0.0974**	**−0.0517**	**0.2412**	**0.1035**		0.0046	**0.1610**	**0.1855**	1.23
V18: *AOPINION*	**−0.1074**	**0.0343**	**0.0393**	**0.1129**	−0.0021		**0.0623**	0.0046	1.30
V19: *Ln_NAF*	**0.2727**	−0.0028	**0.3991**	**0.2958**	**0.1175**	**0.0225**		**0.2552**	1.47
V20: *INSTO*	**0.2987**	−0.0019	**0.3542**	**0.1893**	**0.2045**	**0.0257**	**0.2322**		1.37

The Pearson and Spearman correlation coefficients between the variables employed in the main analysis are presented in the lower (upper) diagonal. Correlations significant at the 0.05 level or higher (two-tailed) are in bold. The variance inflation factors (VIF) are presented in the last column. Variable definitions are provided in Appendix A.

Empirical Results

The results of our main analysis are reported in Table 4. In Column (1) of Panel A we report the results from estimating a base regression model to examine the relationship between *Ln_AF* and *MGR_ABILITY* along with other audit fee determinants. The coefficient on *MGR_ABILITY* is negative (−0.0676) and significant at the 1 percent level (t-statistic = −6.59). This initial result is consistent with Krishnan and Wang (2015), who show that auditors price managerial ability by charging lower audit fees for firms with more able managers. We estimate the economic significance for the full sample as the exponential of the coefficient of *MGR_ABILITY* minus 1 (Krishnan and Wang 2015), and find that the economic significance for the full sample, without conditioning on financial distress, is a 6.53 percent (or about $69,255) reduction in audit fees for observations in the top decile of managerial ability, relative to that in the bottom decile. The percentage reported in Krishnan and Wang (2015) is close to 6.85 percent (about $89,000). In Column (2), we extend our analysis by including financial distress (*DISTRS*) and the interaction between managerial ability and financial distress (*MGR_ABILITY* ∗ *DISTRS*). We find that the coefficient on *MGR_ABILITY* ∗ *DISTRS* (0.1139) is positive and significant at the one percent level (t-statistic = 3.84), suggesting that the negative association between managerial ability and audit fees is less pronounced for financially distressed firms, thereby supporting our hypothesis.[13] Our inferences remain consistent when we estimate the base regression model within each subsample of distressed and non-distressed firms.[14] Panel B of Table 4 shows that the coefficient on *MGR_ABILITY* is positive (0.1178) and significant at the 1 percent level (t-statistic = 3.71) in the distressed subsample, whereas the coefficient on *MGR_ABILITY* is negative (−0.0630) and significant at the 1 percent level (t-statistic = −5.65) in the non-distressed subsample. While the result for the non-distressed subsample is consistent with the argument that non-distressed firms with more able managers are associated with lower audit fees, the positive coefficient on *MGR_ABILITY* in the distressed subsample suggests that distressed firms with more able managers are charged higher audit fees. This result could be due to rent seeking by more able managers in the presence of financial distress, which translates into higher audit risk and effort, and eventually higher fees. We re-estimate the economic significance for both the distressed and non-distressed subsamples. For the distressed subsample, audit fees increase by 12.50 percent, or about $33,550 for observations in the top decile of managerial ability, relative to that in the bottom decile.[15] Conversely, for the non-distressed subsample, audit fees decrease by 6.11 percent or about $71,328 for observations in the top decile of managerial ability, relative to that in the bottom decile.[16] In percentage terms, the increase in audit fees associated with high-ability managers in distressed firms is nearly two times greater than the decrease in audit fees associated with high-ability managers in non-distressed firms. However, the economic significance is relatively small, and may reflect the second order effect of managerial ability on audit fees.

ROBUSTNESS TESTS

Propensity Score Matching

Extant literature shows that poor performing firms (including financially distressed firms) tend to replace their top management (Brickley 2003; Jenter and Kanaan 2015). Since more able managers may opt to serve in poor performing firms to improve the firm's future performance, there is a concern for self-selection bias. We employ propensity score matching to attenuate the concern for self-selection bias within each distressed versus non-distressed subsample (Francis et al. 2013; Prawitt et al. 2012).[17]

For each subsample, we begin with a logistic model that regresses the likelihood that a client has high-ability managers (*MGRA_D*) on all control variables in the main model. *MGRA_D* equals 1 if the managerial ability score is above its annual median in each Fama and French (1997) 48 industry, and 0 otherwise. Untabulated results show that the Pseudo R^2 of the model in the distressed (non-distressed) subsample is 0.2290 (0.1155), with a likelihood ratio of 1561.7581 (5407.5984) and Wald Chi-squared of 1066.1987 (4345.7221), which are significant at the 1 percent level. Based on the significance level of the models, and similar to Cheung et al. (2017), our models seem to be reasonably fit in both the distressed and non-distressed subsamples. Then we use the propensity scores obtained from this estimation to perform a one-to-one nearest matching of high-low managerial

[13] Krishnan and Wang (2015) argue that audit fees are generally negotiated at the start of the year. In an untabulated test, we re-estimate the main regressions with lagged managerial ability (*LAGMGR_ABILITY*). Our inferences remain robust to this specification, since the coefficient on *LAGMGR_ABILITY* ∗ *DISTRS* is positive (0.0954) with a 1 percent level of significance (t-statistic = 3.09).

[14] Our results (untabulated) remain quantitatively similar when we employ two alternative measures of financial distress based on Altman (1968) and Shumway (2001).

[15] The mean audit fees for the distressed subsample of $268,400 ∗ 12.50 percent = $33,550.

[16] The mean audit fees for the non-distressed subsample of $1,167,400 ∗ 6.11 percent = $71,328.

[17] For the ease of interpretation, we estimate the propensity score matching in the distressed and non-distressed subsample separately.

TABLE 4

The Impact of Financial Distress on the Relationship between Managerial Ability and Audit Fees

Panel A: Full Sample

Variable	Pred. Sign	(1) Est.	(1) t-stat.	(1) p-value	(2) Est.	(2) t-stat.	(2) p-value
Intercept	?	9.9983***	276.30	< 0.0001	9.9730***	274.19	< 0.0001
MGR_ABILITY	−	−0.0676***	−6.59	< 0.0001	−0.0710***	−6.59	< 0.0001
DISTRS	?				0.1525***	8.89	< 0.0001
*MGR_ABILITY * DISTRS*	+				0.1139***	3.84	0.0001
Ln_SIZE	+	0.4942***	234.82	< 0.0001	0.5030***	234.32	< 0.0001
FOREIGN	+	0.1642***	11.20	< 0.0001	0.1710***	11.70	< 0.0001
Sqrt_SEG	+	0.0204***	4.97	< 0.0001	0.0199***	4.87	< 0.0001
INVREC	+	0.4093***	21.64	< 0.0001	0.4434***	23.37	< 0.0001
ROA	−	−0.1257***	−25.25	< 0.0001	−0.1173***	−23.67	< 0.0001
LOSS	+	0.1711***	27.98	< 0.0001	0.1725***	28.22	< 0.0001
LEV	+	0.1211***	12.03	< 0.0001	0.0380***	3.45	0.0006
QUICK	−	−0.0305***	−15.93	< 0.0001	−0.0330***	−17.29	< 0.0001
SGROWTH	?	−0.1095***	−14.84	< 0.0001	−0.1077***	−14.74	< 0.0001
EQ	−	−0.4447***	−11.58	< 0.0001	−0.3747***	−9.74	< 0.0001
YE	+	0.0787***	13.18	< 0.0001	0.0789***	13.25	< 0.0001
BIG_N	+	0.2618***	27.66	< 0.0001	0.2622***	27.80	< 0.0001
SPECIALIST	+	0.0560***	7.16	< 0.0001	0.0573***	7.35	< 0.0001
Ln_ATENURE	?	−0.0041	−1.01	0.3133	−0.0051	−1.26	0.2088
AOPINION	+	0.1060***	17.29	< 0.0001	0.0962***	15.67	< 0.0001
Ln_NAF	?	0.0185***	21.56	< 0.0001	0.0185***	21.58	< 0.0001
INSTO	+	0.1210***	13.63	< 0.0001	0.1248***	14.08	< 0.0001
IND_EFFECT		Included			Included		
YEAR_EFFECT		Included			Included		
n		50,058			50,058		
Adj. R^2		0.8352			0.8362		

Panel B: Distressed versus Non-Distressed Subsamples

Variable	Pred. Sign	(1) Distressed Est.	(1) Distressed t-stat.	(1) Distressed p-value	(2) Non-Distressed Est.	(2) Non-Distressed t-stat.	(2) Non-Distressed p-value
Intercept	?	9.6893***	99.69	< 0.0001	9.8741***	223.61	< 0.0001
MGR_ABILITY	+/−	0.1178***	3.71	0.0002	−0.0630***	−5.65	< 0.0001
Controls		Included			Included		
IND_EFFECT		Included			Included		
YEAR_EFFECT		Included			Included		
n		6,004			44,054		
Adj. R^2		0.7157			0.8261		

*** Denotes a two-tailed p-value of less than 0.01.

Panel A presents the full sample regression results of the natural log of audit fees (*Ln_AF*) on managerial ability (*MGR_ABILITY*), the financial distress indicator (*DISTRS*), the interaction of *MGR_ABILITY* and *DISTRS* (*MGR_ABILITY * DISTRS*), and control variables. Panel B presents the regression results within each subsample of distressed and non-distressed firms. t-statistics are calculated based on standard errors clustered by firm and year. Variable definitions are provided in Appendix A.

ability firms (without replacement) for each distressed and non-distressed subsample, based on a caliper distance of 0.01. This procedure ensures that each high-ability-manager firm is paired with a low-ability-manager firm based on the closest propensity score obtained from the logistic regression. This procedure creates a pseudo "random" sample that allows us to attribute the difference in audit fees between the two groups to the treatment effect (i.e., having high-ability managers) and not the other pre-existing client characteristics (Dehejia and Wahba 2002; Hardies, Breesch, and Branson 2015). We identify a matched pair of 3,180 (30,208) firm-year observations for high and low managerial ability firms in the distressed (non-distressed) subsample.

Untabulated results show that our matching algorithm appears to have successfully achieved balance in the covariates, since there is no significant difference in the mean values of control variables between high and low managerial ability firms within each distressed and non-distressed subsample. A comparison of audit fees (*Ln_AF*) across these two groups of firms shows a significantly higher mean *Ln_AF* for higher relative to lower managerial ability firms (11.8341 versus 11.7655) within the distressed subsample. However, a significantly lower mean *Ln_AF* for higher relative to lower managerial ability firms (13.2886 versus 13.3208) is observed for the non-distressed subsample. Next, we re-estimate our main regression models using the propensity score matched samples. The coefficient on *MGR_ABILITY* is positive (0.1243) and significant at the 1 percent level (t-statistic = 3.29) in the distressed subsample, whereas the coefficient on *MGR_ABILITY* is negative (−0.0642) and significant at the 1 percent level (t-statistic = −4.95) in the non-distressed subsample. Overall, the results reinforce our inferences that managerial ability and audit fees are positively (negatively) associated in the presence (absence) of financial distress.

Other Robustness Tests

We further conduct a battery of robustness tests (untabulated) to support our main results. First, we estimate a firm fixed effects model to alleviate the concern of correlated omitted variable bias in the form of time-invariant unobserved heterogeneity (K. Chen, Z. Chen, and Wei 2011). Second, we include the square of firm size and re-estimate our main regression model to control for the potential nonlinearities of audit fees (Cullinan, Du, and Zheng 2016). We then extend our analysis to the subsamples of big and small firms, partitioned by the median of firm size, to rule out the effect of firm size on our results. Third, following Demerjian et al. (2016), we replace the managerial ability measure by an alternative measure, namely a dichotomous variable coded 1 (0) to represent the best (worst) managers in the top (bottom) quartile of managerial ability, respectively, in $t-2$ and $t-1$, and repeat our analysis. This analysis excludes firm-years with intermediate managerial ability.[18] Fourth, we exclude firm-year observations that experience a change in CEO to assuage the concern that the managerial ability score in the year of managerial turnover may not reflect the ability of the managers in place.[19] Fifth, we exclude firm-years with an auditor change to rule out competing arguments including audit fee discounting in the first year of engagement (Deis and Giroux 1996; Ghosh and Lustgarten 2006), and to account for auditor resignation triggered by clients' financial distress (Schwartz and Menon 1985; Hudaib and Cooke 2005). Sixth, we control for business strategy based on Miles and Snow (1978) and Bentley et al. (2013) in our main analysis to ensure our results are not driven by a firm's strategic position.[20] Finally, we control for several additional determinants of financial reporting quality and audit fees, including accounting restatements and disclosure of internal control material weaknesses (Bentley et al. 2013; Krishnan and Wang 2015), as well as corporate governance attributes proxied by CEO duality, board size, and board independence (Tsui, Jaggi, and Gul 2001; Klein 2002; Cheng 2008).[21] Our main results continue to hold after all the above sensitivity analyses.

ADDITIONAL ANALYSIS

Financial Reporting Quality Tests

Following Demerjian et al. (2016), who find that the best managers reduce contracting costs by smoothing income via discretionary reporting and real activities management, we investigate whether financial distress induces high-ability managers

[18] We alternatively measure the best and worst managers by coding the top quartile of managerial ability (best managers) equal to 1, and 0 otherwise and the bottom quartile of managerial ability (worst managers) equal to 1, and 0 otherwise. This alternative specification maintains firm-year observations with intermediate managerial ability. The results (untabulated) from this analysis continue to confirm our main results.

[19] For instance, new CEOs may be hired to restructure distressed firms (Hotchkiss and Mooradian 1997; Evans, Luo, and Nagarajan 2014). Further, Krishnan and Wang (2015) suggest that the tone of top management may change following managerial turnover, which renders auditors to re-evaluate engagement risk.

[20] Alternatively, we control for a *firm*-level efficiency score obtained from Demerjian's website (see, http://faculty.washington.edu/pdemerj/data.html). A firm-level efficiency score, ranging from 0 (most inefficient) to 1 (most efficient), is estimated from the first stage of the Demerjian et al. (2012) optimization method. We replace *ROA* with *FIRM_EFFICIENCY* in the regression since they are similar proxies. After controlling for the firm-level efficiency score, we continue to observe a positive coefficient on *MGR_ABILITY* ∗ *DISTRS* that is significant at the 1 percent level.

[21] Effective corporate governance curbs managerial opportunism (Jensen and Meckling 1976; Fama 1980; Eisenhardt 1985) and reduces auditor engagement risk and audit fees (Cohen and Hanno 2000; Krishnan and Wang 2015). Cheung et al. (2017) also propose that high-ability managers afforded with greater discretion have the propensity to engage in rent seeking if they are not closely monitored.

to opportunistically manage earnings. To execute this analysis, we employ two financial reporting quality measures: (1) accrual quality (*MJDA*) based on the modified Jones (1991) discretionary accruals model (Dechow, Sloan, and Sweeney 1995), where a higher (lower) absolute value of this measure indicates lower (higher) accrual quality; and (2) accounting restatements (*RESTATE*), which is a dichotomous variable coded as 1 if the firm restated its financial reports during the fiscal year, and 0 otherwise. We estimate an ordinary least squares (logistic) regression of *MJDA* (*RESTATE*) on *MGR_ABILITY, DISTRS,* the interactive variable (*MGR_ABILITY* ∗ *DISTRS*), and other control variables used by prior studies (e.g., Dechow and Dichev 2002; Francis, LaFond, Olsson, and Schipper 2004; Demerjian et al. 2013) including firm size (*Ln_SIZE*), volatility of operating cash flows (*stdCFO*), volatility of sales (*stdSALE*), operating cycle (*OCYCLE*), incurrence of loss (*NEGEARN*), innovation intensity (*INTINT*), capital intensity (*CAPINT*), abnormal returns (*ABRET*), auditor size (*BIG_N*), institutional holdings (*INSTO*), and industry and year fixed effects.

The full sample regression results for accrual quality are reported in Columns (1) and (2) of Panel A, Table 5. In the absence of financial distress, the coefficient on *MGR_ABILITY* is negative (−0.0397) and significant at the 5 percent level (t-statistic = −2.55). This is consistent with Demerjian et al. (2013), where higher managerial ability is associated with better accrual quality. However, in the presence of financial distress, we find a positive coefficient on *MGR_ABILITY* ∗ *DISTRS* (0.1618) that is significant at the 5 percent level (t-statistic = 2.12), suggesting lower-quality accruals.

Turning to accounting restatements, we report the results for this analysis in Columns (3) and (4) of Panel A, Table 5. We find that high managerial ability firms display a lower likelihood of restatements absent financial distress, suggested by the negative coefficient on *MGR_ABILITY* (−0.1995) that is significant at the 1 percent level (Wald $\chi^2 = 10.99$). The positive coefficient on *MGR_ABILITY* ∗ *DISTRS* (0.7900), which is significant at the 1 percent level (Wald $\chi^2 = 9.58$), supports the notion that financial distress increases the likelihood of restatements for high managerial ability firms.[22]

When we split the sample into distressed and non-distressed firms, we find similar results (reported in Panel B of Table 5) as in the audit fee analysis, except that for the distressed subsample there is no significant relationship between managerial ability and accrual quality. The results for the restatements continue to hold and show that for distressed firms there is a positive coefficient, and for non-distressed firms there is a negative coefficient, consistent with expectations. Overall, our results for financial reporting quality are broadly consistent with the audit fee results. In an untabulated analysis, we observe qualitatively similar results for financial reporting quality tests when we employ a propensity score matching procedure within distressed and non-distressed subsamples.

Following Bentley et al. (2013), we repeat the above analysis using shareholder lawsuits related to accounting improprieties (*LAWSUIT*) as an alternative measure of our dependent variable. *LAWSUIT* is a dichotomous variable coded 1 if the firm experiences a lawsuit due to an accounting irregularity during the year (obtained from the Audit Analytics litigation database), and 0 otherwise. Our untabulated logistic regression results indicate a negative coefficient (−0.2651) for higher managerial ability, suggesting that more able managers significantly (Wald $\chi^2 = 4.7226$) reduce the likelihood of shareholder lawsuits. However, and consistent with our earlier result, we find a positive coefficient (1.7600) on the interaction term, suggesting that higher-ability managers significantly (Wald $\chi^2 = 14.2735$) increase the likelihood of shareholder lawsuits in distressed firms.

Sources of Agency Problems

Our results so far suggest that high-ability managers in distressed firms are more likely to behave opportunistically, for instance by engaging in opportunistic financial reporting, resulting in greater audit fees. We further explore the sources of agency problems. Specifically, we examine whether these managers behave at the detriment of shareholders' interests, which indicates the agency problem of equity, and/or for maximizing shareholders' interests at the expense of creditors, which mirrors the agency problem of debt.

We measure the source of the agency problem of equity with CEO equity incentives proxied by *DELTA* and *VEGA*.[23] Equity-based compensations are argued to align managerial interests with shareholders' interests by inducing effort and reducing managerial risk aversion (Jensen and Meckling 1976; Eisenhardt 1989; Shleifer and Vishny 1997) but, on the other hand, could exacerbate agency conflicts when taken to extremes (Desai, Hogan, and Wilkins 2006; Armstrong, Jagolinzer, and Larcker 2010; Ndofor, Wesley, and Priem 2015). Relatedly, extant studies show that equity-based compensation incentivizes managers to manipulate earnings to boost share price in hopes of maximizing their wealth. For instance, Bergstresser and Philippon (2006) associate CEOs with high equity-based compensation with accrual earnings management. Harris and

[22] To corroborate our results, we make a further refinement to the definition of the restatement variable by coding the variable 1 if a firm restates within the next three years. Our untabulated results show a positive (0.2985) and significant (at the 10 percent level) coefficient on the interaction of managerial ability and distress, confirming our earlier results.

[23] We define *DELTA* as the sensitivity of CEO stock and options to a 1 percent increase in the firm's stock price (Rego and Wilson 2012). We define *VEGA* as the sensitivity of CEO stock options to a 0.01 unit change in the annualized standard deviation of the firm's stock return (Core and Guay 2002).

TABLE 5

The Impact of Financial Distress on the Relationship between Managerial Ability and Financial Reporting Quality

Panel A: Full Sample

		DV = *MJDA*						DV = *RESTATE*					
		(1)			(2)			(3)			(4)		
Variable	Pred. Sign	Est.	t-stat.	p-value	Est.	t-stat.	p-value	Est.	χ^2 stat.	p-value	Est.	χ^2 stat.	p-value
Intercept	?	0.4926***	5.92	< 0.0001	0.4940***	5.94	< 0.0001	−3.8510***	226.70	< 0.0001	−3.8445***	225.90	< 0.0001
MGR_ABILITY	−	−0.0397**	−2.55	0.0106	−0.0485***	−3.10	0.0019	−0.1995***	10.99	0.0009	−0.2399***	15.41	< 0.0001
DISTRS	?				−0.0693*	−1.67	0.0953				−0.5141***	14.73	0.0001
*MGR_ABILITY * DISTRS*	+				0.1618**	2.12	0.0341				0.7900***	9.58	0.0020
Ln_SIZE		−0.0066***	−2.65	0.0082	−0.0065***	−2.62	0.0087	−0.0548***	28.87	< 0.0001	−0.0564***	30.30	< 0.0001
stdCFO		0.3679***	7.00	< 0.0001	0.3735***	6.91	< 0.0001	−0.3563**	5.66	0.0174	−0.2552*	2.85	0.0917
stdSALE		0.0705***	4.03	< 0.0001	0.0689***	3.94	< 0.0001	0.0773	1.24	0.2648	0.0753	1.17	0.2801
OCYCLE		0.0251***	3.29	0.0010	0.0259***	3.39	0.0007	−0.0735***	10.40	0.0013	−0.0683***	8.88	0.0029
NEGEARN		0.0619***	3.91	< 0.0001	0.0602***	3.78	0.0002	−0.0311	0.32	0.5740	−0.0312	0.32	0.5732
INTINT		0.1941***	6.74	< 0.0001	0.1995***	6.82	< 0.0001	0.0256	0.11	0.7399	0.0858	1.18	0.2782
CAPINT		0.4011***	14.73	< 0.0001	0.4020***	14.74	< 0.0001	−0.2276**	6.05	0.0139	−0.2081**	4.99	0.0254
ABRET		0.0427***	4.98	< 0.0001	0.0426***	4.94	< 0.0001	0.0434*	2.88	0.0894	0.0376	2.12	0.1452
BIG_N		−0.0131	−1.01	0.3133	−0.0135	−1.04	0.2974	−0.1718***	15.89	< 0.0001	−0.1750***	16.50	< 0.0001
INSTO		−0.0352***	−2.60	0.0095	−0.0352***	−2.60	0.0092	0.5871***	134.79	< 0.0001	0.5820***	132.36	< 0.0001
IND_EFFECT		Included			Included			Included			Included		
YEAR_EFFECT		Included			Included			Included			Included		
n		49,074			49,074			49,074			49,074		
Adj. R^2/Pseudo R^2		0.0775			0.0776			0.0776			0.0761		

Panel B: Distressed versus Non-Distressed Subsamples

		(1) Distressed						(2) Non-Distressed					
		DV = *MJDA*			DV = *RESTATE*			DV = *MJDA*			DV = *RESTATE*		
Variable	Pred. Sign	Est.	t-stat.	p-value	Est.	χ^2 stat.	p-value	Est.	t-stat.	p-value	Est.	χ^2 stat.	p-value
Intercept	?	1.1621***	3.80	0.0001	−4.9202***	15.55	< 0.0001	0.3630***	4.25	< 0.0001	−3.8481***	207.85	< 0.0001
MGR_ABILITY	+/−	0.0702	0.88	0.3771	0.6011**	4.35	0.0370	−0.0484***	−3.09	0.0020	−0.2335***	14.44	0.0001
Controls		Included			Included			Included			Included		
IND_EFFECT		Included			Included			Included			Included		
YEAR_EFFECT		Included			Included			Included			Included		
n		3,202			3,202			45,872			45,872		
Adj. R^2/Pseudo R^2		0.2637			0.1157			0.0681			0.0761		

*, **, *** Denote a two-tailed p-value of less than 0.10, 0.05, and 0.01, respectively.

Panel A presents the full sample regression results of the financial reporting quality measure on managerial ability (*MGR_ABILITY*), financial distress (*DISTRS*), the interaction of *MGR_ABILITY* and *DISTRS* (*MGR_ABILITY * DISTRS*), and control variables. Columns (1) and (2) present the results based on modified Jones's (1991) discretionary accruals (*MJDA*) as a measure of earnings quality, where higher values represent lower quality. Columns (3) and (4) present the results based on restatement (*RESTATE*) as a measure of earnings quality, where firms with restatements are coded 1, and 0 otherwise. Panel B presents the regression results for the distressed and non-distressed subsamples. t-statistics and χ^2 statistics are heteroscedasticity consistent.

Variable definitions are provided in Appendix A.

Bromiley (2007) and Zhang, Bartol, Smith, Pfarrer, and Khanin (2008) associate the likelihood of financial misconduct with a higher percentage of CEO stock option grants and "out-of-the-money" CEO stock options, respectively. Efendi et al. (2007) document that the likelihood of financial misstatement increases when the CEO has a sizable amount of stock options "in-the-money," especially for firms that are constrained by an interest-coverage debt covenant, firms that raise new capital, and firms with CEO-Chair duality.

We capture the source of the agency problem of debt with debt rollover risk (*ROLLR,* also termed refinancing risk), which increases the probability of default (He and Xiong 2012; Brunnermeier and Oehmke 2013). *ROLLR* is estimated as the firm's long-term debt payable within a year (Compustat DD1) at the end of year $t-1$ divided by total assets at the end of year $t-1$ (Almeida, Campello, Laranjeira, and Weisbenner 2012; Gopalan, Song, and Yerramilli 2014; Wang, Chiu, and Peña 2017). Wang et al. (2017) argue that a firm encounters rollover risk when it needs to refinance a debt that is approaching maturity. Diamond (1991) identifies several pressures stemming from debt maturity that include debt repayment before project completion, difficulty in obtaining new financing, and refinancing under unfavorable new debt terms. Relatedly, Fields, Gupta, Wilkins, and Zhang (2016) find that firms with refinancing pressure tend to manipulate accruals to window dress their performance in hopes of obtaining refinancing under favorable terms.

We expand the audit fee model by introducing three-way interactions of managerial ability (*MGR_ABILITY*), financial distress (*DISTRS*), and the proxies for the agency problems of equity (*DELTA* or *VEGA*) and debt (*ROLLR*) in Panel A of Table 6. While we include based variables and other two-way interactions and control variables in the model, we only report, for the sake of brevity, the results for the three-way interactions of interest, namely *MGR_ABILITY* $*$ *DISTRS* $*$ *DELTA* (or *MGR_ABILITY* $*$ *DISTRS* $*$ *VEGA*) and *MGR_ABILITY* $*$ *DISTRS* $*$ *ROLLR*. The results reported in Panel A, Table 6 show positive coefficients on all three-way interactive variables that are significant at the 5 to 1 percent levels, suggesting that more able managers in distressed firms with higher agency problems of debt and equity lead to a greater increase in audit fees. We extend this analysis to the financial reporting quality tests and report the results in Panel B, Table 6. Consistently, we observe positive coefficients on all three-way interactive variables that are significant at the 10 to 5 percent levels. The financial reporting quality of distressed firms with more able managers further deteriorates when there are greater equity-based compensation and debt refinancing pressures. Taken together, these results indicate that the agency problems of equity and debt coexist in our setting. High-ability managers in distressed firms behave opportunistically to concurrently maximize equity compensation and obtain more favorable debt refinancing terms, which leads to higher audit fees.

CONCLUSION

In this paper, we examine whether relatively high-ability managers in financially distressed firms act opportunistically, since a strand of the management literature suggests that there is the "dark" side of higher managerial ability. Under certain conditions, such as the presence of financial distress, we propose that relatively high-ability managers are more likely to manifest this "dark-side" behavior by abusing their aptitude to identify, exploit, and conceal fraud opportunities, thereby leading to a weaker negative association, or even a positive association, between managerial ability and audit fees. Using 50,058 firm-year observations from 2000 to 2012, our analysis shows that the reduction in audit fees due to high-ability managers is less pronounced for financially distressed firms. When we split the sample into high and low financial distress, we find that the managerial ability-audit fee relationship is positive for financially distressed firms, consistent with the main theme of our study that relatively high-ability managers could act opportunistically. Our results are robust to several endogeneity and sensitivity tests. In further specifications, using financial reporting quality proxies, overall, we observe consistent results with the audit fee analysis. We also show the relevance of both the agency problems of equity and debt to our setting, as high-ability managers in distressed firms engage in opportunistic financial reporting to maximize equity compensation and cope with debt refinancing pressures, resulting in greater audit fees.

As with most empirical studies of this nature, there are several limitations worth noting. First, the measurement error of financial distress and potential endogeneity may not be completely eliminated through our tests. Second, our results are based on a proxy for managerial ability that is not measured without noise. Third, while we have controlled for business strategy in a robustness test, the residuals from the Demerjian et al. (2012) firm-efficiency model can capture factors other than managerial competence (Demerjian et al. 2013), and hence the possibility of correlated omitted variables. Fourth, although we have conducted several tests to shed light on the opportunistic behavior of high-ability managers in financially distressed firms, it is difficult to capture and test opportunistic behavior directly. Fifth, the managerial ability score is for the entire team, while the issue of financial reporting—and by extension the audit fee—is a matter that should perhaps be more related to the role of CFOs and their delegates. Finally, while we have provided evidence on opportunistic earnings management engaged by high-ability managers in financially distressed firms, it is not clear what the effects of these opportunistic behaviors are on firms' future performance and shareholders' wealth, and whether our inference continues to hold when there is better corporate governance. These issues and questions raise fruitful avenues for future research.

TABLE 6

Source of Agency Problems

Panel A: Audit Fee Analysis

Variable	Est.	t-stat.	p-value	Est.	t-stat.	p-value
Intercept	9.8876***	148.48	< 0.0001	9.5465***	177.89	< 0.0001
*MGR_ABILITY * DISTRS * DELTA*	0.0019**	2.13	0.0322			
*MGR_ABILITY * DISTRS * VEGA*				0.0038**	2.25	0.0236
*MGR_ABILITY * DISTRS * ROLLR*	11.0233***	4.34	< 0.0001	3.2833**	2.10	0.0361
Base Variables	Included			Included		
Other Two-Way Interactions	Included			Included		
Controls	Included			Included		
IND_EFFECT	Included			Included		
YEAR_EFFECT	Included			Included		
n	12,665			12,665		
Adj. R^2	0.7205			0.7177		

Panel B: Financial Reporting Quality Analysis

	DV = *MJDA*						DV = *RESTATE*					
Variable	Est.	t-stat.	p-value	Est.	t-stat.	p-value	Est.	χ^2 stat.	p-value	Est.	χ^2 stat.	p-value
Intercept	0.0843	0.70	0.4865	0.2116**	2.22	0.0262	−3.2245***	38.41	< 0.0001	−3.2396***	38.74	< 0.0001
*MGR_ABILITY * DISTRS * DELTA*	0.0012**	1.97	0.0490				0.0024**	4.51	0.0325			
*MGR_ABILITY * DISTRS * VEGA*				0.0109**	2.27	0.0234				0.0933*	3.82	0.0510
*MGR_ABILITY * DISTRS * ROLLR*	3.8868**	2.50	0.0126	2.9824**	2.04	0.0413	5.7176**	5.39	0.0203	7.1778*	2.90	0.0884
Base Variables	Included						Included					
Other Two-Way Interactions	Included						Included					
Controls	Included						Included					
IND_EFFECT	Included						Included					
YEAR_EFFECT	Included						Included					
n	12,620			12,620			12,620			12,620		
Adj. R^2/Pseudo R^2	0.0379			0.0373			0.0654			0.0654		

*, **, *** Denote a two-tailed p-value of less than 0.10, 0.05, and 0.01, respectively.
Panel A presents the regression results of the natural log of audit fees (*Ln_AF*) on the interactions of managerial ability (*MGR_ABILITY*), financial distress (*DISTRS*), and the agency problem of equity (*DELTA* or *VEGA*) versus the agency problem of debt (*ROLLR*), other interactions, and control variables. Panel B presents the regression results of accrual quality (*MJDA*) and restatement (*RESTATE*) on the interactions of managerial ability (*MGR_ABILITY*), financial distress (*DISTRS*), and the agency problem of equity (*DELTA* or *VEGA*) versus the agency problem of debt (*ROLLR*), other interactions, and control variables. t-statistics and χ^2 statistics are heteroscedasticity consistent.
Variable definitions are provided in Appendix A.

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APPENDIX A

Variable Definitions

Variable	Definition
Dependent and Test Variables	
AF	Total audit fee at the fiscal year-end (in millions of dollars). *Ln_AF* is the natural log of audit fees. *RATIO_AF* is the ratio of audit fees to total assets.
MGR_ABILITY	The industry-year decile rank of Demerjian et al.'s (2012) managerial ability scores.
DISTRS	A dichotomous variable coded as 1 if the pseudo-bankruptcy probability ($\hat{P}$) based on the Ohlson (1980) model is greater than or equal to 50 percent, and 0 otherwise. Specifically: $P' = \frac{1}{1+e^{-\hat{\gamma}_{i,t}}}$ $\hat{\gamma}_{i,t} = -1.32 - 0.407 * SIZE_{i,t} + 6.03 * TLTA_{i,t} - 1.43 * WCTA_{i,t} + 0.0757 * CLCA_{i,t} - 2.37 * NITA_{i,t} - 1.83 FUTL_{i,t} + 0.285 * INTWO_{i,t} - 1.72 * OENEG_{i,t} - 0.521 * CHIN_{i,t}$ where *SIZE* is the log of total assets to the GNP price-level index ratio; *TLTA* is total liabilities divided by total assets; *WCTA* is working capital divided by total assets; *CLCA* is current liabilities divided by current assets; *NITA* is net income divided by total assets; *FUTL* is funds from operations divided by total liabilities; *INTWO* is coded as 1 if net income is negative in the previous two years, and 0 otherwise; *OENEG* is coded as 1 if total liabilities are greater than total assets, and 0 otherwise, and $CHIN = (NI_t - NI_{t-1})/(\mid NI_t \mid - \mid NI_{t-1} \mid)$, where *NI* is net income.
Control Variables	
Ln_SIZE	The natural log of total assets.
FOREIGN	The ratio of foreign sales to total sales.
Sqrt_SEG	The square root of the number of business segments.
INVREC	The ratio of the sum of inventory and accounts receivable to total assets.
ROA	The ratio of income before extraordinary items to total assets.
LOSS	A dichotomous variable coded as 1 if the firm experiences a loss from continuing operations in any of the past three years, and 0 otherwise.
LEV	The ratio of total debt to total assets.
QUICK	The ratio of total current assets less inventories to total current liabilities.
SGROWTH	The annual percentage change in sales.
EQ	Accrual quality is based on Dechow and Dichev (2002), modified by McNichols (2002), and is calculated as the five-year standard deviation of residuals from regressions of a firm's current accruals on its lead, lag, and current operating cash flow, change in revenues, and current property, plant, and equipment across each year and Fama and French (1997) 48-industry classifications. The standard deviation of residuals is multiplied by minus one so that the higher (lower) values of this measure represent higher (lower) quality earnings.
YE	A dichotomous variable coded as 1 if the firm's fiscal year-end is December 31, and 0 otherwise.
BIG_N	A dichotomous variable coded as 1 if the firm's auditor is one of the Big 5 or 4 audit firms, and 0 otherwise.
SPECIALIST	A dichotomous variable coded as 1 if the firm's auditor is, following Fung, Gul, and Krishnan (2012), a city industry leader, and 0 otherwise.
Ln_ATENURE	The natural log of auditor tenure in years.
AOPINION	A dichotomous variable coded as 1 if the audit opinion was anything other than a standard, unqualified opinion, and 0 otherwise.
Ln_NAF	The natural log of non-audit fees at the fiscal year-end.
INSTO	The percentage of shares held by institutional investors.
Other Variables Used in Robustness and Additional Analyses	
MJDA	Absolute value of abnormal accruals based on the modified Jones (1991) discretionary accruals model (Dechow et al. 1995).
RESTATE	A dichotomous variable coded as 1 if the firm restated its financial reports during the fiscal year, and 0 otherwise.
stdCFO	The standard deviation of cash flow from operations over the fiscal years $t-4$ to t.
stdSALE	The standard deviation of sales revenue over the fiscal years $t-4$ to t.
OCYCLE	The length of the firm's operating cycle calculated as sales turnover plus days in inventory.
NEGEARN	The number of years where the firm reported negative values of net income before extraordinary items.
INTINT	The ratio of the reported research and development (R&D) and advertising expense to total sales revenue.
CAPINT	The ratio of tangible fixed assets to total assets.
ABRET	Annual buy-and-hold stock return minus annual buy-and-hold value-weighted NYSE, AMEX, or NASDAQ index return.

(continued on next page)

APPENDIX A (continued)

Variable	Definition
DELTA	The sensitivity of CEO stock and options to a 1 percent increase in the firm's stock price.
VEGA	The sensitivity of CEO stock options to a 0.01 unit change in the annualized standard deviation of the firm's stock return.
ROLLR	The firm's long-term debt payable within a year (Compustat DD1) at the end of year $t-1$ divided by total assets at the end of year $t-1$.