GOVERNMENT QUALITY, AUDITOR CHOICE AND ADOPTION OF IFRS: A CROSS COUNTRY ANALYSIS

Working paper series
Working paper No. 78
October 2011

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ABSTRACT

We examine the association between country-level government quality and firms' choice of external auditors. Using a cross-sectional sample of 142,193 firm-year observations from 46 countries over 1998-2007, we show that the government quality of a country has a significant positive effect on the likelihood of choosing Big 4 auditors by firms in that country. We also show that firms in countries with strong governments that have adopted IFRS are more likely to choose Big 4 than non-Big 4 auditors. To our knowledge, this is the first study of its kind to provide direct evidence on the role of government quality in firms' choice of external auditors. Choice of a Big 4 auditor may be regarded as a proxy for the demand for high quality financial reporting, and thus the results provide insights for policy makers on the importance of government quality improving financial reporting quality in a country.

Key word: *Government quality, Auditor quality, IFRS*

JEL classification: M41, M42, M48

1. INTRODUCTION

This study extends the literature on auditor quality by examining the relationship between country-level government quality and firms' choice of external auditors. Prior research documents that, on average, auditor size is directly linked to audit quality (DeAngelo 1981, Datar et al. 1991, DeFond and Jiambalvo 1993, Craswell et al. 1995, Francis and Wang 2008, Jamal et al. 2010, and Hribar et al. 2010). To reduce information asymmetry and agency conflicts between the firm and its stakeholders, high-quality audits serve as a positive governance mechanism (Jensen and Meckling 1976, Palmrose 1984, Watts and Zimmerman 1986, Francis and Wilson 1988, Craswell et al. 1995, Francis and Wang 2008, Hope et al. 2008, Jamal et al. 2010). This is so because high-quality audits enhance reliability of accounting information by improving the accuracy of accounting information (Simunic and Stein 1987, Becker et al. 1998, Hope et al. 2008, Jamal et al. 2010).

Earlier research has focused generally on the relationship between country-level macro setting and the quality of firm-level financial reporting (La Porta et al. 1998, Leuz et al. 2003, Bhattacharya et al. 2003, Bushman et al. 2004). Instead, we investigate the role of government quality on auditor choice. Our data comprises 142,193 firm-year observations from 46 countries around the world. As macro settings have been shown to influence management choice (Leuz et al. 2003) and as high-quality auditing can play a vital role in reducing agency conflicts (Francis and Wang 2008, Hope et al. 2008), we argue that

government quality influences the information environment of a country. So, high-quality governments create the demand for high-quality information in a country. This, in turn, creates the demand for high-quality audits. This connection between government quality and audit quality is plausible because government quality is likely to set the overall standard of governance in a country through its influence on the ethical, legal, political and economic environments and press freedom. Following Kaufmann et al. (2007), we measure government quality in terms of rule of law, regulatory quality, political stability, government effectivenss, voice and accountability, and control of corruption. We find that firms are more likely to choose a Big-5/4 (hereafter, Big 4) auditor if they operate in countries with strong government quality. Our study extends and complements the cross-country empirical literature that examines the relationship between a firm's institutional setting and its auditor choice decision.

In addition, we investigate whether the demand for high-quality auditors is strengthened by the adoption of International Financial Reporting Standards (IFRS) in countries with strong government quality. In particular, we are interested in investigating whether the proportion of firms audited by Big 4 auditors increases with adoption of IFRS. Our finding demonstrates that the market share of the Big 4 auditors increases in countries with strong government quality and adoption of IFRS. Since our results are robust after controlling for both country-level variables (e.g., investor protection and

capital market development) and several firm-level variables, we conclude that the effects of government quality on firms' auditor choice is not subsumed by these other variables discussed in the literature.

This study extends the comparative accounting literature in several ways. Most significantly, this is the first study of its kind to link government quality with firms' auditor choice. Moreover, given substantive empirical evidence that Big 4 auditor choice is positively associated with higher quality of financial reporting, our results imply that government quality in a country is an important determinant of financial reporting quality. Our assertion is consistent with Ball et al. (2003) and Ball (2006) in that institutional setting is more important in determining financial reporting quality than applicable accounting standards. Our results also suggest that the ability of set of accounting standards to improve financial reporting quality is conditional on government quality.

The rest of the paper is organized as follows. Section 2 discusses with the role of government quality on the auditor choice decision. Government quality variables are defined in section 3. Section 4 describes the measures for the dependent, independent and control variables, and the sample selection procedure. Section 5 presents our empirical results. Section 6 provides the conclusion.

2. THE ROLE OF GOVERNMENT QUALITY ON AUDITOR CHOICE

In recent years, there has been heightened interest in corporate governance. The high profile accounting scandals of the last decade emphasise the high reliance of global capitalism on the veracity of the financial statements of publicly-held corporations. Accounting scandals impact on the confidence of investors and other actors in all financial markets. The *Sarbanes-Oxley Act 2002* (*SOX*) is the first legislative response following Enron and other large-scale financial scandals. The consequence is a notable increase in auditing. *Deloite,* a Big 4 accounting firm, has stated that firms have on average spent almost 70 additional man-hours complying with the new regulation (*The Economist* 2005) and the net concealed costs amount to $ 1 trillion (Zhang 2007). Whether we accept these estimates or not, the costs of implementation of *SOX* are likely to exceed the benefits, at least in its early stage.

Most countries have either adopted SOX-type rules for the corporate sectors or legislated similar provisions to improve accountability and transparency. However, most regulators have not addressed or are powerless to address the political governance prevailing in their countries. Accountability and transparency at the macro governance level has largely escaped scrutiny. This study reflects the view that improvement in financial reporting quality cannot be achieved by effecting reforms in corporate boardrooms alone. It is therefore important to work on the political governance framework *vis-a-vis* corporate governance if improvement in accounting quality is to be achieved. For this reason, this study contributes to

the literature by incorporating country-level government quality as a determinant of firm's choice of external auditor on a sample drawn from across the globe.

Auditors who verify the reliability of accounting information are considered to be "gatekeepers". Strong government regulation drives high quality audit, but auditing firms need to maximize their profit as well (*The Economist* 2005, Francis and Wang 2008). Independent audits which enhance the reliability of accounting information are vital for the development of capital markets and economy. The independent audit information is considered to be a kind of public product, and has higher extensibility. The stakeholders will suffer loss if they use audited accounting information which contains fraudulent accounting information. This can be regarded as a kind of negative extensibility of audit information. The negative extensibility of audit information could prejudice the functioning of the capital market and, at least, adversely affect the efficiency of the market. Thus, just as high-quality audit is necessary for the growth and development of strong capital markets, government quality is vital for creating demands for high-quality auditing. Only an effective government can create institutional environments where managers and auditors are held responsible for their actions. Ball (2006) argues that the local institutional environment in terms of political, legal, economic, financing and taxation systems are more important in improving financial reporting quality than accounting standards are.

On the supply side, high-quality audits are provided by audit firms that have incentives to protect their brand names and reputation. For example, DeAngelo (1981) argued that Big-4 auditors in the US imposed a high level of accounting quality in order to protect their brand names from legal exposure and reputation risk which could arise from misleading financial reports by clients. Similarly, Krishnan (2003) found that Big 4 auditors mitigate accruals-based anomaly more than non-Big 4 auditors. If this observation is correct, similar results should apply to other countries with strong government quality. The public company accounting oversight Board (PCAOB) states (2010):

> *The media, litigants, the congress, and others often allege, rightly or wrongly, that audit failures contributed to many business failures. In that context, the public views audit failure as including not only the failure to discover and report material negative facts, but also the failure of financial statements to serve as an adequately early-warning device for the protection on investors and creditors.*

Based on the above arguments, we propose the following research hypothesis:

H_1: There is a positive association between country-level government quality and the choice of a Big 4 audit firm.

Countries with high-quality governments are more likely to strongly enforce accounting standards. Hence, mandatory adoption of IFRS in countries with high-quality governments is likely to create increased demand

for high-quality auditors due to the complexity of implementing 'new' accounting standards. Recent cross-country research suggests that Big 4 auditor choice is neither consistent globally, nor specific to the developed world, but rather varies depending on different institutional environments (La Porta et al. 1998, 2000 and 2006). Thus, if Big 4 auditors represent higher-quality audit, then we would expect to see increased market share for the Big 4 auditors following the adoption of IFRS in a country with strong government quality. We therefore hypothesise that:

H_2: There is a positive interaction between government quality and the adoption of IFRS on the choice of a Big 4 audit firm.

3. GOVERNMENT QUALITY VARIABLES

This study investigates whether government quality influences firms' auditor choice decision. Francis and Wang (2008) argue that lower earnings quality is less likely to occur in countries with strong investor protection. Similar to Francis and Wang, we argue that lower earnings quality is less likely to occur in countries with strong governments. This is so because only strong governments will be able to provide investor protection through the legal system.

Using Kaufmann et al.'s (2007) governance indicators, we measure government quality based on the six operationlized dimensions. Accordingly, we construct our main measure of government quality (*Gov)* as the sum of the scores in rule of law (*RL*), regulatory quality (*RQ*), political stability and

absence of violence (*PS*), government effectiveness (*GE*), voice and accountability (*VA*), and control of corruption (*CC*)[1, 2]:

$$Gov = RL + RQ + PS + GE + VA + CC \quad (1)$$

A legal system providing investor protection helps resolve agency conflicts (La Porta et al. 2000). Countries whose rule of law protects shareholders have relatively larger and broader capital markets (La Porta et al. 1997). Based on a sample of 49 countries, La Porta et al. (1998) provide evidence that common law countries generally have the strongest investor protection while French civil law countries have the weakest protection with German-Scandinavian civil law countries sitting in the middle. Countries with strong property laws and enforcement mechanisms facilitate informed arbitrage and capitalization of firm specific information (Morck et al. 2000). So our first measure of government quality is the rule of law (*RL*) as measured by Kaufman et al. (2007). It measures the extent to which agents have confidence in and abide by the rules of society, and in particular, the quality of contract enforcement, the police, and the courts, as well as likelihood of crime and violence. It ranges from -1.39 to 2.03, with higher scores indicating a strong rule of law and *vice-versa*.

Regulatory weakness provides incentive for fraudulent financial reporting. In the absence of strict enforcement of law, auditors are more likely to be part

of fraudulent financial reporting due to the low probability of being caught and low costs associated with being disciplined if caught. Peter (2004) recommends strengthening the regulatory base and policy efforts to decrease insiders' private control and the likelihood of fraudulent financial reporting. Belkaoui and AlNajjar (2006) find that earnings opacity globally is negatively associated with the levels of economic freedom and quality of life, and positively associated with the rule of law, economic growth and level of corruption. Moreover, the findings are surprising in that the disclosure level, the number of auditors per 100,000 population and the adoption of international accounting standards are not significantly related to earnings opacity globally. It demonstrates that the social and economic environment rather than the technical accounting climate is at the core of the lack of accounting quality in general and earnings opacity in particular. Soderstrom and Sun (2008) suggest that accounting quality is a function of the firm's overall regulatory setting, including the legal and political system of the country in which the firm resides. So our second measure of government quality is regulatory quality (*RQ*) as measured by Kaufman et al. (2007). It measures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. It ranges from -1.35 to 1.85, with higher values indicating strong institutional setting and *vice-versa*.

Political stability may value high quality accounting because accounting is needed for a robust financial system. Therefore, it might be that political stability and democracy affect both accounting and irregularities. Political instability has been credited with eroding confidence in the political system and decreasing interpersonal confidence in society (Seligson 2002). Shleifer and Vishny (1993) indicate that, "the first step to reduce accounting irregularities should be to create an accounting system that prevents theft from the government". Further, Tanzi and Davoodi (1997) explain that less political stability encourages irregularities in government budgeting and is highly likely when "some of the essential controlling or auditing institutions are not well developed". Likewise, Leiken (1997) indicates that the US can help control accounting irregularities in multilateral development banks by demanding that these banks "enforce their own rules on effective accounting systems, adequate internal controls, and timely audits". Bushman and Piotroski (2006) find supports for this political economy hypothesis, which connects the role of government to the properties of accounting information.

Countries with unstable and unwieldy governments are more prone to be corrupt (DiRienzo et al. 2007, Alam 1995, Rose-Ackerman 1978, and Tanzi 1998). Ades and Di Tella (1999) and Terisman (2000) claim that more open and free economies are less likely to experience financial irregularities. Further, it is often the politicians that create laws and organizations that govern accounting standards and enforcement. Since rent-seeking public

officials have the incentive to allow financial irregularities, they may create a situation in which poor accounting and auditing occurs. So our next measure of government quality is ‘‘Political Stability and Absence of Violence’’ (*PS*) in different countries as measured by Kaufman et al. (2007). This measure captures the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. It ranges from -1.99 to 1.51, with higher scores indicating stable political regime and *vice-versa*.

Generally, a strong government can provide investors with some protection from the adverse effects of management discretion. Investor protection thus helps to reduce agency problems (La Porta et al. 2000, Morck et al. 2000, Shen and Chih 2005). As a result, there might be a positive relationship between a country’s auditing quality (as a proxy for financial reporting quality) and its government effectiveness. So our fourth measure of government quality is ‘‘government effectiveness’’ (*GE*) in different countries as measured by Kaufman et al. (2007). This measure captures the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. It ranges from -1.99 to 1.51, with higher scores indicating stable political regime and *vice-versa*.

The "voice and accountability" assesses whether a country's citizens are able to participate in selecting their governments, as well as enjoying freedom of expression, freedom of association and a free media. Free media has been viewed as one of the main obstacles facing post-communist countries in attempts to introduce democratic institutions and open, market economies (Shleifer and Vishny 1997). Country scores on press freedom were taken from Kaufmann et al. (2007) and used as a proxy for "voice and accountability" (*VA*) in a country. The scores range from -1.66 to 1.72, with higher scores indicating freedom of association and a free media and *vice-versa*.

Corruption is a severe global issue that influences many countries around the world (Transparency International 2008; United Nations 2008; World Health Organization 2008). The World Bank (2001) has stated that corruption is "the single greatest obstacle to economic and social development." Auditors try to ensure that all economic transactions of an organization are transparent. In other words, auditors help to ensure that private companies demonstrate that they operate legally, and that public organizations are accountable to the public. As a result, there should be an inverse relationship between a country's auditing quality and its perceived level of corruption. To capture this phenomenon, this study utilizes estimates of "Control of Corruption" in different countries as measured by Kaufman et al. (2007). This measure captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as

"capture" of the state by elites and private interests. It ranges from -1.29 to 2.57, with higher scores indicating least corrupt regimes and *vice-versa*.

4. RESEARCH DESIGN AND SAMPLE

4.1. Research Design

To examine the effect of government quality on auditor choice, we regress the *Big 4* indicator variable on *Gov* and a number of control variables. We estimate the following auditor choice model to examine our first hypothesis:

$$\begin{aligned} \boldsymbol{Big\,4} = {} & \boldsymbol{\lambda_0} + \boldsymbol{\lambda_1 Gov} + \boldsymbol{\lambda_2 InvPro} + \boldsymbol{\lambda_3 Size} + \boldsymbol{\lambda_4 Lev} + \boldsymbol{\lambda_5 Growth} \\ & + \boldsymbol{\lambda_6 CFO} + \boldsymbol{\lambda_7 Loss} + \boldsymbol{\lambda_8 InvRec} + \boldsymbol{\lambda_9 Short} + \boldsymbol{\lambda_{10} Long} \\ & + \boldsymbol{fixed\ effects} \end{aligned} \quad (\mathbf{2})$$

where,

Big 4 = 1 if firm *i* is audited by a Big 4 auditor in year *t*, 0 otherwise

GOV = aggregate score of rule of law (*RL*), regulatory quality (*RQ*), political stability and absence of violence (*PS*), government effectiveness (*GE*), voice and accountability (*VA*) and control of corruption (*CC*). High value indicates strong government quality

InvPro = investor protection measured three ways:

(i) Law = 1 for a common law country and 0 otherwise

(ii)Infor = index of stock market informativeness (Bushman et al.

2004)

(iii)PubEnfor = index of public enforcement (La Porta et al. 2006)

Economic Development = Gini coefficient index (The World Factbook 2009)

Capital Market development = stock market capitalization to GDP (World Economic Forum 2008)

Size = natural logarithm of total assets in $ thousands for firm *i* in year *t*

Lev = total long-term debt/ total assets for firm *i* in year *t*

Growth = sales growth rate, defined as the sales in year *t* minus sales in *t-1* and scaled by sales in year *t-1*

CFO = operating cash flows for firm *i* in year *t* scaled by lagged total assets

Loss = dummy variable equal to 1 if firm *i* reports negative income before extraordinary items in year *t*

InvRec = (current year inventory + current year receivables) / Total assets

Short = current accruals scaled by beginning year total assets

Long = long term accruals scaled by beginning year total assets

fixed effects = industry and year fixed effects.

In Eq. (2), *BIG4* is a binary variable equal to one if the firm is audited by one of the Big 4 auditors and zero otherwise.[3] Therefore, the findings would support H_1 if the coefficient on *Gov* is positive and statistically significant. We also control for other country-level variables[4] as well as eight firm-level determinants of auditor choice based on earlier studies (Pierre and Anderson 1984, Simunic and Stein 1987, Copley et al. 1995, Choi and Wong 2007, Hope et al. 2008, Hribar et al. 2010).

We calculate *Gov* by the six operationlized dimensions of governance indicator developed by Kaufman et al. (2007). From Panel B of Table 3 it can be seen that for example Finland (11.46), Denmark (10.91) Switzerland (10.81) and New Zealand (10.79) have the strong government quality, while Nigeria (-7.17), Pakistan (-5.66), Venezuela (-5.42), Russia (-4.17), and the Indonesia (-3.66) have the weakest government quality.

The addition of investor protection (*InvPro*) allows for the probability that firms in stronger investor protection countries are more likely to choose a *Big 4* auditor (Choi and Wong 2007, Francis and Wang 2008, Hope et al. 2008). The three measures of investor protection employed are legal origin (*Law*), stock price informativeness (*Infor*) and public enforcement (*PubEnfor*). We also include two other country-level variables: the level of economic development (*Gindex*) and, the level of capital market development (*Cap*). The purpose of controlling for these dimensions is that auditor choice could be influenced by these country-level variables rather than government quality

(Francis et al. 2003 & 2008, Hope 2003 & 2008, Fan and Wong 2005). We use the legal origin variable from the World Factbook (2009). Litigation risk in common-law countries will have a greater effect on *Big 4* auditors because of their reputational capital, and thus litigation risk creates a motivation for better care in audits and the enforcement of higher government quality (Wingate 1997, Francis and Wang 2008). We utilize the stock price informativeness index (*Infor*) from Bushmen et al. (2004) to measure greater protection for investors by reducing information asymmetry. We use the public enforcement index (*PubEnfo*) from La Porta et al. (2006) as a proxy for the extent to which auditors can be punished and sanctioned for failing to prevent clients' fraudulent reporting. We assess the level of economic development by the Gini coefficient index from the World Factbook (2009). Finally, we utilize the ratio of the stock market capitalization to gross national product from the World Economic Forum (2008) to proxy for the level of capital market development (*CAP*).

The firm-level control variables[5] are as follows: *Size*, measured as the natural log of current year total assets; *Short*, current year absolute value of short-term accruals (measured as the Δ [total current assets - cash and cash equivalents - treasury stock shown as current assets] - Δ [total current liabilities - total amount of debt in current liabilities - proposed dividends]); *Long*, the absolute value of current year's long-term accruals (measured as the difference between total accruals and current accruals; total accruals as the difference between

operating income and cash flow from operations); *InvRec*, the current year-end inventory and receivables as a percentage of total assets; *Lev*, leverage measured as the current year total liabilities over total assets; *Loss*, a binary variable that takes the value of one if the firm incurred a loss in the current year, zero otherwise; CFO, cash flow from operations divided by lagged total assets; *Growth*, and the current year sales growth.

Size, Short, Long, and *InvRec* are controlled for audit complexity, and thus the amount of effort an auditor must exert to deliver a high quality audit, which might be linked to firms' auditor choice as documented by Simunic and Stein (1987), Francis et al. (1999), Hope et al. (2008), Francis and Wang (2008), and Hribar et al. (2010). The control variables *Lev* and *Loss* are encouraged by Pierre and Anderson (1984) and Hribar et al. (2010). These two variables link to auditors' litigation risk because they capture a client's (possible) financial distress, which might influence auditor choice. *CFO* is incorporated as it captures a firm's need for cash which has been shown to be a determinant of auditor choice (Francis and Wang 2008). *Growth* is incorporated to see the possible effect of a firm's profitability on auditor choice. Moreover, Equation (1) is estimated as a fixed effects model with year-specific dummy variables to control for systematic time period effects and industry dummies to provide additional controls for omitted variables that could affect the auditor choice decision.[6] For succinctness, the year and industry dummies are not reported in the tables.

To test whether IFRS adoption (*IFRS*) mitigates the effect of government quality, we use IFRS adoption at the country level. We then repeat Eq. (2) and add *IFRS* and an interaction term between *Gov* and *IFRS* (*Gov*IFRS*), to the equation. Both variables are expected to have a positive coefficient.

4.2. Sample Selection

The financial statement data was collected from the OSIRIS database for the period 1998-2007. [7] Following earlier studies (Francis and Wang 2008, Hope et al. 2008, Daske et al. 2008), we delete financial services firms such as banks, insurance companies and other financial institutions because of their different financial structure. We also delete utility companies as they are regulated and therefore are likely to differ from other companies' operations. We delete observations where the statements were not audited or where there were missing values for the dependent and independent variables included in the study. Finally we eliminated observations that fall in the top and bottom 1% of firm-level control variables. The cleaning process results in a sample of 142,193 firms-year observations for the period 1998-2007. The sample selection procedure is outlined in Table 1.

TABLE 1 ABOUT HERE

5. EMPIRICAL RESULTS

5.1. Descriptive Statistics and Correlations

Panel A in Table 2 presents the descriptive statistics of the regression variables. The global mean of Big 4 is 0.54, which indicates that around 54% of firms in our sample choose a Big 4 auditor. IFRS adoption at firm level is 39%.

TABLE 2 ABOUT HERE

Country-level variables and the number of firm-year observations per country are presented in Panel B of Table 2. The most heavily represented in the sample are the US firms (N = 47,405), followed by firms in Japan (13,840) and South Korea (9,949). On the other hand, the lowest numbers of observations in the sample are Nigeria (73), followed by Venezuela (102), Colombia (134), and Kuwait (169). Given such dispersion in sample size across countries, we perform a number of additional tests to address this issue.

Norway (94%), followed by Finland (90%), Switzerland (90%) and Ireland (90%) have the highest Big 4 market shares. On the other hand, Egypt (24%), Indonesia (26%), and Philippines (31%) have the lowest Big 4 market shares. In terms of the investor protection variable legal origin (*Law*), 14 sample countries are common law countries, whereas 32 come from non-common law legal system. The US (.90), Australia (.90), Hong Kong (.87) and Singapore (.87) have the highest scores on the Public enforcement (*PubEnfor*) index, while Japan (.00) and Belgium (.15) have the lowest scores. South Africa (65.00), Brazil (56.70), Chile (54.90), Hong Kong (53.30), Peru (49.80) and Argentina

(49.00) have the highest Gini index (highest inequality in the distribution of family income) as per the CIA Fact Book (2009) measure, whereas Sweden (23.00), Norway (25.00), Czech Republic (26.00), Austria (26.00) and Germany (27.00) have the lowest Gini Index (lowest inequality in the distribution of family income). For the stock market development variable (*CAP*), Hong Kong (713.26), Switzerland (280.20), South Africa (240.44) and Singapore (221.54) have the highest scores on the CAP index, while Venezuela (3.14) and Viet Nam (7.15) have the lowest scores as per the World Economic Forum (2008) measure.

TABLE 3 ABOUT HERE

Pearson correlation coefficients on the variables used in each of the tests are presented in Table 3. *Big 4* is positively correlated (0.339) with *Gov* as hypothesized (two tailed *p*-value < 0.01 level). This result shows that 11% of the variation in *Big 4* is explained by *Gov* alone and offers bivariate support for the prediction that firms in strong government quality countries are more likely to choose a Big 4 auditor. Consistent with Francis and Wang (2008), the correlation between *Big 4* and investor protection (*Law, Infor* and *PubEnfor*) is positive. The correlation between *Big 4* and the level of capital market development (*CAP*) is also positive but the correlation with economic development (*Gindex*) is negative. The correlations for all the latter variables are statistically significant. *InvPro* (*Law, Infor* and *PubEnfo*) is strongly

positively correlated with *Gov*, signifying that investors are better protected in strong government quality countries. However, these findings should be interpreted carefully as they do not control for deviations in firm characteristics or for country characteristics which may influence firms' choice of a *Big 4* auditor[8] though the correlations are consistent with H_1. We now turn to the main analysis.

5.2. Main Analysis

The results of the Logit multivariate regression analyses are presented in Panel A of Table 4 based on Eq. (2)[9] with the significance levels of individual coefficients reported as two-tailed *p*-values. Model 1 incorporates only firm-level control variables to ensure that any finding related to *Gov* is not affected by correlations with country-level control variables incorporated in the model. In Model 1, the coefficient on Gov is positive and significant and this also holds in each of Models 2 to 6 where one of the five country-level variables, investor protection (*Law, Info, and PubEnfor*), economic development (*Gindex*) and capital market development (*CAP*) is added, one at a time, to the regression (two tailed *p*-value <0.01).[10] All the country-level variables significantly related to firms' choice of auditors, and are positively related other than economic development (*Gindex*) which is negatively related. Thus, firms in economically less-developed countries (higher Gini index) are less likely to engage Big 4 auditors. The firm-specific control variables have the expected signs and all the coefficients in all seven models are significant (two tailed *p*-value <0.01) except

firm growth (*Growth*). In other words, after controlling for both firm- and country-level variables, the choice of a Big 4 auditor is positively related to the strength of government quality in the firm's country of domicile. Our results remain the same when we employ principal component analysis on the investor protection variables.

It is important to note that the impact of government quality is not subsumed by the investor protection variables, and nor the economic development and capital market development variables. Consequently, the results demonstrate that government quality has explanatory power over and above these country-level variables.

TABLE 4 ABOUT HERE

To address the concern that the findings are not biased towards the countries that have a larger number of observations in our sample, we re-estimate equation (2) after excluding (one at a time) the countries with very high numbers of firm-year observations. From Panel B of Table 4 it is evident that our results are robust to the exclusion of these countries from the data set. As an additional analysis (not reported), we reran our analysis using country-weighted Logit regression, where the weight is inversely proportional to the number of observations per country. The results remained valid. Finally, to ensure that smaller countries with fewer observations do not drive the results, we re-

estimated the models for the largest countries in the sample, those having 200 or more firm-year observations. The results (not reported) are similar to the results reported in Tables 4 both in terms of the sign and statistical significance on the variables of interest.

In Panel A of Table 5, we report the results of including *IFRS* and the interaction variable *Gov*IFRS* in the regression. The variables have positive and significant coefficients thus showing that a firm's adoption of IFRS augments the effect of government quality on auditor choice. That is, the adoption of IFRS in countries with strong governments augments the demand for higher quality financial reporting and firms in those countries respond to this demand by choosing Big 4 auditors over other auditors. Thus, H_2 is supported. Panel B of Table 5 shows that our results hold even after excluding countries with the highest number of observations. The variables of interest have positive coefficients in all models and are statistically significant (two tailed *p*-value <0.01). Furthermore, the results for the control variables remain consistent with the earlier results.

TABLE 5 ABOUT HERE

Overall the regression results support our predictions that firms in countries with strong government quality are more likely to choose a Big 4 auditor, and that this relationship is augmented by the adoption of IFRS in those countries.

This provides support to the argument that the adoption of IFRS in strong-government countries can in fact improve financial reporting quality. The evidence from other studies on the effect of adoption of IFRS is still mixed. While Barth et al. (2008), Landsman et al. (2011) and Daske et al. (2008) have documented evidence of greater financial reporting quality associated with the adoption of IAS/IFRS, Jeanjean and Stolowy (2008), and Ahmed et al. (2010) have reported the opposite.

5.3. Robustness Tests[11]

In this section, we report on several additional tests we performed to examine the sensitivity of the results.

The Transparency International Corruption Perception (TICP) index is widely used to measure country level government effectiveness. As an alternative measure, we reran our model with the TICP index with firms' Big 4 auditor choice decision. Our conclusions remain the same that government quality plays vital role in firms' auditor choice decision.

Secondly, we explored the effect of measuring *Gov* as the rank of the Kaufman et al. (2007) scores rather than the raw scores. For example, is the difference between 2.08 and 2.02 twice as great as the difference between 1.05 and 1.02, at least in terms of the effect of institutional quality on auditor choice? We obtain virtually the same results using ranks as obtained for raw scores.

Thirdly, we divided our sample into firms above and below the median value of *SIZE*, and repeated the regression specified in Eqn. (2). It is clear from these

two regressions, that our key result holds only with respect to large firms, with the coefficient for *Gov* positive and significant in this model (two tailed *p*-value <0.05). However, in the regression estimated on the sample of small firms, no significant association was found between government quality and *Big 4* auditor choice. These results are consistent with the proposition that larger firms' behaviour is subjected to greater public scrutiny. This is the classic political cost argument of Watts and Zimmerman (1978).

Finally, we investigate the effect of government quality on firms' Big 4 auditor choice decision by using piecewise linear regression as per the following partitioning of the variable *Gov*.

Gov (0-25) = actual Gov if -7.1775 < Gov < - 2.2368

Gov (25-50) = actual Gov if -2.2153< Gov < 3.4719

Gov (50-100) = actual Gov if 3.9291< Gov < 11.4602

The coefficients are statistically significant and negative for Gov<25% but positive at Gov>25%. It further supports our result that government quality matters for large firms.

6. CONCLUSION

This study hypothesizes that government quality is an important determinant of financial reporting quality through its impact on firms' auditor choice. Particularly, we examine whether the firms domiciled in countries with strong governments are more likely to choose Big *4* auditors over others.

We find that firms domiciled in strong-government countries are more likely to hire a *Big 4* auditor. We also find that the positive effect of home-country government quality value on the likelihood of choosing a Big 4 auditor is augmented by the IFRS adoption decision in these countries. These results are robust to controls for numerous country-level variables, variety of test specifications and alternative measures for government quality. We conclude that the effect of government quality on management's auditor choice is not subsumed by other country-level variables investigated in the literature (e.g. investor protection).

The limitations of this study derive from three principal sources. Firstly, validity of our results rests on the assumption that country-level data collected over 2004-2009 can be extrapolated to our entire sample period (1998-2007). Second, we assumed that observations across countries remained static over the entire sample period. However, our approach is the same as applied in other studies, such as Francis and Wang (2008). Finally, as is common in empirical research, the results are subject to possible bias as a result of omitted unknown but relevant variables.

ACKNOWLEDGEMENT

We thank Peter Clarkson, Rachel Baskerville, Sue Wright, and Paul Mather for their helpful comments on earlier versions of the paper. We are grateful for the comments made by the participants at the *2012* Financial Markets and Corporate Governance Conference (especially the discussant, D. Dionysiou), La Trobe University, Australia, and the *2011 School of Accounting & Commercial law seminar*, Victoria University of Wellington, New Zealand.

NOTES

[1] *Gov* captures what we are interesting in examining. A practical advantage of using the composite scores, rather than including the individual government quality scores separately in the regression is that doing so enables us to circumvent the multicollinearity problem arising from the high correlation among the government quality measures. In unreported analyses, we examine the correlation between the auditor choice variable and the six individual scores from Kaufman et al. (2007). We find that six government quality values correlate significantly with auditor size in the expected direction. Finally, we report evidence of several sensitivity analyses related to our government quality measures in section 5.3.

[2] The individual government quality scores are measured in a particular year (similar to our other country-level control variables) (see Kaufmann et al. 2007). Our test variable *Big4* is a firm-level variable that varies by year. This is standard in the literature that uses both country-and firm-level variables (see Francis and Wang 2008). Moreover, the literature provide convincing evidence that country level values to have explanatory power across different time period, suggesting that country level values change only slowly over time.

[3] Our primary source for identifying the firm's auditor is OSIRIS database. However, we use hand-collected data (with the help of local experts) on audit firm affiliation for Japan, Korea, Vietnam and China, as *Big4* audit firms operate in these countries under local company names.

[4] To address the multicollinearity problem arising from the high correlations among country-level variables, we control for each of the six country-level factors one by one. As an (untabulated) alternative to including the country-level control variables, we estimated regressions using country random effects, and the results were similar.

[5] All variables, excepts for dichotomous variables are translated into 31 December (financial year) exchange rate of US dollar. So the variables are based on a common unit of currency.

[6] Sample consists of 77 industries in terms of GISC code. In our sample, the industry of "consumer services" takes the largest portion (16.50%), followed by the industry of "Software and services" (10.89%) and "Chemicals" (8.90%).

[7] Data of sample firms were collected from the OSIRIS (http://www.osiris.com) database subscribed by the School of Accounting and Business Information Systems, The Australia National University, Canberra, Australia.

[8] Due to high correlation among country-level variables, we repeat multivariate results both with and without each of the country-level control variables.

[9] The results are not sensitive to the alternative use of probit or OLS regressions.

[10] Standard errors are clustered at the firm-level and corrected for heteroskesdasticity based on Rogers (1993).

[11] For the sake of brevity the results of the tests are not tabulated but are available from the authors upon request.

REFERENCES

Ades, A., & Tella, R, Di. (1999). Rents, Competition, and Corruption. American Economic Review, 89(4), 982-993.

Ahmed, A, S., Neel, M. J. & Wang, D. (2010). Does Mandatory Adoption of IFRS improve Accounting Quality? Preliminary Evidence. *Working Paper*, retrieved at http://ssrn.com/abstract=1502909.

Alam, M. (1995). A theory of limits on corruption and some applications. *Kyklos*, 48 (3), 419-435.

Ball, R., Robin, A., & Wu. J. (2003). Incentives vs. standards: Properties of accounting numbers in four East Asian countries, and implications for acceptance of IAS. *Journal of Accounting and Economics*, 36 (1-3), 235-270.

Ball, R. 2006. International Financial Reporting Standards (IFRS): pros and cons for investors. *Accounting and Business Research*, 36 (special issue), 5-27.

Barth, M. E., Landsman W. R., & Lang, M. H. (2008). International Accounting Standards and Accounting Quality. *Journal of Accounting Research,* 46 (3), 467-498.

Belkaoui, R., & AlNajjar, F. K. (2006). Earnings opacity internationally and elements of social, economic and accounting order. *Review of Accounting and Finance,* 5 (3), 189-203.

Becker, C. L., DeFond, M.L., Jiambalvo, J., & Subramanyam, K. R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research,* 15 (1), 1-24.

Bhattacharya, U., Daouk, H., & Welker, M. (2003). The World Price of Earnings Opacity. *The Accounting Review,* 78 (3), 641-678.

Bushman, R.M., Piptroski J.D., & Smith, A. J. (2004). What Determine Corporate Transparency? *Journal of Accounting Research,* 42 (2), 207-252.

Bushman, R.M., & Piotroski, J.D. (2006). Financial Reporting Incentives for conservative accounting: The influence of legal and political institutions. *Journal of Accounting & Economics,* 42 (1-2), 107-148.

Choi, J. H., & Wong, T. J. (2007). Auditors' governance functions and legal environments: An international investigation. *Contemporary Accounting Research,* 24 (1), 13-46.

Copley, P. A., Gaver, J. J., & Gaver, K. M. (1995). Simultaneous estimation of the supply and demand of differentiated audits: Evidence from the municipal audit market. *Journal of Accounting Research,* 33 (1), 137-155.

DiRienzo, C., Das, J., Cord, K., & Burbridge, J. (2007). Corruption and the role of Information. *Journal of International Business,* 38 (2), 320-332.

Craswell, A., Francis, J., & Taylor, S. (1995). Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics,* 20 (3), 297-322.

Daske, H., Hail, L., Leuz, C., & Verdi, R. (2008). Mandatory IFRS adoption around the world: Early Evidence on the Economic Consequences. *Journal of Accounting Research,* 46 (5), 1085-1142.

Datar, S. M., Feltham, G. A., & Hughes, J. S. (1991). The role of audits and audit quality in valuing new issues. *Journal of Accounting and Economics*, 14 (1), 3-49.

DeAngelo, L. (1981). Auditor size and audit quality. *Journal of Accounting and Economics*, 3 (3), 183-199.

DeFond, M. L., & Jiambalvo, J. (1993). Factors related to auditor-client disagreements over income-increasing accounting methods. *Contemporary Accounting Research,* 9(2), 415-431.

Francis, J. R., & Wilson, E. R. (1988). Auditor changes: A joint test of theories relating to agency costs and auditor differentiation. *The Accounting Review,* 63 (4), 663-682.

Francis, J., Maydew, E., & Sparks, H. (1999). The role of Big Six auditors in the credible reporting of accruals. *Auditing*: *A Journal of Practice and Theory,* 18 (2), 17-34.

Francis, J., Khurana, I., & Pereira, R. (2003). The role of accounting and auditing in corporate governance and the development of financial

markets around the world. *Asian-Pacific Journal of Accounting and Economics*, 10 (1), 1-30.

Francis, J. & Wang. D. (2008). The Joint Effect of Investor Protection and Big 4 Audits on Earnings Quality around the World. *Contemporary Accounting Research*, 25 (1), 1-39.

Hribar, P., Kravet, T., & Wilson, R. (2010). A New Measure of Accounting Quality. *Working Paper*, retrieved at http://ssrn.com/abstract=1283946.

Hope, O - K. (2003). Firm-level disclosures and the relative roles of culture and legal origin. *Journal of International Financial Management and Accounting*, 14 (3), 218-248.

Hope, O - K., Kang, T., Thomas, W. B., & Yoo, Y. K. (2008). Culture and Auditor Choice: A test of Secrecy hypothesis. *Journal of Accounting and Public Policy*, 27 (5), 357-373.

Jamal, K., Colson, R. H., Bloomfield, R. J., Christensen, T. E., Moehrle, S. R., Ohlson, J. A., Penman, S. H., Previts, G. T., Stober, L., Sunder, S., & Watts, R. L. (2010). Research Based Perspective on SEC's Proposed Rule on ROADMAP for Potential Use of Financial Statements Prepared in Accordance With International Financial Reporting Standards (IFRS) by U.S. Issuers. *Accounting Horizons*, 24(1):139-147.

Jeanjean, T. & Stolowy, H. (2008). Do accounting standards matter? An exploratory analysis of earnings management before and after IFRS adoption. *Journal of Accounting & Public Policy*, 27 (6), 480-494.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3 (4), 305-360.

Kaufmann, D., Kraay, A. & Mastruzzi, M. (2007). Governance Matters VI: Aggregate and Individual Governance Indicators 1996-2006. *World Bank Policy Research Working Paper 4280.*

Krishnan, G. (2003). Audit quality and the pricing of discretionary accruals. *Auditing: A Journal of Practice and Theory*, 22 (1), 109-126.

Landsman, W. R., Maydew, E. L. & Thornock, J. R. (2011). The information content of annual earnings announcements and mandatory adoption of IFRS. *Journal of Accounting and Economics*, 53 (1-2), 34-54.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1997). Legal determinants of external finance. *Journal of Finance,* 52 (3), 1131-1150.

La Porta, R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. *The Journal of Political Economy*, 106 (6), 1113-1155.

La Porta, R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics,* 58 (1-2), 3-27.

La Porta, R., Lopez-De-Silanes, F., Shleifer, A. (2006). What works in securities laws? *Journal of Finance,* 61(1), 1-32.

Leiken, R. (1997). Controlling the Global Corruption Epidemic. *Foreign Policy*, 105 (winter), 55-73.

Leuz, C., Nanda, D. & Wyscocki, P. D. (2003). Earnings management and investor protection: an international comparison. *Journal of Financial Economics*, 69 (3), 505-527.

Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets: Why do emerging markets have synchronous price movements? *Journal of Financial Economics*, 58 (1-2), 215-260.

Palmrose, Z. (1984). The demand for quality-differentiated audit services in an agency theory setting: An empirical analysis. In: Abdel-Khalik, A. R., Solomon, I. (Eds.). *Proceedings of the Sixth Symposium on Auditing Research.* Illinois Press, Champaign, 229-252.

PCAOB. (2010). (Public Company Accounting Oversight Board). Retrieved at http://www.pcaobus.org

Peter, D. W. (2004). Earnings Management, Tax Compliance, and Institutional Factors: A Discussion of Haw et al. (2004). *Working paper*, Sloan School of Management, Massachusetts Institute of Technology.

Pierre St. K., & Anderson, J. A. (1984). An analysis of factors associated with lawsuits against public accountants. *The Accounting Review*, 59 (2), 242-263.

Rogers, W. H. (1993). sg17: Regression standard errors in clustered samples. *Stata Technical Bulletin*, 13(May), 19-23

Rose-Ackerman, S. (1978). *Corruption: A study in Political Economy.* New York: Academy Press.

Sarbanes-Oxley Act 2002, part of the SEC's Regulation SOX, *Federal law*.

Seligson, M. (2002). The Impact of Corruption on Regime Legitimacy: A Comparative Study of Four Latin Countries. *The Journal of Politics*, 64 (2), 408-433.

Shen, C., & Chih, H. (2005). Investor protection, prospect theory, and earnings management: An international comparison of the banking industry. *Journal of Banking & Finance*, 29 (10), 2675-2697.

Shleifer, A., & Vishny, R.W. (1997). A survey of corporate governance. *Journal of Finance*, 52 (2), 737-783.

Shleifer, A., & Vishny, R.W. (1993). Greenmail, white knights, and shareholders' interest. *RAND Journal of Economics*, 17 (3), 293-310.

Simunic, D., & Stein, M.T. (1987). The impact of litigation risk on audit pricing: A review of the economic and the evidence. *Auditing: A Journal of Practice and Theory*, 15 (2), 119-134.

Soderstrom, N. S., & Sun, K. J. 2008. IFRS Adoption and Accounting Quality: A Review. *European Accounting Review*, 16 (4), 675-702.

Tanzi, V., & Davoodi, H. (1997). Corruption, Public Investment and Growth. *IMF Working Paper 97/139*. Retrieved at http://www1.worldbank.org/home

Tanzi, V. (1998). Corruption around the world: causes, consequences, scope, and cures. *IMF Staff Papers*, 45 (5), 559-594.

Terisman, D. (2000). The causes of corruption: a cross-national study. *Journal of Public Economics,* 76 (3), 399-457.

The Economist. (2005). *A price worth paying?* 21 May 73-74.

The World Factbook. (2009). *Central Intelligence Agency*, USA.

The World Economic Forum. (2008). *The Financial Development Report,* USA.

The World Bank. (2001). *The World Bank Development Report*. Retrieved at http://www.worldbank.org

Transparency International. (2008). *Transparency International's Corruption Perception Index, 2008.* Retrieved at http://www.transparency.org/home

UNO. (2008). (United Nation Organization). *Annual Report*. Retrieved at http:// www.uno.org/home

Watts, R., & Zimmerman, J. (1986). *Positive Accounting Theory*. Prentice Hall, Englewood Cliffs, NJ.

Watts, R., & Zimmerman, J. (1978). Towards a Positive Accounting Theory of the determination of accounting standards. *The Accounting Review*, 53 (1), 112-134.

WHO. (2008). (World Health Organization). *Annual Report.* Retrieved at http://www.who.org/home

Wingate, M. L. (1997). An examination of cultural influence on audit environments. *Research in Accounting Regulation,* Supp. (1), 129-148.

Zhang, I. X. (2007). Economic consequences of the Sarbanes-Oxley Act of 2002. *Journal of Accounting and Economics,* 47 (1-2), 74 -115.

Table 1

Sample selection

Total number of observations for 1998-2007 without missing values on dependent and independent variables	167,140
Less: Financial Institution and regulated firms	(20,522)
Less: Top and bottom 1% of control variables	(4,425)
Number of observations used in the tests	142,193

Table 2

Panel A: Descriptive statistics for firm-level regression variables

Variables	Mean	Std. Dev.	1st Quartile	Median	3rd Quartile
BIG4	.54	.498	.000	1.00	1.000
IFRS	.39	.292	.000	.000	.000
SIZE	5.095	.8749	4.4873	5.0734	5.6827
LEV	.6019	.24772	.4886	.6416	.7708
SHORT	.0614	.18100	.1183	.0430	.0196
LONG	.0463	.04584	.0170	.0352	.0591
INVREC_TA	.1320	.11832	.0343	.1046	.1948
GROWTH	.0062	.59221	-.0090	.0754	.1620
CFO	.0347	.19473	-.0131	.0565	.1250
LOSS	.30	.459	.000	.0000	1.000

BIG4 = dummy variable, = 1 if firm i is audited by a Big 4 auditor in year t, 0 otherwise. **IFRS =** Dummy variable takes the value of 1 for a given country in years from mandatory IFRS adoption and 0, otherwise. **Size** = natural logarithm of total assets in $ thousands for firm *i* in year *t*. **Lev** = total liabilities / total assets for firm *i* in year *t*. **Growth** = sales growth rate, defined as the sales in year *t* minus sales in *t-1* and scaled by sales in year t. **CFO** = operating cash flows for firm *i* in year *t* scaled by lagged total assets. **Loss** = dummy variable, = 1 if firm i reports negative net income in the current year and 0 otherwise. **InvRec =** current yearend inventory and receivables as a percentage of total assets. **Short =** current year short term accruals scaled by beginning year total assets. **Long =** current year long term accruals scaled by beginning year total assets.

[Table 2 continues on next page]

Table 2 (Continued)

Panel B: Summary of country-level variables

Country	*Big 4* (%)	*Gov*	*InvPro*				
			Law	*Gindex*	*CAP*	*Infor*	*PubEnfo*
Australia	59	9.7530	1	30.50	118.20	61.40	.90
Argentina	65	-1.4107	0	49.00	29.73	n.a	.58
Austria	62	9.6785	0	26.00	48.32	66.20	.17
Belgium	53	8.2935	0	28.00	85.53	65.00	.15
Brazil	66	-.0045	0	56.70	53.28	64.70	.58
Canada	75	9.9203	1	32.10	123.28	58.30	.80
Chile	80	6.9347	0	54.90	103.50	66.90	.60
China	37	-3.1222	0	47.00	n.a	n.a	n.a
Colombia	33	-3.1381	0	53.80	32.13	n.a	.58
Czech Republic	46	4.5263	0	26.00	29.94	n.a	n.a
Egypt	24	-3.1883	0	34.40	74.58	n.a	.30
Finland	90	11.4602	0	29.50	111.15	68.90	.32
France	59	7.3208	0	32.70	91.28	59.20	.77
Germany	55	9.1365	0	27.00	48.37	61.10	.22
Hong Kong	81	8.0458	1	53.30	713.26	67.80	.87
India	38	-.9789	1	36.80	70.64	69.50	.67
Indonesia	26	-3.6636	0	39.40	26.52	67.10	.62
Ireland	90	9.2266	1	32.00	60.63	n.a	.37
Israel	40	3.1690	1	38.60	103.12	n.a	.63
Italy	86	4.2019	0	32.00	48.42	66.60	.48
Japan	73	7.0573	0	38.10	108.27	66.60	.00
Korea South	36	3.9291	0	31.30	86.06	70.30	.25
Kuwait	53	2.0461	0	n.a	153.98	n.a	n.a
Malaysia	60	4.0038	1	46.10	133.89	75.40	.77
Mexico	72	-.1996	0	47.90	33.54	71.20	.35
Netherlands	86	10.2541	0	30.90	102.90	64.70	.47
Nigeria	66	-7.1775	1	43.70	21.30	n.a	.33
Norway	94	10.3589	0	25.00	69.04	66.60	.32
Pakistan	45	-5.6642	1	30.60	33.62	66.10	.58
Peru	55	-2.2153	0	49.80	51.03	n.a	.78
Philippines	31	-2.6751	0	45.80	43.61	68.80	.83
Poland	47	3.4719	0	34.90	35.52	n.a	n.a
Russia	56	-4.1780	0	41.50	74.51	n.a	n.a
Singapore	71	9.0571	1	48.10	221.54	69.70	.87
Saudi Arabia	55	-2.2368	0	n.a	136.54	n.a	n.a
South Africa	70	2.4179	1	65.00	240.44	67.20	.25
Spain	86	6.6723	0	32.00	90.04	67.00	.33
Sweden	86	10.5698	0	23.00	125.47	66.10	.50
Switzerland	90	10.8132	0	33.70	280.20	n.a	.33
Thailand	72	-.4753	1	42.00	62.12	67.40	.72
Turkey	32	-.3714	0	43.60	36.52	74.40	.63
UAE	74	2.9003	0	n.a	n.a	n.a	n.a
UK	63	9.3155	1	34.00	139.22	63.09	.68
USA	61	8.4128	1	45.00	135.37	57.90	.90
Venezuela	88	-5.4268	0	48.20	3.14	n.a	.55
Viet Nam	38	-2.8182	0	37.00	7.15	n.a	n.a

BIG4 = dummy variable, = 1 if firm i is audited by a Big 4 auditor in year t, 0 otherwise. **IFRS =** Dummy variable takes the value of 1 for a given country in years from mandatory IFRS adoption and 0, otherwise. **Gov** = Sum of the scores in the six operationlized dimensions of government quality (Kaufmann et al. 2007). **InvPro = InvPro** is Investor Protection, measured three ways: (1) **Law** = 1 for common law country and 0 otherwise (The World Factbook 2009). (2) **Infor** = index of stock market informativeness (Bushman et al. 2004). **PubEnfor =** index of public enforcement (La Porta et al. 2006). Gindex = Gini coefficient index (The World Factbook 2009). **CAP** = Stock market capitalization to GDP index (The World Economic Forum 2008).

Table 3
Pearson correlation matrix

	Big 4	***Gov***	***IFRS***	***Law***	***Gindex***	***CAP***	***Infor***	***PubEnfo***
	1							
Gov	.339	1						
	(<0.01)							
IFRS	.033	.115	1					
	(<0.01)	(<0.01)						
Law	.081	.345	.045	1				
	(<0.01)	(<0.01)	(<0.01)					
Gindex	-.059	-.194	-.246	.300	1			
	(<0.01)	(<0.01)	(<0.01)	(<0.01)				
CAP	.169	.411	.079	.379	-.333	1		
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)			
Infor	.122	.605	.025	.521	-.196	.154	1	
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)		
PubEnfo	.042	.218	.046	.794	-.418	.277	.564	1
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	

Note: p-values are in parenthesis.

Big 4 = dummy variable, = 1 if firm i is audited by a Big 4 auditor in year t, 0 otherwise. ***IFRS =*** Dummy variable takes the value of 1 for a given country in years from mandatory IFRS adoption and 0, otherwise. ***Gov*** = Sum of the scores in the six operationlized dimensions of government quality (Kaufmann et al. 2007). ***InvPro = InvPro*** is Investor Protection, measured three ways: (1) ***Law*** = 1 for common law country and 0 otherwise (The World Factbook 2009). (2) ***Infor*** = index of stock market informativeness (Bushman et al. 2004). ***PubEnfor =*** index of public enforcement (La Porta et al. 2006).*Gindex* = Gini coefficient index (The World 2009). ***CAP*** = Stock market capitalization to GDP index (The World Economic Forum 2008).

Table 4

Logit regressions testing the relation between auditor choice (BIG4) and Government Quality

Big 4 = λ_{0+} λ_1Gov + λ_2InvPro + λ_3Size + λ_4Lev + λ_5Growth + λ_6CFO + λ_7Loss + λ_8 InvRec + λ_9Short + λ_{10}Long + fixed effects

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Panel A : Logit regressions for pooled sample						
Gov	**0.202**	**0.201**	**0.271**	**0.165**	**0.252**	**0.182**
	(<0.01)	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**
Law		0.086				
		(<0.01)				
Gindex			-0.061			
			(<0.01)			
CAP				0.004		
				(<0.01)		
Infor					0.053	
					(<0.01)	
PubEnfo						0.235
						(<0.01)
Size	1.281	1.291	1.310	1.372	1.342	1.303
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Lev	-0.116	-0.118	-0.084	-0.117	-0.098	-0.132
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Growth	-0.006	-0.009	-0.002	-0.019	-0.022	-0.030
	(0.747)	(0.617)	(0.909)	(0.303)	(0.896)	(0.090)
CFO	0.548	0.541	0.459	0.268	0.314	0.390
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Loss	-0.147	-0.153	-0.137	-0.078	0.115	0.177
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
InvRec	-0.391	-0.367	-0.381	-0.364	-0.331	-0.319
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Short	0.727	0.709	0.680	0.489	0.558	0.531
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Long	5.655	5.573	5.443	5.740	6.196	5.342
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Intercept	-8.122	-8.812	-10.594	-8.390	-12.311	-8.324
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
fixed effects	included	included	included	included	included	included
Pseudo R^2	**0.392**	**0.392**	**0.436**	**0.390**	**0.382**	**0.367**
N	**142,193**	**142,193**	**142,193**	**142,193**	**142,193**	**142,193**

[Table 4 continues on next page]

Table 4 (Continued)

Big 4 = λ_0 + λ_1Gov + λ_2InvPro + λ_3Size + λ_4Lev + λ_5Growth + λ_6CFO + λ_7Loss + λ_8 InvRec + λ_9Short + λ_{10}Long + fixed effects

	Without USA	**Without UK**	**Without Canada**	**Without India**	**Without Japan**	**Without China**	**Without USA, UK, Canada, India, Japan & China**	**Without EU sample Countries**
Panel B : Logit regressions for sub-sample excluding selected countries								
Gov	**0.195**	**0.201**	**0.204**	**0.215**	**0.201**	**0.212**	**0.175**	**0.114**
	(<0.01)	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(0.04)**
Size	1.241	1.211	1.232	1.211	1.201	1.221	1.221	1.158
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Lev	-0.105	-0.115	-0.155	-0.115	-0.145	-0.122	-0.112	-0.102
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Growth	-0.004	-0.005	-0.006	-0.006	-0.001	-0.003	-0.001	-0.002
	(0.783)	(0.727)	(0.797)	(0.796)	(0.826)	(0.798)	(0.825)	(0.918)
CFO	0.529	0.517	0.537	0.539	0.589	0.578	0.515	0.567
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Loss	-0.135	-0.139	-0.129	-0.156	-0.115	-0.119	-0.165	-0.144
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
InvRec	-0.378	-0.372	-0.399	-0.398	-0.319	-0.410	-0.397	-0.327
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Short	0.745	0.767	0.798	0.775	0.794	0.742	0.769	0.741
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Long	5.465	5.495	5.555	5.354	5.385	5.325	5.488	4.987
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Intercept	-7.822	-7.752	-7.772	-7.762	-7.652	-7.565	-7.422	-6.789
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
fixed effects	included	included	included	included	included	included	included	included
Pseudo R^2	**0.353**	**0.394**	**0.398**	**0.364**	**0.432**	**0.326**	**0.321**	**.298**
N	**95,088**	**135,732**	**136,171**	**135,606**	**128,353**	**135,045**	**54,730**	**120,555**

Note: Coefficient p-values are two-tail and based on asymptotic Z-statistic robust to hetroscedasticity and country clustering effects using the method in Rogers (1993). For clarity in presentation the coefficients on year and industry dummies have not been reported.

BIG4 = dummy variable, = 1 if firm i is audited by a Big 4 auditor in year t, 0 otherwise. **IFRS =** Dummy variable takes the value of 1 for a given country in years from mandatory IFRS adoption and 0, otherwise. **Gov** = Sum of the scores in the six operationlized dimensions of government quality (Kaufmann et al. 2007). **InvPro = InvPro** is Investor Protection, measured three ways: (1) **Law** = 1 for common law country and 0 otherwise (The World Factbook 2009). (2) **Infor** = index of stock market informativeness (Bushman et al. 2004). **PubEnfor =** index of public enforcement (La Porta et al. 2006).Gindex = Gini coefficient index (The World Factbook 2009). **CAP** = Stock market capitalization to GDP index (The World Economic Forum 2008). **Size** = natural logarithm of total assets in $ thousands for firm *i* in year *t*. **Lev** = total liabilities / total assets for firm *i* in year *t*. **Growth** = sales growth rate, defined as the sales in year *t* minus sales in *t-1* and scaled by sales in year t. **CFO** = operating cash flows for firm *i* in year *t* scaled by lagged total assets. **Loss** = dummy variable, = 1 if firm i reports negative net income in the current year and 0 otherwise. **InvRec =** current yearend inventory and receivables as a percentage of total assets. **Short =** current year short term accruals scaled by beginning year total assets. **Long =** current year long term accruals scaled by beginning year total assets.

Table 5

Logit regressions testing interaction between Government quality (Gov) and IFRS adoption (IFRS) in explaining auditor choice (BIG4)

$$BIG4 = \lambda_0 + \lambda_1 Gov + \lambda_2 IFRS + \lambda_3 Gov*IFRS + \lambda_4 InvPro + \lambda_5 Size + \lambda_6 Lev + \lambda_7 Growth + \lambda_8 CFO + \lambda_9 Loss + \lambda_{10} InvRec + \lambda_{11} Short + \lambda_{12} Long + fixed\ effects$$

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Panel A : Logit regressions for pooled sample						
Gov	**0.177**	**0.176**	**0.197**	**0.154**	**0. 164**	**0.151**
	(<0.01)	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**
IFRS	0.034	0.033	0.061	0.029	0.015	0.029
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Gov*IFRS	**0.192**	**0.191**	**0.250**	**0.156**	**0.249**	**0.174**
	(<0.01)	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**
Law		0.080				
		(<0.01)				
Gindex			-0.075			
			(<0.01)			
CAP				.004		
				(<0.01)		
Infor					0.051	
					(<0.01)	
PubEnfo						0.237
						(<0.01)
Size	1.290	1.298	1.326	1.379	1.345	1.310
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Lev	-0.115	-0.117	-0.089	-0.119	-0.098	0.132
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Growth	-0.006	-0.009	-0.012	-0.021	-0.002	-0.030
	(0.710)	(0.593)	(0.515)	(0.253)	(0.895)	(0.085)
CFO	0.526	0.519	0.398	0.250	0.310	0.375
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Loss	0.145	0.151	0.139	0.129	0.117	-0.175
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
InvRec	-0.380	-0.358	-0.356	-0.359	-0.328	-0.313
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Short	0.689	0.673	0.507	0.445	0.560	0.510
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Long	5.451	5.378	4.452	5.553	6.618	5.233
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Intercept	-8.399	-8.460	11.438	-8.587	-12.273	-8.431
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
fixed effects	included	included	included	included	included	included
Pseudo R^2	**0.394**	**0.394**	**0.443**	**0.391**	**0.383**	**0.368**
N	**142,193**	**142,193**	**142,193**	**142,193**	**142,193**	**142,193**

[Table 5 continues on next page]

Table 5 (Continued)

$$BIG4 = \lambda_0 + \lambda_1 Gov + \lambda_2 IFRS + \lambda_3 Gov*IFRS + \lambda_4 InvPro + \lambda_5 Size + \lambda_6 Lev + \lambda_7 Growth + \lambda_8 CFO + \lambda_9 Loss + \lambda_{10} InvRec + \lambda_{11} Short + \lambda_{12} Long + fixed\ effects$$

	Without USA	**Without UK**	**Without Canada**	**Without India**	**Without Japan**	**Without China**	**Without USA, UK, Canada, India, Japan & China**	**Without EU sample Countries**
Panel B : Logit regressions for sub-samples excluding selected countries								
Gov	**0.081**	**0.179**	**0.1651**	**0.147**	**0.169**	**0.194**	**0.143**	**0.112**
	(<0.01)	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**
IFRS	0.399	0.356	0.307	0.226	0.346	0.387	0.369	0.305
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Gov*IFRS	**0.032**	**0.030**	**0.069**	**0.028**	**0.019**	**0.036**	**0.039**	**0.028**
	(<0.01)	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	**(<0.01)**	(<0.01)	(<0.01)
Size	1.310	1.290	1.301	1.200	1.121	1.115	1.101	1.001
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Lev	-0.089	-0.078	-0.098	-0.091	-0.078	-0.089	-0.065	-0.045
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Growth	-0.001	-0.000	-0.001	-0.002	-0.001	-0.003	-0.000	-0.001
	(0.925)	(0.965)	(0.865)	(0.723)	(0.783)	(0.562)	(0.775)	(0.428)
CFO	0.325	0.312	0.309	0.315	0.317	0.357	0.347	0.297
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Loss	0.127	0.118	0.128	0.109	0.120	0.139	0.131	0.114
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
InvRec	-0.359	-0.345	-0.367	-0.329	-0.349	-0.363	-0.353	-0.304
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Short	0.570	0.559	0.588	0.579	0.598	0.578	0.598	0.542
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Long	6.587	6.575	6.677	6.689	6.598	6.589	6.574	5.984
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Intercept	-10.572	-10.582	-10.573	-10.523	-10.601	-10.597	-10.497	-9.875
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
fixed effects	included	included	included	included	included	included	included	included
Pseudo R^2	**0.369**	**0.400**	**0.406**	**0.369**	**0.437**	**0.340**	**0.339**	**.324**
N	**95,088**	**135,732**	**136,171**	**135,606**	**128,353**	**135,045**	**54,730**	**120,555**

Note: Coefficient p-values are two-tail and based on asymptotic Z-statistic robust to heteroskedasticity and country clustering effects using the method in Rogers (1993). For clarity in presentation the coefficients on year and industry dummies have not been reported.

BIG4 = dummy variable, = 1 if firm i is audited by a Big 4 auditor in year t, 0 otherwise. **IFRS =** Dummy variable takes the value of 1 for a given country in years from mandatory IFRS adoption and 0, otherwise. **Gov** = Sum of the scores in the six operationlized dimensions of government quality (Kaufmann et al. 2007). **InvPro = InvPro** is Investor Protection, measured three ways: (1) **Law** = 1 for common law country and 0 otherwise (The World Factbook 2009). (2) **Infor** = index of stock market informativeness (Bushman et al. 2004). **PubEnfor =** index of public enforcement (La Porta et al. 2006).Gindex = Gini coefficient index (The World Factbook 2009). **CAP** = Stock market capitalization to GDP index (The World Economic Forum 2008). **Size** = natural logarithm of total assets in $ thousands for firm *i* in year *t*. **Lev** = total liabilities / total assets for firm *i* in year *t*. **Growth** = sales growth rate, defined as the sales in year *t* minus sales in *t-1* and scaled by sales in year t. **CFO** = operating cash flows for firm *i* in year *t* scaled by lagged total assets. **Loss** = dummy variable, = 1 if firm i reports negative net income in the current year and 0 otherwise. **InvRec =** current yearend inventory and receivables as a percentage of total assets. **Short =** current year short term accruals scaled by beginning year total assets. **Long =** current year long term accruals scaled by beginning year total assets.