Auditors' fee premiums and low quality internal controls

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ABSTRACT: We examine the relation between low quality internal controls and audit fee premiums. Using a novel dataset of audit hours and audit fees, we find consistent with the audit risk model, that auditors increase their effort (hours) due to low control quality. However, we find that auditors *also* charge a significant fee premium to clients reporting internal control weaknesses. This premium is observed only with severe internal control weaknesses and is higher for companies with low quality governance mechanisms. The results are robust to multiple methods to address endogeneity including Heckman two-stage model and a propensity-score matched sample. Taken as a whole, reported material weaknesses appear to provide auditors with an opportunity to charge fee premiums even though auditors also respond with additional effort.

I. INTRODUCTION

A system of internal control over financial reporting consists of policies and procedures designed to provide reasonable assurance that the financial statements are fairly stated. Prior studies have shown that companies with low internal control quality pay more in audit fees (Hogan and Wilkins 2008; Raghunandan and Rama 2006). However, these prior studies cannot distinguish whether these higher fees are driven by auditor's increased effort to conduct the audit, or whether auditors charge a premium for clients with low quality internal controls.[1] In this study, we use a novel data set to investigate whether auditors charge a fee premium to clients with low internal control quality.

From a theoretical standpoint, auditors respond to low quality internal controls through increased testing of individual transactions and account balances. On average, substantive testing of account balances and transactions is less efficient than relying on internal controls. Correspondingly, this incremental effort on the part of the auditor should increase audit fees. What is less clear is the relation between internal control quality and audit fee premiums. A fee premium is designed to compensate the auditor for associating with a potentially higher risk client who may subject the auditor to an increased probability of reputational or financial loss. From a theoretical perspective, there should be no association between low internal control quality and an audit fee premium. However, there are practical reasons as to why auditors may charge a premium to clients that report internal control weaknesses. First, reported control failures may be an indicator of low quality management or a lack of management's willingness to devote resources to financial reporting and internal control. This would suggest auditors' assessments of managements' quality and integrity would be lower for clients reporting material weaknesses. Second, changing auditors is costly and a reported material weakness is

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[1] To this point, Hogan and Wilkins (2008) state that "we cannot rule out the alternative explanation that the fee increase is due primarily to a risk premium with [internal control deficiency] firms" (p. 220).

an external signal of management failure which may provide auditors an opportunity to charge higher rates, even if unwarranted.

Many prior studies show a positive association between risk and audit fees. However, whether this relation is driven by increased auditor's effort or a fee premium is unsettled due to data constraints, or lack of generalizability. For example, Bell, Landsman and Shackelford (2001) examine the association between auditor's assessment of client business risk and audit fees for a single audit firm, and find that when auditors assess business risk as higher they incur additional hours but do not charge a fee premium. A number of other studies have also examined risk and audit effort and, in general, find that effort is frequently not influenced by risk (O'Keefe, Simunic, and Stein 1994; Stein, Simunic, and O'Keefe 1994; Hackenbrack and Knechel 1997). There are two concerns with generalizing these results to the current regulatory environment. First, many prior studies use data from time periods prior to the Sarbanes-Oxley Act of 2002 (SOX), when audit fees were likely less sensitive to control failure because auditors were not required to opine on the quality of internal controls.[2]. Second, many previous studies use data compiled for auditor's internal purposes; from which auditors' judgements about risk may be difficult to pass on to the client in the form of a fee premium (e.g. Bell, Landsman, and Shackelford, 2001).

Also, it is difficult to empirically disentangle auditor's effort from a fee premium due to limitations in data availability, particularly in the U.S. Therefore, while prior studies frequently use the level of audit fees as a proxy for auditor's effort (e.g., Lobo and Zhao 2013), studies cannot distinguish from, or rule out, a risk premium (e.g., Hogan and Wilkins 2008). Therefore, we examine the relation between low internal control quality and audit fee premiums during the post-SOX regulatory era. We employ a novel dataset that includes audit

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[2] SOX section 404 became effective for fiscal years ending on or after November 15, 2004 for accelerated filers.

fees and *audit hours* for multiple audit firms that allows us to examine whether low internal control quality is associated with an audit fee premium.

Almost concurrent with the regulatory changes for reporting on internal control quality in the U.S. (SOX sections 302 and 404), the Korean regulators instituted similar regulation, which became integrated into the *Act on External Audit of Stock Companies*.[3] Similar to the U.S., these regulations require auditors to opine on the quality of internal control and report whether a material weakness in internal control is identified. Thus, a Korean auditor's sensitivity to internal control quality is likely higher in this post-regulation period similar to US auditors' increased sensitivity after SOX. The benefit of the Korean setting is that audit fees paid and auditors' hours worked are publicly disclosed which provides an opportunity to investigate risk premiums in a broad sample of companies across many different audit firms.

Using data from 2006 to 2012, we first validate our data by testing the relation between internal control weaknesses and audit fees. We first find a positive association between audit fees and reported internal control weaknesses (e.g., Raghunandan and Rama 2006; Hogan and Wilkins 2008; Hoitash, Hoitash, and Bedard 2008). Consistent with the audit risk model, auditors increase their effort when internal control weaknesses are reported as measured by total audit hours incurred. On average, audits with internal control failures require 12.2 percent more hours to complete relative to audits that do not report a material weakness. Using a precise measure of auditor's effort (hours charged), our findings are consistent with the audit risk model, which is that auditors increase their effort when internal control quality appears to be lower.

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[3] The content of *Act on External Audit of Stock Companies* that relates to the internal control over financial reporting is similar to SOX sections 302 and 404. Specifically, similar to PCAOB AS 5, a material weakness is defined in the Act on External Audit of Stock Companies as follows: "A material weakness is a deficiency or deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's financial statements will not be prevented or detected." In this paper, the independent auditor's disclaimer of an opinion on internal control quality is also included as a material weakness in internal controls".

We next examine whether there is a fee premium charged for audits that report internal control failures. We find that auditors not only increase audit effort (hours) for audits with reported internal control weaknesses, but also charge a significant fee premium. In our sample, the mean hourly rate for audits that report material weaknesses are, on average, 10.7 percent higher compared to audits that do not report a material weakness. Importantly, our findings suggest that effort alone is not the only auditor's response to low internal control quality. Thus, a reported material weakness may be a signal to the auditor of potential higher order risks of associating with the client firm, thus causing the auditor to charge a premium or it simply provides an opportunity for auditors to bill and collect higher fees.

We next examine whether the audit fee premium is influenced by the severity of a reported internal control weakness. If reported control failures are indicative of an increased risk of associating with a client company, then more egregious or pervasive internal control weaknesses should be associated with even larger audit fee premiums. We consider company-level internal control failures to be more difficult for auditors to respond to through additional effort and thus identify these failures as "severe." Remaining internal control weaknesses including account specific control failures are classified as "other" following Doyle, Ge and McVay (2007). We find that auditors incur more hours when companies report "other" material weaknesses consistent with auditors increasing effort to gather sufficient audit evidence and "audit around" a control failure. However, there appears to be no risk premium for audits of clients that have "other" internal control weaknesses. In contrast, we find that risk premiums are significantly higher for audits of clients with severe internal control weaknesses. The fee premium for severe control weaknesses makes some sense as entity-level control failures would be more difficult to "audit-around" by increasing substantive testing of account balances and transactions Thus, the relation between internal control weaknesses and audit fee premiums appears to be driven by those material weaknesses that are severe and most pervasive in nature.

We next examine the relation between alternative governance measures and audit fee premiums. To the extent that clients have other high quality governance mechanisms in place, the need to collect a fee premium for potential loss may be offset by these other mechanisms. We partition companies by governance quality and find that audit fee premiums are in fact higher for clients with lower quality governance mechanisms and there is no fee premium for companies with high governance quality who report an internal control weakness.

We perform a number of robustness checks on the effect of reported internal control weaknesses on audit fee premiums because companies that report material weaknesses differ along many dimensions from those that don't. Our results are robust to (1) using a two stage model to address the likelihood of a reported material weakness, (2) using a propensity-score matched sample to ensure a control group is similar in size and financial characteristics as those that report material weaknesses, and (3) explicitly controlling for companies that report material weaknesses at any point in the sample. Results using these three methods are consistent and suggest that fee premiums for companies that report material control weakness do not appear to be driven by an omitted variable.

Our study contributes to the literature in several ways. While prior research finds a positive association between internal control weaknesses and audit fees (Raghunandan and Rama 2006; Hogan and Wilkins 2008; Hoitash, Hoitash, and Bedard 2008), these studies lack sufficient data to address whether these higher fees are attributed to effort alone, or whether the auditor charges a risk premium. Further, because of significant regulatory changes resulting from SOX, findings from many previous studies that investigate the relation between risk and audit fees may not generalize to the current regulatory environment with its' increased focus on internal control quality. Using a novel dataset of audit hours and fees we overcome these limitations, and provide evidence that fee increases for audits with reported material weaknesses are due to *both* an increase in auditors' effort (hours), and a fee premium. The

increase in effort is consistent with a theoretical interpretation of the audit risk model and auditors incurring additional effort due to low quality internal control. However, our results also suggest that auditors charge a significant fee premium when internal control weaknesses are reported.

The relation between fee premiums and internal control failures varies along predicted dimensions as fee premiums are driven by severe control failures and high quality corporate governance appears to mitigate the auditor's fee premium when reporting internal control failures. Overall, our study contributes to the literature using a unique dataset to isolate and explore the effect of internal control failures on auditor's fee premiums. While many studies on audit fees claim to examine audit fee premiums (e.g., Choi, Kim, Liu, and Simunic 2009), there are very few that can isolate the fee premium from auditor effort due to data limitations (e.g., Bell, Landsman, and Shackleford 2001; Bell, Doogar, and Solomon 2008).

The remainder of the paper continues as follow. Section II provides the background information and hypotheses development, Section III provides the research design and sample selection, Section IV reports the main empirical results, Section V provides additional analyses on control failure and fee premiums and Section VI concludes the study.

II. BACKGROUND INFORMATION AND HYPOTHESES

Background and Prior Literature

While there is a vast research on the determinants of audit fees (for a review see Hay et al. 2006), there is limited research on the relation between internal control quality and audit fees, and more specifically audit fee premiums. As stated in Hogan and Wilkins (2008), the relation between internal control quality and audit fees is not entirely clear. The audit risk model in Statement on Auditing Standards (SAS) No. 47 provides a framework for the relation among

audit risk, inherent risk, control risk, and detection risk. Using the audit risk model, auditors are required to make an assessment about the quality of internal control. If auditors find that internal controls are not designed or operating effectively, then these controls cannot be relied on by the auditor. Therefore in theory, ineffective internal controls require the auditor to perform more extensive substantive testing of transactions and balances (i.e., higher audit effort). For example, for an audit of financial statements generated with high quality internal controls, the auditor can reduce samples sizes through reliance on internal controls. [4] Importantly, a key assumption in the audit risk model is that the auditor responds to increased control risk (increased likelihood of control failure) through increases in substantive testing. High control risk suggests auditors will increase effort to maintain audit risk at an acceptable level. Consistent with this prediction, prior experimental studies suggest that auditors adjust their planned substantive procedures based on anticipated internal control quality (Gaumnitx, Nunamaker, Surdick, and Thomas 1982; Libby, Artman, and Willingham 1985; Kaplan 1985).

While previous experimental studies suggest planned audit effort will increase as the effectiveness of the internal control system deteriorates, archival evidence is mixed and limited due to data constraints. For instance, the degree of reliance on internal control is not a significant determinant of audit fees (O'Keefe, Simunic, and Stein 1994), and auditors appear to be "insensitive to control reliance decisions" (Hackenbrack and Knechel 1997, p. 401). However, this evidence is prior to mandated audits of internal control over financial reporting from SOX. Further, many of the previous studies examine audits that do not rely on internal controls.[5] With auditor mandated reporting on internal control after SOX, auditors are likely

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[4] Auditing standards specifically provide for additional substantive testing when auditors conclude that internal controls cannot be relied on (SAS No. 55 [AICPA 1989] and SAS No. 78 [AICPA 1996]).

[5] For instance, 40 percent of the client companies in Hackenbrack and Knechel (1997) are classified as non-reliance companies, meaning the auditor does not plan to rely on internal control. In O'Keefe, Simunic, and Stein (1994), the distribution of the control reliance exhibits that 178 of 249 observations (71.5 percent) and 47 of 249 observations (18.9 percent) are classified as "no reliance" and "limited reliance," respectively. With such a high percentage of clients classified as no-reliance on client internal control, it is perhaps not surprising that these

more sensitive to control quality. Therefore, caution should be exercised in drawing general inferences from these earlier studies to the post-SOX environment.

Post-SOX, audit fees are significantly higher for a company that reports a material weakness than for a company that does not (Raghunandan and Rama, 2006). Also, in the initial years after SOX, audit fees are 35 percent higher in the year preceding a year in which an internal control weakness is reported (Hogan and Wilkins, 2008). Further, audit fees were found to vary with the severity and nature of a control failure (Hoitash, Hoitash, and Bedard 2008).[6]

While limited, the findings in recent studies suggest that control risk is positively associated with audit fees. However, what remains unclear is whether this documented relation with audit fees is due to an increase in auditors' effort (hours) alone, and/or a risk premium (hourly rate). The purpose of our study is to determine whether auditors charge a risk premium for clients with low internal control quality.

Audit Institutions in Korea

Regardless of company listing status, companies with total assets equal to or larger than 10 billion Korean won (US$9.1 million) must file audited financial statements with the Financial Supervisory Services (FSS) (*The Act on External Audit of Stock Companies*, enacted December 31, 1980 [Act No. 3290]). Korea adopted International Financial Reporting Standards (K-IFRS) in fiscal year 2011 and International Standards on Auditing in 1999 to align its standards with international auditing practices.

The Korean Big 4 auditors are affiliates of the global Big 4 auditor networks.[7] Because

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studies do not find an association between internal control and audit fees.

[6] A related line of previous research examines the relationship between auditor's business risk and audit fees, providing evidence that auditors assess auditor business risk at the client level, and pass their expected costs to the client through higher audit fees (Pratt and Stice 1994; Morgan and Stocken 1998; Johnstone 2000; Bell, Landsman, and Shackelford 2001; Seetharaman et al. 2002; Lyon and Maher 2005).

[7] Currently, Samil is a member firm of PricewaterhouseCoopers, Samjung of KPMG International, Hanyoung of Ernst & Young and Anjin of Deloitte Touche Tohmatsu Limited. The Korean Big 4 auditors are authorized to use

the Big 4 audit firms share common brands throughout the world, an audit failure in one part of the world affects the firm's international reputation (Cahan, Emanuel, and Sun 2009; Skinner and Srinivasan 2012). Therefore, all member firms have incentives to provide high quality audits.[8] Similar to the United States, Big 4 auditors in Korea have a significant market share. In 2000 (2012), Korean Big 4 auditors audited 53.7 percent (56.9 percent) of the total number of audit clients and received 66.9 percent (75.4 percent) of the total audit fees. Class action lawsuits have been permitted in Korea since 2003 for losses related to misstatements in the financial statements and for audit failures for which the company and/or the auditor is responsible (the *Act on External Audit of Stock Companies*, Article 17). However, perhaps due to the prohibition of class action lawsuits against auditors prior to 2003, the frequency of litigation against auditors in Korea, similar to most other countries, is relatively low compared to the U.S.[9] Nevertheless, there have been 4, 22, and 31 lawsuits against audit firms in 2010, 2011, and 2012, respectively.[10] A relatively low frequency of lawsuits in Korea, however does not mean that auditors do not have incentive to provide high-quality audits. For example, both Chungwoon (a large Korean firm) and Santong (then affiliated with KPMG) were dissolved as a result of the audit failure of Kia Motors in 1999 and several companies belonging to the Daewoo group in 2000, respectively. Furthermore, partners can be sanctioned by the FSS for audit failures and such sanctions can be consequential to individual partners (similar to the PCAOB's authority to sanction individual partners and audit firms).[11] Taken as a whole,

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the names of the international Big 4 auditors.

[8] The international Big 4 auditors provide several measures and safeguards to the Korean Big 4 auditors to establish and maintain high audit quality and practices that are consistent with those of the international Big 4 audit firms. The global Big 4 networks require periodic self-reports from Korean member firms demonstrating their compliance with global policies with respect to audit methodology, risk management, and independence, and also dispatch quality review teams every year to the affiliated Korean Big 4 auditors to review working papers of their Korean Big 4 counterparts.

[9] *The Security Class Action Law* applicable to auditor's legal (third party) liabilities in Korea was enacted in 2003. Only 14 lawsuits were filed against auditors during the 1991 to 2000 period; however from 2001 to 2004, 13 lawsuits were filed against the Big 4 auditors (World Bank 2004, 8).

[10] http://www.fss.or.kr/fss/kr/promo/bodobbs_view.jsp?url=&seqno=16350, accessed on April 24, 2015.

[11] The FSS reviews audits of financial statements and performs inspections on the auditor's quality control

Korean auditors have strong incentives to provide high quality audits.

The audit fee determination process in Korea is similar to that of the U.S. and most other countries. Audit firms determine audit fees based on the estimated time it will take (hours) and the hourly rate. Audit firms then negotiate with the client to determine the final audit fee. Audit partners generally receive a base salary plus additional shares based on performance measured by "experience, length of employment with a firm, revenue-generating success, responsibilities in the firm, and type of clients" consistent with Knechel, Niemi, and Zerni (2013, p.355). One key difference between Korea and the U.S. is that both audit fees and audit hours are publicly disclosed each year. Therefore, the audit environment in Korea provides an ideal setting to examine the relation between fee premiums and internal control quality.

Hypothesis Development

Following the audit risk model, if a client company's internal controls are ineffective, the auditor should increase substantive testing of account balances and transactions (SAS No. 55 [AICPA 1989] and SAS No. 78 [AICPA 1996]). In theory, by increasing substantive testing the auditor can maintain audit risk at an acceptably low level. Such increase in substantive testing, relative to reliance on internal controls, is expected to be less efficient and thus increase the auditor's overall effort.

What is less clear is the relation between internal control quality and audit fee premiums. A fee premium is to compensate the auditor for associating with a potentially higher risk client who may subject the auditor to an increased probability of reputational or financial loss.[12] The underlying "auditor's business risk" of associating with a client is theoretically

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systems in accordance with *The Act on External Audit of Stock Companies*. If audit failures related to material misstatements are identified, the responsible audit firm and/or individual CPAs are penalized. For additional information see http://english.fss.or.kr/fss/eng/wpge/eng2232.jsp.

[12] Auditor's business risk is defined as the risk of loss for associating with a client company. This risk of loss includes loss of professional reputation, potential legal costs, management opportunity costs, regulatory costs and

isolated from the quality of a client's internal controls. That is, the presence, or absence, of an internal control failure should not alter the auditor's residual business risk of associating with a client. Thus, from a theoretical perspective, there would be no association between low internal control quality and an audit fee premium. Further, even when auditors modify audit production plans due to increased assessments of auditor's business risk, auditors typically work more hours rather than charge higher hourly rates (Bell, Landsman, and Shackelford 2001).

Hogan and Wilkins (2008) find that low quality internal controls are positively associated with audit fees, which, due to lack of data, they attribute to increased auditor's effort and cannot shed light on a potential fee premium. While theory suggests that low internal control quality would not necessarily cause auditors to charge a fee premium, there are practical reasons as to why low internal control quality, or a reported material weakness, would be associated with a fee premium. First, low internal control quality can indicate higher order risks at a client company including potentially insufficient management attention and resources devoted to financial reporting, or the presence of low quality personnel. Thus, control weaknesses may be related with the auditor's judgements about management's quality and integrity. Therefore, poor internal control quality may signal increases to an auditor's residual business risk of associating with a client company which would warrant a fee premium. On the other hand, changing auditors is costly, and reported internal control weaknesses provide a clear signal of management's failure. Thus, auditors may point to management's failure to maintain high internal control quality and thus have an opportunity to charge higher rates, whether a premium is warranted or not. Both of these circumstances would suggest that internal

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other costs resulting from simply associating with a client. This risk exists with or without auditor's wrongdoing. For example, on average, auditors face greater business risk for auditing publicly-held versus privately-held clients due to broader equity ownership, and as such charge higher rates to public clients. See SAS No. 47 and Bell, Landsman and Shackelford 2001.

control failures are associated with an audit fee premium. We formalize the above discussion into our first hypothesis as follows:

H1: There is a positive association between low internal control quality and an audit fee premium.

Material control deficiencies vary in nature and potential impact on the financial statements and the audit.[13] Hogan and Wilkins (2008) document that audit fees are higher for companies with more severe control deficiencies, however it is unclear to what extent these higher fees are driven by a fee premium, if at all. We expect that an auditor would be more likely to charge a fee premium for audits with control deficiencies that are more difficult to "audit around" as the ability to gather sufficient evidence through substantive testing alone becomes more difficult. In contrast, we expect that the auditor would be more likely to gather sufficient audit evidence through substantive testing for control failures that are account-specific in nature for which the potential magnitude of a control failure can be isolated. We formally state our second hypothesis as follows:

H2: The association between low internal control quality and audit fee premiums is stronger for companies with severe control weaknesses.

Lastly, an audit fee premium is intended to compensate the auditor for increased risk of litigation or reputational loss from associating with a client company. Therefore, a client company's alternative governance mechanisms would likely influence the auditor's perceived risk of loss and correspondingly the perceived need to charge a premium to clients that report a material weakness. Therefore, we expect that the auditor's response to internal control weaknesses, and the corresponding fee premium, will vary in predictable ways based on the

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[13] For example, if a client company has a material weakness in the accounting for their valuation allowance on accounts receivable, a potential misstatement is isolated to the accounts receivable. In contrast, if there is a material weakness related to management's ability to override controls or audit committee oversight, for example, the potential effect on the financial statements is widespread and not isolated to one account balance or class of transactions. As such, the auditor's response to these different material weaknesses would differ greatly and the entity-level control weakness would require a much broader auditor's response.

quality of a client's governance mechanisms. To the extent that a client's governance mechanisms reduce the auditor's risk of associating with the client company, then we would expect that auditors would be less likely to charge fee premiums to clients who report internal control failures. Correspondingly, if alternative governance mechanisms are lower quality then we expect fee premiums will be higher if clients report internal control weaknesses. We formalize this discussion into our third hypothesis as follows:

H3: The association between low internal control quality and audit fee premiums is magnified for companies with low quality governance mechanisms.

III. RESEARCH DESIGN AND SAMPLE SELECTION

Research Design

Prior studies presume that audit fees, audit labor usage, and hourly rates are all determined by the same set of factors (Palmrose 1989; O'Keefe, Simunic, and Stein 1994; Bell, Landsman, and Shackelford 2001; Bell, Doogar, and Solomon 2008). Therefore, we estimate the following multivariate regression model to test Hypothesis 1 and the relation between reported internal control failures and audit fee premiums:

$$FEE\_PER\_HOUR = \alpha_0 + \alpha_1 MW + CONTROLS + YEAR \text{ indicators}$$
$$+ INDUSTRY \text{ indicators} + \varepsilon \quad (1)$$

The dependent variable (*FEE_PER_HOUR*) is the average hourly rate paid for an audit in a given company-year. *FEE_PER_HOUR* is the operationalized measure of a fee premium as premiums are built into hourly rates, whereas auditors' effort is captured in the number of audit hours. The independent variable, *MW*, is an indicator variable equal to one if one or more material weaknesses are disclosed in the auditor's report on internal control, zero otherwise. Hypothesis 1 predicts that the coefficient on *MW* will be positive and statistically significant consistent with a reported material weakness being associated with higher fee premiums.

The vector of control variables includes variables that have been previously associated

with audit fees (Hay, Knechel and Wong 2006). We control for client size (*SIZE*); leverage (*LEV),* concentration of assets in receivables (*REC*) and Inventory (*INV*), whether the company reported a loss (*LOSS*), percentage of assets that are current relative to long-term (*CURR*), revenue growth (*GRW*), the amount of exports generated in the company-year (*EXPORT)* number of segments (*SUB*), whether the auditor's opinion is qualified (*OPN*); an indicator for a big 4 auditor (*BIG*), and indicator for a first-year audit (*INITIAL*), percentage of foreign ownership (*FOREIGN*), concentration of ownership (*LARGE*), listing on a major exchange (*MARKET*), and the quality of corporate governance (*CG Score*). We include year and industry indicator variables to control for variation in audit fees across time and industries. All standard errors are clustered at the client company level.

Although all material weaknesses by definition represent control deficiencies that could result in a material error in the financial statements, there is still variation in the severity of a reported material weakness. Therefore, to test Hypothesis 2 and the relation between material weakness severity and risk premiums we hand-collect data on the nature and severity of reported material weaknesses from the client company's financial reports. We determine whether a material weakness is "severe," following Doyle, Ge, and McVay (2007). Account-specific material weaknesses relate to controls over specific account balances or transaction-level processes and as such are not expected to impact the financial statements as a whole. On the other hand, entity-level material weaknesses relate to the control environment, information technology controls, and oversight of the financial reporting process (PCAOB AS 5). The auditor's response to an account specific control failure would likely include expanded procedures and testing as it relates to the specific control or process. In contrast, the auditor's response to an entity-level ("severe") control weakness by necessity would be broader in scope and would need to be incorporated into the entire audit process. This reasoning suggests that entity-level material weaknesses are likely to pose more serious problems to management's

ability to prepare reliable financial statements and its ability to control the business (Doss and Jonas 2004). Therefore, we classify an entity-level weakness as a "severe" material weakness and an account-specific weakness as an "other" material weakness. We create two indicators variables equal to one, zero otherwise, if the reported material weakness is "severe" or "other". We then insert these two indicator variables into Equation 1 in place of *MW*.

To test Hypothesis 3 and the effect of a client company's governance mechanisms on auditors' fee premiums, we use the Korea Corporate Governance Stock Price Index (KOGI) which measures a company's corporate governance policies and practices disclosed in their annual reports (Black, Jang, Kim 2006a; 2006b). Currently, the KOGI measures 85 governance elements in four broad categories including shareholder rights, board structure and procedures, disclosure, and external audits.[14] The total score is the sum of each subtotal of the four broad categories. Because the weight allocated to each of the four broad category changed over time, we convert the total raw scores (i.e., the sum of the scores of each subcategories) and the raw scores of individual subcategories into the percentile (i.e., 0 for the lowest percentile and 1 for the highest percentile, incremented by 0.01 for each percentile), and use these percentile ranks in our regression analyses. We partition client companies on high and low governance quality using the sample median to examine the effect of reported internal control weaknesses on audit fee premiums.

Sample selection

We examine the relation between reported internal control weaknesses and audit fee premiums using data for the period 2006-2012. Consistent with Raghunandan and Rama (2006), we restrict our analysis to non-financial companies with a December 31 fiscal year-end. Our

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[14] See the Appendix A-1 for a more detailed explanation about the KOGI measures.

sample period begins in 2006 because the corporate governance scores (*CG SCORE*) are available beginning in 2006, and ending in 2012.[15] Table 1 Panel A presents the sampling procedure. We obtain financial data from the Korea Information Service Value database. Similar to the US, audit fees paid are publicly disclosed. In contrast to the US, audit hours are also publicly disclosed which provides an opportunity to observe risk premiums in a large sample across multiple audit firms.[16] After requiring necessary financial, audit fee, audit hours, and auditor data we have a sample of 10,091 company-year observations, of which there are 443 company-years (289 unique companies) with a reported material weakness in internal control. This comprises 4.3 percent of the company-year observations.[17] Table 1, Panel B reports the distribution of the sample and reported material weaknesses across time. We note that the frequency of a reported material weakness increases from 80 in 2006 to a peak of 115 in 2008, then decreases to 20 in 2012.

[Insert Table 1]

Table 2 Panels A and B provide descriptive statistics for the dependent and independent variables. The univariate comparisons in Panel B show that audit fees (*LN_FEE*) and auditor hours (*LN_HOUR*) are lower for companies that report a material weakness (*MW*=1) relative to those companies that do not report a material weakness (*MW*=0). However, the average fee premium (*FEE_PER_HOUR*) for companies with a reported material weakness is higher relative to those companies without, which is consistent with Hypothesis 1.

[Insert Table 2]

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[15] However, we repeat the entire analyses beginning in 2005 (the first year of auditor reporting on internal control quality in Korea) and omit *CG SCORE*. We find similar results. Hence, our results are not affected by omitting 2005 from the analyses.

[16] Prior studies examining risk premiums are typically isolated to small sample studies with data a single audit firm potentially limiting the generalizability of the result. For example, Bell, Landsman and Shackleford (2001) examine 422 audits for a single large audit firm.

[17] The ratio of the company-years that disclosed a material weakness in our study (4.3 percent) is comparable to the ratio of the company-years (248/6,699=3.7 percent) that disclosed a material weakness in the U.S. reported in Hogan and Wilkins (2008).

A comparison of the mean values of the control variables between companies with and without a reported material weakness show economically meaningful differences. [18] In particular, clients with a reported material weakness are smaller, have lower growth rates and fewer subsidiaries, and are more likely to report a loss, or have a modified audit opinion on the financial statements.[19] Table 3, reports Pearson correlations among the variables. Of note, we find that *MW* is negatively correlated with audit hours (*LN_HOUR)* and positively correlated with the rate per hour (*FEE_PER_HOUR)*. While *FEE_PER_HOUR* is correlated with many client company characteristics, the magnitude of the correlation coefficients are generally smaller than the correlation coefficients for that of *LN_HOUR* and *LN_FEE* with the client characteristics. There are also noteworthy differences in the correlations of *FEE_PER_HOUR* and *LN_HOUR*. For example, *FEE_PER_HOUR* is positively correlated with *LOSS*, whereas *LN_HOUR* is negatively correlated with *LOSS*.[20]

[Insert Table 3]

IV. EMPIRICAL FINDINGS

Main finding

Table 4 presents our test of Hypothesis 1 along with validation checks for our data. As prior studies show that material weaknesses are positively associated with audit fees, we first model the relation between material weaknesses and audit fees (Model 1). We find the coefficient on *MW* is 0.148 with a t-value of 5.03 (significant at the 0.01 level). This coefficient indicates that, after controlling for company size and other determinants of audit fees, clients

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[18] In robustness tests, we perform two-stage least squares regressions, propensity score matched sample analysis, and analysis that explicitly controls for companies that report material weaknesses at any point in the sample period to mitigate the effect of potential differences in the two groups. We find no differences in conclusions with these alternative approaches.

[19] If the financial statements are materially misstated or audit scopes are limited, then a modified audit opinion may be issued for the financial statements. However, if the conditions that cause the modified audit opinion are unrelated to material weaknesses in internal controls, then the opinion on internal control quality can still be unqualified.

[20] To mitigate the effect of outliers, all continuous variables are winsorized at the 1 percent and 99 percent levels in all regression analyses.

with a material weakness have 16.0 percent higher total audit fees compared to those without a material weakness. Thus, the effect of a material weakness on audit fees is economically meaningful for both client companies and the audit firms. This relation is consistent with Raghunandan and Rama (2006) who show a positive association between material weaknesses and audit fees and serves as a validation check for our data. The signs of the coefficients on the control variables are broadly consistent with the previous studies on audit fees. *SIZE*, *LEV*, *REC*, *LOSS*, *SUB*, *OPN*, *BIG*, *FOREIGN* are all positively associated with audit fees while, *INVENTORY*, *INITIAL*, and *LARGE* are negatively associated with audit fees (e.g., Hay, Knechel, and Wong 2006). The R-square of the audit fee model (0.69) is reasonable as audit fee models generally have high explanatory power.

[Insert Table 4]

We next document the relation between audit hours and reported material weaknesses. Prior literature suggests that audit effort increases using audit fees as a proxy for auditor's effort. Table 4, Model 2 reports the results with a clean measure of auditor's effort (*LN_HOUR*) as a dependent variable in Equation 1. The coefficient on *MW* is 0.115 (t-value=3.01, p-value < 0.01), indicating that reported material weaknesses are positively associated with audit hours. The coefficient of 0.115 on *MW* in Model 2 indicates that a material weakness is associated with an economically meaningful 12.2 percent higher audit hours, on average. This finding is consistent with the audit risk model that low quality internal controls, and reduced reliance on internal controls, will increase substantive testing of transactions and balances which yields a less efficient audit approach. The coefficients on the majority of the control variables are consistent with the prior expectations. The coefficients on *SIZE, LOSS, SUB, BIG,* and *FOREIGN* are positive and statistically significant whereas the coefficient on *GRW, LARGE*, and *MARKET* are negative and statistically significant. The R-square of 0.60 is lower relative to Model 1, but still provides high explanatory power for auditor's effort

Model 3 is our test of Hypothesis 1. In Model 3, the dependent variable is *FEE_PER_HOUR* which is a direct measure of the auditor's fee premium. We find that the coefficient on *MW* is 1.061 with a t-value of 2.10 ($p < 0.05$). The coefficient of 1.061 represents a 10.9 percent (1.061/9.74, which is the mean *FEE_PER_HOUR* of the sample) increase in the rate per hour if there is a reported material weakness. As such, the premium for low quality internal control appears to be economically meaningful. Among the control variables, *SIZE*, *LEV*, and *GRW* are positively associated with fee premiums, whereas *BIG* and *INITIAL* are negatively associated with audit fee premiums. The negative coefficient on *BIG* is somewhat surprising as it suggests larger audit firms receive higher audit fees (Model 1) through increased audit effort (Model 2) rather than through a fee premium. The positive coefficients on *SIZE*, *LEV*, and *GRW* appear consistent with expectations that auditors charge higher rates for larger and more leveraged clients and to clients with higher growth rates. Other control variables are statistically insignificant. Interestingly, the explanatory power of Model 3 (0.06) is significantly lower than Models 1 and 2, suggesting that models for fee premiums are not nearly as well developed relative to audit fee models. The adjusted R-square in Model 3 is however consistent with Bell, Landsman, and Shackelford (2001) which finds an R-square of 0.04.

Severity of Material Weaknesses

Table 5 reports the results for our test of Hypothesis 2. To gather data on the severity of material weaknesses we hand collect data from the annual reports of each company with a reported material weakness. We then classify each weakness as "severe" or "other" based upon the nature of the reported control failure. Severe deficiencies are those deficiencies that are expected to require the auditor to adjust the overall audit plan as these control failures are not

isolated to individual account balances or classes of transactions.[21] In our sample, 186 (257) material weaknesses are classified as severe (other).[22] We replace *MW* in Equation 1 with *SEVERE_MW* and *OTHER_MW* to test Hypothesis 2 and the expectation that severe weaknesses are more likely to result in a fee premium. In Models 1 (*LN_FEE*) and 2 (*LN_HOUR*), the coefficients on both *SEVERE_MW* and *OTHER_MW* are positive and statistically significant, suggesting that auditors charge higher audit fees and work more hours if clients report either account-specific and/or entity-level material weaknesses. F-tests show that the coefficients on *SEVERE_MW* and *OTHER_MW* are not statistically different from each other in Models 1 and 2 (untabulated). However, in Model 3, which is our test of H2, the coefficient on *SEVERE_MW* is positive and statistically significant and indicates a fee premium of 14.9 percent (1.456/9.744, which is the mean *FEE_PER_HOUR* of the sample). The coefficient on *OTHER_MW* is positive, but statistically insignificant. Therefore, auditor's fee premiums for clients with material weaknesses appears to be isolated to those clients with severe internal control weaknesses.

[Insert Table 5]

The results in Table 5 appear consistent with auditor's responding to severe control weaknesses with increased fee premiums. This appears reasonable as severe material weaknesses are more difficult to "audit-around" by increasing substantive testing of transactions and balances, relative to account specific control failures. This finding suggests

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[21] The deficiencies that are classified as "severe" relate to the following: audit committee oversight (16 cases), the function of the board of directors (45), fraud prevention controls (70), controls for accounting policy selection and monitoring (22), code of ethics and ethical conduct-related controls (6), financial reporting and disclosure controls (20), cash and fund management and protection processes (143), auditor's disclaimer opinions on internal controls for financial reporting (127 cases), and other company-wide controls (1). On the other hand, deficiencies that are classified as "other" relate to the following: deficiencies related to control documentations (31 cases), control of specific accounts such as investment, tangible assets, inventories, sales and accounts receivable control (29), transaction-level control procedures such as authorization, supervision, and segregation of duties (10), low quality risk assessment (6), functions of manager and other personnel responsible for management reports on operations of corporate internal control for financial reporting (17) and other controls (171).

[22] The sum of the number of deficiency in each classification as provided in footnote 21 exceeds 186 (severe) and 257 (other) because some companies have multiple deficiencies.

that only severe reported weaknesses represent, or indicate, increased risk of associating with a client.[23]

Governance and Fee Premiums

Table 6 reports the results for our test of Hypothesis 3 that fee premiums vary with the quality of alternative governance mechanisms. Panels A and B report results partitioned on the quality of overall corporate governance at the client companies measured using the KOGI composite governance score. Panel A reports results for companies with high quality governance, while Panel B reports results for companies with low quality governance. In Panel A, we find that the coefficient on *MW* is positive and statistically significant in Models 1 (audit fees) and 2 (audit hours) however the coefficient on *MW* is negative and statistically significant in Model 3 (fee premium). In Panel B, the coefficient on *MW* is positive in all three models, and statistically significant in Models 1 and 3. Taken together, it appears that if a client company has a reported material weakness then auditors charge a significant fee premium for companies with low quality governance, but increase effort and do not charge a premium to companies with high quality governance mechanisms.

In Table 6, Panels C-H we partition companies into high and low governance quality based on governance scores for the quality of shareholder rights (Panels C and D), board policies and procedures (Panels E and F), and disclosure quality (G-H) as these governance measures appear most related to governance mechanisms that would influence the auditor's potential risk of loss for associating with the client company. Inferences from Panels C-H are

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[23] In untabulated additional analysis we examine the effect of higher fraud risk on the relation between internal control failures and audit fee premiums. We use the Dechow et al. (2011) fraud risk score (F-SCORE) to capture the risk of fraud at a client company. We find that for companies with a low F-SCORE (below the sample median) there is no fee premium for companies that report a material weakness. However, for companies with a high F-SCORE, there is a significant fee premium which is consistent with auditors charging an audit fee premium based upon client risk factors other than simply a reported material weakness.

similar to those in Panels A and B. For companies with high quality governance mechanisms, auditors appear to exert additional effort if there is a reported material weakness, but do not appear to charge a fee premium. In contrast, for companies with low quality alternative governance mechanisms, auditors appear to charge a significant fee premium. These results are consistent with alternative governance mechanisms reducing the auditor's risk of associating with a client, and correspondingly the need to charge a fee premium.

[Insert Table 6]

Additional analyses

Doyle, Ge, and McVay (2007) find that companies with reported material weaknesses in the U.S. are systematically different from other companies (i.e., smaller, younger, financially weaker, more complex, growing rapidly, or undergoing restructuring), which is consistent with the descriptive statistics in Table 2 for our sample. Thus, controlling for selection bias may be important to ensure that the observed relation between material weaknesses and fee premiums is not due the omission of a correlated variable. We address endogeneity in three different ways. We use the two-stage Heckman (1979) procedure, propensity-score matched sample analysis, and explicitly control for companies that report a material weakness at any time in our sample.

First, we employ the two-stage procedure developed by Heckman (1979). To do this, we estimate a probit model with *MW* as the dependent variable and independent variables known to affect the likelihood of a reported material weakness as identified in Doyle, Ge, and McVay (2007) as follows:

$$MW = \alpha_0 + \alpha_1 SIZE_i + \alpha_2 LEV_i + \alpha_3 LOSS_i + \alpha_4 GRW_i + \alpha_5 SUB_i + \alpha_6 AGE_i +$$
$$\alpha_7 FOREIGN_i + \alpha_8 LARGE_i + \alpha_8 CG\ Score_i + YEAR + INDUSTRY + \varepsilon \qquad (2)$$

AGE is the age of the company measured by the number of years since the company

was founded. The definitions of the remaining control variables are consistent with those included in Equation 1. The results for the first-stage probit model estimation are presented in Table 7, Panel A. The coefficients on *SIZE*, *GRW*, *LARGE*, and *CG Score* are negative and statistically significant, while the coefficients on leverage (*LEV*), loss (*LOSS*), and age (*AGE*), are positive.[24] We compute the Inverse Mills Ratio (*IMR*) for each observation using the estimates from the probit model and include it as an additional independent variable in a second-stage regression of audit fees, audit hours, and audit fee per hour.

Table 7, Panel B reports the estimation results of the second-stage regressions that include the *IMR*. The coefficient on *MW* in Models 1, 2, and 3 are 0.511 (p-value < 0.01), 0.310 (p-value < 0.01), and 3.385 (p-value < 0.01), respectively. The coefficient on MW in Model, indicates and increase in audit fees of 34.7 percent which is economically significant. These results are consistent with the main results reported in Table 4 and the inference that auditors charge significantly higher total audit fees and incur significantly more effort, when there is a reported material weakness. Also, consistent with Hypothesis 1 there is a significant fee premium when a company reports an internal control weakness. The results in Table 7 suggest that that results in Table 4 are not driven by selection bias.

[Insert Table 7]

Several recent studies suggest that an alternative method to address selection bias is the use of propensity score matching (e.g., Armstrong, Jagolinzer, and Larcker 2010; Lawrence, Minutti-Meza, and Zhang 2011). To measure a client's propensity to report a material weakness in internal control, we estimate a logit model for Equation 2. Following Lawrence, et al. (2011), we match a company with a reported material weakness to one without that has the closest

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[24] While our findings are generally consistent with Doyle, Ge, and McVay (2007), there are notable differences. Specifically, we find that growth and age are negatively and positively associated with material weakness disclosures, respectively.

predicted value from equality within a maximum distance of 3 percent without replacement. For each client company with a material weakness, we select at most three control observations. The results from the propensity score matched sample are reported in Table 8. In Panel A, companies with and without a material weakness have differences in all variables before matching. However, these differences disappear after matching. The area under the receiver operating characteristic (ROC) curve is 0.914, which is above the conventional threshold of 0.7, indicating that the matching model we use is reasonable. The results reported in Panel B of Table 8 are consistent with those reported in Tables 4 and 7 which is that audit fee premiums are higher when a client reports a material weakness. In particular, the coefficient of 1.266 (t-value=2.40) on *MW* in Model 3 indicates that the hourly fees are, on average, 13.0 percent higher for clients with a reported material weakness.

[Insert Table 8]

To further address concerns that our results may be driven by systematic differences between companies that report material weaknesses and those don't, we estimate the following model that includes an indicator variable (*MW_COMPANY*) equal to one if a company reports a material weakness at any time during the sample period as follows:

$$FEE\_PER\_HOUR = \alpha_0 + \alpha_1 MW\_COMPANY + \alpha_2 MW\_COMPANY*MW$$
$$+CONTROLS + YEAR + INDUSTRY + \varepsilon \qquad (3)$$

We interact *MW_COMPANY* with *MW* to examine whether fee premiums are simply higher for companies that report material weaknesses.[25] Thus, α_1 captures the effect of companies that report material weaknesses. The coefficient α_2 represents the incremental effect of a reported material weakness, after controlling for inherent differences in companies that report material weaknesses relative to those that don't. We also measure the significance and

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[25] *MW* is essentially an interaction term between *MW_COMPANY* and *MW*. If *MW* is equal to one, so is *MW_COMPANY*. For exposition sake we show an interaction term in Equation 3.

effect of the combined coefficients of a_1+a_2 which is the difference in fee premiums between the periods that report one or more material weaknesses relative to premiums from companies that never reported a material weakness. We include a vector of control variables following Equation 1 and include year and industry fixed effects to absorb variation in fee premiums across time and industry.

Table 9 presents the results of Equation 3 with *LN_FEE (*Model 1*)*, *LN_HOUR (*Model 2*)*, and *FEE_PER_HOUR* (Model 3) as the dependent variables. In Model 1, a_1 is 0.056 and is statistically significant at the 0.05 level, suggesting that audit fees are higher for companies that report material weaknesses at any time during the sample period compared to companies that never report a material weakness. Importantly, the coefficient on *MW_COMPANY*MW* (a_2) is 0.111 with a t-value of 3.83, which indicates that audit fees for years with a reported material weakness are incrementally higher than fees for the same companies' non-reporting years. The estimation results using *LN_HOUR* as the dependent variable in Model 2 show that the coefficient on *MW_COMPANY* (a_1) is positive but not significant. This coefficient indicates that audit hours in years without a material weakness for companies that report material weaknesses are not statistically different than audit hours for companies that never report a material weakness. However, the coefficient on *MW_COMPANY *MW* (a_2) is positive (0.089) and statistically significant, suggesting that auditors exert additional effort and charge higher fees when clients report a material weakness compared to the same companies' non-material weakness reporting years.

Model 3 reports the results with *FEE_PER_HOUR* as the dependent variable. We find that the coefficient on *MW_COMPANY* is positive, but statistically insignificant. The coefficient on *MW_COMPANY*MW* is positive and statistically significant consistent with our main findings and suggests that the fee premium appears to be isolated to years in which a material weakness is reported.

The F-test for each model shows that the combined coefficients of $a_1 + a_2$ are highly significant, which indicates that audit fees, hours and premiums for the material weakness reporting years are significantly higher than those for the companies that never report a material weakness. Taken together, these results suggest that companies that report a material weakness only pay significant premiums in the year of a reported material weakness. Therefore, the results in Table 9 provide evidence that audit fee premiums associated with reported internal control weaknesses do not appear to represent persistent risks of associating with a client company.

[Insert Table 9]

V. CONCLUSION

In this study we investigate whether auditors charge fee premiums if clients report internal control failures. Prior research has examined the relation between internal control failures and audit fees and made the conclusion that auditor's effort increases with low quality internal controls. However, prior studies have not investigated the relation between audit fee premiums and internal control failures due to a lack of available data (e.g., Hogan and Wilkins 2008). Using a rich dataset of audit hours and fees we document that audit effort (hours) is significantly higher in client-years with reported internal control failures. We also document that clients with reported internal control failures pay an economically meaningful 10.6 percent higher hourly rate, which appears contrary to the theoretical assumptions in the audit risk model that auditors respond to increased control risk by increasing their substantive testing. We find that this fee premium is driven by "severe" internal control failures that are pervasive in nature which require the auditor to design an "overall" response to the control failure. These results are robust to multiple methods including two-stage least squares and propensity score matching on the likelihood of a reported material weakness.

This study provides evidence that, while auditors incur additional effort on client audits with reported control failures, the reported control weakness may afford the auditor an opportunity to charge higher rates. Thus, a reported control failure may be an external signal of low quality that provides auditors with an opportunity to justify higher rates to clients, and clients appear to be willing to pay them when reporting control failures.

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APPENDIX A: THE KOREAN CORPORATE GOVERNANCE INDEX

Korea Corporate Governance Service (KGS; www.cgs.or.kr), established in 2002, provides the corporate governance scores, Korea Corporate Governance Stock Price Index (KCGI), for all listed companies in Korea. KCGI is constructed based on corporate disclosures included in annual reports. "The evaluation model carefully examines policies and activities of individual companies that may affect various stakeholders including shareholders, who are involved in corporate management, both directly and indirectly." Currently, the KCGI index contains 85 governance elements, which is comprised of four sub-categories: shareholder rights (a total of 100 points from 22 individual items); board structure and procedures (a total of 100 points from 34 individual items); disclosure (a total of 50 points from 19 individual items); and external audits (a total of 50 points from 10 individual items). However, not all individual 85 governance items receive the same weight when KGS calculates the subtotal of the four broad categories. The total scores are the sum of the scores of each four subtotals. Currently, the total scores (a maximum of 300 points) are the sum of the scores of the four sub-categories (i.e., 100 points from shareholder rights, plus 100 points from board structure and procedures, plus 50 points from disclosure, and 50 points from external audits). After KGS calculates the scores for individual companies, the companies are provided with an opportunity to challenge the scores they receive. Because not only the number of sub-categories, but also the scores assigned to the individual sub-category have changed over the sample period, we rank order the scores within each year using percentiles and use these percentile ranks (0.01 to 1.00 increment by 0.01) in the regression analysis.

These data on corporate governance scores have been investigated in Black et al. (2006a; 2006b).

APPENDIX B: VARIABLE DEFINITIONS

Variable	Definition
LN_FEE	The natural logarithm of total audit fees.
LN_HOUR	The natural logarithm of total audit hours.
FEE_PER_HOUR	Total audit fees divided by total audit hours.
MW	Indicator variable equal to one if one or more material weaknesses are disclosed in the auditor's report on internal control; zero otherwise.
SEVERE_MW	Indicator variable equal to one if a reported material weakness is an entity-level weaknesses related to management integrity, fraud risk, corporate fund management, or auditor's disclaimer of opinion on internal controls; zero otherwise.
OTHER_MW	Indicator variable equal to one if *MW* is equal to one and *SEVERE_MW* is zero; zero otherwise.
MW_COMPANY	Indicator variable equal to one for companies that report a material weakness at least once during the sample period; zero otherwise.
SIZE	The natural logarithm of total assets.
LEV	Total liabilities divided by total assets.
REC	Receivables divided by total assets.
INVENTORY	Inventory divided by total assets.
LOSS	Indicator variable equal to one if a company-year reports income less than zero; zero otherwise.
CURR	Current assets divided by total assets.
GRW	Changes in sales divided by lagged sales.
SUB	The number of subsidiaries consolidated into the reporting company.
OPN	Indicator variable equal to one if an audit opinion is not and unqualified opinion, zero otherwise.
BIG	Indicator variable equal to one if the company is audited by a Big N auditor; zero otherwise.
INITIAL	Indicator variable equal to one if it is a first year audit; zero otherwise.
FOREIGN	Shareholdings by foreign owners (percent).
LARGE	Shareholdings by the largest owner (percent).
MARKET	Indicator variable equal to one for clients listed on the KOSDAQ exchange; zero otherwise.
AGE	The natural logarithm of the number of years since the company was founded.
CG Score	Overall corporate governance scores ranked by percentile (lowest of 0.01 to highest of 1.00) where overall governance score is calculated by the Korea Corporate Governance Service (KCGS).

TABLE 1
Sample Selection and Sample Distribution

Panel A: Sample selection

	Material Weaknesses		No Material Weaknesses		Total	
	Company-years	Companies	Company-years	Companies	Company-years	Companies
Non-financial industry sample	509	321	12,196	1,975	12,705	2,004
Less:						
1. (Missing financial data)	(12)	(5)	(547)	(56)	(559)	(56)
2. (Missing audit fee, hour, auditor data)	(32)	(15)	(321)	(2)	(353)	(3)
3. (Missing governance score data)	(22)	(12)	(1,680)	(148)	(1,702)	(148)
Final sample	443	289	9,648	1,769	10,091	1,797

Panel B. Sample distribution by year

Year	2006	2007	2008	2009	2010	2011	2012	Total
MW	80	85	115	77	42	24	20	443
No MW	1,328	1,388	1,401	1,411	1,381	1,312	1,427	9,648
Total	1,408	1,473	1,516	1,488	1,423	1,336	1,447	10,091

32

TABLE 2
Descriptive Statistics

Panel A. Full sample

Variable	Mean	Std.	1%	25%	Median	75%	99%
LN_FEE	11.10	0.63	10.00	10.69	11.00	11.35	13.13
LN_HOUR	6.62	0.71	4.97	6.17	6.52	6.95	8.83
FEE_PER_HOUR	9.74	5.52	3.37	6.76	8.62	11.15	32.22
FEE	8663.85	9383.81	2200.00	4400.00	6000.00	8500.00	64000.00
HOUR	1035.13	1216.55	144.00	480.00	680.00	1045.00	8490.00
MW	0.04	0.20	0.00	0.00	0.00	0.00	1.00
SIZE	18.66	1.40	16.22	17.71	18.39	19.35	23.07
LEV	0.43	0.22	0.04	0.26	0.42	0.58	1.07
REC	0.19	0.13	0.00	0.09	0.16	0.26	0.60
INVENTORY	0.10	0.09	0.00	0.03	0.08	0.14	0.39
LOSS	0.30	0.46	0.00	0.00	0.00	1.00	1.00
CURR	0.47	0.19	0.04	0.34	0.48	0.61	0.89
GRW	0.11	0.43	-0.75	-0.08	0.06	0.21	2.42
SUB	0.64	1.16	0.00	0.00	0.00	1.00	5.00
OPN	0.02	0.14	0.00	0.00	0.00	0.00	1.00
BIG	0.52	0.50	0.00	0.00	1.00	1.00	1.00
INITIAL	0.19	0.39	0.00	0.00	0.00	0.00	1.00
FOREIGN	0.06	0.11	0.00	0.00	0.01	0.06	0.52
LARGE	0.35	0.21	0.00	0.21	0.36	0.50	0.80
MARKET	0.47	0.50	0.00	0.00	0.00	1.00	1.00
CG Score (Raw)	101.48	21.85	56.00	89.00	99.00	111.00	176.00
CG Score (Percentile)	0.50	0.28	0.02	0.26	0.50	0.74	0.99

Panel B. Univariate difference test between reported (MW=1) and the others (MW=0)

Variable	Mean difference			Median difference		
	MW	No MW	t-stat	MW	No MW	Z-stat
LN_FEE	11.02	11.10	-3.56***	11.00	11.00	-0.60
LN_HOUR	6.42	6.63	-6.81***	6.41	6.52	-5.17***
FEE_PER_HOUR	11.89	9.64	5.65***	10.00	8.58	5.61***
FEE	6843.14	8747.45	-9.19***	6000.00	6000.00	-0.60
HOUR	755.20	1048.00	-9.23***	610.00	680.00	-5.18***
SIZE	17.40	18.71	-25.45***	17.30	18.44	-21.32***
LEV	0.68	0.42	15.23***	0.66	0.42	15.85***
REC	0.20	0.19	1.88*	0.15	0.16	-0.77
INVENTORY	0.07	0.10	-8.52***	0.03	0.08	-9.38***
LOSS	0.83	0.27	30.01***	1.00	0.00	24.98***
CURR	0.46	0.47	-1.46	0.45	0.48	-1.89*
GRW	-0.02	0.11	-4.23***	-0.13	0.07	-10.51***
SUB	0.11	0.66	-22.46***	0.00	0.00	-12.19***
OPN	0.35	0.00	15.39***	0.00	0.00	52.24***
BIG	0.37	0.53	-6.75***	0.00	1.00	-6.55***
INITIAL	0.34	0.18	7.02***	0.00	0.00	8.45***
FOREIGN	0.01	0.06	-24.61***	0.00	0.01	-20.98***
LARGE	0.07	0.36	-36.99***	0.00	0.37	-25.95***
MARKET	0.16	0.49	-17.49***	0.00	0.00	-13.24***
CG Score (Raw)	84.88	102.20	-19.19***	87.00	100.00	-16.87***
CG Score (Percentile)	0.27	0.51	-21.74***	0.21	0.52	-17.88***

Table 2 provides descriptive statistics for the dependent and independent variables. Panel A provides details on the full sample, while Panel B provides the descriptive statistics partitioned on the presence a material weakness (*MW*=1) along with tests of the differences for the mean and median. *FEE_PER_HOUR* and *LN_FEE* are in ten thousand Korean won. See Appendix B for variable definitions.

TABLE 3
Correlations

Pearson correlation matrix

	LN_FEE	LN_HOUR	FEE_PER_HOUR	MW	SIZE	LEV	REC	INVEN	LOSS	CURR	GRW	SUB	OPN	BIG	INITL	FOR	LAR	MAR
LN_HOUR	**0.78**																	
FEE_PER_HOUR	**0.10**	**-0.49**																
MW	-0.03	-0.06	**0.08**															
SIZE	**0.78**	**0.73**	-0.07	**-0.19**														
LEV	**0.20**	**0.12**	**0.08**	**0.24**	**0.11**													
REC	-0.05	-0.09	0.04	0.02	-0.13	**0.24**												
INVEN	-0.08	-0.07	-0.01	-0.08	-0.01	**0.14**	**0.17**											
LOSS	-0.11	-0.13	0.07	**0.25**	**-0.30**	**0.23**	-0.01	-0.08										
CURR	**-0.17**	**-0.18**	0.04	-0.02	**-0.22**	-0.02	**0.51**	**0.36**	-0.07									
GRW	0.00	-0.03	0.04	-0.06	0.02	**0.03**	**0.06**	**0.05**	**0.04**	**0.08**								
SUB	**0.27**	**0.28**	-0.06	**-0.10**	**0.36**	0.02	-0.08	-0.04	**-0.12**	**-0.14**	0.03							
OPN	0.00	-0.04	0.07	**0.52**	-0.13	**0.23**	0.03	-0.05	**0.17**	-0.01	-0.06	-0.07						
BIG	**0.37**	**0.43**	**-0.15**	-0.07	**0.40**	0.00	-0.02	-0.04	**-0.17**	-0.07	-0.02	**0.18**	-0.08					
INITL	-0.05	-0.04	0.00	0.08	-0.07	0.05	-0.01	-0.02	**0.09**	-0.02	0.05	-0.02	**0.04**	-0.08				
FOR	**0.44**	**0.41**	-0.05	**-0.10**	**0.48**	-0.10	-0.13	-0.05	**-0.20**	-0.05	0.00	**0.17**	-0.07	**0.26**	-0.04			
LAR	0.01	**0.07**	-0.09	**-0.29**	**0.22**	-0.18	-0.06	0.09	**-0.32**	-0.06	0.04	**0.30**	**-0.22**	**0.14**	-0.06	0.12		
MAR	**-0.35**	**-0.32**	0.02	**-0.13**	**-0.38**	-0.17	0.02	0.01	-0.03	**0.18**	0.08	**-0.17**	**-0.12**	**-0.16**	-0.02	**-0.16**	0.17	
CG	**0.39**	**0.37**	-0.06	**-0.18**	**0.52**	-0.08	-0.02	0.02	**-0.33**	-0.02	-0.04	0.09	**-0.13**	**0.26**	-0.06	**0.33**	0.14	**-0.14**

Table 3 provides correlation coefficients among the dependent and independent variables. Coefficients in bold are statistically significant at 1 percent or higher level. Definitions of variables are in Appendix B. *CG* is *CG Score* calculated as a percentile value.

TABLE 4
Test of H1: Material Weaknesses and Fee Premiums

Indep. variable	(1) Dep. Variable = LN_FEE		(2) Dep. Variable = LN_HOUR		(3) Dep. Variable = FEE_PER_HOUR	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	4.454***	19.09	0.233	0.90	7.099***	3.01
MW	**0.148***	**5.03**	**0.115***	**3.01**	**1.061**	**2.10**
SIZE	0.352***	40.09	0.325***	27.80	0.256**	2.07
LEV	0.184***	5.24	0.068	1.32	1.755***	2.66
REC	0.207***	3.23	0.113	1.17	-0.283	-0.22
INVENTORY	-0.268***	-2.80	-0.071	-0.54	-3.079*	-1.75
LOSS	0.120***	9.64	0.108***	6.97	0.087	0.48
CURR	0.007	0.14	-0.063	-0.85	1.114	1.09
GRW	-0.030***	-3.36	-0.062***	-4.88	0.417**	2.49
SUB	0.013*	1.89	0.024***	2.83	-0.097	-1.16
OPN	0.113***	3.11	0.032	0.69	2.741**	2.47
BIG	0.086***	5.96	0.236***	12.80	-1.534***	-6.58
INITIAL	-0.021***	-2.59	0.021*	1.95	-0.453***	-3.28
FOREIGN	0.442***	5.69	0.422***	3.95	-0.154	-0.15
LARGE	-0.300***	-7.34	-0.234***	-4.39	-0.814	-1.44
MARKET	-0.019	-1.08	-0.039*	-1.74	0.295	1.06
CG Score	0.029	1.12	0.048	1.51	-0.472	-1.09
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.69		0.60		0.06	
N. of obs.	10,091		10,091		10,091	

See Appendix B for variable definitions. T-statistics are corrected for client-company level clustering. ***, **, * indicate significance level at 1%, 5%, and 10%, respectively using two-tailed tests.

TABLE 5
Test of H2: Material Weakness Severity and Fee Premiums

Indep. variable	(1) Dep. Variable = *LN_FEE*		(2) Dep. Variable = *LN_HOUR*		(3) Dep. Variable = *FEE_PER_HOUR*	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	4.453***	19.09	0.234	0.91	7.085***	3.00
SEVERE_MW	**0.173***	**5.13**	**0.095**	**2.12**	**1.456**	**2.04**
OTHER_MW	**0.129***	**3.48**	**0.131**	**2.57**	**0.774**	**1.34**
SIZE	0.352***	40.12	0.325***	27.79	0.257**	2.07
LEV	0.185***	5.26	0.068	1.31	1.767***	2.68
REC	0.206***	3.23	0.114	1.17	-0.289	-0.22
INVENTORY	-0.268***	-2.81	-0.070	-0.54	-3.095*	-1.76
LOSS	0.120***	9.63	0.108***	6.97	0.086	0.47
CURR	0.007	0.14	-0.063	-0.86	1.121	1.10
GRW	-0.030***	-3.35	-0.062***	-4.88	0.417**	2.49
SUB	0.013*	1.88	0.024***	2.83	-0.097	-1.17
OPN	0.116***	3.21	0.030	0.64	2.744**	2.49
BIG	0.086***	5.97	0.235***	12.80	-1.533***	-6.58
INITIAL	-0.021**	-2.57	0.021*	1.94	-0.451***	-3.27
FOREIGN	0.442***	5.69	0.422***	3.95	-0.153	-0.15
LARGE	-0.299***	-7.34	-0.235***	-4.40	-0.810	-1.43
MARKET	-0.019	-1.08	-0.039*	-1.74	0.295	1.06
CG Score	0.029	1.12	0.048	1.51	-0.471	-1.09
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.70		0.60		0.06	
N. of obs.	10,091		10,091		10,091	

SEVERE_MW equals one if a firm discloses a material weakness with severe problems, and zero otherwise. *OTHER_MW* equals one if a firm discloses material weakness which is not classified as severe. Other definitions of variables are in Appendix B. t-statistics are corrected for client-company level clustering. ***, **, * indicate significance level at 1%, 5%, and 10%, respectively using two-tailed tests.

TABLE 6
Test of H3: Internal control weaknesses, audit fee premiums, and corporate governance

Panel A. High CG Score (≥median)

Indep. variable	(1) Dep. Variable = LN_FEE		(2) Dep. Variable = LN_HOUR		(3) Dep. Variable = FEE_PER_HOUR	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	3.566***	14.00	-0.784**	-2.55	9.101***	3.64
MW	**0.146****	**2.09**	**0.301*****	**3.81**	**-1.005***	**-1.72**
SIZE	0.409***	39.62	0.386***	28.90	0.169	1.38
LEV	0.242***	4.70	0.053	0.66	2.271***	2.60
REC	0.092	0.99	-0.054	-0.39	0.542	0.31
INVENTORY	-0.243*	-1.93	-0.158	-0.92	-1.245	-0.62
LOSS	0.087***	4.49	0.103***	4.65	-0.217	-0.95
CURR	0.066	0.94	0.043	0.44	0.556	0.46
GRW	-0.065***	-4.29	-0.083***	-3.68	0.188	0.71
SUB	0.013	1.48	0.020**	2.07	-0.048	-0.57
OPN	0.107	1.31	-0.060	-0.53	0.971	1.53
BIG	0.086***	4.75	0.232***	9.83	-1.453***	-5.13
INITIAL	-0.059***	-5.20	0.019	1.37	-0.857***	-5.96
FOREIGN	0.321***	3.74	0.290**	2.43	-0.113	-0.09
LARGE	-0.206***	-3.87	-0.259***	-3.35	0.147	0.20
MARKET	0.038*	1.67	-0.022	-0.74	0.881***	2.62
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R²	0.79		0.70		0.06	
N. of obs.	5,060		5,060		5,060	

Panel B. Low CG Score (<median)

Indep. variable	(1) Dep. Variable = LN_FEE		(2) Dep. Variable = LN_HOUR		(3) Dep. Variable = FEE_PER_HOUR	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	6.013***	23.58	2.105***	6.57	2.077	0.51
MW	**0.118*****	**4.14**	**0.043**	**1.06**	**1.467****	**2.47**
SIZE	0.255***	21.90	0.214***	13.55	0.482**	2.18
LEV	0.164***	4.50	0.079	1.47	1.557**	2.02
REC	0.282***	4.11	0.221**	2.23	-0.745	-0.55
INVENTORY	-0.211*	-1.89	0.062	0.43	-4.457**	-2.03
LOSS	0.105***	7.71	0.074***	3.81	0.338	1.35
CURR	0.008	0.16	-0.092	-1.22	1.393	1.21
GRW	-0.008	-0.84	-0.044***	-2.98	0.497**	2.42
SUB	0.014	1.47	0.021*	1.81	-0.084	-0.65
OPN	0.076**	2.00	0.033	0.64	2.294**	2.06
BIG	0.099***	5.81	0.246***	10.95	-1.523***	-4.95
INITIAL	0.008	0.68	0.020	1.28	-0.101	-0.45
FOREIGN	0.274**	2.42	0.294**	2.00	-0.653	-0.48
LARGE	-0.245***	-5.06	-0.095	-1.63	-1.415*	-1.96
MARKET	-0.065***	-3.14	-0.061**	-2.40	-0.128	-0.39
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R²	0.43		0.34		0.07	
N. of obs.	5,031		5,031		5,031	

Test of H3: Internal control weaknesses, audit fee premiums, and corporate governance

Panel C. High shareholder rights (≥median)

Indep. variable	(1) Dep. Variable = LN_FEE		(2) Dep. Variable = LN_HOUR		(3) Dep. Variable = FEE_PER_HOUR	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	4.456***	18.76	0.631*	1.95	3.235	0.97
MW	**0.145***	**3.35**	**0.231***	**3.97**	**-0.254**	**-0.39**
Controls	Included		Included		Included	
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.69		0.58		0.04	
N. of obs.	5,151		5,151		5,151	

Panel D. Low shareholder rights (<median)

Indep. variable	(1) Dep. Variable = LN_FEE		(2) Dep. Variable = LN_HOUR		(3) Dep. Variable = FEE_PER_HOUR	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	4.418***	15.85	-0.146	-0.49	11.021***	4.29
MW	**0.128***	**3.70**	**0.042**	**0.95**	**1.484****	**2.32**
Controls	Included		Included		Included	
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.70		0.61		0.10	
N. of obs.	4,940		4,940		4,940	

Panel E. High board of director score (≥median)

Indep. variable	(1) Dep. Variable = LN_FEE		(2) Dep. Variable = LN_HOUR		(3) Dep. Variable = FEE_PER_HOUR	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	4.042***	16.85	-0.661**	-2.49	12.914***	5.55
MW	**0.162***	**3.72**	**0.129***	**2.68**	**0.506**	**0.90**
Controls	Included		Included		Included	
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.76		0.68		0.06	
N. of obs.	5,062		5,062		5,062	

Panel F. Low board of director score (<median)

Indep. variable	(1) Dep. Variable = LN_FEE		(2) Dep. Variable = LN_HOUR		(3) Dep. Variable = FEE_PER_HOUR	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	5.806***	21.01	2.509***	7.39	-3.725	-0.88
MW	**0.118***	**3.59**	**0.090**	**1.63**	**1.626****	**2.00**
Controls	Included		Included		Included	
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.42		0.31		0.06	
N. of obs.	5,029		5,029		5,029	

Test of H3: Internal control weaknesses, audit fee premiums, and corporate governance

Panel G. High disclosure score (≥median)

Indep. variable	(1) Dep. Variable = *LN_FEE*		(2) Dep. Variable = *LN_HOUR*		(3) Dep. Variable = *FEE_PER_HOUR*	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	3.937***	17.08	-0.414	-1.49	9.120***	3.76
MW	**0.117****	**2.25**	**0.109***	**1.79**	**0.494**	**0.73**
Controls	Included		Included		Included	
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.77		0.68		0.06	
N. of obs.	5,176		5,176		5,176	

Panel H. Low disclosure score (<median)

Indep. variable	(1) Dep. Variable = *LN_FEE*		(2) Dep. Variable = *LN_HOUR*		(3) Dep. Variable = *FEE_PER_HOUR*	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	5.888***	22.45	1.858***	5.51	4.930	1.22
MW	**0.140****	**4.37**	**0.093****	**2.09**	**1.402****	**2.23**
Controls	Included		Included		Included	
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.44		0.37		0.06	
N. of obs.	4,915		4,915		4,915	

Table 6 reports results of the effect of reported material weaknesses on (1) audit fees, (2) audit hours and (3) audit fee premiums partitioned by various measures of corporate governance quality. Variable definitions are in Appendix B. Panels A and B report results partitioned on an overall corporate governance score as calculated by the Korea Corporate Governance Service (KCGS). Panels C-H report results partitioned on component measures of the overall KCGS corporate governance score including shareholder rights, boards of directors, and disclosure quality. T-statistics are corrected for client-company level clustering. ***, **, * indicate significance level at 1%, 5%, and 10%, respectively.

TABLE 7
Test of H1 Using Two Stage OLS Regression

Panel A. 1st stage probit regression

	Dep. Variable = MW	
Indep. variable	Coefficient	Chi-Square value
Intercept	1.789	1.20
SIZE	-0.203**	5.94
LEV	1.351***	88.99
LOSS	0.427***	35.76
GRW	-0.151***	8.08
SUB	-0.014	0.03
AGE	0.168**	5.45
FOREIGN	0.097	0.01
LARGE	-2.231***	20.07
CG Score	-0.010***	27.72
YEAR	Included	
INDUSTRY	Included	
Pseudo R^2	0.13	
N. of obs.	10,091	

Panel B. 2nd stage OLS regression

	(1) Dep. Variable = *LN_FEE*		(2) Dep. Variable = *LN_HOUR*		(3) Dep. Variable = *FEE_PER_HOUR*	
Indep. variable	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	4.292***	18.41	0.146	0.56	5.951**	2.46
MW	**0.511***	**7.02**	**0.310***	**3.05**	**3.385***	**2.60**
SIZE	0.361***	39.87	0.330***	27.73	0.314**	2.47
LEV	0.122***	3.10	0.035	0.64	1.310*	1.87
REC	0.209***	3.27	0.115	1.18	-0.261	-0.20
INVENTORY	-0.247**	-2.58	-0.060	-0.45	-2.926*	-1.66
LOSS	0.108***	8.49	0.101***	6.43	0.006	0.03
CURR	0.005	0.10	-0.064	-0.86	1.099	1.08
GRW	-0.021**	-2.32	-0.057***	-4.38	0.481***	2.81
SUB	0.013*	1.84	0.024***	2.81	-0.100	-1.19
OPN	0.061*	1.70	0.004	0.09	2.515**	2.26
BIG	0.088***	6.15	0.237***	12.88	-1.514***	-6.46
INITIAL	-0.024***	-2.86	0.020*	1.84	-0.464***	-3.37
FOREIGN	0.415***	5.34	0.407***	3.81	-0.348	-0.34
LARGE	-0.245***	-5.83	-0.205***	-3.75	-0.444	-0.76
MARKET	-0.008	-0.45	-0.033	-1.48	0.376	1.36
CG Score	0.041	1.59	0.055*	1.71	-0.392	-0.92
LAMBDA	-0.205***	-5.69	-0.110**	-2.29	-1.365**	-2.23
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.70		0.60		0.06	
N. of obs.	10,091		10,091		10,091	

Definitions of variables are in Appendix B. Chi-Squares and T-statistics are corrected for client-company level clustering. ***, **, * indicate significance level at 1%, 5%, and 10%, respectively.

TABLE 8
Test of H1 Using Propensity-Score Matched Sample

Panel A. Univariate difference test of independent variables in Probit model between reported (MW=1) and the others (MW=0)

	Before matching			After matching		
Variable	MW	No MW	t-stat	MW	No MW	t-stat
SIZE	17.40	18.71	-25.45***	17.49	17.53	-0.71
LEV	0.68	0.42	15.23***	0.54	0.53	0.61
LOSS	0.83	0.27	30.01***	0.83	0.83	-0.18
GRW	-0.02	0.11	-4.23***	-0.02	-0.02	0.06
SUB	0.11	0.66	-22.46***	0.11	0.12	-0.12
AGE	2.16	2.26	-3.33***	2.16	2.20	-1.16
FOREIGN	0.01	0.06	-24.61***	0.01	0.01	-0.68
LARGE	0.07	0.36	-36.99***	0.07	0.08	-0.70
CG Score	0.27	0.51	-21.74***	0.27	0.27	-0.17

Panel B. Propensity-Score Matched sample regression results

Indep. variable	(1) Dep. Variable = *LN_FEE*		(2) Dep. Variable = *LN_HOUR*		(3) Dep. Variable = *FEE_PER_HOUR*	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	7.265***	20.98	2.461***	5.38	12.233**	2.31
MW	**0.132***	**5.00**	**0.083**	**2.03**	**1.266**	**2.40**
SIZE	0.213***	11.45	0.180***	7.82	0.199	0.67
LEV	0.184***	3.14	0.061	0.75	2.096*	1.96
REC	0.455***	4.41	0.071	0.49	4.080***	2.81
INVENTORY	-0.411**	-2.43	0.086	0.37	-3.170	-1.01
LOSS	0.007	0.22	0.107**	2.08	-1.264*	-1.92
CURR	-0.003	-0.04	0.010	0.10	-0.870	-0.59
GRW	0.019	1.06	-0.012	-0.42	0.460	1.17
SUB	0.070***	2.64	0.009	0.22	0.710	1.61
OPN	0.040	1.01	0.011	0.21	1.210	0.77
BIG	0.102***	3.58	0.264***	5.01	-1.218	-1.36
INITIAL	-0.011	-0.46	0.044	1.22	-0.762	-1.57
FOREIGN	0.892***	2.82	0.724*	1.94	0.780	0.24
LARGE	-0.349***	-3.14	-0.102	-0.85	-2.469	-1.55
MARKET	-0.049	-1.38	-0.047	-1.02	-0.396	-0.66
CG Score	-0.003***	-4.09	0.001	1.18	-0.058***	-4.60
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R^2	0.3916		0.2776		0.1336	
N. of obs.	1,772		1,772		1,772	

To measure a client's propensity to report a material weakness in internal control, we estimate the logit model in Equation 2. Following with Lawrence, Minutti-Meza, and Zhang (2011), we match a client with a reported material weakness to one without a material weakness and also have closest predicted value from equality within a maximum distance of 3% without replacement. For each client company with a material weakness, we select at most three control observations. The area under the ROC curve is 0.9143. Definitions of variables are in Appendix. T-statistics are corrected for client-company level clustering. ***, **, * indicate significance level at 1%, 5%, and 10%, respectively.

TABLE 9
Test of H1 Controlling for Companies that Report Material Weaknesses

Independent variable	(1) Dep. Variable = *LN_FEE*		(2) Dep. Variable = *LN_HOUR*		(3) Dep. Variable = *FEE_PER_HOUR*	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	4.405***	18.68	0.199	0.76	7.422***	3.04
MW_Company	**0.056****	**2.01**	**0.039**	**1.15**	**0.336**	**0.80**
MW_Company*MW	**0.111****	**3.83**	**0.089****	**2.31**	**1.105****	**2.26**
SIZE	0.354***	39.85	0.326***	27.54	0.226*	1.77
LEV	0.182***	5.19	0.067	1.30	2.241***	3.61
REC	0.209***	3.27	0.115	1.18	-0.235	-0.19
INVENTORY	-0.267***	-2.79	-0.071	-0.54	-2.504	-1.56
LOSS	0.117***	9.42	0.105***	6.84	-0.008	-0.04
CURR	0.008	0.17	-0.062	-0.83	0.925	0.96
GRW	-0.030***	-3.41	-0.062***	-4.90	0.437***	2.62
SUB	0.014*	1.91	0.024***	2.84	-0.097	-1.17
OPN	0.116***	3.21	0.034	0.74	2.219**	2.04
BIG	0.086***	5.95	0.236***	12.81	-1.525***	-6.54
INITIAL	-0.022***	-2.69	0.020*	1.90	-0.494***	-3.58
FOREIGN	0.447***	5.78	0.425***	3.99	-0.005	-0.01
LARGE	-0.281***	-6.59	-0.221***	-3.96	-0.715	-1.20
MARKET	-0.014	-0.76	-0.035	-1.56	0.310	1.11
CG Score	0.034	1.34	0.052	1.63	-0.362	-0.82
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adj. R²	0.6951		0.5987		0.0569	
F-value (p-value): MW_Company + MW_Company*MW = 0	61.11 (<0.001)		21.47 (<0.001)		22.58 (<0.001)	
N. of obs.	10,091		10,091		10,091	

MW_COMPANY = 1 for all observations for companies that report at least one material weakness during the sample period. Definitions of the remaining variables are in Appendix B. T-statistics are corrected for client-company level clustering. ***, **, * indicate significance level at 1%, 5%, and 10%, respectively.