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Abstract

This study examines whether auditor size associates with disclosure transparency. Given that prior studies generally focus on discretionary accruals to investigate the relation between auditor size and financial reporting quality, there is little evidence on how auditor size relates to other attributes of reporting quality. Further, studies that examine this association internationally produce mixed results as to how auditor size relates to reporting quality in different legal origins. Focusing on corporate disclosure transparency (i.e., disclosure levels), we find that auditor size and disclosure level are positively associated across countries and that the association is stronger in code law regimes than in common law regimes. The latter finding supports the view that audits play greater governing roles in weaker legal environments.

Governance Role of Auditors and Legal Environment: Evidence from Corporate Disclosure Transparency

1. Introduction

External audits contribute to financial reporting reliability by providing an independent assessment of the accuracy and fairness with which financial statements represent the results of operation, financial position, and cash flows in conformity with generally accepted accounting principles (e.g., Abdel-Khalik and Solomon 1988).[1] To the extent that financial reporting reliability inferred from audit quality relates to firms' cost of equity and debt capital (e.g., Khuranna and Raman 2004, Mansi, Maxwell, Miller 2005) and the predictability of earnings (Behn, Choi, and Kang 2008), whether high quality audit enhances financial reporting quality is a crucial question to both audit practitioners and researchers. Nevertheless, the existing evidence on the issue of how auditor size (a common proxy for audit quality) associates with financial reporting reliability is not conclusive internationally.

Prior studies that test the association between auditor size and financial reporting quality have mostly used discretionary accruals as the proxy for financial reporting quality. In general, the findings show that auditor size (Big N or non Big N) is positively associated with financial reporting quality. For instance, Becker, DeFond, Jiambalvo, and Subramanyam (1998) find that the magnitude of discretionary accruals is negatively associated with auditor size. Francis and Wang (2007) show that auditor size also relates to the likelihood of reporting loss and earnings conservatism (i.e., timely recognition of loss). However, no prior studies relate

[1] Information in financial statements is reliable if it is representationally faithful (corresponds to that which it purports to measure; verifiable (provides assurance that some consensus in the reported measurement exists); and free from bias. We argue that higher quality audits yield more reliable accounting numbers, including the summary measure, earnings.

auditor size with disclosure transparency, another important attribute of reporting quality which is known to associate with both cost of equity capital (Khurana and Raman 2004) and earnings predictability (Hope 2003 CAR).

An additional motivation for focusing on disclosure transparency stems from the fact that researchers seem to associate increased reporting transparency as a sufficient condition for high quality audit. For example, Lennox (2005) defines audit quality as the joint probability that an existing problem is detected and reported. Palmrose (1988) defines audit quality as the probability that financial statements contain no material omissions or misstatements. These definitions suggest that audits aim to improve at least two aspects of financial reporting quality – more transparent disclosure and reduction in (intentional) reporting bias. Nevertheless, there is little evidence on how auditor size associates with disclosure transparency. As different aspects of reporting qualities do not imply each other, it is not clear whether and how auditor size and financial transparency relate. This study attempts to shed some light on this issue.

Further, the extant evidence on the association between auditor size and reporting quality in cross-country settings is mixed (e.g., Francis, Khurana and Raynolde 2003, Francis and Wang 2007, Choi and Wong 2007). From the theoretical perspective, the direction of association is not clear ex-ante. On the one hand, it is possible that the demand for high quality audit is higher in strong legal environments (Francis, Khurana and Pereira 2003), suggesting a greater governing role of auditors in strong legal environments. On the other hand, auditors might play a greater governing function in weak legal environments where there are less alternative corporate governance mechanisms available. Our study attempts to fill this void in the literature.

Our evidence shows the following: we find that corporate disclosure becomes more transparent with auditor size, and that the association between auditor size and corporate disclosure level is stronger in weaker investor protection regimes. By documenting these associations, this study contributes to the literature in several ways. First, we provide evidence that higher quality audit by large auditors not only constrain managerial opportunism in reporting accounting accruals (Becker et al. 1998) but it also induces managers to provide more transparent disclosure. Second, our evidence sheds some light on the question of how the governance role of audits varies with legal environments, and complements the prior findings on this issue.

This paper is organized as follows. In the next section, we review relevant literature and develop some testable hypotheses. In Section 3, we describe our methodology and sample. In Section 4, we explain the results of the main and sensitivity tests. In Section 5, we conclude.

2. Background and Hypotheses Development

External audits contribute to financial reporting credibility by providing an independent assessment of the accuracy and fairness with which financial statements represent the results of operation, financial position, and cash flows in conformity with generally accepted accounting principles (e.g., Abdel-Khalik and Solomon 1988). DeAngelo (1981) notes that the value of an audit derives from users' expectations that the auditor will detect and correct and/or reveal any material omission or misstatements in the financial statements.

The ability to detect material error in the financial statement is a function of auditor competence, and prior studies claim that the Big N provide higher quality audit than the non-

Big N.[2] As Beatty (1989) argues, the Big N have sought to differentiate themselves from other auditors by investing more in reputational capital, and are viewed as providing higher quality audits based on their perceived competence and independence. Big N auditors are perceived to be competent given their heavy spending on auditor training facilities and programs, and to be independent by virtue of their size and large portfolio of clients, which presumably give them more independence.

Auditing reduces the misreporting of accounting information and thus is a valuable form of monitoring used by firms to reduce agency costs with debt holders and stockholders (Jensen and Meckling 1976; Watts and Zimmerman 1986). Audit also reduces information asymmetries that exist between managers and firm stakeholders by allowing outsiders to verify the validity of financial statements (Becker, DeFond, Jiambalvo, and Subramanyam 1998). Becker et al. (1998) show that the magnitude of discretionary accruals is smaller for firms audited by Big N auditors.

Whether audit improves financial reporting quality is a question of interest to auditors, managers, and standard setters. Financial reporting quality is a multi-faceted construct, various aspects of the reporting quality are known to matter to important capital market decisions. Disclosure transparency is relevant to the discussion as researchers frequently refer to this quality in conceptually defining a high quality audit. Despite these facts, prior studies that test the association between auditor size and financial reporting quality have focused on the role of audit in reducing financial misstatement, but few examine whether auditor size is related to material omission, or stated differently, less transparent disclosure.

[2] We use the term "Big N" to refer to the Big 4 auditors and previous group of auditors that had been referred to as a "Big" auditor.

Pownall and Schipper (1999) notes that the U.S. Securities and Exchange Commission views disclosure transparency as an important dimension of high quality reporting standard. As they argue, transparent financial statements reveal the events, transactions, judgments and estimates underlying the financial reports and their implications. They further point out that transparent financial statements provide a lens through which their user can see the results and implications of operating, financing and investing decisions, as well as the key judgments and estimates of preparers. However, there is no logical link between the representational faithfulness, which is the commonly examined dimension of audit quality, and transparency, prior findings on the relation between auditor size and discretionary accruals have little implication for whether and how auditor size associates with disclosure transparency.

Nevertheless, prior studies that examine the association between auditor size and financial reporting quality focus heavily on discretionary accruals. While this measure does have some implications for the representational faithfulness dimension of reporting quality, it is not clear how auditor size relates to other dimensions of reporting quality. One such dimension is disclosure transparency. According to Pownall and Schipper (1999), disclosure transparency represents an important dimension in assessing the quality of a reporting standard.[3]

In US, Big N auditors are known to provide higher quality audit that leads to higher quality earnings in order to protect their brand name reputation from legal exposure and reputation risk which can arise from misleading financial reports by clients and in particular from overly optimistic earnings reports (DeAngelo 1981). This suggests that Big N auditors

[3] Specifically, they point out that SEC adopted reporting transparency as an important criterion for the acceptability of IAS for US securities offerings, along with comprehensiveness and full disclosure.

would be committed to improving various aspects of financial reporting quality, not just constraining earnings discretion. We thus develop our first hypothesis as follows:

H1: Firm disclosure level is positively associated with auditor size.

Next, we examine whether the predicted association between auditor size and disclosure transparency varies with the strengths of legal environments. Ex-ante, the direction of association is not clear. On the one hand, the association might be stronger in strong legal environments where the demand for financial information and hence high quality audit is greater (Francis, Khurana, and Raman 2003, Francis and Wong 2007). On the other hand, it is possible that the predicted positive relation between auditor size and disclosure transparency is stronger in weak legal environments where alternative corporate governance mechanism are either fewer or less effective.

Francis, Khurana and Raman (2003) find that there is greater demand for auditing as an enforcement mechanism in common law countries, where accounting tends to be more timely and transparent. Specifically, they find that Big N auditor market shares are greater in common law regimes. Francis and Wang (2007) find that earnings qualities for firms with Big N auditors increase in strong legal environments. They find that Big N auditors' abnormal accruals are smaller, likelihood of reporting losses is greater, and earnings conservatism is greater in strong legal environments. Overall, they claim that the incentives of Big N auditors to perform higher quality audits are greater in strong legal environments.

In contrast, Choi and Wong (2007) conclude, after examining the roles Big N auditors play in capital issuance and firm risk, that external audits generally play a more important

governance function in countries where legal institutions are weak than in countries where legal institutions are strong. In particular, they find that capital (both equity and debt) issuance is more positively related with the appointment of Big N auditors in weak legal environments. They also document that the association between firm risk (measured using earnings loss) and Big N auditor is stronger in weaker legal environments.

To test this idea, we examine whether the association between auditor size and disclosure transparency varies with legal origin (i.e., common or code law). We focus on legal origin for two reasons. First, Hope (2003) shows that disclosure transparency varies systematically with legal origin. Second, many view legal origin as the most fundamental factor that correlates highly with various aspects of country-level investor protection and exhibit the highest degree of exogeneity (e.g., Ball, Kothari, and Robin 2000, Jorgensen and Sabino 2002, Hope 2003).[4] As Ball et al. (2000) note, firms deal with investors at "arm's length" in common law countries, and this gives rise to demand for financial information. In code law countries, on the other hand, communication of financial information from management to stakeholders (e.g., banks and inside owners) is more private. For these reasons, we adopt legal origin as our legal environment variable. Accordingly, we formulate our second hypothesis as follows:

H2: The association between firm disclosure level and auditor size will be more pronounced in common law countries.

3. Research Design and Sample

[4] Other widely investigated legal variables in the literature include various measures in LaPorta et al. (1997, 1998). They include judicial efficiency, rule of law, and corruption, among others.

In this section, we describe the research design and sample selection procedure. First, we estimate the following set of equations to address our research question, while controlling for the possible endogeneity in auditor selection. Equation *(1)* is the disclosure model that tests our hypothesis while equation *(2)* is the first-stage auditor selection model.

$$DISC = a_0 + a_1\, Auditor + a_2\, Legal + a_3\, Culture + a_4\, lnSIZE + a_5\, lnCoverage + a_6\, FDISP + \varepsilon \quad (1)$$

$$Auditor = \lambda_0 + \lambda_1\, Invpro + \lambda_2\, Culture + a_3\, Culture + \lambda_3\, Short + \lambda_4\, Long + \lambda_5\, lnSize + \lambda_6\, lnSales + \lambda_7\, lnBM + \lambda_8\, Invrec + \lambda_9\, Lev + \lambda_{10}\, Loss + \lambda_{11}\, Issue + \lambda_{12}\, ROE + Year\ and\ Industry\ Indicators + \varepsilon \quad (2)$$

In equation (1), *DISC* is the firm-level disclosure level scores from CIFAR (Center for International Financial Analysis and Research 1995). These scores evalueate corporate disclosure levels of 85 financial statement items (based on annual reports) for leading non-financial companies in different countries. These scores have been used by prior studies that examine various aspects of corporate disclosure (e.g., Cooke and Wallace 1989, Salter and Niswander 1995, Rajan and Zingales 1998, and Hope 2003).[5] *Auditor* is a dummy variable equal to 1 for a Big N auditor, and equal to 0 otherwise. *H1* would be supported if the *Auditor* coefficient positive and significant. To alleviate the potential confounding effects, we include several control variables (both country-level and firm-specific variables) based on previous studies on the determinants of disclosure choice. The legal origin variable (*Legal*) comes from Hope (2003), where he argues that firm-level disclosures are associated with the legal origin of the firm's country of domicile. The culture (i.e., secrecy) control is based on Hope, Kang,

[5] Bushman and Smith (2001) refer to the CIFAR index as an obvious candidate for the quality of financial accounting regime. Hope (2003) conducts extensive validity tests and concludes that the CIFAR scores are very reliable. For further details of this index, refer to Hope (2003).

Thomas, and Yoo (2007) who find that the secrecy dimension (defined as the linear combination of uncertainty avoidance and power distance scores and the inverse linear combination of individualism score from Hofstede 1980) of national culture. Log of firm size (*lnSize*), log of analyst coverage (*lnCoverage*), and analyst forecast dispersion (*FDISP*) controls are based on Lang and Lundholm (1996).[6] To control for time period (year), industry (one-digit SIC codes), and country affilications to account for possible year-to-year, industry-to-industry, and country-specific variations in auditor choice that are not captures in our specification.[7]

In equation (2), we model auditor choice using both country-level institutional variables and firm-level variables. We include two country-level controls for auditor choice, i.e., investor protection and culture. The investor protection control is based on Francis, Khurana and Pereira (2003) and Choi and Wong (2007), who show that firm-level auditor choice is related to the degree of investor protection in the firm's country of domicile. We use the "investor protection" variable from Leuz, Nanda, and Wysocki (2003), who defines investor protection as the sum of rule of law and judicial efficiency less corruption scores from La Porta, Lopez-De-Silanes, Shleifer, and Vishney (1998).

The firm-level controls are as follows; the absolute value of latest year's short-term accruals in income, scaled by sales (*Short*), the absolute value of latest year's long-term accruals in income, scaled by sales (*Long*), the log of firm size, which is the log of latest year-end total assets (*lnSize*), book-to-market ratio, which is measured as the ending book value of equity over

[6] A priori, the directions of association between *DISC* and *lnCoverage*/*FDISP* are not clear. On the one hand, it is possible that firms disclose more when there is less private information production (low *lnCoverage*) and higher demand for information (high *FDISP*). On the other, it seems also possible that corporate disclosure level is higher when analyst monitoring is stronger (high *lnCoverage*).

[7] For example, Dye and Sridhar (1995) show that industry membership can be an important factor in firms' disclosure practices.

its market value (*lnBM*), the latest year-end inventory and accounts receivable as a percentage of total assets (*InvRec*), the leverage measured as the latest year-end total liabilities over total assets (*Lev*), a dummy variable that takes the value of one if the firm incurred a loss in latest year, zero otherwise (*Loss*), an indicator variable that takes the value of one if the firm issued either debt or equity by ten percent increase in the past three years, zero otherwise (*Issue*), and return on equity, measured as net income over book value of equity (*ROE*).

Short, *Long*, *lnSize*, *lnSale*, *lnBM*, and *InvRec* are included mostly based on Simunic and Stein (1987) and Francis, Maydew, and Sparks (1999).[8] These variables are expected to relate to audit complexity and hence the amount of effort an auditor must exert to produce quality audit, which might be associated with firms' auditor choice. The inclusion of *Lev* and *Loss* are motivated by St. Pierre and Anderson (1984). These two variables relate to auditors' litigation risk because they capture a client's (potential) financial distress, which might affect auditor choice. *Issue* is included because it captures a firm's need for capital which has been shown to be a determinant of auditor choice (Copley, Gaver, and Gaver 1995). *ROE* is included to control for the potential effect of a firm's profitability on auditor choice. In addition, we control for time period (year), industry (one-digit SIC codes), and country affilications to account for possible year-to-year, industry-to-industry, and country-specific variations in auditor choice that are not captured in our specification.

Our sample is drawn from COMPUSTAT North America (U.S. firms) and COMPUSTAT Global (non-U.S. firms) and I/B/E/S. We use the exchange rate data from IMF International Financial Statistics to adjust local currency into common currency, Special Drawing Rights. Specifically,

[8] While lnSize and lnSale are strongly correlated, we include both in the regression. We do so since prior studies note that they represent distinct dimensions of audit complexity, enhancing the comparability of our findings.

our sample observations satisfy the following criteria: (1) CIFAR firm-level disclosure score available, (2) non-financial firm, (3) financial statement data available from COMPUSTAT North America for U.S. firms and COMPUSTAT Global for non-U.S. firms, (4) stock price, forecast dispersion, and number of shares data available from I/B/E/S, (5) consistency of currency codes between COMPUSTAT Global and I/B/E/S, and between adjacent years, (6) all of firm and country-level control variables are available, and (7) necessary auditor data available from COMPUSTAT North America for U.S. firms and COMPUSTAT Global for non-U.S. firms. This process yields a final sample of 1,919 firm-year observations (1,120 distinct firms) from 20 countries during 1994-2002.[9]

4. Results and Discussions

[Insert Table 2 about here]

Table 2 reports descriptive statistics. The mean and median of *DISC* is 76.838 and 77.000, respectively. *Auditor* has the mean of 0.895, indicating that 89.5% the sample firm-years hire a Big N auditor. *Legal* has the mean of 0.808, which means that over 80% of the sample observations come from common law countries. *Invpro* has the mean and median of 27.714 and 28.630. The maximum possible score for the investor protection scores is 30. The other variables, which are used as additional control variables in our multivariate regression tests, all have distributions similar to those reported in the prior literature.

[Insert Table 3 about here]

[9] To mitigate the effects of outliers, we winsorize *lnSize*, *InvRec*, *Lev*, *ROA*, and *COE* at the 1st and 99th percentiles of pooled distributions. Other variables are categorical in nature and do not exhibit extreme observations.

In Table 3, we report country-level statistics of the key variables. First, UK has the highest average *DISC* score among the sample countries with 87.283, followed by Finland (86.5), Sweden (85.4) and Australia (81.944). When it comes to *Auditor*, Australia, Finland, Norway, Singapore, Spain, and US have the value of one, indicating that all of the sample observations from these countries hire a Big N auditor. Half of the coutries represented in the sample are common law countries, the other half being code. Denmark, Finland, Netherlands, Norway, and Sweden have the highest *Invpro* scores with 30. When it comes to *Culture*, Pakistan is the most secretive country in the sample, followed by Japan, Thailand, Malaysia and Hong Kong.

[Insert Table 4 about here]

Table 4 shows regression results that are intended to test our first hypothesis. In the first two columns, we present two-stage least squares regression results. In the first stage regression, we estimate equation *(2)* to recognize and control for the endogeneous nature of auditor selection. *Invpro*, *Culture*, *Short*, *lnSize*, *lnBM*, and *Lev* load significantly, and the overall explanatory power of the model is 43.99%. More importantly, in the second stage model (equation *(1)*), Auditor is positive and significant ($t=3.17$, $p<0.01$, two tailed). This is consistent with the prediction that higher quality audit by a Big N auditor associate with more transparent disclosure. In addition, *Legal* is positive and significant ($t=3.31$, $p<0.01$) suggesting that common law country firms tend to have more transparent disclosure. *Culture* is negative and significant ($t=-5.71$, $p<0.01$), meaning that firms in more secretive countries tend to disclose less. The adjusted R-squares of the model are 44.11%.

Presented in the latter two columns are estimation results from three-stage least squares regressions. Three-stage least squares regressions differ from two-stage least squares

regressions as it makes use of the covariance matrix computed from the two disturbance terms in the simultaneous equations framework.[10] Three-stage least squares capture cross-equation effects as error terms of individual equations in the system of equations (i.e., equations *(1)* and *(2)*) are assumed to be contemporaneously correlated. In this regard, three-stage least squares combines the features of both two-stage least squares and seemingly unrelated regression (Zellner 1961). In our setting, it is possible that the error terms from the two equations are correlated in the presence of correlated omitted variables related to both auditor size and corporate disclosure levels. The results are very similar to the two-stage least squares estimations. Most importantly, the coefficient on *Auditor* in the third stage model is positive and significant (t=3.21, p<0.01).

[Insert Table 5 about here]

Table 5 reports test results of our second hypothesis. Here, the interaction term between *Auditor* and *Legal* is included to test whether the association between *DISC* and *Auditor* varies with the legal origin of the firm's country of domicile. In both two-stage and three-stage models, the interaction term Auditor*Legal is negative and significant (t=-2.74, p<0.01 in the two-stage model and t=-2.09, p<0.05 in the three-stage model), indicating that Big N auditors are more strongly associated with higher disclosure level in code law countries. This result suggests that auditors play a greater role in ensuring transparent disclosure in code law countries where disclosure levels tend to be lower than in common law countries. It implies that high quality audit as a firm-level governance mechanism becomes more important in financial reporting quality when the country-level institution to ensure transparent corporate

[10] In equations that are just identified, the coefficients on two-stage and three-stage least squares will be identical although the standard errors will differ.

disclosure is weaker. This result is more in line with Choi and Wong (2007)'s finding that audit plays a stronger (weaker) governance role in countries with weaker (stronger) institutional mechanisms to ensure high quality corporate reporting than with Francis and Wang (2007)'s finding that auditors play a bigger role in constraining earnings discretion in strong legal environments than in weak legal environments.

[Insert Table 6 about here]

Next, we subject our findings to some robustness checks, and present the results in Table 6. In the first column, we present the result from a weighted least squares regression where the number of country is used as the weight. This sensitivity test is important because different countries are represented to differing degrees in the sample. Both the *Auditor* coefficient and the interaction term remains positive and significant as previously reported.[11] Bernard (1987), among others, notes that pooling observations across years can induce the cross-sectional dependence problem, resulting in an overstating of the t-statistics. To alleviate this concern, we estimate the equations year-by-year and use the annual distribution of the coefficients to test for their significance. As reported in the second column of this table, our results are unaffected.

Next, our Breusch-Pagan test result shows that the error terms are heteroskedastic (chi-squares equal 84.71, $p<0.01$). Thus, to see if the heteroskedasticity affects our inference, we re-estimate the two-stage model applying the White's (1980) correction. As shown in the third column, we obtain virtually same result as before, suggesting that the presence of heteroskedasticity in the error terms did not bias our inference. Next, since we include multiple observations from a given firm/given country, it is possible that the error terms are serially

[11] We note that US is heavily represented in the sample. Thus, as an additional sensitivity test (the results not tabulated) we re-estimate the DISC model after excluding US from the sample. Our main findings remain the same.

correlated. However, the Durbin-Watson stastic of 0.14 suggests little presence of serial correlation.[12] In the last column, we estimate the second stage model using the quantile regression approach (Koenker and Bassett 1978). This approach offers a mechanism for estimating models for the conditional median function, just as classical linear regression methods that minimize the sum of squared residuals enable one to estimate models for conditional mean functions. In addition, they are less susceptible to bias from possible outliers. For these reasons, it provides evidence that complements those obtained from the other approaches. As shown in the last column of the table, the results are generally similar to the previous ones.

5. Conclusion

Audit quality is an important issue to both regulators and financial statement users due to its potential economic consequences. In the wake of audit scandals at the turn of the century, audit quality of Big N auditors is especially of considerable interest. Prior evidence shows that large (Big N) auditors generally provide higher quality audit but this association is known to vary internationally, and tests of how such association varies in different legal environments have yielded mixed results. Our motivation has been to examine how corporate disclosure transparency varies with auditor size.

Consistent with common belief that large auditors provide higher quality audit, our evidence shows that corporate disclosures are more transparent when the firm hires a Big N auditor and that this association is observed in both common and code law countries. However,

[12] To err on the caution, however, we re-estimate the two-stage model and apply Newey-West (1987) correction to the standard errors. We obtain very similar coefficient estimates and t-values under this approach.

the association is stronger in code law countries that provide relatively weaker legal protection to investors, supporting the view that Big N auditors play a more important role in corporate governance in countries with weaker legal infrastructure. These results complement the evidence provided by prior studies that used alternative measures of audit quality (e.g., discretionary accruals, auditor appointment at the time of capital issuance, likelihood of reporting loss, etc.).

To conclude, our findings should be interpreted with the following caveats. First, while examining disclosure levels enables one to assess whether audit properties relate to more transparent disclosure, this benefit comes at the cost of limited sample size and period given that disclosure scores are not available for large samples. Nevertheless, this approach provides some complementary evidence on how audit properties relate to financial reporting quality. Second, as is the case in most cross-country studies, controlling for institutional differences (and their impact on accounting quality) is difficult. Although we incorporate previously identified country-level factors in our research design (i.e., legal origin, investor protection, culture), one cannot rule out the possibility that some unknown institutional factors affecting our inference.

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TABLE 1
Variable Definition

Variables	Definition
DISC	firm-level CIFAR disclosure score (1995)
Auditor	indicator variable for Big N auditors
Legal	Indicator variable for legal origin; 1 for common law countries, zero otherwise
Invpro	legal enforcement score taken from LaPorta et al. (1998)
Culture	cultural secrecy variable defined as the sum of uncertainty avoidance and power distance scores less individualism score (Hofstede 1980)
Short	short-term accruals
Long	long-term accruals
lnSIZE	the natural log of market value of equity as of September of each year, adjusted by the exchange rate of the local currency to Special Drawing Rights
lnSales	the natural log of total sales
lnBM	the natural log of book value of equity divided by market value of equity
InvRec	the latest year-end inventory and accounts receivable as a percentage of total assets
Lev	the latest year-end total liabilities over total assets
Loss	indicator variable for loss firms: 1 if the firm incurred a loss in the latest year, zero otherwise
Issue	indicator variable for stock or debt issuance: 1 if the firm issued either debt or equity by 10 percent increase in the past three years, zero otherwise.
ROE	the latest year's return on equity
lnCoverage	The natural log of the number of analysts following the firm
FDISP	The standard deviation of analysts forecasts

TABLE 2
Firm-Level Descriptive Statistics

Variables	Mean	Q1	Median	Q3	Std Dev
DISC	76.838	73.000	77.000	81.000	6.562
Auditor	0.895	1.000	1.000	1.000	0.307
Legal	0.808	1.000	1.000	1.000	0.394
Invpro	27.714	27.670	28.630	28.630	2.834
Culture	10.445	-15.000	-15.000	14.000	46.014
Short	0.051	0.013	0.030	0.063	0.063
Long	0.063	0.025	0.042	0.070	0.074
lnSIZE	7.460	5.588	6.980	8.880	2.591
lnSales	7.437	5.587	6.997	8.889	2.534
lnBM	-0.856	-1.345	-0.789	-0.295	0.851
lnvRec	0.320	0.164	0.307	0.448	1.888
Lev	0.165	0.019	0.138	0.271	0.152
Loss	0.098	0.000	0.000	0.000	0.298
Issue	0.511	0.000	1.000	1.000	0.500
ROE	0.191	0.057	0.134	0.243	0.310
lnCoverage	1.910	1.386	1.946	2.485	0.767
FDISP	0.141	0.015	0.043	0.120	0.337

TABLE 3
Country-Level Descriptive Statistics

	N	*DISC*	*Auditor*	*Legal*	*Invpro*	*Culture*
Australia	43	81.944	0.857	1.000	28.520	20.000
Austria	13	64.932	0.411	0.000	28.070	33.000
Canada	29	76.103	0.862	1.000	29.250	14.000
Denmark	32	80.438	0.969	0.000	30.000	-24.000
Finland	4	86.500	1.000	0.000	30.000	24.000
France	28	77.929	0.536	0.000	26.030	70.000
Hong Kong	44	75.023	0.795	1.000	26.740	104.000
India	20	64.300	0.000	0.000	16.750	77.000
Japan	234	72.256	0.868	0.000	27.500	120.000
Malaysia	60	79.917	0.767	1.000	23.160	114.000
Netherlands	24	77.250	0.875	0.000	30.000	3.000
Norway	15	80.400	1.000	0.000	30.000	0.000
Pakistan	8	72.750	0.000	1.000	11.010	123.000
Singapore	45	80.933	1.000	1.000	26.790	75.000
South Africa	63	81.286	0.984	1.000	19.340	46.000
Spain	14	77.786	1.000	0.000	21.430	95.000
Sweden	5	85.400	0.800	0.000	30.000	-17.000
Thailand	9	64.000	0.111	1.000	14.680	117.000
U.K.	113	87.283	0.973	1.000	27.670	-11.000
U.S.A.	1,120	76.279	1.000	1.000	28.630	-15.000

*Please refer to Table 1 for variable definitions.

TABLE 4
Test of H1 (Dependent Variable: *DISC*)

		Model 1 (2sls) (n=1,919)		Model 2 (3sls) (n=1,919)	
	Predicted Sign	1st Stage Model	2nd Stage Model	1st Stage Model	2nd Stage Model
Auditor	(+)		20.071 (3.17)***		19.953 (3.21)***
Legal	(+)		7.161 (3.31)***		7.170 (3.35)***
Invpro	(+)	0.036 (16.68)***		0.034 (16.70)***	
Culture	(–)	-0.004 (-5.86)***	-0.123 (-5.71)***	-0.004 (-6.25)***	-0.122 (-5.74)***
Short	(–)	-0.395 (-4.00)***		-0.340 (-3.84)***	
Long	(–)	-0.122 (-1.19)		-0.180 (-2.17)**	
lnSIZE	(+)	0.023 (2.23)**	0.518 (2.33)**	0.045 (5.10)***	0.595 (2.74)**
lnSales	(+)	-0.001 (-0.12)		-0.023 (-2.50)**	
lnBM	(–)	-0.012 (-1.75)*		-0.027 (-4.96)***	
InvRec	(+)	-0.024 (-0.62)		0.118 (3.83)***	
Lev	(–)	-0.088 (-2.13)**		-0.084 (-2.44)**	
Loss	(–)	-0.006 (-0.38)		0.006 (0.48)	
Issue	(+)	-0.004 (-0.42)		-0.006 (-0.75)	
ROE	(+)	0.003 (0.19)		0.001 (0.11)	
lnCoverage	(?)		-0.069 (-0.21)		-0.337 (-1.23)
FDISP	(?)		2.433 (2.86)***		0.505 (0.64)
Intercept	(?)	-0.242 (-1.83)*	53.343 (11.63)***	-0.242 (-1.83)*	53.789 (11.96)***
Year, Industry, and Country Dummies		Included	Included	Included	Included
Adj-R^2		43.99%	44.11%	43.99%	44.11%

* Please refer to Table 1 for variable definitions. To mitigate the collinearity between Legal and Culture, we orthogonalize Culture with respect to Legal by regressing it on Legal and taking the residuals.

TABLE 5
Test of H2 (Dependent Variable: *DISC*)

		Model 1 (2sls) **(n=1,919)**		Model 2 (3sls) **(n=1,919)**	
	Predicted Sign	1st Stage Model	2nd Stage Model	1st Stage Model	2nd Stage Model
Auditor	(+)		55.005 (2.71)***		74.323 (3.71)***
Legal	(+)		45.010 (2.71)***		27.823 (1.69)*
Auditor Legal*	(?)		-53.943 (-2.74)***		-40.567 (-2.09)**
Invpro	(+)	0.036 (16.68)***		0.034 (16.47)***	
Culture	(–)	-0.004 (-5.86)***	-0.154 (-3.06)***	-0.004 (-6.48)***	-0.161 (-3.24)***
Short	(–)	-0.395 (-4.00)***		-0.240 (-3.18)***	
Long	(–)	-0.122 (-1.19)		-0.081 (-1.00)	
lnSIZE	(+)	0.023 (2.23)**	0.336 (0.95)	0.027 (2.75)***	-0.110 (-0.33)
lnSales	(+)	-0.001 (-0.12)		-0.004 (-0.36)	
lnBM	(–)	-0.012 (-1.75)*		-0.023 (-4.61)***	
InvRec	(+)	-0.023 (-0.62)		0.064 (2.16)**	
Lev	(–)	-0.088 (-2.13)**		-0.055 (-1.73)*	
Loss	(–)	-0.006 (-0.38)		0.001 (0.11)	
Issue	(+)	-0.004 (-0.42)		-0.003 (-0.37)	
ROE	(+)	0.003 (0.19)		-0.005 (-0.40)	
lnCoverage	(?)		-0.290 (-0.56)		-0.674 (-1.71)*
FDISP	(?)		4.503 (2.57)***		3.703 (2.21)**
Intercept	(?)	-0.242 (-1.83)*	36.083 (2.28)**	-0.457 (-4.12)***	24.933 (1.60)
Year, Industry, and Country Dummies		Included	Included	Included	Included
Adj-R^2		43.99%	44.14%	43.99%	44.14%

* Please refer to Table 1 for variable definitions.

TABLE 6
Sensitivity Tests

	Predicted Sign	Model 1 (Country-weighted)	Model 2 (Av. of Annual Coefficients)	Model 3 (With White's Correction)	Model 4 (Quantile Regression)
Auditor	(+)	48.762 (5.17)***	29.152 (2.90)***	35.467 (3.65)***	9.279 (7.94)***
Legal	(+)	14.761 (2.06)**	20.025 (2.22)**	11.611 (1.65)*	3.470 (3.81)***
*Auditor*Legal*	(?)	-25.775 (-2.78)***	-19.297 (-1.90)**	-17.264 (-2.02)**	-1.621 (-1.67)*
Culture	(-)	0.133 (2.18)**	0.001 (0.37)	-0.128 (-12.35)***	0.010 (2.79)***
lnSIZE	(+)	0.458 (2.79)**	0.385 (2.28)**	0.557 (3.22)***	0.020 (0.27)
lnCoverage	(?)	-0.596 (-2.19)**	-0.874 (-3.02)***	-0.282 (-0.94)	-0.014 (-0.07)
FDISP	(?)	0.383 (0.95)	1.712 (1.87)*	0.513 (1.16)	0.319 (0.78)
Intercept	(?)	40.083 (6.68)***	46.664 (4.83)***	51.721 (6.92)***	66.381 (48.57)***
Adj-R^2		39.19%	10.01%	39.19%	2.68% (pseudo-R^2)

* Please refer to Table 1 for variable definitions. First stage regression results are not reported for brevity. Adj-R^2 for the second column regression represents the average of annual R^2s.