Auditor Quality and Firm Debt Maturity:
International Evidence

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Abstract

We examine the importance of Big Four audits to reducing agency costs evident in corporate debt maturity worldwide. Analyzing a large sample of public firms from 42 countries reveals that the fraction of long-term debt in firms' capital structures rises with the presence of a Big Four auditor, suggesting that higher-quality audits substitute for short-term debt for monitoring purposes. In evidence supporting another two predictions, we find that the role that auditor choice plays in debt maturity is concentrated in firms from countries with strong institutions governing property rights and creditor rights. Collectively, our research implies that Big Four audits matter to corporate debt maturity, although the impact is isolated in firms operating in countries with more protective legal regimes.

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1. Introduction

Motivated by prior research on this issue remaining scarce, Chang et al. (2009) provide evidence using U.S. data that supports their analytical prediction that firms' financing outcomes, including security issue choice and timing, benefit from the presence of a high-quality auditor. In this paper, we extend their work by estimating the role that auditor quality plays in corporate debt maturity worldwide. More specifically, for a large sample of public firms from 42 countries over the period 1994-2003, we examine whether appointing a Big Four auditor leads to longer corporate debt maturity, particularly in countries that better protect property and creditor rights. Our evidence also extends prior research by analyzing how auditor choice affects the interplay between *ex ante* better information and *ex post* stronger creditor rights in shaping economic outcomes (e.g., Jappelli and Pagano, 2002; Djankov et al., 2007). The power theory of credit focuses on lenders' legal rights and their enforcement through the bankruptcy courts (e.g., Townsend, 1979; Aghion and Bolton, 1992; Hart and Moore, 1994, 1998), while information theories stress that lenders reduce agency costs by learning about borrowers by, for example, observing their track records for debt servicing and their interactions with other lenders (e.g., Jaffee and Russell, 1976; Stiglitz and Weiss, 1981; Diamond, 1989).

We begin by estimating the importance of auditor choice to the maturity structure of corporate debt worldwide. In regressions that control for country, industry, and year fixed effects along with other firm-specific determinants, we find that Big Four clients enjoy longer debt maturity. Although this relation is stronger in the U.S. where strict private enforcement holds auditors more responsible for rendering an unqualified opinion on materially deficient financial statements, it persists outside the U.S. where auditors experience milder litigation regimes. These results imply that lenders conclude that the Big Four elsewhere have sufficient incentives to supply audits that are economically distinct from the non-Big Four even in the absence of the intense litigation exposure that prevails in the U.S.

Next, we sharpen our analysis by estimating whether country-level institutions mediate the link between auditor choice and debt maturity. This involves isolating whether countries'

legal regimes affect the relative value of Big Four audits.[1] Evidence from this series of tests includes that better institutions governing the enforcement of property rights strengthen the impact of Big Four auditors on debt maturity, consistent with the argument that sound property rights are a prerequisite for firms to benefit from differential audit quality. Similarly, after verifying that our property rights and creditor rights conditioning variables reflect different constructs, we report that the presence of a Big Four auditor becomes more valuable—in the form of lengthening debt maturity—when lenders can rely more heavily on creditor rights for protection in the event of bankruptcy.[2] It follows that lenders turn to tough external monitoring by Big Four auditors to lower agency costs when countries afford them more recourse to recover losses in bankruptcy proceedings; i.e., in these situations, transparent financial reporting stemming from Big Four audits is essential for informing lenders and verifying compliance with debt contracts. The main narrative that emerges from our research is that auditor choice plays a larger informational role evident in debt maturity when countries' legal institutions are strong. In our analysis, we specify several proxies for countries' property and creditor rights protection institutions given that these constructs have multiple dimensions.[3]

In initiating research on these issues, we help bridge some gaps in the literatures on creditor rights, financial crises, and auditor choice. Although there is evidence that the impact of accounting transparency on economic outcomes hinges on the strength of investor rights,

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[1] We more narrowly focus on perceptions of the relative performance of Big Four versus non-Big Four auditors in monitoring the financial reporting process since it is infeasible to evaluate absolute audit quality in this setting. For expositional simplicity, we follow convention by labeling the Big Four public accounting firms and their predecessors as the Big Four given that our 1994-2003 sample period ranges beyond the collapse of Arthur Andersen after its conviction on criminal charges stemming from its audit of Enron Corp.

[2] For example, we outline in more detail later in the paper that the Pearson correlation coefficients between the four property rights and the four creditor rights proxies that we analyze are under 0.25 in 13 of 16 cases. Motivating their analysis of the link between creditor rights and corporate dividend policies, Brockman and Unlu (2009) stress the substantial variation in creditor right protection across countries with similar shareholder rights. They report that the cross-country correlation between creditor rights and shareholder rights is 18% (p-value = 0.13) based on the 70 countries covered in Djankov et al. (2007).

[3] Moreover, measurement error of unknown magnitude, which can bias estimates of the relations under study, is understood to afflict country-level institutional variables (e.g., Bushman and Smith, 2001; Miller, 2004), reinforcing the importance of analyzing whether our core results are sensitive to alternative specifications. Also, some of these variables are subjective, calling into question the veracity of the perceptions behind these rankings (Djankov et al., 2008).

prior research seldom examines empirical linkages involving creditor rights.[4] Moreover, the recent series of financial crises around the world highlight the importance of creditor rights—which, for example, are relatively weak in the U.S. in stark contrast to its rigorous investor rights protection—to preventing and resolving corporate financial distress (Claessens and Klapper, 2005). In the only study, to our knowledge, on the role that auditor choice plays in these situations, Mitton (2002) finds that minority investors relied on external monitoring by Big Four auditors during the 1997–1998 East Asian crisis to uncover any diversion of corporate resources by insiders. We contribute to this line of research by analyzing whether firms from high creditor rights countries benefit more from Big Four audits in alleviating the agency costs of debt.

Our paper contributes to three strands of the literature. First, we add to evidence on the impact of auditor choice on firms' financing composition and pricing. For example, recent research implies that Big Four clients benefit from having more equity than debt in their capital structures (e.g., Chang et al., 2009) and cheaper borrowing costs (e.g., Pittman and Fortin, 2004). Our cross-country analysis supports the intuition that lenders reward with longer debt maturities firms that appoint high-quality auditors. Second, extant research remains mixed on whether the benefit of a Big Four auditor for providing stricter external monitoring of the financial reporting process rises when country-level institutions are worse. Given that evidence to date on this issue focuses on property rights (e.g., Choi and Wong, 2007; Francis and Wang, 2008), isolating the importance of credit rights to shaping the link between auditor choice and economic outcomes is constructive. Third, our research extends research on how cross-country differences in legal institutions influence corporate financing decisions (e.g., La Porta et al., 1997; Demirgüç-Kunt and Maksimovic, 1999; Giannetti, 2003; Djankov et al., 2007; Bae and Goyal, 2009; Fan et al., 2010). In particular, Demirgüç-Kunt and Maksimovic (1999), Giannetti (2003), and Fan et al. (2010) find that firms in countries with better legal institutions have more long-term debt in their capital structures. We complement this evidence by estimating the impact of auditor choice on firms' debt maturity as well as the mediating role of property rights and creditor rights. Our findings that auditor choice matters to firms' debt financing choices

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[4] For example, prior research implies that firms' earnings are less managed (e.g., Leuz et al., 2003), more conservative (e.g., Ball et al., 2001), and more value-relevant (e.g., Hung, 2000) in countries that prescribe stricter investor protection.

contribute to prior research since evidence on whether Big Four audits are incrementally valuable outside the U.S. remains scarce (Bushman and Smith, 2001; DeFond and Francis, 2005).

The rest of the paper is organized as follows. Section 2 develops our testable hypotheses on the relations between auditor choice, legal institutions, and corporate debt maturity. Section 3 describes our sample and outlines the regression variables. Section 4 covers our empirical results. Section 5 concludes.

2. Motivation

2.1 Auditor Choice and Corporate Debt Maturity Worldwide

Francis (2004) and Watkins et al. (2004) comprehensively survey prior evidence that the Big Four are brand-name suppliers of better assurance services, corroborating theory that these auditors more closely monitor the financial reporting process to avoid damaging their reputations (e.g., DeAngelo, 1981) and becoming liable for investor losses in civil litigation (e.g., Dye, 1993). Some recent cross-country research implies that Big Four auditors' stronger incentives to identify material accounting misstatements and to resist client pressure to waive their correction generalizes outside the U.S. (e.g., Fan and Wong, 2005; Choi and Wong, 2007).

Although prior research suggests a natural link between auditor choice and debt maturity given the importance of external monitoring to lenders, there is hardly any evidence on this question. Shorter term debt in corporate capital structures improves contracting by enabling lenders to review at frequent intervals whether to continue granting credit and to restrict borrowers from increasing the riskiness of the underlying assets (e.g. Barnea et al., 1980, 1985). Rather than charge higher interest rates, Stiglitz and Weiss (1981) demonstrate that lenders may decide to ration the amount of credit supplied to an *ex ante* observationally identical, but heterogeneous in credit risk, set of firms. This occurs because altering the price would affect the average riskiness of the borrowers along with the demand for credit. Consequently, lenders may tighten credit availability since a higher interest rate would attract riskier borrowers, an adverse selection problem, or would induce borrowers to choose riskier projects, a moral hazard problem. Although this may deter lending altogether in some cases,

lenders at other times may mitigate risk by insisting on shorter maturities for firms that still have access to credit.

In another seminal theory, Diamond (1991, 1993) models that banks prefer to shorten debt maturity to retain the flexibility to continually reevaluate borrower quality and to prevent expropriation. Firms can signal their better type to reduce agency costs by submitting to the periodic scrutiny that accompanies shorter maturity debt (Easterbrook, 1984; Flannery, 1986). In Myers (1977), firms can alleviate the underinvestment problems inherent in debt financing by issuing short-term debt that matures before growth options can be exercised.[5] More recent research demonstrates that short-term loans mitigate overinvestment incentives by making debt less sensitive to changes in firm value and debt repricing more frequent (e.g. Childs et al., 2005). It follows that mechanisms—such as hiring Big Four auditors to strictly discipline insiders against exploiting their discretion over financial reporting to hide actual performance—that lower credit market information asymmetry will enable firms to borrow on better non-price terms, including at longer maturities, since lenders can better evaluate their risk profiles (Diamond, 1991; Tang, 2009).

Early evidence implies that audited financial statements affect debt contracting; e.g., Smith and Warner (1979) and Leftwich (1981). Reinforcing the role of external auditors as information intermediaries, the importance of financial reporting transparency to debt contracting is evident in loan covenants that routinely reflect accounting numbers (e.g., Dichev and Skinner, 2002). In Rajan and Winton's (1995) model, the ability to trigger renegotiation after the borrower violates a loan covenant improves lenders' incentives to actively monitor, which reconciles with debt contracts usually specifying exactly the way that accounting ratios are calculated for compliance purposes (e.g., Roberts and Sufi, 2009a). Nonetheless, U.S. public firms at least are known to manage their earnings upward through accounting changes (e.g., Sweeney, 1994) and discretionary accruals (e.g., DeFond and Jiambalvo, 1994) in order to avoid

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[5] Lending support to these theories, Datta et al. (2000) find that announcements of bond initial public offerings that exceptionally lengthen debt maturity elicit a negative stock price reaction. This evidence contrasts sharply with prior empirical research that documents positive reactions to announcements of seasoned straight public debt offers (Eckbo, 1986 and Shyam-Sunder, 1991) as well as bank loan agreements (James, 1987) and renewals (Lummer and McConnell, 1989).

technical default, which allows lenders to, for example, accelerate loan maturity and terminate the unused portion of any revolving credit lines (Roberts and Sufi, 2009b).

There is already ample evidence that firms with more credible financial reporting attract cheaper debt financing (e.g., Sengupta, 1998; Yu, 2005; Wittenberg-Moerman, 2008), including research that gauges accounting transparency with the presence of a Big Four auditor (e.g., Mansi et al., 2004; Pittman and Fortin, 2004). However, extant research seldom analyzes whether Big Four clients benefit through more favorable non-price debt characteristics, leading to our first prediction (all hypotheses are stated in the alternative):[6]

H$_1$: Debt maturity is longer, *ceteris paribus*, worldwide for firms with Big Four auditors.

2.2 The Mediating Role of Legal Institutions

In public firms outside the U.S. and the U.K., the new generation of corporate governance research suggests that ownership is concentrated in the hands of a small number of major shareholders who secure control rights that exceed their ownership rights through, for example, pyramidal and cross-holdings as well as multiple class shares. These mechanisms can enable controlling owners bent on expropriating outside investors to increase firm opacity to cover their tracks. Extensive evidence of ownership concentration around the world, especially in less protective jurisdictions, has shifted attention from the classical agency conflict between managers and shareholders (e.g., Berle and Means, 1932) toward the agency conflict between controlling shareholders and outside investors (e.g., Shleifer and Vishny, 1997). Large shareholders may be intent on exploiting their position as insiders to extract private benefits—by, for example, manipulating transfer prices, consuming excessive salaries and perquisites, disguising related-party transactions, and even stealing assets (Volpin, 2002; Burkart et al., 2003; La Porta et al., 2002)—that they later attempt to conceal through opportunistic financial reporting. More relevant for our purposes, prior research implies that creditors are vulnerable to tunneling of corporate resources by dominant controlling shareholders (e.g., Johnson et al., 2000; La Porta et al., 2003). Also, the value of assets pledged

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[6] An exception is Chang et al.'s (2009) evidence that U.S. public firms with Big Four auditors have greater financial flexibility and depend less on timing their equity issues to coincide with favorable market conditions.

as collateral can sink when controlling owners pursue diversionary activities (e.g., Friedman et al., 2003; La Porta et al., 2003), lowering recovery rates in the event of default.

Leuz et al. (2003) find that earnings management is more widespread in countries with poor investor protection regimes, reinforcing arguments that insiders depriving outside investors of their fair share of firm value distort financial reporting to suppress information (e.g., Dyck and Zingales, 2004; Lang et al., 2004). In fact, recent cross-country accounting research supports that strong surrounding enforcement institutions are essential to sound corporate governance; e.g., DeFond and Hung (2004); Burgstahler et al. (2006); Guedhami and Pittman (2006); Hail and Leuz (2006); and DeFond et al. (2007).[7] Accounting transparency narrows the scope for major shareholders, who control and frequently manage the firm, to divert corporate resources (Pagano and Röell, 1998).

Consequently, firms from countries with strong legal institutions should benefit more from improving corporate governance by engaging a Big Four auditor since diversionary activities are harder to conceal when external monitoring is stricter. Prior theory and evidence suggests that lenders consider risks stemming from legal regimes governing the enforcement of property rights when negotiating debt maturity. In the wake of La Porta et al.'s (1997, 1998) law and finance research, studies documenting that strong institutional infrastructure is conducive to writing and enforcing financial contracts have become an empirical regularity (e.g., Lerner and Schoar, 2005; Qian and Strahan, 2007). Demirgüç-Kunt and Maksimovic (1999) and Fan et al. (2010), among others, report evidence consistent with Diamond's (2004) model that lenders issue shorter maturity debt when the legal system makes contract enforcement expensive or ineffective. Borrowers have more incentive to misbehave in these situations since lenders cannot credibly commit to punish debt contract violations in countries that fail to respect property rights.

Some recent research implies that strong institutions at the country level are a necessary condition for generating differential audit quality at the firm level (e.g., Francis et al., 2008 and

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[7] In contrast, there is also evidence that firms substitute by improving corporate governance when countries' governance institutions are relatively lax; e.g., Klapper and Love (2004), Durnev and Kim (2005), Attig et al. (2008), and Laeven and Levine (2008).

El Ghoul et al., 2010).[8] Big Four auditors practicing in countries with tougher enforcement regimes, which can increase their exposure to civil lawsuits and regulatory sanctions for issuing a clean opinion on materially inaccurate financial statements (e.g., Ball, 2001; Guedhami and Pittman, 2006; Coffee, 2007), will naturally react by tightly constraining managers' discretion over firms' accounting policies and estimates. In comparison, we expect that non-Big Four auditors with less reputation capital at stake and without the "deep pockets" of the Big Four auditors have stronger incentives to accept, for example, aggressive earnings management to avoid dismissal by their clients. In short, we expect that the auditor quality gap widens when lenders can count on tough enforcement of property rights to protect their interests in the event of financial reporting failure. This intuition implies that external monitoring by Big Four auditors in these countries becomes more valuable since litigation and regulatory forces discipline them to insist that managers refrain from excessively distorting the financial statements.[9] Accordingly, we isolate whether the importance of Big Four audits to lengthening debt maturity increases when property rights institutions are relatively strong:

> H$_2$: The impact of auditor choice on debt maturity will be concentrated, *ceteris paribus*, in countries that impose better property rights protection.

Extant research also supports that the legal recourse available to lenders in the event of bankruptcy affects debt contracting since creditor rights legislation ordinarily covers such decisive issues as who controls the insolvency process as well as who can take possession of the firm's assets. For example, countries with better creditor protection tend to have more developed credit markets (La Porta et al., 1997). Moreover, the recent surge in financial crises around the world highlight the importance of creditor rights to preventing and resolving corporate financial distress (e.g., Claessens and Klapper, 2005).

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[8] Importantly, other evidence runs in the opposite direction, implying that the role of Big Four auditors in protecting outside investors by improving accounting transparency is concentrated in countries with weaker legal institutions (e.g., Choi and Wong, 2007). More generally, injecting more tension into our analysis, there is also extensive evidence that firms substitute by improving corporate governance when countries' governance institutions are relatively lax; e.g., Lang et al. (2003, 2004), Dyck and Zingales (2004), Klapper and Love (2004), Durnev and Kim (2005), Attig et al. (2008), and Laeven and Levine (2008).

[9] In the other direction, the Big Four public accounting firms with global operations may be eager to supply uniformly high-quality audits worldwide to avoid damaging their reputations (e.g., Simunic and Stein, 1987), adding tension to our analysis. Another perspective holds that only the extreme auditor litigation exposure that prevails in the U.S. is sufficient to induce the Big Four to outperform the non-Big Four auditors (e.g., El Ghoul et al., 2010).

Lenders become more reluctant to extend credit on attractive terms *ex ante* in the absence of strong legal protection in bankruptcy. However, lenders are in a better position to reduce their exposure to borrower expropriation when governments grant creditors more bargaining power after default according to theory on the transfer of controls rights during bankruptcy (e.g., Aghion and Bolton, 1992; Diamond, 1993; Hart and Moore, 1994, 1998).

There are several reasons that inadequate legal protection may impede creditors' attempts to recover their claims in bankruptcy proceedings. For example, in countries that provide an automatic stay on assets under their bankruptcy code, it is more costly for creditors to seize assets that have been pledged as collateral. Similarly, full recovery in bankruptcy is difficult unless creditors have absolute priority over non-secured claimants. Some countries do not afford creditors the clout to appoint an administrator to replace incumbent management in running the business. In these situations, creditors may be forced to renegotiate with intransigent managers who can extract concessions by credibly threatening to prolong the bankruptcy process (Brockman and Unlu, 2009). In other countries, financially distressed firms can unilaterally file for reorganization protection.

Lenders attempts to pursue their claims by, for example, invoking a bankruptcy law to foreclose and liquidate assets may be futile when creditor rights are weak.[10] Indeed, in countries in which creditor protection through the legal system is minimal, lenders may simply forego attempts to recover their losses in bankruptcy court (Kornai, 1979; Mitchell, 1993; Dewatripont and Maskin, 1995). In fact, Berkowitz and White (2004) and Qian and Strahan (2007) find that lenders offer longer maturities when creditor protection is stronger, although Bae and Goyal (2009) cast doubt on whether this relation is robust to considering property rights enforcement in the jurisdiction. Prior research implies that both creditors and borrowers benefit from improving corporate governance. For example, Brockman and Unlu (2009) find that creditors demand and firms consent to more restrictive dividend payout policies to substitute for poor protection in bankruptcy as a solution to the agency costs of debt. Esty and Megginson (2003) report that banks tend to form large and diffuse syndicates when lending to firms in countries with inadequate creditor rights.

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[10] Roberts and Sufi (2009a) find that creditor rights *outside* of bankruptcy affect U.S. public firms' capital structures, including debt maturity.

We extend this line of research by analyzing whether the importance of firm-level auditor choice to improving debt contracting efficiency hinges on country-level creditor rights that specify the ground rules for the competing interests of lenders and borrowers in bankruptcy. This involves examining whether the impact of Big Four audits on debt maturity varies systematically with how countries handle corporate bankruptcies. Our analysis helps empirically settle whether bankruptcy institutions shape the sensitivity of debt maturity to auditor choice. Although firms can more easily borrow on a longer-term basis under strong creditor rights, evidence on the role of auditor choice in debt maturity in these countries remains scarce. Given that lenders resort to putting borrowers on a shorter leash when legal protection of their rights is poor, we expect that information intermediation by Big Four auditors plays a nearly immaterial role in debt maturity in such countries. This reconciles with rational lenders in countries with poor creditor rights regimes electing not to punish misbehaving firms after default—in a phenomenon labeled "lender passivity"—missing the opportunity to improve borrowers' *ex ante* incentives (Diamond, 2004). If lenders do not intend to act when misbehavior surfaces, then higher-quality monitoring in the form of Big Four audits will hardly matter to their decisions.

However, in the presence of good creditor protection institutions, Big Four auditors eager to prevent excessive opportunism by ensuring that their clients' financial statement properly reflect the underlying transactions may become incrementally valuable. It follows that close external monitoring by Big Four auditors that is more likely to reveal borrower misbehavior looms larger in these situations. Although Big Four auditors may be better at identifying violations of debt contracts, this becomes almost irrelevant unless the legal regime enables lenders to enforce their rights. This translates into the prediction that the impact of Big Four audits on debt maturity will be greater under stronger legal protection of creditor rights in formal bankruptcy and reorganization proceedings:[11]

> H_3: The impact of auditor choice on debt maturity will be concentrated, *ceteris paribus*, in countries that impose better creditor rights protection.

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[11] We follow prior research by focusing on both proceedings since there is variation across countries in the definition and implications of bankruptcy (La Porta et al., 1998; Claessens and Klapper, 2005).

3. Data and Descriptive Statistics

3.1 Sample Construction

The primary data source for testing our hypotheses on the importance of auditor choice to firms' corporate debt maturity decisions worldwide is Standard & Poor's Compustat Global Research database. After other capital structure studies (e.g., Billet et al., 2007), we exclude financial firms (SIC industry codes 6000-6999) because their capital structures, including debt maturities, are not comparable to industrial firms. We also follow Francis and Wang (2008) by eliminating countries for which it is hard to identify auditors, namely India, Japan, Pakistan, South Korea, because Big Four auditors there operate through a local affiliate. Finally, given that we examine how country-level institutions affect the link between auditor choice and debt maturity, we restrict the sample to countries with available data on creditor rights and property rights. The final sample described in Table 1 consists of 42,679 firm-year observations representing 4,920 unique firms from 42 countries over the period 1994 to 2003.

Insert Table 1 about here

3.2 Regression Variables and Descriptive Statistics

3.2.1 Measuring Debt Maturity

We gauge debt maturity with the ratio of long-term debt maturing in more than one year to total debt (e.g., Demirgüç-Kunt and Maksimovic, 1999).[12] The descriptive statistics in Table 1 show that the average long-term debt proportion in our sample is 62%. There is ample variation in debt maturity across countries. Firms from Canada, New Zealand, Norway, and the U.S. exhibit the longest debt maturity, with the proportion of long-term debt to total debt exceeding 70%. At the other extreme, Malaysia, Sri Lanka, and Thailand have the shortest debt maturity ratios, with the proportion of debt maturing in more than one year less than 35%.

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[12] We concede that this measure is not as refined as those used in U.S. studies (e.g., Barclay and Smith, 1995; Barclay et al., 2003) due to the lack of detailed information on firms' debt characteristics outside the U.S.

Although covering a different sample period (1980-1991), Demirgüç-Kunt and Maksimovic (1999) report similar patterns of debt maturity: firms from Norway and Canada hold the largest proportion of long term debt to total debt, while firms in Pakistan, Thailand, and Zimbabwe have, on average, the smallest proportion of long term debt to total debt.

3.2.2 Measuring Auditor Quality

We follow extensive prior research by specifying our primary test variable as a dummy variable, *BIG FOUR*, that takes the value one if the firm appoints a Big Four auditor, and zero otherwise. Table 1 reports the Big Four market share in our sample countries. Reflecting their dominant presence globally, the average Big Four market share is 82% in our sample over the period 1994 to 2003, which is comparable to the distributions reported in Choi and Wong (2007) and Francis and Wang (2008). For countries with more than 100 observations, Canada and the U.S. have the largest Big Four market share (93%), followed closely by Chile (88%), and Singapore (86%).

3.2.3 Legal Institution Variables[13]

Prior research implies that cross-country differences in legal institutions explain firms' financing policies including their debt maturity. We expect that the value of Big Four audits is grounded in the caliber of countries' legal institutions. In our analysis, we consider institutions governing the protection and enforcement of property rights and creditor rights.

Measures of Property Rights Protection. We capture the extent to which property rights are protected in a country with several proxies. First, we use the International Country Risk Guide's (ICRG) law and order index (*LAWORD*), which measures the strength and impartiality of the legal system (the *law* sub-component) as well as the popular observance of the law (the *order* sub-component). Since the index is updated monthly, we consider the annual averages over our 1994-2003 sample period.[14] The index ranges between 0 and 6 with higher values

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[13] Later in the paper, we examine whether our evidence persists for alternative measures of property rights and creditor rights protection.

[14] Our core results on the predictions in H_2 and H_3 are materially insensitive to using La Porta et al.'s (1998) rule of law index, which is computed based on the law and order data from ICRG over the period 1982-1995.

indicating stronger protection. Second, we follow Bae and Goyal (2009) by considering three other measures of property rights, namely corruption, risk of repudiation, and risk of expropriation. We capture corruption with ICRG's corruption index (*CORRUPT*), which is "an assessment of corruption within the political system. Such corruption is a threat to foreign investment for several reasons: it distorts the economic and financial environment; it reduces the efficiency of government and business by enabling people to assume positions of power through patronage rather than ability; and, last but not least, introduces an inherent instability into the political process." The index is computed every year based on the monthly scores with lower scores reflecting higher corruption within the political system, which threatens property rights as their enforcement becomes contingent on illegal payments and bribery. The risk of contract repudiation by the government (*REPUDIATION*), which we derive from La Porta et al.'s (1998) database, measures the risk of a modification in a contract "taking the form of a repudiation, postponement, or scaling down" caused by "budget cutbacks, indigenization pressure, a change in government, or a change in government economic and social priorities." The risk of expropriation by the government (*EXPROPRIATION*) is also derived from La Porta et al. (1998) and captures the risk of property confiscation or forced nationalization. Both indices vary on a scale of 0 to 10 with higher scores signifying lower risks. After Bae and Goyal (2009), we construct a composite index of property rights (*PROP_RIGHTS*) computed as the sum of *LAWORD*, *CORRUPT*, *REPUDIATION*, and *EXPROPRIATION*.[15]

Measures of Creditor Rights Protection. To examine the impact of creditor rights protection on the relation between debt maturity and auditor choice, we focus on: (i) the rules surrounding the bankruptcy event and their enforcement; and (ii) the availability of information to creditors, as well as its quality, scope and accessibility.

Our primary measure of creditor rights (*CR*) is derived from Djankov et al. (2007), who construct an index of the legal rights of creditors in the event of bankruptcy that closely resembles the one originally developed by La Porta et al. (1998). The index varies yearly over the period 1978-2003 and is the sum of four subcomponents. The first one, "*No automatic stay*",

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[15] The variables *LAWORD* and *CORRUPTION* are rescaled to range between 0 and 10. In a natural alternative specification, our main results are almost identical if we specify the average of the four variables.

reflects whether secured creditors are able to seize their collateral when the reorganization is approved. The second sub-component, "*Secured creditors paid first*", measures whether secured creditors are the first to be paid from liquidation proceedings. The third sub-component, "*Creditors approve reorganization*", identifies whether creditors' consent is required for reorganization, as opposed to debtors seeking protection from creditors by filing for rehabilitation. The fourth component measures whether creditors or an administrator are responsible for running the business during reorganization ("*Management not in reorganization*"), as opposed to the debtor. In addition to isolating the rules surrounding bankruptcy proceedings, we follow Djankov et al. (2008) by considering how these rules are enforced by proxying for the efficiency of debt enforcement, *EFFICIENCY*, calculated as the present value of the terminal value of the firm after bankruptcy costs. Rather than just observing the bankruptcy rules on the books according to the creditor rights index (*CR*), the efficiency measure (*EFFICIENCY*) qunatifies the recovery rates in a hypothetical case of an insolvent firm, thereby reflecting how the debt-related laws are enforced in practice. Djankov et al. (2008) show that higher efficiency of debt enforcement is strongly correlated with debt market development.

In addition to these proxies, we capture creditor rights protection with the existence and level of information sharing among lenders given evidence in recent studies that information sharing—through public registries or private bureaus—influences the pricing and structure of debt contracts, credit market development, and the level of bank risk taking (e.g., Djankov et al., 2007, 2008; Qian and Strahan, 2007; Houston et al., 2010). Accordingly, we follow prior research by considering whether a public credit registry or a private credit bureau exists in the country using data from Djankov et al. (2008). We label this variable *INFO*. Given that these information sharing institutions maintain databases on the standing of borrowers in the financial system, we follow Houston et al. (2010) by also calibrating the extent of credit information using the depth of information index (*INFO_DEPTH*) derived from the World Bank "Doing Business" database. While the information sharing variable, *INFO*, is an important indicator of the information available to creditors, *INFO_DEPTH* measures the rules that affect the scope, accessibility and quality of information available through the registries.

In Panel B, we tabulate Pearson correlation coefficients between the eight country-level conditioning variables that we specify to analyze the predictions in H_2 and H_3. In order to

validly test these as distinctive predictions—rather than, for example, countries with strong property rights tending to have strong creditor rights, which would raise major identification problems—a necessary condition is to verify that the creditor rights and property rights proxies reflect different underlying institutional constructs. Reassuringly, the correlations are generally small in magnitude with 13 of the 16 failing to exceed 0.25, supporting that we are on solid ground in relying on these variables to separately examine whether the impact of auditor choice on debt maturity is concentrated in countries that impose better property rights (H_2) and creditor rights (H_3) protection. However, this evidence reinforces the importance of triangulating our evidence on these issues by considering whether our results are materially sensitive to considering alternative conditioning variables.

Insert Table 2 about here

3.2.4 Other Controls

To isolate the importance of auditor choice to debt maturity, we include a comprehensive set of potential determinants of this financing decision according to recent research. This involves specifying several control variables after Johnson (2003), Datta et al. (2005) and Billet et al. (2007): Leverage (*LEVERAGE*), which we measure as the book value of total debt (long-term debt plus debt in current liabilities) divided by the market value of assets, where the market value of assets is computed as the book value of assets minus the book value of equity plus the market value of equity; asset maturity, *AMATURITY*, which we code as the weighted maturity of long-term assets and current assets, where the maturity of long-term assets is computed as gross property, plant and equipment divided by depreciation expense and the maturity of current assets is computed as current assets divided by the cost of goods sold; asset risk, *S_ROA*, measured as the standard deviation of the return on assets in the last five years; firm growth, *GROWTH*, computed as the firm's average sales growth in the last three years; firm size, *SIZE*, captured as the natural logarithm of the firm's sales; the square of the firm size, *SIZE_SQ*; abnormal earnings, *ABNE*, calculated as the difference between firms' earnings per share in year *t*+1 minus earnings per share in year *t*, divided by year's *t* share price; and *REGULATED*, a dummy variable that takes the value one if the firm operates in a

regulated industry, and zero otherwise. To limit the influence of outliers and data coding errors, we winsorize the continuous control variables at the 1% level. Based on prior debt maturity studies, we expect to observe these signs on the control variables: *LEVERAGE* (+), *AMATURITY* (+), *S_ROA* (-), *GROWTH* (-), *SIZE* (+), *SIZE_SQ* (-), *ABNE* (-), and *REGULATED* (+).

4 Empirical Design and Results

4.1 Methodology

To test our prediction in H_1 of a positive relation between corporate debt maturity and auditor choice, we estimate a generalized method of moments (GMM) model that accounts for the joint determination of maturity and leverage (Barclay et al., 2003), using the exogenous variables as instruments in the moment conditions.[16] Importantly, we confront endogeneity in auditor choice in a separate section later in the paper given the importance of controlling for screening by Big Four auditors and selection by their clients. Rather than include interaction variables to examine the predictions in H_2 and H_3, we split the sample in subsamples to analyze whether the link between debt maturity and auditor choice hinges on country-level institutions governing property rights and creditor rights. GMM models improve significantly upon other estimation methods including 2SLS and 3SLS models, providing more efficient results in the presence of non-spherical disturbances (Greene, 2008). Given the host of differences among the countries under study, we control for country fixed effects in all estimations. More specifically, we follow Billet et al. (2007) by estimating this system of equations:

LEVERAGE= f (ROA, PPE, S_ROA, GROWTH, SIZE, REGULATED) + Fixed Effects   (1)

DMAT= f (BIG FOUR, LEVERAGE, AMATURITY, S_ROA, GROWTH, SIZE, SIZE_SQ,
    ABNE, REGULATED) +Fixed Effects   (2)

4.2 Results

4.2.1   Auditor Choice and Debt Maturity

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[16] To properly identify the model, as leverage is endogenous in the second equation, we use as an additional instrument for the debt maturity equation the firm's profitability, calculated as its return to assets (ROA). Alternative choices of instruments do not qualitatively affect our core inferences.

Table 3 presents our main evidence on the impact of auditor choice on the proportion of long-term debt in firms' capital structures. The results refer to the maturity equation in the system of simultaneous equations as shown above. Our main variable of interest, *BIG FOUR*, identifies whether a firm engages a Big Four auditor. We begin our analysis in Model 1 by reporting the results for the entire sample of 42,679 firm-year observations from 42 countries for the period 1994-2003. Consistent with our prediction in H_1, we find that *BIG FOUR* enters positively and statistically significantly at the 1% level, implying that lenders around the world value the role of Big Four auditors in improving accounting transparency evident in them requiring less monitoring through short-term debt. Reflecting its material economic impact, the coefficient estimate on *BIG FOUR* indicates that the proportion of long-term debt to total debt rising by 3.6% accompanies the presence of a Big Four auditor; i.e., the difference between 64.9% for non-Big Four clients and 67.2% for Big Four clients.

All of the control variable except for leverage and sales growth load at the 1% level in the predicted directions. We note that firms in our sample practice asset-debt maturity matching, consistent with Myers (1977) and Stohs and Mauer (1996). Indeed, the *AMATURITY* coefficient loads positively, indicating that firms with higher maturity of assets rely more on long-term debt. We also find that firms with a higher variability of returns and therefore a higher credit risk, use less long-term debt (e.g., Johnson, 2003), as indicated by the negative and significant (at the 1% level) coefficient on the variable *S_ROA*. Firms with higher abnormal earnings use more short-term debt, suggesting that higher quality firms subject themselves to more frequent monitoring from lenders, consistent with Flannery's (1986) signaling theory. In line with Johnson (2003), we find that firm size (*SIZE*) is positively and significantly associated with the fraction of long-term debt, and the square of the firm's size is negatively and significantly associated with the firm's debt maturity, indicating a non-linear relation between firm size and debt maturity (Diamond, 1991). Firms in regulated industries tend to have more long-term debt reflecting their better access to long-term debt markets, especially government loans. Indeed, we report that the coefficient on *REGULATED* loads positively at the 1% level, consistent with the findings of Johnson (2003) and Datta et al. (2005).

Next, for three reasons, we separately examine U.S firms. First, La Porta et al. (1998) document that U.S. firms tend to have lower ownership concentration that brings distinctive

agency problems. Second, in contrast to the severe auditor litigation exposure that prevails in the U.S. (e.g., Francis, 2004; Leuz, 2010), it is harder for investors in non-U.S. firms to recover damages in the event of audit failure in these countries (Guedhami and Pittman, 2006; La Porta et al., 2006). Prior research implies that the extreme litigation environment that auditors in the U.S. experience represents a major fault line distinguishing this country from the rest of world on differential audit quality (e.g., Francis, 2004; El Ghoul et al., 2011). It follows that Big Four auditors in the U.S. will be more eager to protect their brand name reputations and avoid costly lawsuits by closely constraining managers responsible for preparing the financial statements against exaggerating firm earnings (DeAngelo, 1981). Third, from a practical econometric standpoint, focusing on non-U.S. firms ensures that the impact of American firms, which comprise nearly 50% of our observations according to Table 1, does not dominate our results; i.e., we are eager to provide evidence of pervasive economic phenomena. We find that Big Four auditors play a major monitoring role in the U.S. evident in the positive and highly significant (at the 1% level) coefficient on *BIG FOUR* in Model 2. U.S. firms that appoint a high-quality auditor are less directly monitored by lenders in the form of short-term debt. Economically, the coefficient on the *BIG FOUR* variable translates into U.S. firms that hire a Big Four auditor having, on average, 4.6% more long-term debt to total debt in their capital structures.

In Model 3, we report the results of re-estimating the Model 1 regression for strictly non-U.S. firms. Adding support to our prediction in H_1, we find that lenders value the presence of Big Four auditors by granting firms longer maturity debt. Interestingly, we note that the *BIG FOUR* coefficient decreases from 0.034 for the U.S. subsample to 0.011 in the non-US subsample. Economically, we estimate that high-quality audits increase the proportion of long-term debt to total debt by 2.7% in non-U.S. countries. Extant evidence on the influence of legal institutions (e.g., La Porta et al., 1998; La Porta et al., 2006) suggests that accounting practices vary widely around the world. For instance, Francis and Wang (2008) report that the Big Four impose higher earnings quality through accounting conservatism only as a response to stricter legal regimes. This research motivates us to sharpen our analysis to consider whether country-level characteristics shape the role that auditor choice plays in corporate debt maturity.

Insert Table 3 about here

4.2.2   Do Country Institutions Shape the Impact of Big Four Auditors on Debt Maturity?

To obtain outside financing, a firm must credibly commit to respect contracts that limit corporate governance inefficiencies. These contracts depend not only on firm characteristics, but also on the institutions that facilitate monitoring and enforcement (e.g., Demirgüç-Kunt and Maksimovic, 1999). We contribute to prior research (e.g., Choi and Wong, 2007; Francis and Wang, 2008) by extending our analysis to gauge the impact of countries' institutional infrastructure on the relation between debt maturity and auditor quality. In developing the predictions in H_2 and H_3, we argue that stronger institutions are a necessary condition for Big Four auditors to supply tighter external monitoring of the financial reporting process.

Our empirical strategy for examining these predictions involves estimating our model for subsamples of strong and weak institutional environments according to country-level variables. This analysis focuses on the 22,408 non-US firm-year observations representing 41 countries; i.e., the sample under study in Model 3 in Table 3.[17]   We consider two sets of institutions that are motivated by their impact on differential audit quality (e.g., Francis and Wang, 2008; Choi and Wong, 2007) and loan contracts (e.g., Demirgüç-Kunt and Maksimovic, 1999; Qian and Strahan, 2007; Bae and Goyal, 2009). The first set comprises variables that describe a country's property rights: law and order, *LAWORD*; corruption, *CORRUPT*; risk of expropriation, *EXPROPRIATION*; risk of contract repudiation, *REPUDIATION*; and a composite index of property-rights, *PROP_RIGHTS*. The second set of variables capture a country's legal protection of lenders. Specifically, we focus on the presence of rules surrounding the bankruptcy event through the variable creditor rights, *CR*; on the enforcement of these rules through the efficiency of debt enforcement, *EFFICIENCY*; on the availability of information available to creditors, *INFO*; and on its quality, scope and accessibility, *INFO_DEPTH*.

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[17] The U.K. and Canada contribute 31% and 10% of these observations, respectively. We verify that our evidence on the predictions in H_2 and H_3 persist when we exclude British and Canadian firms from the analysis (whether separately or collectively in successive regressions), reinforcing that our results stem from pervasive economic phenomena rather than firms from a few countries dominating the analysis.

We start our investigation in Table 4 by presenting results from successive regressions after bisecting the sample at the median for each of the property rights variables. Across all of these regression pairs, the *BIG FOUR* coefficient is positive and statistically significant at the 1% level for the subsample of firms from countries with strong protection of property rights (Models 2, 4, 6, 8, and 10). In stark contrast, for the subsamples of firms from countries with weaker protection of property rights (Models 1, 3, 5, 7, and 9), the *BIG FOUR* coefficient is statistically indistinguishable from zero. These findings are consistent with the intuition underlying H_2, suggesting that lenders only value the presence of a Big Four auditor when legal rules pertaining to property rights are rigorous. Importantly, the economic implications of the presence of a Big Four auditor in countries with better protection of property rights far exceeds that observed in Model 3 of Table 3 for non-U.S. firms and nearly reaches the impact on the U.S. firms under study in Model 2 of Table 3. Indeed, the *BIG FOUR* coefficient in countries with relatively strong protection of property rights indicates that firms hiring Big Four auditors have, on average, a 4.47-6.62% higher proportion of long-term debt. This evidence implies that sound underlying institutional infrastructure for protecting property rights is a prerequisite for differential audit quality to emerge in our setting.

Insert Table 4 about here

In Table 5, we focus on whether the link between debt maturity and auditor choice turns on the legal protection that countries afford creditors. The main insight stemming from this analysis is that Big Four audits are only economically distinct in jurisdictions with relatively strong creditor protection. The *BIG FOUR* coefficient for the subsample of countries with better creditor rules in Model 2, or more efficient enforcement of these rules in Model 4, indicates a longer debt maturity for Big Four clients (a higher fraction of long-term debt by an average ranging between 3.50% and 7.29%). Similarly, in Models 5 to 8, we reproduce these tests for the *a priori* availability and depth of the credit information. We find that the depth of the credit information has a larger statistical and economic impact on the role that auditor choice plays in debt maturity than the simple availability of information. In countries with more accurate and

more accessible credit information (Model 8), the proportion of long-term debt for firms appointing Big Four auditors is higher by 5.04%; in contrast, the presence of a high-quality auditor only leads to an increase of 1.22% in long-term debt when we analyze the simple availability of the credit information in Model 6. Additionally, the *t*-statistic of *BIG FOUR* in countries with above-median depth of credit information in Model 8 is 2.94, indicating significance at the 1% level, while the *t*-statistic of the *BIG FOUR* in countries with credit information available (*INFO* =1) in Model 6 is 2.12 indicating significance at the 5% level. Overall, the results from the series of regression pairs in Table 5 provide empirical support for the prediction in H$_3$. Under better creditor protection, *a priori* and *a posteriori*, lenders value Big Four auditors for preventing their clients from excessively distorting the financial statements.

In summary, our results indicate that the importance of auditor choice to corporate debt maturity intensifies when governments impose better institutions. The evidence in this section implies that lenders only incrementally value Big Four audits for protecting their interests in countries with rigorous institutional infrastructure in the form of property rights and creditor rights.

Insert Table 5 about here

4.3 Sensitivity Analysis

4.3.1 Endogeneity

We cannot validly ascribe the positive association observed between the presence of a Big Four auditor and the fraction of long-term debt in firms' capital structures to these auditors supplying superior monitoring in the form of discovering and insisting that their clients correct any material misstatements unless we consider whether endogeneity is responsible for this evidence. Two competing explanations prevent us from concluding at this stage that Big Four auditors genuinely lengthen corporate debt maturity. First, a Big Four auditor can protect its

valuable reputation and avoid costly litigation by refusing to accept engagements from firms more likely to conceal their actual performance by distorting the financial statements, and resigning from engagements when the risk of materially deficient financial reporting reaches an intolerable level (e.g., DeFond et al., 1997; Krishnan and Krishnan, 1997; Raghunandan and Rama, 1999; and Shu, 2000). Second, firms planning to violate generally accepted accounting principles by, for example, deliberately exaggerating firm earnings to hide their diversionary practices may be more eager to appoint a non-Big Four auditor in the years immediately preceding the extraction of private benefits (e.g., Fan and Wong, 2005 and Guedhami et al., 2009). Put differently, the perceived quality differential that we document between Big Four and non-Big Four auditors may be driven by client characteristics rather than auditor characteristics.

Prior research struggles with rigorously handling endogeneity with selection models. Francis and Lennox (2010) advise against resorting to this technique in auditor choice settings unless the researcher can provide a compelling theoretical or empirical rationale to justify why certain explanatory variables in the first stage model can be validly excluded from the second stage model.[18] Consequently, in the absence of defensible exclusion restrictions, we avoid implementing a Heckman-type approach since this will fail to provide reliable inferences when attempting to control for endogeneity in auditor choice.[19] Instead, we tackle the potential endogeneity of auditor choice in two ways to put us on more solid ground in interpreting

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[18] This approach is also unreliable when the covariates in the two stages are identical (Wooldbridge, 2002). However, it is possible in theory to rely on a Heckman-type model to correct estimations for endogeneity (e.g. Heckman, 1978), although this technique is highly susceptible to econometric problems (Puhani, 2000). Larcker and Rusticus (2010) also argue that instrumental variable methods such as the Heckman correction are typically unreliable as the chosen instruments are invalid or weak. Francis and Lennox (2010) report evidence that, in the absence of exogenous auditor predictors that do not affect the dependent variable in the second stage, the results of a Heckman model are extremely sensitive to model specification and sample selection criteria, and that conclusions based on any particular specification can be easily overturned as the selection model can generate any and every possible outcome.

[19] Another alternative is to rely on samples that are matched according to propensity scores, although this also does not suit our setting since there is no sound basis for concluding that selection strictly occurs on observable characteristics. Tucker (2011) cautions researchers against treating propensity score matching, which does not alleviate selection bias arising from unobservable factors, as a viable replacement to a two-stage selection model for error correction. Moreover, Francis and Lennox (2010) stress reasons that matching on observable characteristics such as firm size may be particularly inappropriate when analyzing auditor choice outcomes.

causality in our tests; i.e., to enable us to more narrowly attribute our earlier evidence to Big Four auditors providing stricter external monitoring of the financial reporting process.

First, we employ the propensity score matching (PSM) procedure proposed by Rosenbaum and Rubin (1983) to control for differences in characteristics between Big Four and non-Big Four clients. Applying this method allows to match each Big Four client to a non-Big four client with similar characteristics captured by a propensity score. This method has been used in recent studies addressing the issue of endogeneity in the context of auditor choice (e.g., Lawrence et al., 2011; El Ghoul et al., 2012). To implement the PSM, we first estimate the following logit auditor choice model separately for the three samples (total sample, U.S. sample, and non-U.S. sample) using a comprehensive set of determinants that explain auditor choice:

$$BIG\ FOUR = g(LEVERAGE, ROA, GROWTH, STDEV\ OF\ ROA, SIZE, SIZE\text{-}SQUARE,$$
$$ABNE, AMATUR, REGULATED, COUNTRY\ DUMMIES) \qquad (3)$$

All variables are defined in Section 3.2. Using Equation (3) we calculate for each client a propensity score indicating the likelihood of choosing a Big Four auditor. We then match each BIG FOUR client to the non-BIG FOUR client to form PSM-balanced samples, using the nearest neighbour matching with replacement.[20] [21] This yields a propensity score matched sample of 7,188 firm-year observations. To assess the effectiveness of our propensity matching procedure, we compare the means of the firm characteristics used in the auditor selection models across the BIG FOUR and non-BIG FOUR clients. The untabulated results indicate that the distributions of the client characteristics under study are statistically indistinguishable at conventional levels between the balanced BIG FOUR and non-BIG FOUR samples. Importantly, when we re-estimate Table 3 regressions models using the PSM matched sample of Big Four clients and non-Big, we continue to find a positive and statistically significant coefficient on *BIG FOUR*. This evidence from samples matched on their propensity scores helps dispel the concern that our earlier findings reflect the differences in the characteristics of Big Four and non-Big Four clients rather than in the audit quality between Big Four and non-Big Four auditors.

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[20] Dehejia and Wahba (2002) explain that compared to matching without replacement, matching with replacement has the advantage of reducing potential estimation bias because it minimizes the propensity score distance between the matched comparison units and the treatment unit.

[21] The results are not sensitive to using the nearest 2, 3 and 5 neighbors.

Second, it follows that if screening and selection engender endogeneity in our setting, then its impact will be concentrated in firms with short auditor tenure. Any bias in the coefficient estimates reflecting endogeneity will be worse when the duration between auditor choice and the decision to manipulate the financial statements is shorter since firms bent on misreporting would need less lead time to cover their tracks by switching to a non-Big Four auditor, while its Big Four auditor may resign from the engagement when its risk becomes unacceptably high. To help dispel this endogeneity concern, we follow Lennox and Pittman (2010), who examine the link between auditor choice and fraudulent financial reporting, in confronting this issue. Since considering *BIG FOUR* as predetermined becomes more justifiable when auditor tenure is longer (Myers et al., 2003; Caramanis and Lennox, 2008; Chang et al., 2009; Lennox and Pittman, 2010), we restrict the sample to firms in which the minimum auditor tenure is five years.[22] In this long-tenure sample where auditor choice is essentially pre-determined, we should observe that *BIG FOUR* no longer loads positively if our earlier evidence spuriously reflects the presence of screening and selection phenomena. However, in Table 6, we find in Model 7 that *BIG FOUR* continues to load positively at the 1% level despite the major sacrifice in power in this smaller sample.

Insert Table 6 about here

4.3.2 Additional Controls

Although our regressions above include an extensive set of control variables motivated by prior research on debt maturity, in Table 7 we examine the sensitivity of our results to including additional controls to alleviate concerns about potential correlated omitted variables. All additional control are defined in the Appendix. In Models 1 through 4 we re-estimate the leverage and maturity equations (Equations (1 and 2) after controlling for the following variables: return on assets (*ROA*) in Model 1, return on equity (*ROE*) in Model 2, a loss indicator (*LOSS*) that takes the value of 1 if the firm reports negative earnings in Model 3, and Altman's

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[22] Although we initially set five years as a natural breakpoint after Lennox and Pittman (2010), none of the results in this section are materially sensitive to specifying alternative cut-offs. For example, after bisecting the sample at median tenure (four years), we find that *BIG FOUR* loads positively in both the short- and long-tenure subsamples.

Z-score (*Z-score*) in Model 4. Across all models, we continue to find that that *BIG FOUR* loads with a positive coefficient at the 1% level. In Model 5 we find that our results remain unaffected when we control for auditor quality (*BIG FOUR*) in the leverage equation (Equation 2). The next four models sequentially include proxies for corporate reporting quality. In Models 6 and 7 we control for firm's accruals quality as proposed by Dechow and Dichev (2002) and Wysocki (2008), respectively. In Models 8 and 9 we follow Leuz et al. (2003) and control for the extent of income smoothing and the magnitude of accruals, respectively. Leuz et al. (2003) and Bhattacharya et al. (2003) show that these proxies measure the extent to which the information is obscured from outsiders. The results indicate that a significant association between audit quality and debt maturity.

4.3.3 Alternative Regression Specifications

In Models 1 to 7 of Table 8, we analyze whether our core evidence is sensitive to alternative regression frameworks. In Model 1, we re-run our baseline regression using an ordinary least squares setup with country fixed effects. A similar approach has been largely used in prior studies on debt maturity, especially in earlier works that downplay the simultaneous determination of leverage and debt maturity (e.g., Barclay and Smith, 1995; Guedes and Opler, 1996). In the least squares estimation, we find that the *BIG FOUR* coefficient is positive and statistically significant at the 1% level, reinforcing our main findings in Table 3. In Model 2, we consider whether our evidence persists in a simultaneous least square regression framework after Johnson (2003). Although 2SLS accounts for the simultaneous determination debt maturity and leverage, this approach is less efficient than the GMM model if the regressions errors are heteroskedastic and/or autocorrelated, and provides similar results otherwise. We find our main results are virtually identical, including that *BIG FOUR* continues to load positively at the 1% level. In Model 3, we use a weighted least square approach to test the robustness of our tests. Again, we find that our results are robust to these specifications. Unreported alternative specifications of the fixed effects in the OLS, 2SLS and WLS models, including industry and year fixed effects, do not alter our main inferences.

Next, we evaluate whether our evidence on the prediction in H_1 is sensitive to specifying alternative instruments. In analyzing the estimation of GMM models, Roodman (2009) stresses the importance of proper specification of the model. Namely, a good GMM model has to be

properly identified, to have a reasonable number of instruments to avoid singularities, and to be robust to instrument choice. We use in our main specifications an exactly identified model, with the same number of independent variables and instruments. Alternatively, we follow Billet et al. (2007) and Brockman et al. (2010) in Model 3 by including all of the non-endogenous instruments in the moment conditions. We find that the coefficient on *BIG FOUR* remains positive and significant at the 1% level, reinforcing our results in Table 3. To further assess the robustness of our results, we test in Model 4 whether auditor choice continues to have a perceptible impact on the long-term debt proportion if we drastically cut the number of instruments. For this purpose, we remove the country fixed effects. Given that the sample contains firms representing 42 countries, the number of instruments decreases steeply in this specification. Again, the *BIG FOUR* coefficient still loads positively at the 1% level. Notably, consistent with our discussion of the country's legal environment, the coefficient is larger in size than in the specifications with country fixed effects (e.g., Table 3, or Table 6's Models 1, 2, and 3). Additionally, as industry characteristics may affect firms' leverage and debt maturity, we control for industry fixed effects in Model 4 and find that our core results continue to hold. Collectively, the results from Models 1 to 5 in Table 6 suggest that alternative regressions models as well as different specifications of the GMM model do not affect our main inferences.

Insert Table 8 about here

4.3.4 Alternative Measures of Debt Maturity

In specifying our primary measure of corporate debt maturity *(DMAT)*, we follow Demirgüç-Kunt and Maksimovic (1999) by relying on the proportion of long-term debt to total debt to capture this construct. In Model 8 of Table 8, we consider the sensitivity of our main evidence to another definition of debt maturity. This involves examining whether our results persist if we focus strictly on whether firms finance their debt integrally long-term. Accordingly, we code *DMAT2* as a dummy variable equal to 1 if the firm has 100% long-term debt, and 0 otherwise. We find that this alternative definition lends additional support to our prediction in H_1 evident in *DMAT2* loading positively at the 5% level, corroborating that Big Four clients benefit from shorter debt maturity. In model 8, we use an alternative measure of

debt maturity that captures also firm's operating debt, namely the firms' current liabilities to total liabilities. Consistent with our predictions, BN loads at 1% in this specification. To capture the potential effect of the operating debt we alternatively define debt maturity, *DMAT3,* as total liabilities minus current liabilities to total liabilities. Again, our results are robust to this alternative definition.

4.3.5 Alternative Measures of Country-Level Institutions

In Table 9, we evaluate whether our evidence on the predictions in H$_2$ and H$_3$ remains when we quantify a country's institutional environment in alternative ways. This involves examining different proxies for property rights and creditor rights in Models 1 to 6 and 7 to 10, respectively.

First, in Models 1 and 2, we follow Bae and Goyal (2009) by coding the property rights measure, *PR_BAE&GOYAL,* as the sum of the country's corruption, risk of expropriation, and risk of contract repudiation, where the corruption is rescaled to vary between 1 and 10. In Models 3 and 4, we focus on the measure of property rights developed by Knack and Keefer (1995), *PR_KNACK&KEEFER.* This index is constructed by summing the International Country Risk Guide indices for contract repudiation and expropriation risk with the rescaled indices for corruption, rule of law, and bureaucratic quality. In Models 5 and 6, we condition on the property rights measure developed by the Heritage foundation, *PR_HERITAGE.* This index reflects the degree to which the country's laws protect private property rights and the degree to which the government enforces those laws. This index also measures the likelihood that private property will be expropriated, the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts. For all of these alternative property rights proxies, we continue to find that the positive relation between corporate debt maturity and auditor choice is only statistically significant for the set of countries imposing better property rights; for firms in the rest of the countries, *BIG FOUR* fails to load.

In Models 7 to 10, we follow Djankov et al. (2008) and Qian and Strahan (2007) by analyzing supplementary country level measures addressing the relationship between lenders and borrowers, namely the country's legal formalism, *FORMALISM,* and the country's average time to payment in the event of banckruptcy, *ATIMEPAY. FORMALISM* captures how courts

handle the collection of a bounced check and eviction of a nonpaying tenant using data obtained from an extensive survey of lawyers and judges. *ATIMEPAY* reflects the estimated duration from the default date to the point at which the secured creditor receives payment. For these alternative proxies for creditor rights, we only observe that the proportion of long-term debt in firms' capital structures rises with the presence of a Big Four auditor in countries with better protection of creditors, corroborating our main findings in Table 5.

Insert Table 9 about here

4.3.6 Alternative Samples

Table 10 reports yearly regressions results. Table 11 reports additional robustness tests for the samples where we exclude Canada and UK. In unreported regression we also find that excluding countries with more than 1000 observations do not have an effect on our conclusions.

5. Conclusions

We contribute to extant research by examining whether public firms that improve accounting transparency by appointing a Big Four auditor benefit through having a larger fraction of long-term debt in their capital structures, especially in countries that better protect property rights and creditor rights. Our analysis provides strong, robust evidence that Big Four clients worldwide enjoy longer debt maturity, implying that that high-quality audits substitute for short-term debt for monitoring purposes. However, this relation is weaker for firms outside the U.S. where auditors' exposure to litigation for issuing a clean opinion on materially inaccurate financial statements is far lower. Importantly, this evidence of a positive relation between the presence of a Big Four auditor and debt maturity persists when we control for the endogenous effects of screening by auditors and selections by their clients.

In another series of tests, we complement our comparison of the impact of auditor choice on debt maturity between U.S. and non-U.S. firms by separately estimating whether this link varies according to country-level institutions. This involves analyzing whether countries'

institutional infrastructure moderates the relative value of Big Four audits to their clients evident in corporate debt maturity. More specifically, we gauge whether the rise in debt maturity for firms engaging Big Four auditors is concentrated in countries that impose better institutions governing property rights and creditor rights protection. In regressions that specify several proxies for these institutions, we consistently find empirical support for both predictions, implying that lenders perceive that whether Big Four auditors provide superior external monitoring at the firm level hinges on the extent of property rights and creditor rights protection at the country level. Our research suggests that the quality gap between Big Four and non-Big Four audits widens as country-level institutions relevant to lenders improve. In fact, we document that Big Four audits remain economically indistinguishable from non-Big Four audits unless governments rigorously protect property rights and creditor rights. Collectively, our evidence that sound institutions are a necessary condition for auditor choice to shape debt maturity squares with Francis and Wang's (2008: 159) take that Big Four audit quality is "neither uniform around the world, nor unique to the United States, but instead varies systematically with incentives in different institutional environments."

Appendix
Variable, Definitions, and Sources

Variable	Definition	Source
Panel A. Firm-Level Variables		
DMAT	Debt maturity calculated as the ratio of long-term debt to total debt. Total debt is the sum of long-term debt and debt in current liabilities.	Authors' calculation based on Compustat Global data
BIG FOUR	Dummy variable set to one for firms appointing Big Four auditors, and zero otherwise.	As above
LEVERAGE	Leverage calculated as the ratio of total debt to the market value of assets. The market value of assets is the sum of the book value of total assets plus market capitalization minus shareholders' equity.	As above
AMATURITY	Asset maturity calculated as the weighted maturity of long-term assets and current assets. The maturity of long-term assets is computed as gross property, plant and equipment divided by depreciation expense and the maturity of current assets is computed as current assets divided by the cost of goods sold.	As above
S_ROA	Asset risk measured as the standard deviation of the return on assets in the last five years.	As above
GROWTH	Firm growth computed as the firm's average sales growth in the last three years.	As above
SIZE	Firm size measured as the natural logarithm of the firm's sales in millions U.S. dollars.	As above
SIZE_SQ	The square of SIZE.	As above
ABNE	Abnormal earnings calculated as the difference between firms' earnings per share in year t+1 minus earnings per share in year t, divided by year's t share price.	As above
REGULATED	Regulation indicator defined as dummy variable set to one if the firm operates in a regulated industry, and zero otherwise.	As above
ROA	Return on assets calculated as the ratio of earnings before interest, taxes, and depreciation and amortization (EBITDA) to total assets.	As above
PPE	Asset tangibility calculated as the ratio of property, plant, and equipment to total assets.	As above
Panel B. Property Rights Variables		
LAWORD	Index measuring the strength and impartiality of the legal system, as well as the popular observance of the law.	International Country Risk Guide (ICRG)
CORRUPT	Index measuring actual and potential corruption, including excessive patronage, nepotism, job reservation, 'favor-for-favors', secret party funding and suspiciously close ties between politics and business.	As above
EXPROPRIATION	Index measuring the risk of "outright confiscation and forced nationalization" of property.	As above
REPUDIATION	Index measuring the possibility that foreign businesses, contractors and consultants face the risk of a modification in a contract taking the form of repudiation, postponement, or scaling down, due to an income drop, budget cutbacks, and indigenization priorities.	As above
PROP_RIGHTS	Index measuring property rights calculated as the sum of the following indices: law and order, corruption, risk of expropriation and risk of contract repudiation. The indices measuring law and order and corruption are rescaled to range between 1 and 10.	Authors' calculation based on ICRG data
Panel C. Creditor Rights Variables		
CR	Index of creditor rights calculated by assigning a score of one for each of the following rights of secured lenders: (1) debtors are subject to restrictions, such as creditor consent or minimum dividends, in filing for reorganization; (2) secured creditors are able to seize their collateral after a reorganization petition is approved, i.e., there is no "automatic stay" or "asset freeze"; (3) secured creditors are paid first out of the proceeds of liquidation, as opposed to other creditors such as the government or workers; and (4) management does not retain administration of its property pending the resolution of the reorganization.	Djankov et al.(2007)

EFFICIENCY	The present value of the terminal value of the firm after bankruptcy costs.	Djankov et al.(2008)
INFO	Information sharing indicator measured as a dummy set to one if the country has a public or private registry of credit information, and zero otherwise.	As above
INFO_DEPTH	Variable measuring the rules that affect the scope, accessibility and quality of information available through the public and private credit registries.	World Bank "Doing Business" database

Panel D. Variables used in the Robustness Tests

DMAT2	Dummy variable equal to one if the firm has 100% long-term debt, and zero otherwise.	Authors' calculation based on Compustat Global data
DMAT3	Proxy for long term debt maturity calculated as (Total Liabilities minus Current liabilities) to Total Liabilities.	As above
AQ	Proxy for Firms accruals quality. we regress the working capital accruals on lagged, current and future cash flows plus the change in revenue and PPE. Then, we estimate the model cross-sectionally for each industry and calculate AQ as the standard deviation of the firm-level residuals for year $t-5$ to $t-1$.	Dechow and Dichev (2002)
AQW	Proxy for accruals quality. captures the incremental association between current accruals and past and future cash flows over and above the association between current accruals and current cash flows	Wysocki(2008)
CL/TL	Current liabilities divided by total liabilities	Authors' calculation based on Compustat Global data
ROE	Return on equity calculated as the ratio of earnings before interest, taxes, and depreciation and amortization (EBITDA) to total equity.	As above
LOSS	Dummy variable that takes value one if the firm has negative earnings	As above
Z-SCORE	Altman's Z'' score for non-US firms, calculated as $Z'' = 6.56(X1) + 3.26(X2) + 6.72(X3) + 1.05(X4)$ where X1 = working capital/total assets, X2 = retained earnings/total assets, X3 = earnings before interest and taxes/total assets, X4 = book value of firm/book value of total liabilities	As above
PR_BAE&GOYAL	Alternative index measuring property rights calculated as the sum of the following indices: corruption, risk of expropriation, and risk of contract repudiation. The corruption index is rescaled to vary between 1 and 10.	Authors' calculation based on ICRG data
PR_KNACK&KEEFER	Alternative index measuring property rights calculated as the sum of the following indices: contract repudiation, expropriation risk, corruption, rule of law, and bureaucratic quality. The indices for corruption, rule of law, and bureaucratic quality are rescaled to vary between 1 and 10.	Knack and Keefer (1995).
PR_HERITAGE	Index assessing the degree to which the country's laws protect private property rights and the degree to which the government enforces those laws. This index also measures the likelihood that private property will be expropriated and analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts.	Heritage Foundation
FORMALISM	Variable measuring how courts handle collection of a bounced check and eviction of a nonpaying tenant obtained from an extensive survey of lawyers and judges.	Djankov et al. (2007)
ATIMEPAY	Measure of the estimated duration, in years, of the time from the moment of default to the point at which the secured creditor receives payment.	As above

References

Aghion, P. and P. Bolton. 1992. An incomplete contracts approach to financial contracting. *Review of Economic Studies* 59, 473-494.

Anderson, K. and T. Yohn. 2002. The effect of 10-K restatements on firm value, information asymmetries, and investors' reliance on earnings. Working paper, Georgetown University.

Armstrong C., A. Jagolinzer, and D. Larcker. 2010. Chief executive officer equity incentives and accounting irregularities. Journal of Accounting Research 48, 225-271.

Asquith, P., A. Beatty, and J. Weber. 2005. Performance pricing in bank debt contracts. *Journal of Accounting and Economics* 40, 101-128.

Attig, N., O. Guedhami, and D. Mishra. 2008. Multiple large shareholders, control contests and implied cost of equity. *Journal of Corporate Finance* 14, 721-737.

Bae, K-H. and V. K. Goyal. 2009. Creditor rights, enforcement, and bank loans. *Journal of Finance* 64, 823-860.

Ball, R. 2001. Infrastructure requirements for an economically efficient system of public financial reporting and disclosure. *Brookings-Wharton Papers on Financial Services*, 127-169.

Ball, R., R. Bushman, and F. Vasvari. 2008. The debt-contracting value of accounting information and loan syndicate structure. *Journal of Accounting Research* 46, 247-287.

Barclay, M. J. and C. W. Smith. 1995. The maturity structure of corporate debt. *Journal of Finance* 50, 609-631.

Barclay, M. J., L. M. Marx, and C. W. Smith. 2003. The joint determination of leverage and maturity. *Journal of Corporate Finance* 9, 149-167.

Barnea, A., R. A. Haugen, and L. W. Senbet. 1980. A rationale for debt maturity structure and call provisions in the agency theoretic framework. *Journal of Finance* 35, 1223-1234.

Barnea, A., R. A. Haugen, and L. W. Senbet. 1985. Agency problems and financial contracting. *Prentice Hall, N.J.*

Berkowitz, J. and M. White. 2004. Bankruptcy and small firms' access to credit. *RAND Journal of Economics* 35, 69–84.

Berle, A., and G. Means. 1932. The modern corporation and private property. *MacMillan, New York.*

Berger, A. N., M. A. Espinosa-Vega, W. S. Frame, and N. H. Miller. 2005. Debt maturity, risk, and asymmetric information. *Journal of Finance* 55, 2895-2923.

Berger, A. N. and G. F. Udell. 1995. Relationship lending and lines of credit in small firm finance. *Journal of Business* 68, 351–381.

Bharath, S., J. Sunder, and S. V. Sunder. 2008. Accounting quality and debt contracting. *The Accounting Review* 83, 1-28.

Biddle, G. C., G. Hilary, and R. S. Verdi. 2009. How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics* 45, 116-138.

Biddle, G. C. and G. Hilary. 2006. Accounting quality and firm-level capital investment. *The Accounting Review* 81, 963-982.

Billet, M.T., T. D. King, and D. C. Mauer. 2007. Growth opportunities and the choice of leverage, debt maturity, and covenants. *Journal of Finance* 62, 697-730.

Brockman, P. and E. Unlu. 2009. Dividend policy, creditor rights, and the agency costs of debt. *Journal of Financial Economics* 92, 276-299.

Brockman, P., X. Martin, and E. Unlu. 2010. Executive compensation and the maturity structure of corporate debt. *Journal of Finance* 65, 1123-1161.

Burgstahler, D., L. Hail, and C. Leuz. 2006. The importance of reporting incentives: Earnings management in European private and public firms. *The Accounting Review* 81, 983-1016.

Burkart, M., F. Panunzi, and A. Shleifer. 2003. Family firms. *Journal of Finance* 58, 2167-2202.

Bushman, R. M. and A. J. Smith. 2001. Financial accounting information and corporate governance. *Journal of Accounting and Economics* 32, 237-333.

Caramanis, C. and C. Lennox. 2008. Auditor effort and earnings management. *Journal of Accounting and Economics* 45, 116-138.

Chang, X., S. Dasgupta, and G. Hilary. 2009. The effect of auditor choice on financing decisions. *The Accounting Review* 84, 1085-1117.

Childs, P.D., D. C. Mauer, and S. H. Ott. 2005. Interactions of corporate financing and investment decisions: The effect of agency conflicts. *Journal of Financial Economics* 76, 667-690.

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

Coffee, J. C. Jr. 2007. Law and the market: The impact of enforcement. *Working Paper*.

Costello, A. M. and R. W. Wittenberg-Moerman. 2011. The impact of financial reporting quality on debt contracting: Evidence from internal control weakness reports. *Journal of Accounting Research* 49, 97-136.

Claessens, S. and L. F. Klapper. 2005. Bankruptcy around the world: Explanations of its relative use. *American Law and Economics Review* 7, 253-283.

Datta, S, M. Iskandar-Datta, and A. Patel. 2000. Some evidence on the uniqueness of initial public debt offerings. *Journal of Finance* 55, 714-743.

Datta, S., M. Iskandar-Datta, and K. Raman. 2005. Managerial stock ownership and the maturity structure of corporate debt. *Journal of Finance* 60, 2333-2350.

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

DeFond, M. L., M. Ettredge, and D. Smith. 1997. An investigation of auditor resignations. *Research in Accounting Regulation* 11, 25-46.

DeFond, M. L. and J. R. Francis. 2005. Audit research after Sarbanes-Oxley. *Auditing: A Journal of Practice and Theory* 24: 5-30.

DeFond, M. L. and M. Hung. 2004. Investor protection and corporate governance: Evidence from worldwide CEO turnover. *Journal of Accounting Research* 42, 269–312.

DeFond, M. L. and J. Jiambalvo. 1994. Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics* 17, 145-176.

DeFond, M. L., M. Hung, and R. Trezevant. 2007. Investor protection and the information content of annual earnings announcements: international evidence. *Journal of Accounting and Economics* 43, 37-67.

Demirogluu, C. and C. R. James. 2010. The information content of bank loan covenants. *Review of Financial Studies* 23, 3700-3737.

Demirgüç-Kunt, A. and V. Maksimovic. 1999. Institutions, financial markets, and firm debt maturity. *Journal of Financial Economics* 54, 295-336.

Dewatripont, M. and E. Maskin. 1995. Credit and efficiency in centralized and decentralized economies. *Review of Economic Studies* 62, 541–555.

Dhaliwal, D., C. Hogan, R. Trazevant, and M. Wilkins. 2011. Internal control disclosures, monitoring and the cost of debt. *The Accounting Review* 86, 1131-1156.

Diamond, D. W. 1989. Reputation acquisition in debt markets. *Journal of Political Economy* 97, 828-862.

Diamond, D. W. 1991. Debt maturity structure and liquidity risk. *Quarterly Journal of Economics* 106, 709-737.

Diamond, D. W. 1993. Seniority and maturity of debt contracts. *Journal of Financial Economics* 33, 341-368.

Diamond, D. W. 2004. Committing to commit: Short-term debt when enforcement is costly. *Journal of Finance* 59, 1447-1480.

Dichev, I. and D. Skinner. 2002. Large sample evidence on the debt covenant hypothesis. *Journal of Accounting Research* 40, 1091-1123.

Djankov, S., C. McLiesh, and A. Shleifer. 2007. Private credit in 129 countries. *Journal of Financial Economics* 84, 299–329.

Djankov, S., O. Hart, C. McLiesh, and A. Shleifer. 2008. Debt enforcement around the world. *Journal of Political Economy* 116, 1105-1149.

Durnev, A. and E. H. Kim. 2005. To steal or not to steal: Firm attributes, legal environment, and valuation. *Journal of Finance* 603, 1461-1493.

Dye, R. 1993. Auditing standards, legal liability and auditor wealth. *Journal of Political Economy* 101, 887-914.

Dyck, A. and L. Zingales. 2004. Private benefits of control: An international comparison. *Journal of Finance* 59, 537-600.

Easterbrook, F. 1984. Two agency-cost explanations of dividends. *American Economic Review* 74, 650-660.

Eckbo, E. 1986. Valuation effects of corporate debt offerings. *Journal of Financial Economics* 15, 119-152.

El Ghoul, S., O. Guedhami, and J. A. Pittman. 2011. Cross-country evidence on the importance of Big Four auditors to equity pricing: The mediating role of legal institutions. *Working paper.*

Esty, B. and W. Megginson. 2003. Creditor rights, enforcement, and debt ownership structure. *Journal of Financial and Quantitative Analysis* 38, 37-59.

Fan, J. P. H., S. Titman, and G. Twite. 2011. An international comparison of capital structure and debt maturity choices. *Journal of Financial and Quantitative Analysis,* forthcoming.

Fan, J. P. H. and T. J. Wong. 2005. Do external auditors perform a corporate governance role in emerging markets? Evidence from East Asia. *Journal of Accounting Research* 43, 35-72.

Flannery, M. 1986. Asymmetric information and risky debt maturity choice. *Journal of Finance* 41, 19-37.

Francis, J. R. 2004. What do we know about audit quality? *The British Accounting Review* 36, 345-368.

Francis, J., I. Khurana, and R. Pereira. 2003. "The role of accounting and auditing in corporate governance and the development of financial markets around the world." *Asia-Pacific Journal of Accounting and Economics* 10, 1-30.

Francis, J., R. Lafond, P. Olsson, and K. Schipper. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics* 39, 295-327.

Francis, J. R. and C. Lennox. 2010. Selection models in accounting research. *Working paper*.

Francis, J. R. and D. Wang. 2008. The joint effect of investor protection and Big 4 audits on earnings quality around the world. *Contemporary Accounting Research* 25, 1-39.

Friedman, E., S. Johnson, and T. Mitton. 2003. Propping and tunneling. *Journal of Comparative Economics* 31, 732-750.

Giannetti, M. 2003. Do better institutions mitigate agency problems? Evidence from corporate finance choices. *Journal of Financial and Quantitative Analysis* 38, 185-212.

Guedes, J. and T. Opler. 1996. The determinants of the maturity of corporate debt issues. *Journal of Finance* 51, 1809-1833.

Guedhami, O. and J. A. Pittman. 2006. Ownership concentration in privatized firms: The role of disclosure standards, auditor choice, and auditing infrastructure. *Journal of Accounting Research* 44, 889-929.

Guedhami, O., J. A. Pittman, and W. Saffar. 2009. Auditor choice in privatized firms: Empirical evidence on the role of state and foreign owners. *Journal of Accounting and Economics* 48, 151-171.

Goodwin, J. and F. Gul. 2010. Short-Term debt maturity structures, credit ratings, and the pricing of audit services. *The Accounting Review* 85, 877-909.

Graham, J., S. Li, and J. Qiu. 2008. Corporate misreporting and bank loan contracting. *Journal of Financial Economics* 89, 44-61.

Greene, W. H. 2008. Econometric Analysis, 6th Edition. *Prentice Hall, N.J.*

Hail, L. and C. Leuz. 2006. International differences in the cost of equity capital: Do legal institutions and securities regulation matter? *Journal of Accounting Research* 44, 485-531.

Hart, O. and J. Moore. 1995. Debt and seniority: an analysis of the role of hard claims in constraining management. *American Economic Review* 85, 567-585.

Hart, O. and J. Moore. 1998. Default and renegotiation: A dynamic model of debt. *Quarterly Journal of Economics* 113, 1-42.

Heckman, J. J. 1978. Dummy endogenous variables in a simultaneous equation system. *Econometrica* 46, 931-959.

Houston, J., C. Lin, P. Lin, and Y. Ma. 2010. Creditor rights, information sharing and bank risk taking. *Journal of Financial Economics* 96, 485-512.

Houston, J.F., C. Lin and Y. Ma. 2012. Regulatory arbitrage and international bank flows. *Journal of Finance* 67, 1845-1895.

Hribar, P. and N. T. Jenkins. 2004. The effect of accounting restatements on earnings revisions and the estimated cost of capital. *Review of Accounting Studies* 9, 337–356.

Hung, M. 2000. Accounting standards and value relevance of financial statement: An international analysis. *Journal of Accounting and Economics* 30, 401-420.

Jaffee, D. and T. Russell. 1976. Imperfect information, uncertainty, and credit rationing. *Quarterly Journal of Economics* 90, 651-666.

James, C. 1987. Some evidence on the uniqueness of bank loans. *Journal of Financial Economics* 19, 217-235.

Jappelli, T. and M. Pagano. 2002. Information sharing, lending, and defaults: Cross-country evidence. *Journal of Banking and Finance* 26, 2017-2045.

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

Johnson, S. 2003. Debt maturity and the effects of growth opportunities and liquidity risk on leverage. *Review of Financial Studies* 16, 209-236.

Johnson, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2000. Tunneling. *American Economic Review* 90, 22-27.

Johnson, S. 2003. Debt maturity and the effects of growth opportunities and liquidity risk on leverage. *Review of Financial Studies* 16, 209-236.

Kim, J.-B., D. A. Simunic, M. T. Stein, and C. H. Yi. 2011a. Voluntary audits and the cost of debt capital for privately held firms: Korean evidence. *Contemporary Accounting Research* 28, 585-615.

Kim, J.-B., B. Y. Song, and L. Zhang. 2011b. Internal control weakness and bank loan contracting: Evidence from SOX Section 404 disclosures. *The Accounting Review* 86, 1157-1188.

Klapper, L. F. and I. Love. 2004. Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance* 10, 703-728.

Knack, S. and P. Keefer. 1995. Institutions and economic performance: Cross-country tests using alternative institutional measures. *Economics and Politics* 7, 207-227.

Kornai, J. 1979. Resource-constrained versus demand-constrained systems. *Econometrica* 47, 801-819.

Krishnan, J. and J. Krishnan. 1997. Litigation risk and auditor resignations. *The Accounting Review* 72, 539-560.

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

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

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny. 1998. Law and finance. *Journal of Political Economy* 106, 1113-1155.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny. 2000. Investor protection and corporate governance. *Journal of Financial Economics* 58, 3-27.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny. 2002. Investor protection and corporate valuation. *Journal of Finance* 57, 1147-1170.

La Porta, R., F. Lopez-de-Silanes, and G. Zamarripa. 2003. Related Lending. *Quarterly Journal of Economics* 118, 231-268.

Lang, M. H., K. V. Lins, and D. P. Miller. 2003. ADRs, analysts, and accuracy: Does cross listing in the U.S. improve a firm's information environment and increase market value? *Journal of Accounting Research* 41, 317-345.

Lang, M. H., K. V. Lins, and D. P. Miller. 2004. Concentrated control, analyst following, and valuation : Do analysts matter most when investors are protected least? *Journal of Accounting Research* 42, 589-623.

Laeven, L. and R. Levine. 2008. Complex ownership structures and corporate valuations. *Review of Financial Studies* 21, 579-204.

Larcker, D. F. and T. O. Rusticus. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics* 49, 186-205.

Leftwich, R. 1981. Evidence on the impact of mandatory changes in accounting principles in corporate loan agreements. *Journal of Accounting and Economics* 3, 3-36.

Leftwich, R. 1983. Accounting information in private markets: Evidence from private lending agreements. *The Accounting Review* 58, 23-42.

Lennox, C. and J. Pittman. 2010. Big Five audits and accounting fraud. *Contemporary Accounting Research* 27, 209-247.

Lennox, C. and J. Pittman. 2011. Voluntary audits versus mandatory audits. *The Accounting Review* 86, 1655-1678.

Lerner, J. and A. Schoar. 2005. Does legal enforcement affect financial transactions? The contractual channel in private equity. *Quarterly Journal of Economics* 120, 223-246.

Leuz, C. 2010. Different approaches to corporate reporting regulation: How jurisdictions differ and why. *Accounting and Business Research* 40, 229–256.

Leuz, C., D. J. Nanda, and P. Wysocki. 2003. Earnings management and investor protection: An international comparison. *Journal of Financial Economics* 69, 505-527.

Li, N. 2010. Negotiated measurement rules in debt contracts. *Journal of Accounting Research* 40, 1103-1144.

Lummer, S. C. and J. J. McConnell. 1989. Further evidence on the bank lending process and the capital market response to bank loan agreements. *Journal of Financial Economics* 25, 99-122.

Mansi, S. A., W. Maxwell, and D. P. Miller. 2004. Does auditor quality and tenure matter to investors? Evidence from the bond market. *Journal of Accounting Research* 42, 755-793.

Michas, P., J. Francis, and S. Stein. 2010. Auditor industry expertise and firm-level investment efficiency. Working paper, University of Missouri - Columbia.

Miller, G. 2004. Discussion of What determines corporate transparency. *Journal of Accounting Research* 42, 253-268.

Mitchell, J. 1993. Credit passivity and bankruptcy: Implications for economic reform. In Colin Mayer and Xavier Vives, eds. *Capital Markets and Financial Intermediation* (Cambridge University Press, Cambridge, UK), 197-227.

Mitton, T. 2002. A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis. *Journal of Financial Economics* 64, 215-241.

Myers, S. C. 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5, 147-175.

Myers, J. N., L. A. Myers, and T. C. Omer. 2003. Exploring the term of the auditor-client relationship and the quality of earnings: A case for mandatory auditor rotation? *The Accounting Review* 78, 779-799.

Pagano, M. and A. Röell. 1998. The choice of stock ownership structure: Agency costs, monitoring, and the decision to go public. *Quarterly Journal of Economics* 113, 187-225.

Palmrose, Z., V. J. Richardson, and S. Scholz. 2004. Determinants of market reactions to restatement announcements. *Journal of Accounting and Economics* 37, 59-89.

Pittman, J. A. and S. Fortin. 2004. Auditor choice and the cost of debt capital for newly public firms. *Journal of Accounting and Economics* 37, 113-136.

Puhani, P. A. 2000. The Heckman correction for sample selection and its critique – A short survey. *Journal of Economic Surveys* 14, 53-68.

Qian, J. and P. E. Strahan. 2007. How law and institutions shape financial contracts: The case of bank loans. *Journal of Finance* 62, 2803–2834.

Raghunandan, K. and D. Rama. 1999. Auditor resignations and the market for audit services. *Auditing: A Journal of Practice & Theory* 18: 124-134.

Rajan, R. and A Winton. 1995. Covenants and collateral as incentives to monitor. *Journal of Finance* 50, 1113-1146.

Roberts, M. R. and A. Sufi. 2009a. Renegotiation of financial contracts: Evidence from private credit agreements. *Journal of Financial Economics* 93, 159-184.

Roberts, M. R. and A. Sufi. 2009b. Creditor control rights and firm investment policy. *Journal of Financial Economics* 64, 1657-1695.

Roodman, D. 2009. A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics* 71, 135-158.

Seifert, B. and H. Gonenc. 2012. Creditor rights and R&D expenditures. *Corporate Governance* 20, 3-20.

Sengupta, P. 1998. Corporate disclosure and the cost of debt. *The Accounting Review* 73, 459-474.

Shleifer, A. and R. Vishny. 1997. A survey of corporate governance. *Journal of Finance* 52, 737-783.

Shu, S. 2000. Auditor resignations: Clientele effects and legal liability. *Journal of Accounting and Economics* 29, 173-205.

Shyam-Sunder, L. 1991. The stock price effect of risky versus safe debt. *Journal of Financial and Quantitative Analysis* 26, 549-558.

Simunic, D. and M. Stein. 1987. Product differentiation in auditing: Auditor choice in the market for unseasoned new issues. *Canadian Certified General Accountants, B.C.*

Skinner, D. J. and S. Srinivasan. 2010. "Audit quality and auditor reputation: Evidence from Japan." *The Accounting Review*, forthcoming.

Smith, C. and J. Warner. 1979. On financial contracting: An analysis of bond covenants. *Journal of Financial Economics* 7, 117-161.

Stiglitz, J. E. and A. Weiss. 1981. Credit rationing in markets with imperfect information. *American Economic Review* 71, 393- 410.

Stohs, M. H. and D. C. Mauer. 1996. The Determinants of corporate debt maturity structure. *Journal of Business* 69, 279-312.

Sweeney, A. 1994. Debt covenant violations and managers' responses. *Journal of Accounting and Economics* 17, 281-308.

Tang, T. 2009. Information asymmetry and firms' credit market access: Evidence from Moody's credit rating format refinements. *Journal of Financial Economics* 93, 325-351.

Townsend, R. 1979. Optimal contracts and competitive markets with costly state verification. *Journal of Economic Theory* 21, 265-293.

Tucker, J. 2011. Selection bias and econometric remedies in accounting and finance research. *Journal of Accounting Literature*, forthcoming.

Volpin, P. 2002. Governance with poor investment protection: Evidence from top executive turnover in Italy. *Journal of Financial Economics* 64, 61-91.

Watkins, A. L., W. Hillison, and S. Morecroft. 2004. Audit quality: A synthesis of theory and empirical evidence. *Journal of Accounting Literature* 23, 153-193.

Watts, R.L. and J.L. Zimmerman. 1983. Agency problems, auditing, and the theory of the firm: Some evidence. *Journal of Law and Economics* 26, 613-633.

Wittenberg-Moerman, R. W. 2008. The role of information asymmetry and financial reporting quality in debt trading: Evidence from the secondary loan market. *Journal of Accounting and Economics* 46, 240-260.

Yu, F. 2005. Accounting transparency and the term structure of credit spreads. *Journal of Financial Economics* 75, 53-84.

Zhang, J. 2008. The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics* 45, 27-54.

Table 1
Summary Statistics of Firm-Level Variables

	N	DMAT	BIG FOUR	LEVERAGE	AMATURITY	S_ROA	GROWTH	SIZE	ABNE	REGULATED
Argentina	106	0.53	0.71	0.39	28.40	0.08	0.22	6.19	0.06	0.48
Australia	219	0.63	0.81	0.17	13.66	0.12	0.15	5.03	0.02	0.06
Austria	59	0.55	0.68	0.21	11.65	0.07	0.06	5.79	0.09	0.03
Belgium	79	0.58	0.75	0.22	13.89	0.09	0.21	6.30	0.07	0.03
Brazil	733	0.52	0.90	0.09	19.70	0.06	0.29	6.37	0.04	0.23
Canada	2,321	0.71	0.93	0.21	16.67	0.09	0.27	5.03	0.05	0.04
Chile	597	0.58	0.88	0.25	22.98	0.06	0.31	5.06	0.03	0.30
Colombia	98	0.52	0.56	0.18	25.52	0.05	0.26	5.18	0.11	0.10
Cyprus	13	0.48	1.00	0.24	33.85	0.03	0.00	4.73	-0.09	0.46
Denmark	468	0.55	0.83	0.23	10.40	0.06	0.14	5.46	0.03	0.04
Egypt	25	0.45	0.48	0.26	29.24	0.07	0.32	5.29	0.05	0.24
Spain	18	0.50	0.61	0.25	6.10	0.20	0.25	4.80	0.15	0.17
Finland	120	0.68	0.64	0.22	8.77	0.07	0.07	6.75	0.00	0.06
France	576	0.58	0.72	0.20	7.73	0.05	0.11	7.20	0.04	0.07
Germany	851	0.47	0.58	0.14	7.94	0.11	0.14	5.90	0.09	0.04
Greece	435	0.37	0.33	0.18	10.88	0.07	0.40	5.24	0.01	0.10
Hong Kong	324	0.41	0.75	0.25	12.80	0.10	0.13	4.49	0.08	0.13
Indonesia	1,282	0.38	0.51	0.41	15.76	0.07	0.36	4.04	0.09	0.05
Ireland	291	0.62	0.89	0.22	16.48	0.07	0.23	5.27	0.03	0.02
Israel	159	0.51	0.51	0.20	12.89	0.09	0.22	5.41	0.05	0.04
Italy	12	0.51	0.75	0.19	5.65	0.05	0.39	5.52	-0.03	0.00
Sri Lanka	14	0.30	0.71	0.20	10.85	0.03	0.13	4.14	0.01	0.00
Luxembourg	49	0.69	0.92	0.21	9.86	0.17	0.31	6.05	0.12	0.27
Mexico	359	0.65	0.75	0.30	24.82	0.06	0.25	6.67	0.07	0.08
Malaysia	1,362	0.35	0.61	0.26	15.78	0.07	0.13	3.80	0.02	0.06
Netherlands	410	0.61	0.95	0.17	9.01	0.06	0.12	6.62	0.04	0.05
Norway	81	0.79	0.99	0.30	14.01	0.07	0.17	5.35	0.04	0.28
New Zealand	41	0.71	0.59	0.25	21.54	0.10	0.15	5.31	0.02	0.24
Panama	21	0.82	1.00	0.14	20.41	0.02	0.06	7.94	0.01	0.48
Peru	96	0.49	0.71	0.32	32.63	0.06	0.08	4.67	0.11	0.18
Portugal	13	0.34	0.38	0.28	15.92	0.03	0.44	5.68	0.11	0.00
Russia	31	0.49	0.97	0.13	23.27	0.10	0.45	7.67	0.18	0.16

Singapore	781	0.39	0.86	0.22	10.30	0.09	0.12	4.01	0.05	0.08
Sweden	693	0.69	0.84	0.19	8.46	0.08	0.22	5.75	0.04	0.05
Switzerland	421	0.59	0.79	0.20	10.46	0.05	0.11	6.57	0.05	0.02
Thailand	1,920	0.35	0.33	0.38	16.27	0.07	0.19	3.93	0.05	0.09
Turkey	201	0.35	0.61	0.14	14.95	0.12	0.55	5.63	0.08	0.05
United Kingdom	6,882	0.53	0.74	0.15	12.23	0.09	0.16	5.10	0.03	0.05
United States	20,271	0.74	0.93	0.20	9.36	0.08	0.19	5.98	0.04	0.06
Venezuela	45	0.50	0.96	0.28	32.33	0.07	0.47	5.15	0.05	0.18
South Africa	204	0.55	0.80	0.14	13.23	0.07	0.23	6.31	0.05	0.06
Zimbabwe	12	0.58	0.92	0.22	7.55	0.08	0.75	4.34	0.13	0.17
All	*42,679*	*0.62*	*0.82*	*0.21*	*11.79*	*0.08*	*0.20*	*5.51*	*0.04*	*0.25*

Notes: This table reports summary statistics for the firm-level variables used in the regression analysis. The full sample comprises 42,679 firm-year observations from 42 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables.

Table 2, Panel A
Summary Statistics of Country-Level Variables

	LAWORD	CORRUPT	REPUDIATION	EXPROPRIATION	CR	EFFICIENCY	INFO	INFO_DEPTH
Argentina	4.3	2.47	4.91	5.91	1	35.8	1	6
Australia	6	4.59	8.71	9.27	3	87.8	1	5
Austria	6	4.55	9.6	9.69	3	78	1	6
Belgium	5.1	3.69	9.48	9.63	2	90.8	1	4
Brazil	2.1	3	6.3	7.62	1	13.4	1	5
Canada	6	5.65	8.96	9.67	1	93.2	1	6
Chile	5	3.79	6.8	7.5	0	64.8	1	5
Colombia	1.54	2.12	7.02	6.95	.	.	.	5
Cyprus	5	4.28	.	.	3	76.7	1	.
Germany	5.39	4.35	9.77	9.9	2	28.6	1	6
Denmark	6	5.82	9.31	9.67	1	92.4	1	4
Egypt	4	1.86	6.05	6.3	0	54.1	1	2
Spain	0	4.28	7.8	8.4	3	57	1	5
Finland	6	6	9.15	9.67	1	53.8	1	5
France	5.06	3.4	9.19	9.65	4	88.3	1	4
Greece	3.48	4.1	6.62	7.12	2.22	25.1	1	4
Hong Kong	4.76	3.66	8.82	8.29	1	89.9	1	4
Indonesia	2.6	1.53	6.09	7.16	3.05	66.2	1	2
Ireland	5.98	3.33	8.96	9.67	2	45.3	1	5
Israel	5	3.47	7.54	8.25	.	.	.	3
Italy	5.09	2.95	9.17	9.35	3	48.4	1	6
Sri Lanka	3	3.69	5.25	6.05	0	72.6	1	4
Luxembourg	6	5.05	.	.	3	94.9	1	.
Mexico	2.53	6	·	·	4	90.7	1	6
Malaysia	3.04	2.65	7.43	7.95	2	91.8	1	6
Netherlands	6	5.76	9.35	9.98	.	43	1	5
Norway	6	5.25	9.71	9.88	0	41.8	1	4
New Zealand	5.97	5.31	9.29	9.69	1	82.3	1	5
Panama	3	2	.	.	.	39	0	6
Peru	3	2.88	4.68	·	3	96.1	0	6
Portugal	5.82	4.61	8.57	8.9	3	39.8	1	5
Russia	3.43	1.27	.	.	2	82	1	.
South Africa	2.34	3.33	7.27	6.88	3	13.1	1	5
Singapore	5.72	4.34	8.86	·	2	45.7	1	4
Sweden	6	5.84	9.58	9.4	1	86	1	4
Switzerland	5.69	4.96	9.98	9.98	2	40.9	1	5
Thailand	4.73	2.19	7.57	7.42	1	60.4	1	4
Turkey	3.97	2.3	5.95	7	2.41	54.9	0	5
United Kingdom	6	4.81	9.63	9.71	2	6.6	1	6

United States	5.86	4.23	9	9.98	4	92.3	1	6
Venezuela	3.56	2.76	6.3	6.89	1	85.8	1	4
Zimbabwe	.	.	3.68	5.04	4	.	.	.
All	4.54	3.86	7.90	8.41	2.02	62.80	0.92	4.78

Notes: This table reports summary statistics for the country-level variables used in the regression analysis. The full sample comprises 42,679 firm-year observations from 42 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables.

Table 2, Panel B
Correlation of the Country-Level Variables

	LAWORD	*CORRUPT*	*REPUDIATION*	*EXPROPRIATION*	*CR*	*EFFICIENCY*	*INFO*
CORRUPT	0.55 (0.00)						
REPUDIATION	0.69 (0.00)	0.71 (0.00)					
EXPROPRIATION	0.70 (0.00)	0.73 (0.00)	0.97 (0.00)				
CR	-0.13 (0.45)	0.01 (0.95)	0.00 (0.98)	0.12 (0.52)			
EFFICIENCY	0.12 (0.48)	0.11 (0.51)	0.04 (0.81)	0.17 (0.34)	0.14 (0.40)		
INFO	0.25 (0.13)	0.34 (0.04)	0.44 (0.01)	0.21 (0.25)	-0.16 (0.36)	-0.01 (0.97)	
INFO_DEPTH	0.05 (0.76)	0.23 (0.16)	0.19 (0.26)	0.35 (0.04)	0.34 (0.05)	-0.07 (0.67)	-0.24 (0.16)

Notes: This table reports Pearson correlations for the country-level variables used in the regression analysis. The correlations are calculated based on our sample of 42 countries. The significance of the correlation coefficient is reported between parentheses. The appendix outlines definitions and data sources for all variables.

Table 3
Debt Maturity and Auditor Quality

	Total Sample	U.S. Sample	Non-U.S. Sample
	(1)	(2)	(3)
BIG FOUR	0.0152***	0.0341***	0.0112**
	(3.13)	(3.20)	(2.10)
LEVERAGE	-0.0422	0.0756	0.0496
	(-0.79)	(1.01)	(0.68)
AMATURITY	0.0036***	0.0048***	0.0028***
	(20.86)	(16.70)	(13.02)
S_ROA	-0.1977***	-0.2363***	-0.0988***
	(-10.16)	(-8.50)	(-3.83)
GROWTH	0.0285***	0.0156**	0.0423***
	(6.63)	(2.14)	(8.12)
SIZE	0.0748***	0.1102***	0.0480***
	(16.53)	(14.29)	(8.55)
SIZE_SQ	-0.0037***	-0.0065***	-0.0016***
	(-10.35)	(-11.11)	(-3.37)
ABNE	-0.0231***	-0.0699***	-0.0071
	(-3.22)	(-5.86)	(-0.83)
REGULATED	0.1372***	0.0973***	0.1587***
	(22.38)	(8.48)	(21.72)
INTERCEPT	0.0611*	0.2581***	0.1090***
	(1.81)	(12.35)	(2.91)
Country Effects	Yes	No	Yes
N	42,679	20,271	22,408

Notes: This table reports results from GMM estimation of a system of leverage and debt maturity equations. For brevity, only the coefficient estimates from regressing debt maturity (*DMAT*) on audit quality (*BIG FOUR*) and other controls are shown. We report results for the full sample, the U.S. sample, and non-U.S. sample. All regressions include (unreported) country fixed effects. The full sample comprises 42,679 firm-year observations from 42 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent *t*-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4
Debt Maturity, Auditor Quality, and Property Rights

	LAWORD		CORRUPT		EXPROPRIATION		REPUDIATION		PROP_RIGHTS	
	Weak	Strong	Low	High	Low	High	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
BIG FOUR	-0.0052	0.0309***	-0.0087	0.0313***	-0.0037	0.0262***	-0.0077	0.0270***	-0.0046	0.0315***
	(-0.73)	(3.58)	(-1.18)	(3.67)	(-0.53)	(3.13)	(-1.02)	(3.57)	(-0.66)	(3.50)
LEVERAGE	0.1240*	-0.2057	0.1820**	-0.2755*	0.1810***	-0.3084	0.0617	-0.1398	0.1399**	-0.3157*
	(1.79)	(-1.25)	(2.55)	(-1.70)	(2.84)	(-1.62)	(1.01)	(-0.82)	(2.03)	(-1.70)
AMATURITY	0.0024***	0.0036***	0.0022***	0.0038***	0.0024***	0.0039***	0.0026***	0.0034***	0.0023***	0.0040***
	(9.37)	(7.74)	(8.56)	(8.28)	(9.71)	(7.72)	(10.65)	(7.41)	(9.52)	(7.66)
S_ROA	-0.1235***	-0.1388***	-0.1423***	-0.1322***	-0.0864**	-0.1514***	-0.1584***	-0.1295***	-0.1590***	-0.1281***
	(-3.03)	(-3.87)	(-3.39)	(-3.68)	(-2.14)	(-4.02)	(-3.85)	(-3.65)	(-4.14)	(-3.28)
GROWTH	0.0181***	0.0684***	0.0157**	0.0671***	0.0149**	0.0746***	0.0085	0.0711***	0.0174**	0.0736***
	(2.60)	(8.21)	(2.22)	(8.29)	(2.26)	(8.54)	(1.22)	(8.87)	(2.58)	(8.33)
SIZE	0.0644***	0.0440***	0.0604***	0.0477***	0.0646***	0.0478***	0.0530***	0.0438***	0.0628***	0.0465***
	(8.12)	(4.42)	(7.57)	(4.92)	(8.25)	(4.79)	(5.69)	(4.84)	(8.30)	(4.39)
SIZE_SQ	-0.0031***	-0.0010	-0.0026***	-0.0014*	-0.0035***	-0.0012	-0.0009	-0.0014**	-0.0029***	-0.0012
	(-4.56)	(-1.32)	(-3.84)	(-1.86)	(-5.15)	(-1.52)	(-1.04)	(-2.00)	(-4.45)	(-1.49)
ABNE	-0.0086	0.0034	-0.0107	0.0087	-0.0141	0.0215	-0.0094	0.0094	-0.0081	0.0103
	(-0.89)	(0.20)	(-1.10)	(0.50)	(-1.49)	(1.09)	(-0.95)	(0.55)	(-0.85)	(0.52)
REGULATED	0.1814***	0.1378***	0.1729***	0.1467***	0.1746***	0.1425***	0.1824***	0.1268***	0.1799***	0.1330***
	(18.84)	(11.33)	(18.09)	(12.01)	(18.59)	(10.67)	(18.42)	(10.62)	(19.14)	(10.09)
INTERCEPT	0.0549	0.4041***	0.0949**	0.4044***	0.0541	0.3199***	0.0690*	0.3215***	0.3677***	0.4660***
	(1.26)	(12.79)	(2.34)	(12.66)	(1.31)	(7.33)	(1.65)	(7.64)	(11.27)	(16.84)
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	9,835	11,815	9,138	12,074	10,360	11,934	9,001	13,293	10,233	10,855

Notes: This table reports results from GMM estimation of a system of leverage and debt maturity equations. For brevity, only the coefficient estimates from regressing debt maturity (*DMAT*) on audit quality (*BIG FOUR*) and other controls are shown. We report results for subsamples with below- and above-median indices for a number of property rights proxies. All regressions include (unreported) country fixed effects. The non-U.S. sample used in the regressions comprises 22,408 observations from 41 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent *t*-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5
Debt Maturity, Auditor Quality, and Creditor Rights

	CR		EFFICIENCY		INFO		INFO_DEPTH	
	Weak	Strong	Weak	Strong	No	Yes	Weak	Strong
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BIG FOUR	-0.0082	0.0307***	-0.0013	0.0228**	0.0015	0.0123**	-0.0030	0.0227***
	(-1.01)	(4.23)	(-0.19)	(2.64)	(0.11)	(2.12)	(-0.41)	(2.94)
LEVERAGE	0.0587	0.0329	0.1835***	-0.2466	0.1374	-0.2091**	0.2733***	-0.3154*
	(0.60)	(0.29)	(2.65)	(-1.57)	(1.61)	(-2.29)	(3.80)	(-1.95)
AMATURITY	0.0021***	0.0034***	0.0022***	0.0038***	0.0038***	0.0031***	0.0025***	0.0034***
	(6.96)	(10.46)	(8.03)	(8.84)	(6.95)	(12.67)	(9.35)	(8.61)
S_ROA	-0.1576***	-0.0436	-0.1182***	-0.1252***	-0.2293***	-0.1131***	-0.0963**	-0.1303***
	(-3.29)	(-1.36)	(-2.91)	(-3.63)	(-3.50)	(-3.95)	(-2.29)	(-3.76)
GROWTH	0.0278***	0.0533***	0.0165**	0.0715***	0.0335**	0.0382***	0.0137**	0.0742***
	(3.76)	(7.29)	(2.42)	(8.59)	(2.35)	(6.57)	(2.03)	(8.60)
SIZE	0.0568***	0.0388***	0.0655***	0.0417***	-0.0203	0.0597***	0.0551***	0.0424***
	(5.98)	(5.46)	(8.68)	(4.35)	(-1.13)	(9.56)	(6.78)	(5.09)
SIZE_SQ	-0.0030***	-0.0002	-0.0036***	-0.0005	0.0060***	-0.0025***	-0.0029***	-0.0004
	(-3.88)	(-0.34)	(-5.55)	(-0.60)	(3.15)	(-4.95)	(-4.41)	(-0.65)
ABNE	-0.0239**	0.0040	-0.0089	0.0052	-0.0020	0.0070	-0.0131	0.0094
	(-1.91)	(0.32)	(-0.92)	(0.31)	(-0.11)	(0.70)	(-1.29)	(0.58)
REGULATED	0.1567***	0.1528***	0.1816***	0.1296***	0.2641***	0.1421***	0.1715***	0.1549***
	(15.41)	(14.05)	(18.87)	(10.78)	(12.92)	(17.20)	(17.61)	(12.37)
INTERCEPT	0.1531***	0.1206***	0.1226***	0.4072***	0.1396**	0.3863***	0.3632***	0.2117***
	(3.50)	(3.22)	(3.84)	(12.92)	(2.13)	(12.13)	(11.67)	(3.89)
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	9,295	12,999	10,103	12,231	2,732	19,602	10,350	12,058

Notes: This table reports results from GMM estimation of a system of leverage and debt maturity equations. For brevity, only the coefficient estimates from regressing debt maturity (*DMAT*) on audit quality (*BIG FOUR*) and other controls are shown. We report results for subsamples with below- and above-median indices for a number of property rights proxies. All regressions include (unreported) country fixed effects. The non-U.S. sample used in the regressions comprises 22,408 observations from 41 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent *t*-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6
Robustness Tests: Set 1
Endogeneity

	All Sample	U.S. Sample	Non-U.S. Sample	PROP_RIGHTS		CR		BN predetermined
				Low	High	Weak	Strong	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BIG FOUR	.0310***	.0377**	.0218***	.0141	.0401***	-.0045	.0385***	0.0334***
	(3.93)	(2.17)	(2.54)	(.80)	(3.80)	(-.32)	(3.24)	(3.03)
LEVERAGE	-.3033**	-.7065*	-.0247	.1373	.0323	.3838*	-.4543**	0.0796
	(-2.10)	(-1.63)	(-.15)	(.83)	(.12)	(1.75)	(-2.09)	(1.04)
AMATURITY	.0038***	.0063***	.0027***	.0020***	.0032***	.0006	.0041***	0.0033***
	(8.45)	(4.64)	(5.75)	(3.37)	(4.06)	(.99)	(6.41)	(10.23)
S_ROA	-.1576***	-.2959***	-.1130**	-.1692	-.1105	-.1946*	-.1294*	-0.1217**
	(-3.52)	(-3.29)	(-2.26)	(-1.36)	(-1.68)	(-1.75)	(-1.86)	(-2.23)
GROWTH	.0284***	.0009	.0615***	.0191	.0631***	.0484***	.0425***	0.0649***
	(2.70)	(.02)	(5.74)	(.94)	(4.75)	(3.00)	(2.71)	(6.68)
SIZE	.0805***	.0839***	.0603***	.0628*	.0167	.0136	.0676***	0.1214***
	(6.73)	(2.40)	(4.93)	(1.92)	(1.18)	(.58)	(3.83)	(13.55)
SIZE_SQ	-.0040***	-.0024	-.0029***	-.0013	.0009	-.0001	-.0026	-0.0068***
	(-3.83)	(-.79)	(-2.77)	(-.41)	(.83)	(-.07)	(-1.68)	(-10.14)
ABNE	-.0046	-.0375	-.0181	-.0244	-.0074	-.0544*	.0689***	-0.0464***
	(-.27)	(-.82)	(-1.06)	(-1.09)	(-.31)	(-1.90)	(2.50)	(-3.68)
REGULATED	.1042***	.0919	.1706***	.1529***	.1197***	.1105***	.1656***	0.0977***
	(6.26)	(1.49)	(9.67)	(4.84)	(5.48)	(4.28)	(6.12)	(9.29)
INTERCEPT	.3862***	.4189***	.1205*	-.0344	.3192***	.5212***	.2375***	-0.2013**
	(12.56)	(6.62)	(1.78)	(-.30)	(6.98)	(8.72)	(5.17)	(-2.03)
Country Effects	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
N	7188	2068	5214	1,280	3,713	1,912	3,184	13,456

Notes: This table reports results from GMM estimation of a system of leverage and debt maturity equations for subsamples balanced using a PSM nearest neighbor approach with caliper (.03), in columns (1)-(7), and a subsample with BN predetermined in column (8). For brevity, only the coefficient estimates from regressing debt maturity (*DMAT*) on audit quality (*BIG FOUR*) and other controls are shown. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent *t*-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7
Robustness Tests: Set 2
Profitability and Earnings Quality

	PROFITABILITY				EARNINGS QUALITY			
	ROA	ROE	LOSS	Z-SCORE	AQ	AQW	EM1	EM2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BIG FOUR	.0701***	.0760***	.0248***	.0799***	.04539***	.0435***	.0214***	.0241***
	(11.08)	(10.97)	(3.31)	(10.83)	(4.83)	(4.63)	(4.05)	(4.16)
ADDITIONAL CONTROL	.4337***	.0513***	-.0512	.0163***	.00007	.00008	-.0001	.0001
	(18.43)	(10.86)	(-.80)	(14.17)	(.81)	(-1.41)	(-.51)	(.46)
LEVERAGE	1.5156***	1.7788***	.0001***	2.0394**	.0001	.0001	.0001	.0001
	(26.99)	(24.27)	(2.41)	(21.72)	(.94)	(.98)	(.26)	(.49)
AMATURITY	.0002	-.0002	-.0015	-.0006**	.0025***	.0025***	-.3947	-.0002
	(1.03)	(-.87)	(-1.09)	(-2.16)	(6.34)	(6.55)	(.72)	(-.04)
S_ROA	.1239***	.0386	-1.011	.3318***	-.2947***	-.2980***	.0530	-.9328
	(4.94)	(1.56)	(-2.56) ***	(8.38)	(-5.21)	(-5.26)	(-.65)	(-1.37)
GROWTH	.0891***	.1046***	.1022	.0947***	.0631***	.0618***	.0501	.0869**
	(14.74)	(15.44)	(2.77) ***	(13.49)	(6.04)	(5.96)	(1.12)	(1.97)
SIZE	-.0223***	-.0007	-.0486	-.0422***	.1037***	.0994***	-.0022	-.0152
	(-3.56)	(-.12)	(-1.12)	(-5.16)	(11.50)	(10.36)	(.55)	(-.17)
SIZE_SQ	.0033***	.0019***	.0037	.0053***	-.00677***	-.0064***	-.0971	.0018
	(7.06)	(4.04)	(1.15)	(8.39)	(-10.88)	(-10.09)	(-.39)	(.33)
ABNE	-.0973***	-.1508***	-.1123	-.1185***	.4141***	.3948***	.1433	-.1134
	(-8.96)	(-12.16)	(-.40)	(-9.54)	(5.54)	(4.44)	(-.55)	(-.99)
REGULATED	.0141*	-.0122	.1896***	.0012	.1316***	.1313***	.1745***	.1656***
	(1.72)	(-1.27)	(18.42)	(.12)	(14.91)	(14.95)	(3.26)	(4.29)
INTERCEPT	.3039***	.2278***	.8605***	.2370***	.0317***	.0474***	.3177	.4966
	(18.41)	(12.47)	(5.17)	(12.40)	(.36)	(.54)	(.37)	(1.09)
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	42,679	42,679	42,679	37629	14815	14815	38110	38110

Notes: This table reports results from GMM estimation of a system of leverage and debt maturity equations. For brevity, only the coefficient estimates from regressing debt maturity (*DMAT*) on audit quality (*BIG FOUR*) and other controls are shown. All regressions include (unreported) country fixed effects. The full sample comprises 42,679 firm-year observations from 42 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent *t*-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8
Robustness Tests: Set 3
Alternative Specifications

	OLS	2SLS	WLS	Alternative GMM	No Fixed Effects	Industry Fixed Effects	Country, Industry, Year Fixed Effects	DMAT2	DMAT3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
BIG FOUR	0.0248***	0.0360***	0.1317***	0.0186***	0.1845***	0.0286***	.0297***	0.0074**	.0172J***
	(5.81)	(8.06)	(30.91)	(3.99)	(29.47)	(5.93)	(6.14)	(2.36)	(3.23)
LEVERAGE	0.3532***	0.8188***	0.2765***	0.9131***	1.3901***	0.7446***	.7676***	-0.3036***	.0001
	(41.77)	(25.43)	(32.00)	(25.71)	(23.67)	(20.15)	(20.40)	(-7.15)	(-.59)
AMATURITY	0.0028***	0.0019***	0.0018***	0.0018***	-0.0007***	0.0014***	.0013***	0.0016***	.0025
	(23.63)	(13.42)	(14.30)	(12.29)	(-3.28)	(8.91)	(8.45)	(10.82)	(.44)
S_ROA	-0.1467***	-0.0867***	-0.0110	-0.0478***	0.2115***	-0.0817***	-.0762***	-0.0243*	-.7580
	(-9.83)	(-5.44)	(-0.69)	(-2.64)	(9.28)	(-4.59)	(-4.23)	(-1.68)	(.76)
GROWTH	0.0383***	0.0499***	0.0248***	0.0506***	0.0447***	0.0397***	.0432***	0.0037	.0555
	(10.01)	(12.38)	(6.09)	(11.70)	(8.32)	(9.41)	(10.15)	(1.09)	(.82)
SIZE	0.0587***	0.0400***	0.0773***	0.0650***	0.0429***	0.0416***	.0403***	0.0234***	-.0192
	(16.82)	(10.45)	(20.93)	(15.72)	(8.46)	(9.82)	(9.49)	(6.59)	(-.14)
SIZE_SQ	-0.0025***	-0.0010***	-0.0028***	-0.0031***	0.0003	-0.0011***	-.0011***	-0.0026***	.0019
	(-8.33)	(-3.22)	(-9.03)	(-9.48)	(0.67)	(-3.41)	(-3.15)	(-9.19)	(.23)
ABNE	-0.0503***	-0.0825***	-0.0501***	-0.0569***	-0.1321***	-0.0829***	-.0855***	0.0149***	-.0684
	(-9.67)	(-14.24)	(-8.94)	(-8.63)	(-12.73)	(-11.35)	(-11.68)	(3.14)	(-.26)
REGULATED	0.1118***	0.0820***	0.0908***	0.0773***	0.0196***	0.1457***	.1403	0.0265***	.2052***
	(19.34)	(13.02)	(14.78)	(13.26)	(2.65)	(20.15)	(0.00)	(4.79)	(3.04)
INTERCEPT	-0.0208	-0.1177***	0.1000***	-0.2219***	-0.0761***	-0.1544***	-.1142	0.0941**	.3569
	(-0.67)	(-3.59)	(9.13)	(-6.24)	(-4.46)	(-4.51)	(0.00)	(-2.53)	(.50)
Country Effects	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
N	42,679	42,679	42,679	42,679	42,679	42,679	42,679	42,679	42,679

Notes: This table reports results from estimations with debt maturity as the dependent variable. The full sample comprises 42,679 firm-year observations from 42 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent t-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 9
Robustness Tests: Set 4
Property Rights and Creditor Rights Proxies

	PR_BAE&GOYAL		PR_KNACK&KEEFER		PR_HERITAGE		FORMALISM		ATIMEPAY	
	Weak	Strong	Weak	Strong	Weak	Strong	More	Less	Long	Short
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
BN	-0.0090	0.0389***	-0.0081	0.0385***	-0.0010	0.0161**	-0.0061	0.0237***	-0.0001	0.0200**
	(-1.27)	(4.42)	(-1.17)	(4.29)	(-0.12)	(2.17)	(-0.82)	(3.04)	-(0.02)	(2.15)
LEVERAGE	0.0881	-0.2264	0.0827	-0.2332	0.2094***	-0.1585	0.2212***	-0.2000	0.2172***	-0.3421**
	(1.24)	(-1.23)	(1.16)	(-1.28)	(2.88)	(-1.25)	(2.96)	(-1.42)	(3.10)	(-1.98)
AMATURITY	0.0023***	0.0039***	0.0023***	0.0039***	0.0021***	0.0034***	0.0023***	0.0035***	0.0023***	0.0041***
	(9.70)	(7.23)	(9.58)	(7.47)	(7.22)	(10.05)	(8.46)	(9.45)	(9.30)	(8.48)
S_ROA	-0.1922***	-0.0979**	-0.1928***	-0.0972**	-0.0824	-0.1304***	-0.0575	-0.1416***	-0.0842**	-0.1358***
	(-4.95)	(-2.56)	(-5.02)	(-2.54)	(-1.60)	(-4.20)	(-1.34)	(-4.27)	(-2.12)	(-3.75)
GROWTH	0.0168**	0.0729***	0.0174***	0.0753***	0.0167**	0.0625***	0.0094	0.0771***	0.0176***	0.0790***
	(2.49)	(8.23)	(2.59)	(8.47)	(2.17)	(8.81)	(1.37)	(9.54)	(2.70)	(8.84)
SIZE	0.0644***	0.0416***	0.0645***	0.0416***	0.0751***	0.0435***	0.0522***	0.0448***	0.0522***	0.0458***
	(8.41)	(3.99)	(8.61)	(3.90)	(8.23)	(5.38)	(6.45)	(5.27)	(7.18)	(4.34)
SIZE_SQ	-0.0028***	-0.0011	-0.0029***	-0.0010	-0.0046***	-0.0008	-0.0024***	-0.0008	-0.0027***	-0.0003
	(-4.23)	(-1.29)	(-4.48)	(-1.14)	(-5.96)	(-1.25)	(-3.61)	(-1.27)	(-4.64)	(-0.41)
ABNE	-0.0077	0.0103	-0.0080	0.0103	-0.0232**	0.0106	-0.0101	-0.0037	-0.0101	0.0048
	(-0.81)	(0.52)	(-0.85)	(0.52)	(-2.09)	(0.80)	(0.97)	(-0.24)	(-1.06)	(0.25)
REGULATED	0.1765***	0.1337***	0.1794***	0.1286***	0.1683***	0.1549***	0.1813***	0.1288***	0.1749***	0.1431***
	(18.72)	(10.30)	(19.11)	(9.92)	(14.87)	(15.73)	(19.17)	(10.98)	(18.75)	(10.61)
INTERCEPT	0.2051***	0.4582***	0.2156***	0.4553***	0.0137	0.4625***	0.0691	0.4050***	0.0844**	0.3982***
	(7.77)	(16.05)	(8.57)	(16.03)	(0.38)	(20.51)	(1.59)	(13.49)	(2.00)	(12.23)
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	10505	10595	10,698	10,390	7,357	14,653	9,446	12,888	11,553	10,781

Notes: This table reports results from GMM estimation of a system of leverage and debt maturity equations. For brevity, only the coefficient estimates from regressing debt maturity (*DMAT*) on audit quality (*BIG FOUR*) and other controls are shown. We report results for subsamples with below- and above-median indices for a number of alternative property rights and creditor rights proxies. All regressions include (unreported) country fixed effects. The non-U.S. sample used in the regressions comprises 22,408 observations from 41 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent *t*-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 10
Robustness Tests: Set 5
Yearly Tests

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
BIG FOUR	.1442***	.1551***	.1635***	.1499***	.1675***	.1659***	.0859***	.0873***	.0850***	.0912***
	(8.14)	(8.50)	(9.01)	(8.40)	(9.90)	(9.65)	(5.05)	(4.50)	(5.31)	(6.19)
LEVERAGE	.2269	.0554	.2541*	.2036	.4047***	.5303***	-.0810	.1449	.2508	.4501**
	(1.28)	(.33)	(1.69)	(1.40)	(2.54)	(2.47)	(-.36)	(.50)	(1.26)	(2.34)
AMATURITY	.0030***	.0031***	.0032***	-.0024***	.0008	.0009	.0027***	.0018**	.0006	.0009*
	(5.69)	(5.62)	(7.10)	(5.32)	(1.46)	(1.41)	(4.02)	(2.05)	(.93)	(1.60)
S_ROA	.0544	-.0259	-.0609	-.0586	.0324	.0016	-.1494**	-.0686	.0267	.1977***
	(.74)	(-.30)	(-.78)	(-.90)	(.52)	(.02)	(-2.25)	(-.81)	(.41)	(2.96)
GROWTH	.0127	-.0243	.0067	.0085	.0165	.0256*	.0543***	.0591***	.0122	.0042
	(.67)	(-1.41)	(.47)	(.75)	(1.27)	(1.80)	(3.01)	(3.41)	(.84)	(.27)
SIZE	.0823***	.0765***	.0686***	.0978***	.0763***	.0624***	.0880***	.0731***	.0830***	.0690***
	(4.96)	(4.80)	(4.46)	(7.50)	(5.50)	(4.20)	(5.86)	(4.48)	(6.33)	(5.97)
SIZE_SQ	-.0043***	-.0043***	-.0031***	-.0051***	-.0029***	-.0022*	-.0036***	-.0016	-.0019*	-.0006
	(-3.21)	(-3.39)	(-2.49)	(-4.72)	(-2.53)	(-1.82)	(-2.94)	(-1.21)	(-1.88)	(-.65)
ABNE	-.0171	-.0641**	-.0702**	-.0553***	-.0695***	-.0415	-.0274	-.0609**	-.0226	-.0605**
	(-.41)	(-1.96)	(-2.08)	(-2.44)	(-2.77)	(-1.41)	(-1.49)	(-2.23)	(-1.13)	(-2.10)
REGULATED	.0930***	.0962***	.1082***	.1253***	.0878***	.1039***	.1233***	.0842***	.0726***	.0712***
	(4.28)	(4.40)	(5.51)	(7.16)	(5.06)	(6.03)	(5.62)	(2.86)	(3.52)	(3.72)
INTERCEPT	.1459***	.2067***	.1448***	.0794*	.0532	.0889*	.1508***	.1224	.0723*	.0577
	(2.90)	(4.32)	(3.21)	(1.63)	(1.01)	(1.77)	(3.15)	(2.24)	(1.67)	(1.29)
N	3285	3477	3874	4282	4261	4301	4605	4730	4924	4940

Notes: This table reports yearly results from GMM estimation of a system of leverage and debt maturity equations. For brevity, only the coefficient estimates from regressing debt maturity (*DMAT*) on audit quality (*BIG FOUR*) and other controls are shown. The full sample comprises 42,679 firm-year observations from 42 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent *t*-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 11
Robustness Tests: Set 6
Alternative Samples for Institutional Tests

	Samples excluding Canada				Samples excluding United Kingdom			
	PropRights		CR		PropRights		CR	
	Weak	Strong	Weak	Strong	Weak	Strong	Weak	Strong
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BIG FOUR	-.0089	.0458***	-.0025	0.0307***	-.0046	.0494***	.0030	.0328***
	(-1.23)	(5.41)	(-.29)	(4.23)	(-.51)	(5.52)	(.27)	(4.07)
LEVERAGE	.1149*	-.0011	.3717***	0.0329	.1393**	-.3322**	-.4003**	.2702***
	(1.80)	(-.01)	(4.13)	(0.29)	(2.02)	(-2.29)	(-2.26)	(3.61)
AMATURITY	.0024***	.0034***	.0014***	0.0034***	.0023***	.0038***	.0020***	.0027***
	(10.03)	(5.67)	(4.61)	(10.46)	(7.88)	(10.26)	(4.66)	(10.27)
S_ROA	-.1627***	-.0443	.0135	-0.0436	-.1470**	-.1812***	-.3666***	-.0386
	(-3.97)	(-1.11)	(.23)	(-1.36)	(-2.42)	(-3.89)	(-5.82)	(-.93)
GROWTH	.0128*	.0696***	.0171**	0.0533***	.0098	.0407***	.0399***	.0102
	(1.86)	(7.12)	(2.09)	(7.29)	(1.16)	(4.20)	(4.02)	(1.36)
SIZE	.0653***	.0360***	.0559***	0.0388***	.0602***	.0655***	.0550***	.0514***
	(8.16)	(3.53)	(5.23)	(5.46)	(5.16)	(6.80)	(3.84)	(6.65)
SIZE_SQ	-.0028***	-.0008	-.0033***	-0.0002	-.0014	-.0031***	-.0033***	-.0011
	(-3.95)	(-1.01)	(-3.91)	(-0.34)	(-1.24)	(-4.12)	(-3.05)	(-1.62)
ABNE	-.0111	.0151	-.0278**	0.0040	-.0149	.0265	-.0016	-.0150
	(-1.16)	(.77)	(-2.18)	(0.32)	(-1.34)	(1.60)	(-.07)	(-1.44)
REGULATED	.1790***	.1288***	.1611***	0.1528***	.1787***	.1347***	.1135***	.2118***
	(18.68)	(9.61)	(15.08)	(14.05)	(14.83)	(9.46)	(8.08)	(19.47)
INTERCEPT	.0484	.2819***	.0504	0.1206***	.0119	.2901***	.5841***	.0394
	(1.15)	(11.21)	(1.06)	(3.22)	(.25)	(9.81)	(15.96)	(1.30)
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	9524	9476	6980	12,999	5875	8855	6239	9177

Notes: This table reports results from GMM estimation of a system of leverage and debt maturity equations. For brevity, only the coefficient estimates from regressing debt maturity (*DMAT*) on audit quality (*BIG FOUR*) and other controls are shown. We report results for subsamples with below- and above-median indices for creditor and property rights. All regressions include (unreported) country fixed effects. The non-U.S. sample used in the regressions comprises 22,408 observations from 41 countries over the period 1994-2003. The appendix outlines definitions and data sources for all variables. Heteroskedasticity and autocorrelation consistent *t*-statistics are reported in parentheses. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.