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Financial Decisions and Investment Outcomes in Developing Countries:

The Role of Institutions

Rima Turk

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The Role of Institutions

Prepared by Rima Turk

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Abstract

This paper analyzes how differences in legal origin, judicial efficiency, and investor protection affect firm leverage and earnings volatility across developing countries. Using a large number of developing countries, four main findings are highlighted. First, firms in civil legal origin countries rely more on debt financing compared to firms in common law countries, and they exhibit lower earnings volatility. Second, under weak judicial enforcement, firms tend to borrow more but they take less risk. Third, stronger creditor rights increase debt financing and reduce earnings volatility. Fourth, firm listing on a developed stock exchange shifts the capital structure towards more equity financing, and it increases the firm's ability to borrow more when the judicial system is inefficient. The results reinforce the importance of strengthening laws and institutions as well as deepening capital markets in developing countries to improve financing conditions and investment outcomes.

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I. INTRODUCTION[1]

Following the seminal work of La Porta, Lopez-de-Silanes, Shleifer and Vishny (LLSV, 1997, 1998, 2002) on the role of legal origin and investor protection in financial development, a growing body of the law and finance literature has shown that institutions are likely to shape corporate decisions and prospects. One strand of this literature examines whether institutional differences affect corporate financial decisions (e.g., Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001); Claessens, Djankov, and Nenova (2001); Giannetti (2003); and Fan, Titman, and Twite (2012)), whereas another one analyzes independently how investor protection rules may shape firm investment outcomes (e.g., John, Litov, and Yeung (JLY, 2008); Acharya, Amihud and Litov (AAL, 2011); and Adler, Capkun, and Weiss (2013)). Unless a Modigliani-Miller framework separating financing from investment decisions is assumed, these two corporate decisions ought to be lumped together.

In this paper, we investigate the effect of laws and institutions on both financial decisions and investment outcomes, tying the two literature strands.[2] We use total and short-term debt ratios to assess firm financial choices, and utilize earnings volatility as a proxy for investment outcomes. We also broaden the scope of institutional variables, grouping them under two categories to reflect (1) the legal environment, and (2) investor protection. We include two aspects of the legal environment: the content of the law and judicial efficiency.[3] In this respect, rather than using LLSV's rule of law variable (as in JLY, AAL, and Giannetti (2003)), we draw on a measure of judicial efficiency that is more contemporaneous with our study period.[4]

The study focuses exclusively on developing countries (see for e.g., Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001)). The sample is sizable including firms from 23 developing countries, and is about twice as large as the number of developing countries considered in previous studies.[5] More importantly, developing countries provide an interesting empirical fieldwork because of differences in their legal systems and investor protection levels.[6] We do

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[2] A study by Assuncao, Benmelech, and Silva (2014) uses a natural experiment from Brazil to examine how a change in the the creditor's ability to expedite the process of reselling repossessed collateral increased access of credit to borrowers who were formerly denied credit, the so-called "democratization of credit", but also increased lending to riskier borrowers as well as the likelihood of a late payment and default.

[3] The ease with which lenders can force repayment, grab collateral, or even gain control of a firm matters more than the laws on the books. See Djankov, La Porta, Lopez-De-Silanes, and Shleifer (DLLS, 2003), Djankov, McLiesh, and Shleifer (DMS, 2007), and Djankov, Hart, McLiesh, and Shleifer (DHMS, 2008).

[4] The LLSV's rule of law variable is for the period 1982-1995 whereas the study periods of JLY, AAL, and Giannetti (2003) are 1992-2002, 1994-2004, and 1993-1997, respectively.

[5] While the coverage of developing countries is greater in DLLS (2003) and DMS (2007), these studies use country-level data.

[6] The sample in Giannetti (2003) includes eight European countries, two of which have common law tradition and the remaining six counries are of civil legal origin. Qian and Strahan (2007) consider a sample that is considerably

not consider developed countries because it may be difficult to capture differences in the quality and efficiency of their laws and institutions compared to developing countries using empirical standard methods.[7] We also focus on firms in developing countries because of their pivotal role in restoring global financial stability, notably with the enlargement of the G7 to the G20 (which now comprises 11 emerging countries) and the need to spur private sector led growth.

We consider a broader set of institutional arrangements compared to the literature, which also points to conflicting evidence on their importance. For instance, there is no agreement on the importance of creditor rights for firm debt financing. Giannetti (2003), Haselmann, Pistor and Vig (2010), and Qian and Strahan (2007) report that strong creditor rights increase firms' reliance on debt financing, whereas Acharya and Subramanian (2007) and Vig (2013) find the opposite.

To assess the role of institutions on firm-level decisions, we classify developing countries according to their legal tradition, compile creditor and shareholders rights protection variables, respectively, from DMS (2007) and Djankov, La Porta, Lopez-de-Silanes, and Shleifer (DLLS, 2008), and include DLLS's (2003) and DMS's (2007) measures of judicial efficiency known as legal formalism.[8] We also examine the effect of firm listing on a developed exchange and run a series of sensitivity checks to address mismeasurement error and collinearity problems.

We obtain four main results that reinforce the importance of laws and institutions in shaping firm decisions. First, firms in civil legal origin countries rely more on debt financing compared to firms in common law countries and they also exhibit lower earnings volatility. Second, when judicial enforcement is weak, firms borrow more but they curb their risk taking. Third, stronger creditor rights increase debt financing and reduce earnings volatility. Finally, listing on a developed exchange shifts the capital structure towards more equity financing, and it increases the firm's ability to borrow more when the judicial system is inefficient.

Some of the paper's results do not necessarily agree with the findings in the literature for developed countries, highlighting the importance of focusing exclusively on developing countries in future research. This is notably the case for the importance of country laws for debt financing as well as the implications of investor rights. For instance, the expected positive effect from greater shareholder protection is muted in developing countries, except when controlling for exchange listing in a developed country and to a lesser extent when running two-stage least squares regressions.

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larger than Giannetti (2003), but they investigate how laws and institutions affect loan contracting terms and not firm financing decisions.

[7] Studies that include both developed and developing countries together capture differences in institutional environments across economies by simply using country-level indicators (as in JLY) or a dummy variable (as in AAL). One exception is Fan, Titman, and Twite (2012) who consider separate samples for developed and developing countries.

[8] Indicators of investor protection and legal formalism are assumed to be stable over the study period (DMS, 2007).

The organization of the paper is as follows. Section I reviews the relevant literature and formulates four hypotheses, one for each of the institutional factors considered. Section II presents the empirical design, which describes variables, data, and methodology. Section III discusses the main findings and section IV extends the analysis to account for exchange listing location. Section V conducts a series of robustness checks and Section VI offers the conclusion.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

In this section, we discuss how laws and institutions can potentially shape firm financial decisions and investment outcomes. We consider institutional variables that reflect (i) the legal environment and (ii) investor protection, and formulate our corresponding main hypotheses. While our two key variables, leverage and earnings volatility can be considered both as broad proxies for risk taking, we focus the discussion on the effects of laws and institutions on each of these two variables, as the literature shows that institutional factors may affect financial decisions and investment outcomes differently.[9]

A. Laws and Corporate Decisions

La Porta, Lopez-de-Silanes, Shleifer and Vishny (LLSV, 1997) have established that differences in the effectiveness of financial systems can be traced to a country's legal origin. According to LLSV, legal origin can help determine the degree of investor protection and consequently the level of financial development of a country. Legal origin refers to the historical origin of the country's laws on which the legal rules of investor protection are based. In their extended 1998 and 2002 articles, LLSV distinguish between four categories of legal origin; British, French, German, and Scandinavian legal origin.[10] The authors reveal that a country's legal origin is important in explaining the country's laws on creditor rights, shareholder rights, and private property rights, and that a country with poor investor protection is penalized by stunt financial development. Using aggregate data, Beck, Demirguc-Kunt and Levine (2003) verify that, in countries of British legal origin, credit from financial intermediaries to the private sector as a share of GDP is higher than for other countries.

Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001) were the first to use firm-level data from 10 developing countries and they show that the capital structure choices of firms are affected by both country-specific factors reflecting heterogeneity in macroeconomic environments and institutional features. Similarly, Claessens, Djankov, and Nenova (2001) use firm-level data from 46 developed and developing countries and find that corporate financing patterns around the world are a reflection of institutional environments, including a country's

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[9] We thank an anonymous referee for this comment.

[10] It is beyond the scope of this paper to debate whether the categorization of countries according to their legal origin is useful, or whether other factors like politics or cultural and religious heritage are crucial determinants of investor protection laws and financial development.

legal origin and the regulatory and legal protection provided to creditors and equity holders.[11] While greater financial development reduces the cost of equity financing, debt financing is likely to be higher in common law countries (Fan, Titman, and Twite, 2012).

Further, strong legal rights in common law countries (LLSV, 1997, 1998, 2002) and better developed financial intermediaries in countries with better legal protection (Levine, 1999) are likely to improve firm investment outcomes. Indeed, the findings of Rajan and Zingales (1998) confirm that greater financial development allows industrial firms to invest and grow faster compared to countries with less developed financial markets. In turn, improved firm prospects are likely to be coupled with greater firm risk taking and earnings volatility.

Hypothesis 1: All else equal, firms in developing countries of common legal origin rely more on debt financing and experience greater earnings volatility compared to firms civil origin developing countries.

In addition to the content of the law, the integrity and enforceability of the law is also important. The efficiency of judicial systems determines access to external financing and growth (Demirguç-Kunt and Maksimovic, 1998) as well as the financing choices of corporations (Demirguc-Kunt and Maksimovic, 1999). Beck and Levine (2002) also show that the efficiency of legal institutions increases the availability of financing to industries. Building on the work of LLSV (2002), Demirguc-Kunt and Maksimovic (2002) further report that access to external finance rises with the development of a country's legal system.

DLLS (2003) construct two indices to measure the effectiveness of courts as mechanisms of resolving two specific disputes, the eviction of a non-paying tenant and the collection of a bounced check. The authors find that procedural judicial efficiency is lower (i.e., legal formalism is greater) in civil than common law countries, and in developing than developed countries. Such indicators of judicial efficiency are crucial to our analysis because most developing countries have undergone extensive reforms of investor protection rules over the past decades, but law enforcement has not necessarily followed suit.

Under low judicial efficiency (high procedural legal formalism), lenders are reluctant to part with their funds because the inefficient judicial system in place does not guarantee the protection of their rights. However, it is also plausible to assume that firms contract more debt when law enforcement is weak. Using data for firms from 25 developed and 14 developing countries, Fan, Titman, and Twite (2012) find that weaker laws and lack of judicial enforcement encourage the use of corporate debt financing. Under low judicial efficiency, firms may increase reliance on debt financing because they are less likely to lose pledged collateral or be penalized by the legal system in case of default. This is particularly the case if they are not constrained in their access to finance. In parallel, they are likely to exercise more caution in undertaking investment activities, since their cash flow rights may be less protected by the judicial. Thus, under high

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[11] For other studies on corporate financing choices, see De Jong, Kabir, and Nguyen (2008) and Alves and Ferreira (2011).

procedural legal formalism, firms may forego positive but value-enhancing projects, resulting in lower earnings volatility or firm risk. We conjecture the following:

Hypothesis 2: All else equal, when legal formalism is high (judicial efficiency is low) in developing countries, firms contract more debt but are more cautious in their own investment activities thereby reducing earnings volatility.

B. Investor Protection and Corporate Decisions

The theoretical predictions of the macro-economic model by Castro, Clementi, and MacDonald (2004) imply that better investor protection rules reduce reliance on debt financing, while they also foster risk sharing and economic growth.[12] Using firm-level data, Acharya and Subramanian (2007) show that firms borrow less but they grow slower when creditor rights are strong, and Vig (2013) reports a negative association between creditor rights and firm borrowing in India.

In contrast, DMS (2007) show that strong creditor rights encourage aggregate lending, using a cross-section of countries as well as time series in changes in creditor rights, and that the relationship between creditor protection and private credit is statistically and economically significant. Firm-level evidence supporting a positive association between strong creditor rights and corporate reliance on debt financing is abundant. Giannetti (2003) finds that it is easier to obtain loans in countries with good creditor protection, resulting in higher debt levels for firms. Haselmann, Pistor, and Vig (2010) report that a strengthening of creditor rights through the creation of a collateral registry in Central and East European countries also improves firm lending; and Qian and Strahan (2007) propose that loan availability increases in a strong creditor rights environment.[13] In this paper, we hypothesize that better creditor protection increases firm reliance on debt financing.

With regards to the implications of creditor rights on investment outcomes, the related literature generally suggests that earnings volatility and firm risk are reduced under better protection of creditor rights. Chiou, Lee, and Lee (2010) report that stronger legal protection of investor rights associate with low firm risk and high return-risk stock performance, and King and Wen (2011) find that strong investor rights in the form of financing and investment covenants deter firm risky investments.

Whether the reduction in firm risk resulting from better protection of creditor rights has positive or negative implications on investment outcomes remains an open question. In a study spanning 65 countries, Wurgler (2000) documents that investor protection spurs firm investments and

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[12] Castro, Clementi, and MacDonald (2004) argue that an improvement in investor protection leads to a better risk sharing mechanism and increases the demand for capital, which eventually raises the interest rate, lowers the income of entrepreneurs, and decreases current savings and next period's supply of capital.

[13] Similarly, Lee, Lee, and Yeo (2009) examine the impact of shareholder and bondholder rights on the design of convertible debt; and Qi, Roth, and Wald (2009) argue that better political and creditor rights act as substitutes and that they lower the cost of debt, thereby increasing incentives to contract more debt financing.

improves the efficiency of capital allocation. However, AAL propose a dark side to better creditor rights because they associate with greater diversifying but value-destroying merger activity. Using a sample of 38 mostly developed countries over the period 1994-2004, AAL show that strong (as well as a strengthening of) creditor rights provide firms with incentives to lower the likelihood of distress and avoid inefficient firm liquidation, which would hurt both managers' private benefits of control and other stakeholders'. Acharya and Subramanian (2007) also argue that firms experience a reduction in corporate innovation and intensity in patent creation when creditor rights are strong. Further, Adler, Capkun, and Weiss (2013) find that a strengthening of creditor control in bankruptcy gives an incentive for managers to invest in value-reducing activities and delay a filing.[14] Therefore, we formalize the next hypothesize as follows:

Hypothesis 3: *All else equal, firms in developing countries with better creditor rights protection borrow more and engage in risk-reducing investment activities that could potentially be inefficient.*

The relevance of shareholder rights in setting good corporate governance practices for the firm has also received a great deal of attention in the literature. Using data from 31 countries, 8 of which are developing, Leuz, Nanda, and Wysocki (2003) argue that firms engage in less earnings management activities when ownership structures are dispersed and investor rights are stronger. Other studies propose that the existence of corporate governance mechanisms positively affects firm value. Black (2001) and Black, Love, and Rachinsky (2006) use firm-level corporate governance rankings for Russian companies and report that there is a strong and positive relationship between corporate governance and firm market value. Using cross-country firm-level indicators of corporate governance across 14 emerging markets, Klapper and Love (2004) find that better corporate governance highly correlates with improved operating performance and firm value. Employing the same data as Klapper and Love (2004), Francis, Hasan, and Song (2007) further report that firm-level corporate governance matters for the supply of bank loans and for bank loan contracting terms. Thus, when shareholder protection is strong and the risk of expropriation is diminished, shareholders become more confident that managers will exercise due diligence in meeting the firm's debt obligations, and the firm's access to external finance is increased (LLS, 2006). We thus hypothesize that better shareholder protection encourages firms to contract more debt.

Finally, stronger shareholder rights may either increase or reduce firm risk taking. Using firm data across 39 countries over the period 1999 to 2002, JLY find that better shareholder protection in terms of adequate disclosure rules and more effective monitoring of managers encourages firms to take on riskier but value-enhancing investments. When managers are less able to divert corporate resources, their private benefits of control are diminished thereby rendering positive net present value projects less likely to be rejected and increasing firm risk taking. However, JLY present an argument that a negative relationship between shareholder protection and risk taking is also possible if career concerns result in excessive managerial conservatism. Indeed, career concerns could induce managers to implement conservative investments or to tunnel risky

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[14] Similar evidence is by Chava and Roberts (2008) and Nini, Smith, and Sufi (2009).

projects to lower layers of management (Holmstrom and Ricart-i-Costa, 1986 ; Hirshleifer and Thakor, 1992). Similarly, the theoretical model by Shleifer and Wolfenzon (2002) demonstrates that investment decisions of the entrepreneur are shaped by the legal environment and that the volatility of firm profits is lower in countries with better protection of shareholders. We formulate our last hypothesis as follows:

Hypothesis 4: All else equal, better shareholder protection encourages firms in developing countries to assume more debt and to reduce earnings volatility.

III. EMPIRICAL DESIGN

A. Description of Variables

We use both country-level and firm-level data to analyze how laws and institutions affect financial decisions and investment outcomes across developing countries. Table 1 provides a concise reference for all variables. We describe below how we generate our key variables.

We retrieve financial data on publicly traded companies in 23 developing countries from the Thomson DataStream Advance 4.0 database over the period 1997-2007.[15] We collect data on total assets, tangible assets, total debt, long-term debt, total equity, market capitalization, earnings before interest, taxes, depreciation and amortization (*EBITDA*), pretax income, and taxes. We consider companies with at least five firm-year observations for our main variables.[16]

We use the financial data to compute firm *Total Debt* and *Short Term Debt* as the ratios of total and short term debt to total assets (*TA*), respectively. *Total Debt* represents all interest-bearing and capitalized lease obligations, or the sum of long and short term debt. We include *Short Term Debt* to investigate whether laws and institutions affect debt maturity.

We additionally construct two proxies for investment outcomes that reflect earnings volatility, *Risk 1* and *Risk 2*, as the standard deviation of the ratio of earnings before interest and taxes (*EBITDA*) to contemporaneous *TA* and the standard deviation of pretax return on assets (*ROA*), respectively.[17] We consider two measures of earnings volatility because *EBITDA* is generally subject to less income smoothing compared to pretax *ROA*, and we require at least five years of data for each firm to calculate these measures of risk.[18,19]

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[15] DataStream has a better coverage of firms in developing countries compared to other databases and it also generally defines variables consistently across countries.

[16] We exclude financial institutions from the sample.

[17] We do not consider the volatility of stock returns due to a large number of missing observations on market prices. Further, absence of institutional investors in developing countries, among other factors, does not ensure the efficient pricing of securities. As a result, the analysis rests on accounting ratios only and not on market-based measures of risk.

[18] We thank an anonymous referee for pointing out that, since earnings may be subject to manipulation, there could be a positive mechanical relation between proxies of risk-taking and investor protection that may possibly not reflect the firm's risk-taking incentives per se (e.g., in poor investor protection countries we would expect more earnings smoothing and so less volatile earnings). However, lack of data availability does not allow addressing such concerns as in the literature (e.g., Faccio, Marchica, and Mura (2011) who use the likelihood of survival as a proxy for risk

(continued…)

We gather information on the legal origin for each developing country included in our sample from DLLS (2003) and DMS (2007) and group them under two categories, *Common* and *Civil* law origins.[20] To proxy for the enforceability of the law or judicial efficiency, we use a measure of legal formalism (*Legal Formalism$_c$*) for each country c from DLLS (2003), which is the number of days necessary to collect on a bounced check and to evict a tenant for nonpayment of rent before the courts in the country's largest city. Larger values of *Legal Formalism$_c$* reflect a less efficient judicial system in resolving disputes or in enforcing investor protection rights.[21]

We also collect information on investor protection (*Investor Protection$_c$*) to gauge the level of protection of both shareholders and creditors from managerial stealing.[22] We retrieve from the LLSV's (1998) database the *Creditor Rights* index, which assesses restrictions on creditors, creditors' possession of their security, disposition of creditors' assets, and other factors influencing creditor rights. A better protection of creditor rights scores higher on this index. To account for the protection of *Shareholder Rights* against insiders' expropriation of benefits, we use the revised DLLS (2008) anti-directors' rights index. Better protection of shareholders from insiders' or Board of Directors' expropriation of firm value associates with a higher score on *Shareholder Rights*.

Finally, we include a number of firm-level control variables. *Asset Tangibility* is the ratio of tangible assets to *TA* to control for the greater potential of firms with fixed assets to borrow more; *Profitability* is pretax *ROA* and *Tax Rate* is the ratio of taxes to pretax income, both of which may also affect debt financing decisions; *Firm Size* is the natural logarithm of *TA*; and *Market-to-Book* is the ratio of market capitalization to book value of equity. Country-level control variables are per capita Gross Domestic Product (GDP) and the growth rate in real GDP.

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taking for European firms and John, Litov, and Yeung (2008) who consider an imputed measure of risk-taking based on the United States that is assumed with the least earnings smoothing).

[19] Similar to JLY, we winsorize earnings variables at 0.5% to account for possible data errors.

[20] The law and finance literature classifies Korea under different legal origins. LLSV (1998, 1999) have originally considered Korea as having a German legal tradition; DHMS (2008) include it under common law; and more recently, McLean, Zhang, and Zhao (2012) categorize Korea under civil law. We follow McLean, Zhang, and Zhao (2012) in their classification of Korea as part of the civil law group of countries.

[21] We also consider contract enforcement days as another proxy for the efficiency of the judicial system from DMS (2007), or the number of days needed to resolve a payment dispute worth 50% of the country's GDP per capita through courts.

[22] We than an anonymous referee for pointing out that the use of static measures of investor protection on panel data may be problematic as such measures vary over time, especially in developing countries where rules are dynamic to allow for the opening of their markets internationally. Armour, Deakin, Lele, and Siems (2009) shed light on the dynamics of change in legal rules using a newly-constructed time-varying index. Their findings cast doubt on the importance of legal origin in shaping investor protection over time, indicating that the divide between common and civil law is less clear and that it depends on the area of law under examination.

B. Data and Univariate Results

Our sample consists of 2,107 nonfinancial firms across 23 developing countries or a total of 10,600 firm-year observations for the fiscal years 1997 to 2007. The Appendix reports the number of firms and firm-year observations per country.

Table 2 shows the results of tests of differences in means for financial decisions and investment outcomes across countries of different legal origin, and when the sample is split at the median value of each of *Legal Formalism*, *Creditor Rights*, and *Shareholder Rights*. The univariate statistics indicate that *Short Term Debt* is significantly lower and *Risk 1* and *Risk 2* significantly higher in civil than in common law countries. Also, firms in countries with high legal formalism rely more on short term debt and exhibit lower earnings volatility than firms in countries with low legal formalism. Further, financial decisions and investment outcomes differ significantly in countries with creditor rights protection above or below the median. Under strong creditor rights, firms in developing countries borrow more short term and experience greater earnings volatility. However, firm reliance on debt financing increases when shareholder rights are weak. Overall, these univariate statistics suggest that financial decisions and investment outcomes in developing vary with various institutional settings. However, they provide a murky picture as they do not consider the effect of different laws and institutions on corporate decisions in a multivariate context.

Table 3 provides descriptive statistics for our main variables averaged at the country level and Table 4 lists their pairwise correlations.

Our sample is almost evenly split across countries of common and civil legal origin. The average *Total Debt* is twice as large as the average *Short Term Debt* and, as expected, *Risk 1* exhibits variability twice as large as *Risk 2*, the latter being more likely to be subject to earnings smoothing compared to *Risk 1*. On average, firms in our sample invest a large fraction of their sources of funds in tangible assets (41.66%) and they exhibit great variability in average profitability and tax rates.

We also analyze the pairwise correlations among our variables and present the results in Table 4.

We first observe that the correlation coefficients between our key dependent variables (financial decisions and investment outcomes) and most of the other variables are less than 0.1 in absolute terms, and that our two alternative measures of corporate risk taking, *Risk 1* and *Risk 2* strongly positively correlate (at correlation coefficient of 0.637). High legal formalism (or low judicial efficiency) positively correlates with debt financing (correlation coefficient of 0.054) and negatively with our two measures of risk (correlation coefficients of -0.139 for each of *Risk 1* and *Risk 2*); it is also lower in developing countries of civil legal origin (correlation coefficient of -0.054) compared to common law origin. Correlation between legal origin and investor protection is lower in civil than in common law developing countries (correlation coefficients of -0.469 and -0.447 for creditor and shareholder rights, respectively). In developing countries where legal formalism is high, creditor and shareholder rights are also significantly reduced (correlation coefficients of -0.669 and -0.333, respectively). Firm size is larger using book value of assets but market capitalization is lower in developing countries of civil legal origin compared to common law origin and when legal formalism is high. Large firms borrow more than small

firms but with significant lower reliance on short term debt, and they exhibit lower earnings volatility (correlation coefficients with *Risk 1* and *Risk 2* of -0.160 and -0.224, respectively). Finally, civil legal origin developing countries grow more slowly than common law origin developing countries, albeit having a higher GDP per capita, and faster growing developing countries with higher GDP per capita correlate with lower legal formalism and stronger creditor rights.

C. Methodology

Our objective is to analyze how differences in legal origin, judicial efficiency, and investor protection affect firm financial decisions and investment outcomes in developing economies. We regress firm-level indicators of leverage and risk on legal origin, legal formalism, creditor rights, and shareholder protection, while controlling for firm-level and country-level differences in the sample. Our baseline model is of the general form:

$$Corporate\ Choice_i = \beta_1 Civil_c + \beta_2 Legal\ Formalism_c + \beta_3 Investor\ Protection_c + \beta_4 F_i + \beta_5 Z_c + \varepsilon_j \quad (1)$$

Where *Corporate Choice$_i$* is firm i's corporate choice of debt financing (*Total Debt* and *Short Term Debt*) and investment outcomes as proxied by earnings volatility (*Risk 1* and *Risk 2*). Except for *Total Debt* and *Short Term Debt* that are time-varying for each firm, *Risk 1* and *Risk 2* are time invariant for each firm. We estimate the panel regressions for *Total Debt* and *Short Term Debt* using firm random effects with robust standard errors clustered at the country level, since our key variables *Civil$_c$*, *Legal Formalism$_c$*, *and Investor Protection$_c$* do not vary within countries (Greene, 2008). Additionally, when the dependent variables are *Risk 1* and *Risk 2*, we weigh individual observations by the inverse of the number of firms in each country to control for sample bias because these risk measures give more weight to countries with more firm representation when estimating pooled firm-level cross-country regressions.[23] We also account for potential within-country correlation in the residuals by clustering standard errors at the country level.[24]

In Equation 1, the omitted variable reflects developing countries of common law origin. *F$_{i,c}$* represents firm-level control variables for profitability, market to book, and firm size. When *Total Debt* and *Short Term Debt* are the dependent variables, we use the lagged value of all firm controls, and we add two more variables: *Asset Tangibility* (firms with more tangible assets are able to contract more debt) and *Tax Rate* (to control for the relative tax advantage of debt versus equity financing).[25] Further, when *Risk 1* and *Risk 2* are the dependent variables, we control for

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[23] The weighing procedure is not applied in the *Leverage* regressions because random effects are used to estimate these parameters.

[24] We acknowledge that corporate income smoothing can reduce our estimates of *Risk 1 and Risk 2* (Ball, Kothari, and Robin, 2000; Leuz, Nanda, and Wysocki, 2003). However, the lack of detailed accounting data for developing countries does not allow us to control for income smoothing effects. We assume that all firms across developing countries engage in such activities, so that the net effect on our risk indicators is identical in the sample.

[25] We do not control for the debt tax advantage using the classical formula for the gain from leverage (Miller, 1977) as we do not have information on the tax rate for dividends and for income on bonds.

firm leverage (using either *Total* or *Short Term Debt*) in Equation 1, since debt financing is one channel through which creditor rights may affect earnings volatility.[26]

Z_c controls for GDP per capita, as more developed economies are likely to enjoy larger credit markets (DLLS, 2008) and real GDP growth rates; and $\varepsilon_{i,t}$ is a random error term.[27]

IV. BASELINE FINDINGS

We present the multivariate estimation results for the determinants of financial decisions and investment outcomes in Tables 5, 6, and 7 using *Total* and *Short Term Debt, Risk 1, and Risk 2* as dependent variables, respectively. We estimate Equation 1 for the full sample of firms (Model 1), and for a reduced subset that excludes countries where the number of firms is less than 10 (Model 2).

A. Multivariate Results for Financial Decisions

The dependent variable in Table 5 is *Total Debt* (Panel A) and *Short Term Debt* (Panel B) measured as the ratio of total and short term debt to assets, respectively.

The coefficient on *Civil* is positive and statistically significant. Since the omitted category is *Common*, firms in developing countries with civil legal origin finance a higher proportion of their assets using debt compared to firms in common law countries. A similar result is reported early in the literature by Demirguc-Kunt and Maksimovic (1999) and Claessens, Djankov, and Nenova (2001) for a group of developed and developing countries. However, it is opposite to Fan, Titman, and Twite (2012) who find a positive but insignificant association between the total debt ratio and common law countries for a subset of 14 developing countries.

The sign on *Legal Formalism* is positive and significant across all specifications, suggesting that firms in developing countries rely more on debt financing when the judicial system is not efficient in enforcing contracts.[28] It does not agree with the findings of Demirguc-Kunt and Maksimovic (1999) for an earlier period (1980-1991) or with DMS (2007) who examine the importance of the judicial on aggregate credit to GDP. The coefficient also increases in economic and statistical significance when *Short Term Debt* is the dependent variable, suggesting that debt maturity matters for contract enforcement. This finding is consistent with Fan, Titman, and Twite (2012) that firms in countries with weaker laws tend to use more debt, especially short-term debt. We explain the positive association between *Legal Formalism* and

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[26] Since asset tangibility and tax rate are not expected to be as determining variables for earnings volatility compared to debt financing, we do not include them in the *Risk 1* and *Risk 2* regressions. We do verify, however, that adding them to these regressions does not qualitatively change the results.

[27] In the robustness section, we address potential endogeneity and multicollinearity issues.

[28] It is possible that the supply of foreign debt capital may be more sensitive to the efficiency of the judicial system compared to domestic debt capital. However, the data does not allow for differentiation between the supply of domestic and foreign debt, nor is it possible to determine whether the supply of foreign capital is a small portion of the total supply of debt capital.

Debt from a borrower's perspective.[29] When legal formalism is high and law enforcement is loose, firms might be encouraged to take on more corporate debt because it is possible that no legal action is taken against them in case of default. In developing countries, the independence and impartiality of courts is generally questionable and, even if corrective action is pronounced, borrowers may expect delay in the enforcement of a verdict to enforce repayment. Conversely, when the judicial system is efficient, bankruptcy costs are expected to be high, deterring firms from greater reliance on debt financing to avoid increasing bankruptcy risk, and resulting in lower corporate demand for debt.[30]

With respect to investor protection, the estimated parameter of *Creditor Rights* is positive and highly significant and its economic significance increases for short term debt.[31] Better protection of creditor rights in developing countries encourages firms to borrow more, especially on the shorter end of the maturity. Our findings are similar to Giannetti (2003) for European countries whereby creditor protection is important for ensuring debt financing. They are also aligned with the evidence advanced by Haselmann, Pistor and Vig (2010) that better creditor rights in Central and East Europe boost lending, and with DMS's (2007) result that strong creditor rights increase the supply of private credit at the macro level. However, they are opposite to Claessens, Djankov, and Nenova (2001), to Acharya and Subramanian (2007), and to Vig (2013). In contrast, the coefficient on *Shareholder Rights* is insignificant and it changes in sign when debt maturity is accounted for using short term debt.

Contrary to the findings in the literature of a positive relationship between tangible assets and leverage (Titman and Wessels (1988) and Rajan and Zingales (1995)), *Asset Tangibility* negatively associates with debt financing. Giambona and Schwienbacher (2008) argue that tangible assets increase debt capacity only for credit constrained firms and Campello and Giambona (2013) show that tangibility increases corporate leverage only for redeployable (or salable) assets when credit is tight. Thus, the negative sign on *Asset Tangibility* may result from the fact that the firms represented in our sample are not credit constrained in view of being publicly listed. Consistent with the predictions of the pecking order theory, higher profitability reduces reliance on external debt financing, but similar to Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001), we do not find a significant relationship between debt ratios and tax policy. Firms with larger market-to-book ratio rely less on short term debt, and large firms are able to borrow more especially long term. It could be that large firms have already built up a credit history and relationships with banks or they benefit from great visibility in the market, allowing them greater access to long term debt financing relative to smaller-sized firms in developing countries. Finally, higher levels of GDP per capita increase debt financing for firms in developing countries.

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[29] We are grateful to Ronald Masulis for this interpretation.

[30] We also interact *Legal Formalism$_c$* with *Asset Tangibility* to test whether the positive relationship between legal formalism and firm debt financing is driven by higher levels of tangible assets (Qian and Strahan, 2007). The results (not shown) indicate that firms in developing countries with high legal formalism are able to contract more long term than short term debt when they carry a greater portion of tangible assets on their balance sheet.

[31] Whereas one would expect that longer maturities matter more under stronger creditor rights, the increase in economic significance in the coefficient using short term debt could be due to underdeveloped long-term corporate bond markets generally in developing countries.

B. Multivariate Results for Investment Outcomes

Tables 6 and 7 present the multivariate results for *Risk 1* and *Risk 2*, measured as the earnings volatility of *EBITDA*/*TA* and pretax *ROA*, respectively, to proxy for investment outcomes. Since these regressions control for firm leverage, Panels A and B use *Total Debt* and *Short Term Debt*, respectively. As in Table 5, Models 1 and 2 correspond to the full and restricted samples, respectively.

The legal origin variables in both tables indicate that firms in developing countries with civil law tradition experience lower earnings volatility compared to firms in common law developing countries. This result is more pronounced using *Risk 1* as dependent variable, which is less subject to smoothing compared to *Risk 2*, and it is maintained using *Total* and *Short Term Debt*. Since the findings of the previous section point to greater debt financing in civil law countries, or alternatively lower reliance on riskier equity financing, lower earnings volatility is perhaps not so surprising consistent with the risk-return relationship. The results thus reject *Hypothesis 1*.

We find a negative and highly significant association between legal formalism and earnings volatility across all specifications. Weaker judicial enforcement of the laws is conducive to lower levels of corporate risk taking in developing countries, as predicted by *Hypothesis 2*. We also explain this result conjunctly with the findings of Table 5. More efficient law enforcement (through lower values on *Legal Formalism*) associates with reduced debt financing (from Table 5), or alternatively a capital structure that is more in favor of equity. In turn, preference for a riskier source of financing translates into greater corporate earnings volatility.

With respect to creditor rights, we report a negative and significant relationship between *Creditor Rights* and corporate earnings volatility. The results using *Risk 1* are slightly statistically weaker than for *Risk 2*, the latter being more likely to be subject to income smoothing. When creditor rights are strong, financing and investment covenants are more stringent, bankruptcy risk is heightened, thereby deterring firms from assuming more risk. The results thus lend strong support for *Hypothesis 3* and to the "dark side" of creditor rights advanced by AAL (2008).[32]

The coefficient estimate for *Shareholder Rights* is insignificant in both Tables 6 and 7, albeit with a change in sign. Thus, unlike prior research on the importance of shareholder rights in shaping firm prospects, the results do not lend evidence for *Hypothesis 4*. However, the robustness checks provide some marginal support to lower firm reliance on debt financing when shareholder rights are strong, or alternatively greater equity issuance.

Finally, greater debt financing increases the volatility of earnings, and more profitable and larger firms experience less earnings volatility. Large firms enjoy higher charter value relative to small

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[32] We thank an anonymous referee for suggesting that the "dark side" to creditor rights does not distinguish between the incentive to take on value-enhancing risk and the incentive to take on excessive risk, the difference being linked to the existence of a threshold, where the implied bankruptcy costs exceed the additional value from tax shields.

firms and they stand to lose more than their peers in case of bankruptcy, possibly triggering a risk aversion attitude.

V. MODEL EXTENSION: THE EFFECT OF EXCHANGE LISTING

Firm financial decisions and investment outcomes may be dependent upon the exchange where the public firm is listed. Capital markets in developed countries are generally more advanced and efficient than in developing countries, and firms may seek to increase access to finance by listing on an exchange in a developed country. Table 8 shows the distribution of firms across exchanges.

In our sample, firms are listed across 50 different exchanges, 15 of which are domiciled in a developed country.[33] Out of 2,107 firms, 350 trade on an exchange that is located in a developed country, representing 16.61% of total companies in the sample. We assume that a company that operates in a developing country and listed abroad is likely to be different from the rest of the firms in the same country. We include in our baseline regressions a dummy variable *Developed Exchange*, which takes a value of 1 when the firm is listed on an exchange in a developed country and 0 otherwise. Table 9 shows the estimation results for financial decisions and investment outcomes regressions using the full sample.[34]

In Table 9, controlling for *Developed Exchange* does not change our main findings, but adding variable seems to provide additional insights into financial decisions and investment outcomes. For firms that are listed on a developed exchange, the coefficient on *Total Debt* is negative and significant, suggesting a shift in their capital structure away from debt toward equity financing. By issuing riskier and more expensive equity securities, these firms experience greater earnings volatility, as evidenced by the positive and highly significant coefficients on *Developed Exchange* in the *Investment Outcomes* regressions.

To check whether being listed on a developed exchange modifies the effect of legal origin, judicial efficiency, and investor protection on corporate choices, we also generate interaction terms between *Developed Exchange* and each of our four institutional variables.[35] Table 10 shows the estimation results for the full sample and using *Total Debt* as a control for firm leverage in the investment outcomes regressions.[36]

Except for a change in the coefficient estimates on *Shareholder Rights*, the previous findings for *Civil*, *Legal Formalism*, and *Creditor Rights* are maintained. When *Total Debt* is the dependent variable, the coefficient on *Shareholder Rights* becomes positive and marginally significant at the 10% level. This suggests that stronger shareholder protection may send a positive signal to

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[33] Developed exchanges in the sample are Berlin, Frankfurt, London, Luxembourg, Madrid SIBE, Munich, New York, Non NASDAQ OTC, Paris-SBF, SEAQ International, Singapore, Stuttgart, TSX Ventures, Tokyo Stock Exchange, and XETRA.
[34] The results are unchanged when excluding countries where the number of firms is less than 10.
[35] We are grateful to the associate editor for suggesting these additional tests.
[36] The results are unchanged when excluding countries where the number of firms is less than 10 and using *Short Term Debt* as a control for firm leverage in the investment outcomes regressions.

markets about firm governance, increasing access to debt financing especially long term. However, when controlling for the firm's listing abroad, this effect is significantly attenuated as the coefficient on the interaction term (*Developed Exchange * Shareholder Rights*) is negative and significant at the 5% level. The total effect of *Shareholder Rights* on *Total Debt* is negative, implying that the capital structure of the firm gears more to equity financing and less in favor of debt. Either those firms cannot issue corporate bonds in foreign exchanges or maybe they opt for a foreign listing just to raise new equity. This finding is not maintained when *Short Term Debt* is the dependent variable, suggesting no relationship between *Shareholder Rights* and short term debt financing. When using *Risk 2* as dependent variable, stronger shareholder rights associate with greater volatility in pretax *ROA*, probably because stronger shareholder rights also encourage equity issuance.

With regards to other interaction terms, the effect of foreign exchange listing does not modify the previous findings for *Civil* and *Creditor Rights*, but it does affect the results on *Legal Formalism*. The positive relationship between inefficient judicial systems and debt financing is more accentuated when controlling for listing on a developed exchange using *Total Debt* but not *Short Term Debt*. Using the previous explanation from a borrower's perspective, a firm in a developing country that is able to list abroad is less likely to be financially constrained compared to other publicly listed firms, and it thus seeks to increase debt financing when legal enforcement is weak. In contrast, the previous finding on the effect of *Legal Formalism* on investment outcomes is now attenuated (positive and marginally significant coefficient on *Developed Exchange * Legal Formalism*). By listing abroad, the firm's attitude towards risk is likely changed and its risk tolerance increases. As it is more likely to engage in risky investment activities relative to firms that only list on a domestic exchange, its earnings volatility also rises.

VI. ROBUSTNESS CHECKS

We run a series of sensitivity tests. First, Equation 1 may not capture all factors that affect corporate choices across developing countries, since the correlation between leverage and legal origin may result from an omitted variable for which there is no information (ownership structures), or cannot be measured (investment opportunities), or even observed (information asymmetry).[37] Such a measurement problem is common in the corporate finance literature (Roberts and Whited, 2013) and an identification strategy may be needed, as civil legal origin may be correlated with unobserved determinants captured by the error term.[38] We use two instruments for legal origin, the International Country Risk Guide Law and Order variable and the Regulatory Quality estimate from the World Bank governance indices; we test their validity using standard tests (Larcker and Rusticus (2010)); and we run two-stage least squares (2SLS) regressions. We report the results in Table 11, noting that they become weaker in significance although the main findings still hold.

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[37] From Table IV, the low correlations between most explained variables are indicative that the problem of omitted variables may not be so acute. Also, our use of panel data may offer a partial solution to this problem (Roberts and Whited, 2013).

[38] Ideally, one would follow the method of Agrawal (2013) who exploits variations in investor protection laws that are independent of unobservable factors and which may affect firm decisions.

Second, we orthogonolize creditor rights and legal formalism, which are strongly negatively correlated. We run our main regressions and report the results in Table 12. Our main findings are maintained.

Third, we substitute the *Shareholder Rights* proxy of shareholder protection with the *Anti-Self-Dealing Index* from DLLS (2008), as the former has been criticized in the literature.[39,40] Instead, the *Anti-Self-Dealing Index* index measures the legal protection of minority shareholders against expropriation by corporate insiders and is calculated as the average of ex-ante and ex-post private control of self-dealing, focusing on private enforcement mechanisms such as disclosure, approval, and litigation, which govern a specific self-dealing transaction. We present the results in Table 13, which also shows that our findings are qualitatively maintained.

Finally, we investigate the possibility that our main findings vary by sector of economic activity. Wurgler (2000) shows that better investor protection positively correlates with investments in growing industries, thereby improving the allocation of capital in the economy. The results (not shown) indicate that the importance of laws and institutions may be sector-dependent and that more sector-level research may be warranted, but our previous findings generally hold.[41]

VII. CONCLUSION

Developing countries are expected to play a crucial role in restoring global financial stability and economic growth, and their presence on the international arena is now marked with the enlargement of the G7 to the G20. In this paper, we investigate the extent to which differences in institutional arrangements across developing economies affect firm financial decisions and investment outcomes. Our motivation is that, in a world hit by a deep-seated global recession, a better understanding of firm debt financing and the corporate risk-taking appetite in economies such as Brazil, India, and other emerging economies can help restore global growth in output. We focus on a spectrum of institutional arrangements, including legal tradition, judicial enforcement, and investor protection, and find that laws and institutions are important determinant of corporate choices in four respects.

First, firms operating in developing countries rely more on debt financing in civil than common law countries, and greater preference for debt financing associates with lower levels of earnings volatility.

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[39] LLS (2006) argue that disclosure and liability standards in securities laws matter more than the anti-director rights index. However, we do not consider these variables because they are available for only a small subset of developing countries.

[40] Spamann (2009), a corporate law scholar, criticizes the *Shareholder Rights* index as being incorrectly calculated because the LLSV methodology codes only what is stated in statutes rather than how the courts interprets these statutes. After surveying law firms around the world and asking how courts handle examples of general investor rights violations, he finds that court interpretations can substantially alter a statute's actual impact and that a large number of countries have substantial changes in their investor rights index.

[41] The results are available upon request.

Second, judicial enforcement matters significantly for financial decisions and investment outcomes in developing countries. In countries with high legal formalism (weak enforcement of contracts), firms are likely to contract more debt, notwithstanding a possible lower supply of credit. They are, however, less willing to undertake risky investments. By financing a higher proportion of their operations with debt in a loose judicial environment, firms might expect that it is unlikely they would be held liable for their obligations in case of corporate default, as both expected bankruptcy costs and bankruptcy risk are lower. However, when it comes to risk taking in weak legal regimes, firm are rather more risk averse.

Third, stronger creditor rights increase firm debt financing and curbs corporate risk taking, supporting AAL's (2008) "dark side" to creditor rights that are not always optimal.

Finally, when firms in developing countries list their shares on an exchange that is domiciled in a developed country, their capital structure shifts from debt to equity and they experience greater earnings volatility. Also, their ability to increase borrowing under weak enforcement of the law becomes more pronounced compared to firms that are only listed domestically.

The findings of this study reinforce the importance of strengthening laws and institutions as well as deepening capital markets in developing countries to improve financing conditions and investment outcomes.

References

Acharya, V., Y. Amihud, I. Litov, 2011, Creditor rights and corporate risk-taking, *Journal of Financial Economics* 102, 150-166.

Acharya, V., K. Subramanian, 2007, Bankruptcy codes and innovation, *Review of Financial Studies* 22, 4949-4988.

Adler, B., V. Capkun, L. Weiss, 2013, Value destruction in the new era of Chapter 11, *The Journal of Law, Economics, & Organization* 29, 461-483.

Agrawal, A., 2013, The impact of investor protection law on corporate policy: Evidence from the Blue Sky Laws, *Journal of Financial Economics*, 107, 417-435.

Alves, P., M. A. Ferreira, 2011, Capital Structure and Law around the World, *Journal of Multinational Financial Management* 21, 119-150.

Armour, J., S. Deakin, P Lele, M. Siems, 2009, How Do Legal Rules Evolve? Evidence from a Cross-Country Comparison of Shareholder, Creditor and Worker Protection, *Working Paper 382*, ESRC Centre for Business Research.

Assuncao, J., E. Benmelech, F.S.S. Silva, 2014, Repossession and the Democratization of Credit, *Review of Financial Studies* 27, 2661-2689.

Ayyagari, M., A. Demirguc-Kunt, V. Maksimovic, 2008, How important are financing obstacles? The role of finance in the business environment, *The World Bank Economic Review* 22, 483-516.

Ball, R., S. Kothari, A. Robin, 2000, The effect of international institutional factors on properties of accounting earnings, *Journal of Accounting and Economics* 29, 1-51.

Barth J., G. Caprio, R. Levine, 2004, Bank regulation and supervision: what works best? *Journal of Financial Intermediation* 13, 205-248.

Beck, T., R. Levine, 2002, Industry growth and capital allocation: Does having a market- or bank-based system matter? *Journal of Financial Economics* 64, 147-180.

Beck, T., A. Demirguc-Kunt, R. Levine, 2003, Law and finance: Why does legal origin matter? *Journal of Comparative Economics* 31, 653–675.

Black, B., 2001, The Corporate Governance Behavior and Market Value of Russian Firms, *Emerging Markets Review* 2: 89-108.

Black, B., I. Love, A. Rachinsky, 2006, Corporate Governance Indices and Firms' Market Values: Time Series Evidence from Russia, *Emerging Markets Review* 7, 361-379.

Booth, L., V. Aivazian, A. Demirguc-Kunt, and V. Maksimovic, 2001, Capital Structures in Developing Countries, *Journal of Finance* 56, 87–130.

Campello, M., E. Giambona, 2013, Real Assets and Capital Structure, *Journal of Financial and Quantitative Analysis* 48, 1333-1370.

Castro, R., G. Clementi, G. MacDonald, 2004, Investor protection, optimal incentives and economic growth, *Quarterly Journal of Economics* 119, 1131-1175.

Chava, S., M. Roberts, 2008, How does financing impact investment? The role of debt covenants, *Journal of Finance* 63, 2085-2121.

Chiou, W., A. Lee, C. Lee, 2010, Stock return, risk, and legal environment around the world, *International Review of Economics and Finance* 18, 95-105.

Claessens, S., S. Djankov, and T. Nenova, Corporate Risk around the World, Working Paper, World Bank, CEPR, and Harvard University (2001).

De Jong, A., R. Kabir, and T. T. Nguyen, 2008, Capital Structure around the World: the Roles of Firm- and Country-Specific Determinants, *Journal of Banking and Finance* 32, 1954–1969.

Demirguç-Kunt, A., V. Maksimovic, 1998, Law, finance, and firm growth, *Journal of Finance* 53, 2107-2137.

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

Demirguc-Kunt, A., V. Maksimovic, 2002, Funding growth in bank-based and market-based financial systems: evidence from firm-level data, *Journal of Financial Economics* 65, 337-363.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, A. Shleifer, 2008, The law and economics of self-dealing, *Journal of Financial Economics* 88, 430–465.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, A. Shleifer, 2003, Courts, *Quarterly Journal of Economics* 118, 453-517.

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

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

Faccio, M., M-T. Marchica, and R. Mura, 2011, Large Shareholder Diversification and Corporate Risk-Taking, *Review of Financial Studies* 24, 3601-3641.

Fan, J. H., S. Titman, G. Twite, 2012, An International Comparison of Capital Structure and Debt Maturity Choices, *Journal of Financial and Quantitative Analysis* 47, 23-56.

Fan, G., Wang, X.L., 2003, NERI Index of Marketization of China's Provinces, Economics Science Press, Beijing (In Chinese). See "State ownership, the institutional environment, and auditor choice: Evidence from China" (Q Wang, TJ Wong, and Xia) Journal of Accounting and Economics (Volume 46, 1112-134, 2008) for more explanation.

Francis, B., I. Hasan, L. Song, 2007, Corporate governance, creditor protection, and bank loan contracting in emerging markets, Working Paper*, Lally School of Management and Technology of Rensselaer Polytechnic Institute*.

Giambona, E., A. Schwienbacher, 2008, Debt Capacity of Tangible Assets: What is Collateralizable in the Debt Market? Available at SSRN http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1099331

Giannetti, M., 2003, Do Better Institutions Mitigate Agency problems? Evidence from Corporate Finance Choices, *Journal of Financial and Quantitative Analysis* 38, 185-213.

Greene, W.H., 2008, Econometric analysis, 6th edition, Upper Saddle River, Prentice Hall,

Haselmann, R., K. Pistor, V. Vig, 2010, How law affects lending, *The Review of Financial Studies* 23, 549-580.

Hirshleifer, D., A. Thakor, 1992, Managerial conservatism, project choice, and debt, *The Review of Financial Studies* 5, 437-470.

Holmstrom, B., J. Ricart-i-Costa, 1986, Managerial incentives and capital management, *The Quarterly Journal of Economics* 101, 835-860.

John, K., L. Litov, B. Yeung, 2008, Corporate governance and risk-taking, *The Journal of Finance* 63, 1679-1728.

King, T., M. Wen, 2011, Shareholder governance, bondholder governance, and managerial risk-taking, *Journal of Banking and Finance 35*, 512–531.

Klapper, L., I. Love, 2004, Corporate Governance, Investor Protection, and Performance in Emerging Markets, *Journal of Corporate Finance* 10, 703-728.

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

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

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

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

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

Lee, C., K. Lee, G. Yeo, 2009, Investor protection and convertible debt design, *Journal of Banking and Finance 33*, 985–995.

Leuz, C., D. Nanda, P. Wysocki, 2003, Earnings management and investor protection: An international comparison, *Journal of Financial Economics* 69, 502-527.

Levine, R., 1999, Law, finance, and economic growth, *Journal of Financial Intermediation* 8, 8-35.

McLean, D., T. Zhang, M. Zhao, 2012, Why does the law matter? Investor protection and its effects on investment, finance, and growth, *Journal of Finance* 67, 313–350.

Miller, M., 1977, Debt and Taxes, *Journal of Finance* 32, 261-275.

Nini, G., D. Smith, A. Sufi, 2009, Creditor control rights and firm investment policy, *Journal of Financial Economics 92, 400-420.*

Qian, J., P. Strahan, 2007, How laws and institutions shape financial contracts: The case of bank loans, *The Journal of Finance* 62, 2803-2034.

Qi, X., L. Roth, J. Wald, 2009, Political rights and the cost of debt, *Journal of Financial Economics* 95, 202-226.

Rajan, R., L. Zingales, 1998, Financial dependence and growth, *American Economic Review* 88, 559-586.

Roberts, M. T. Whited, 2013, Endogeneity in empirical corporate finance, Forthcoming in George M. Constantinides, Milton Harris, and René M. Stulz, eds. Handbook of the Economics of Finance, vol. 2, Part A, 493-572.

Shleifer, A., D. Wolfenzon, 2002, Investor protection and equity markets, *Journal of Financial Economics* 66, 3–27.

Spamann, H., 2010, The "antidirector rights index" revisited, *Review of Financial Studies* 23, 467–486.

Titman, S., R. Wessels, 1988, The Determinants of Capital Structure Choice, *Journal of Finance* 43, 1–19.

Vig, V., 2013, Access to collateral and corporate debt structure: Evidence from natural experiment, *Journal of Finance* 68, 881-928.

Wurgler, J., 2000, Financial markets and the allocation of capital, *Journal of Financial Economics* 58, 187–214.

Table 1. Variables Definition

Variable	Definition	Source
Financial Decisions		
Total Debt	Ratio of total debt to total assets. Total debt represents all interest-bearing and capitalized lease obligations. It is the sum of long and short term debt.	Author's calculations
Short Term Debt	Ratio of short term debt to total assets.	Author's calculations
Investment Outcomes		
Risk 1	Volatility of earnings before interest, taxes, depreciation, and amortization (*EBITDA*) scaled by total assets (*TA*) ; calculated as the standard deviation of the ratio of *EBITDA* to total assets, $\sigma_i = \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}\left(\frac{EBITDA_{i,c,t}}{TA_{i,c,t}} - \frac{1}{T}\sum_{t=1}^{T}\frac{EBITDA_{i,c,t}}{TA_{i,c,t}}\right)^2}$ for firm *i* in country *c* at time *t*, where T≥5. This measure is similar to the one used in JLY (2008).	Author's calculations
Risk 2	Volatility of pretax income (*PTI*) scaled by total assets, calculated as $\sigma_i = \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}\left(\frac{PTI_{i,c,t}}{TA_{i,c,t}} - \frac{1}{T}\sum_{t=1}^{T}\frac{PTI_{i,c,t}}{TA_{i,c,t}}\right)^2}$ for firm *i* in country *c* at time *t*, where T≥5.	Author's calculations
Institutional Variables		
Legal Origin	Variable that identifies the legal origin of the company law or commercial code of each country: *Common* or *Civil* Law.	DLLS (2003) and DMS (2007)
Judicial Efficiency		
Legal Formalism	An estimate of the number of days necessary to collect on a bounced check and to evict a tenant for nonpayment of rent before the courts in the country's largest city. These estimates were prepared by law firms in each country surveyed by DLLS (2003). Higher values indicate worse judicial enforcement.	DLLS (2003)
Investor Protection Variables		
Creditor Rights	An index aggregating different creditor rights. The index is formed by La Porta et al. (1998) by adding "1" when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of their security once reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of the reorganization. The index ranges from zero to four, with higher values indicating stronger creditors' rights.	DMS (2007)
Shareholder Rights	Revised estimates of the anti-director rights index of LLSV (1997, 1998). Anti-director rights index measures the country's degree of protection of shareholder rights. In particular, the index measures the mechanisms available to shareholders to protect themselves against expropriation by	DLLS (2008)

the board of directors by conceding the following six shareholder rights: (1) mailing their proxy votes to the firm; (2) waiving requirements to deposit their shares prior to a general shareholder meeting; (3) allowing cumulative voting or proportional representation of minorities on the board of directors; (4) enabling minority shareholders against perceived oppression by directors; (5) having preemptive rights that can only be waived by a shareholder vote; and (6) having a minimum percentage of share capital that entitles a shareholder to call an extraordinary shareholder meeting of less than or equal to 10%. The index ranges from 0 – 6, where zero represents the weakest anti-director rights and 6 the strongest anti-director rights.

Firm-Level Variables

Asset Tangibility	Ratio of tangible assets (defined as property, plants, and equipments) to total assets.	Thomson DataStream Advance 4.0
Profitability	Ratio of pretax income to total assets or pretax return on assets.	Thomson DataStream Advance 4.0
Tax Rate	Average tax rate proxied by the ratio of taxes to pretax income.	Thomson DataStream Advance 4.0
Market-to-Book	Ratio of market capitalization to book value of equity.	Thomson DataStream Advance 4.0
Firm Size	Natural logarithm of total assets which represent the sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets.	Thomson DataStream Advance 4.0

Country-Level Variables

Per Capita GDP	Logarithm of per capita Gross Domestic Product.	International Financial Statistics
Real GDP Growth	Real Gross Domestic Product growth rate	International Financial Statistics

Table 2.Tests of Differences in Means Financial Decisions, Investment Outcomes, and Institutions

Total Debt and *Short Term Debt* are total and short term debt scaled by total assets; *Risk 1* and *Risk 2* are the volatility of *EBITDA/TA* and pretax *ROA*, respectively. *Legal Formalism*, *Creditor Rights*, and *Shareholder Rights* variables are split at the median to conduct tests of differences in means.

	Financial Decisions		Investment Outcomes	
	Total Debt	*Short Term Debt*	*Risk 1*	*Risk 2*
Common	32.096	16.163	7.391	6.527
Civil	32.299	15.584	7.969	7.228
p-value	0.242	0.004	0.008	0.000
Legal Formalism - Below Median	32.041	15.244	8.805	7.289
Legal Formalism - Above Median	32.362	16.541	6.682	6.546
p-value	0.135	0.000	0.000	0.000
Creditor Rights - Below Median	33.935	15.090	7.162	6.800
Creditor Rights - Above Median	29.648	17.027	8.492	7.040
p-value	0.000	0.000	0.000	0.033
Shareholder Rights - Below Median	34.027	17.633	7.717	6.835
Shareholder Rights - Above Median	30.498	14.243	7.652	6.951
p-value	0.000	0.000	0.391	0.182

Table 3. Descriptive Statistics

This table presents descriptive statistics for the main variables of the study in 23 developing countries over the period 1997-2007. *Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; and *Creditor Rights* and *Shareholder Rights* represent investor protection. *Total Debt* and *Short Term Debt* are total and short term debt scaled by total assets. *Risk 1* and *Risk 2* are the volatility of *EBITDA/Assets* and pretax *ROA*, respectively. *Asset Tangibility* is the ratio of tangible assets to total assets; *Profitability* is the ratio of pretax *ROA*; *Tax Rate* is the average tax rate calculated as the ratio of income taxes to pretax income; *Market-to-Book* is the ratio of market capitalization to book value of equity; *Firm Size* is the natural logarithm of total assets; *Real GDP Growth* is the growth rate in real GDP ; and *Ln(GDPPC)* is the natural logarithm of GDP per capita.

	Obs.	Mean	Std. Dev.	Min	Max
Common	10600	0.51	0.50	0	1
Civil	10600	0.49	0.50	0	1
Legal Formalism	10600	3.76	0.73	2.64	5.19
Creditor Rights	10600	2.08	0.93	0	4
Shareholders Rights	10596	4.43	0.76	1	5
Total Debt to Total Assets	9902	32.20	17.24	0	95.47
Short Term Debt to Total Assets	9902	15.88	13.75	0	86.55
Risk 1	7757	7.68	10.47	0.42	267.15
Risk 2	7374	6.89	5.49	0	38.50
Asset Tangibility	9894	41.66	23.54	0	92.32
Profitability	9886	4.28	11.73	-52.81	31.14
Tax Rate	9568	17.75	24.86	-74.87	76.15
Market-to-Book	8678	179.38	177.79	9.30	807.75
Firm Size	10598	12.00	2.04	2.77	24.13
Real GDP Growth	10600	4.83	2.87	-13.13	18.29
Ln(GDPPC)	10600	8.14	0.92	5.74	9.89

Table 4. Pairwise Correlations of Main Variables

This table presents pairwise correlations for the main variables of the study in 23 developing countries over the period 1997-2007. *Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; and *Creditor Rights* and *Shareholder Rights* represent investor protection. *Total Debt* and *Short Term Debt* are total and short term debt scaled by *Total Assets*. *Risk 1* and *Risk 2* are the volatility of *EBITDA/Assets* and pretax *ROA*, respectively. *Asset Tangibility* is the ratio of tangible assets to total assets; *Profitability* is the ratio of pretax income to total assets; *Tax Rate* is the average tax rate calculated as the ratio of income taxes to pretax income; *Market-to-Book* is the ratio of market capitalization to book value of equity; *Firm Size* is the natural logarithm of total assets; *Real GDP Growth* is the growth rate in real GDP ; and *Ln(GDPPC)* is the natural logarithm of GDP per capita. * indicates significance at the 5% level.

	Civil	Legal Forma-lism	Creditor Rights	Share-holder Rights	Total Debt to TA	Short Term Debt to TA	Risk 1	Risk 2	Tangible Assets to TA	Pretax income	Tax Rate	Market-to-Book	Firm Size	Real GDP growth
Civil	1													
Legal Formalism	-0.054*	1												
Creditor Rights	-0.469*	-0.669*	1											
Shareholder Rights	-0.447*	-0.333*	0.455*	1										
Total Debt	0.007	0.054*	-0.041*	-0.007	1									
Short Term Debt	-0.027*	-0.010	0.151*	-0.005	0.524*	1								
Risk 1	0.028*	-0.139*	0.041*	0.006	0.0433*	0.0962*	1							
Risk 2	0.064*	-0.139*	0.018	0.023*	0.140*	0.168*	0.637*	1						
Asset Tangibility	0.017	0.110*	-0.081*	-0.045*	0.141*	-0.169*	-0.083*	-0.054*	1					
Pretax income	-0.173*	-0.001	0.016	0.012	-0.195*	-0.238*	-0.331*	-0.495*	0.021*	1				
Tax Rate	-0.015	-0.025*	-0.056*	0.028*	-0.133*	-0.116*	-0.169*	-0.243*	-0.023*	0.363*	1			
Market- to-Book	-0.045*	-0.074*	-0.029*	0.014	0.085*	-0.037*	0.140*	0.169*	-0.131*	0.105*	-0.001	1		
Firm Size	0.281*	0.075*	-0.306*	-0.101*	0.115*	-0.261*	-0.160*	-0.224*	0.187*	0.195*	0.086*	0.080*	1	
Real GDP growth	-0.505*	-0.014	0.301*	0.276*	0.045*	0.007	-0.074*	-0.135*	-0.058*	0.119*	0.018	0.120*	-0.237*	1
Ln(GDP per capita)	0.369*	-0.259*	0.271*	-0.048*	-0.126*	0.071*	0.039*	0.010	-0.054*	-0.114*	-0.098*	-0.147*	0.092*	-0.486*

Table 5. Institutional Arrangements and Financial Decisions

Financial decisions are proxied by two dependent variables, *Total Debt* (Panel A) and *Short Term Debt* (Panel B) for total and short term debt scaled by total assets in 23 developing countries over the period 1997-2007. *Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; and *Creditor Rights* and *Shareholder Rights* represent investor protection. *Asset Tangibility* is the ratio of tangible assets to total assets; *Profitability* is the ratio of pretax *ROA*; *Tax Rate* is the average tax rate calculated as the ratio of income taxes to pretax income; *Market-to-Book* is the ratio of market capitalization to book value of equity ; *Firm Size* is the natural logarithm of total assets; *Real GDP Growth* is the growth rate in real GDP; and *Ln(GDPPC)* is the natural logarithm of GDP per capita. Model 1 shows the results of the entire sample of firms and Model 2 excludes countries with less than 10 firms. Parameter estimates from random effects regressions are reported with robust standard errors in parentheses clustered by country to account for potential within-country correlation in the residuals. *, **, *** indicate significance at the 10, 5, and 1%, respectively.

	Panel A : *Total Debt*		Panel B : *Short Term Debt*	
	Model 1	Model 2	Model 1	Model 2
Civil	6.751	6.879	6.346	6.267
	(3.000)**	(3.044)**	(1.845)***	(1.882)***
Legal Formalism	4.293	4.428	4.808	4.770
	(1.757)**	(1.815)**	(1.170)***	(1.219)***
Creditor Rights	5.849	6.074	6.304	6.266
	(1.312)***	(1.335)***	(1.190)***	(1.244)***
Shareholder Rights	0.934	0.711	-0.256	-0.339
	(1.173)	(1.229)	(0.821)	(0.856)
Asset Tangibility	-0.004	-0.004	-0.073	-0.072
	(0.024)	(0.025)	(0.011)***	(0.011)***
Profitability	-0.287	-0.287	-0.198	-0.198
	(0.034)***	(0.034)***	(0.050)***	(0.051)***
Tax Rate	-0.007	-0.008	-0.013	-0.013
	(0.005)	(0.005)	(0.009)	(0.009)
Market-to-Book	0.002	0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.001)**	(0.001)**
Firm Size	2.053	2.079	-0.284	-0.284
	(0.639)***	(0.649)***	(0.317)	(0.321)
Real GDP Growth	-0.546	-0.547	-0.589	-0.589
	(0.208)***	(0.210)***	(0.159)***	(0.163)***
Ln(GDPPC)	-5.758	-5.903	-2.316	-2.314
	(0.930)***	(0.942)***	(0.946)**	(0.970)**
Industry and Year Effects	Yes	Yes	Yes	Yes
Breusch-Pagan LM Test	0.000	0.000	0.000	0.000
Number of Firms	5,917	5,880	5,917	5,880
Number of Observations	1,411	1,401	1,411	1,401

Table 6. Institutional Arrangements and Investment Outcomes using *Risk 1*

Investment Outcomes is proxied by the dependent variable *Risk 1,* or volatility of *EBITDA/Assets* in 23 developing countries over the period 1997-2007. We include only firms for which there are at least five annual observations on *EBITDA/Assets. Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; and *Creditor Rights* and *Shareholder Rights* represent investor protection. *Leverage* is *Total Debt* (Panel A) or *Short Term Debt* (Panel B) where total and short term debt are scaled by total assets; *Asset Tangibility* is firm's ratio of tangible assets to total assets; *Profitability* is the firm's ratio of pretax *ROA*; *Market-to-Book* is the the firm's ratio of market capitalization to book value of equity ; *Firm Size* is the natural logarithm of average total assets; *Real GDP Growth* is the growth rate in real GDP; and *Ln(GDPPC)* is the natural logarithm of GDP per capita. Model 1 shows the results of the entire sample of firms and Model 2 excludes countries with less than 10 firms. Parameter estimates are reported with robust standard errors in parentheses clustered by country to account for potential within-country correlation in the residuals. Individual observations are weighted by the inverse of the number firms from the corresponding country. *, **, *** indicate significance at the 10, 5, and 1%, respectively.

	Panel A : Leverage as *Total Debt*		Panel B : Leverage as *Short Term Debt*	
	Model 1	Model 2	Model 1	Model 2
Civil	-4.493	-3.834	-4.153	-3.641
	(1.767)**	(1.684)**	(1.617)**	(1.608)**
Legal Formalism	-4.668	-4.108	-4.688	-4.226
	(1.316)***	(1.212)***	(1.210)***	(1.142)***
Creditor Rights	-3.456	-2.820	-3.490	-2.994
	(1.513)**	(1.420)*	(1.374)**	(1.367)**
Shareholder Rights	-0.080	-0.305	0.159	-0.153
	(0.619)	(0.646)	(0.661)	(0.631)
Leverage	0.110	0.097	15.433	18.747
	(0.049)**	(0.044)**	(6.197)**	(6.283)***
Profitability	-0.307	-0.285	-0.297	-0.271
	(0.146)**	(0.135)*	(0.133)**	(0.121)**
Market-to-Book	0.007	0.009	0.009	0.010
	(0.006)	(0.006)	(0.006)	(0.006)
Firm Size	-0.930	-1.093	-0.586	-0.773
	(0.433)**	(0.482)**	(0.390)	(0.449)
Real GDP Growth	-0.604	-0.884	-0.634	-0.866
	(0.766)	(0.767)	(0.673)	(0.708)
Ln(GDPPC)	2.647	2.465	2.225	2.084
	(1.001)**	(0.916)**	(0.803)**	(0.750)**
Industry Effects	Yes	Yes	Yes	Yes
Number of Firms	587	584	587	584

Table 7. Institutional Arrangements and Investment Outcomes using *Risk 2*

Investment Outcomes is proxied by the dependent variable *Risk 2,* or volatility of pretax *ROA* in 23 developing countries over the period 1997-2007. We include only firms for which there are at least five annual observations on pretax *ROA*. *Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; and *Creditor Rights* and *Shareholder Rights* represent investor protection. *Leverage* is *Total Debt* (Panel A) or *Short Term Debt* (Panel B) where total and short term debt are scaled by total assets; *Asset Tangibility* is firm's ratio of tangible assets to total assets; *Profitability* is the firm's ratio of pretax *ROA*; *Market-to-Book* is the the firm's ratio of market capitalization to book value of equity ; *Firm Size* is the natural logarithm of average total assets; *Real GDP Growth* is the growth rate in real GDP; and *Ln(GDPPC)* is the natural logarithm of GDP per capita. Model 1 shows the results of the entire sample of firms and Model 2 excludes countries with less than 10 firms. Parameter estimates are reported with robust standard errors in parentheses clustered by country to account for potential within-country correlation in the residuals. Individual observations are weighted by the inverse of the number firms from the corresponding country. *, **, *** indicate significance at the 10, 5, and 1%, respectively.

	Panel A : *Leverage* as *Total Debt*		Panel B : *Leverage* as *Short Term Debt*	
	Model 1	Model 2	Model 1	Model 2
Civil	-1.896	-1.676	-1.911	-1.763
	(1.002)*	(1.028)	(0.920)*	(0.982)*
Legal Formalism	-2.955	-2.752	-2.982	-2.841
	(0.638)***	(0.614)***	(0.558)***	(0.574)***
Creditor Rights	-2.066	-1.883	-2.043	-1.992
	(0.574)***	(0.571)***	(0.479)***	(0.531)***
Shareholder Rights	0.308	0.198	0.336	0.205
	(0.306)	(0.301)	(0.322)	(0.301)
Leverage	0.071	0.064	0.109	0.105
	(0.025)**	(0.023)**	(0.028)***	(0.030)***
Profitability	-0.240	-0.231	-0.245	-0.231
	(0.055)***	(0.055)***	(0.049)***	(0.047)***
Market-to-Book	0.004	0.004	0.005	0.005
	(0.003)	(0.003)	(0.003)	(0.003)
Firm Size	-0.490	-0.558	-0.296	-0.360
	(0.213)**	(0.247)**	(0.202)	(0.235)
Real GDP Growth	-0.616	-0.699	-0.698	-0.736
	(0.345)*	(0.337)*	(0.313)**	(0.320)**
Ln(GDPPC)	0.617	0.532	0.394	0.333
	(0.548)	(0.562)	(0.465)	(0.477)
Industry Effects	Yes	Yes	Yes	Yes
Number of Firms	618	615	618	615

Table 8. Firm Distribution by Exchange

This table shows the exchange listing distribution of firms in 23 developing countries over 1997-2007.

Exchange	Frequency	Percent
Amman	10	0.47
Bangkok	127	6.03
Berlin	126	5.98
Bogota	2	0.09
Bombay	246	11.68
Buenos Aires	10	0.47
Cairo	11	0.52
Caracas	8	0.38
Casablanca	4	0.19
Colombo	3	0.14
Frankfurt	91	4.32
Indonesia	70	3.32
Istanbul	53	2.52
Johannesburg	103	4.89
KOSDAQ	211	10.01
Karachi	24	1.14
Korea Stock Exchange	94	4.46
Kuala Lumpur	183	8.69
Kuala Lumpur 2nd.	117	5.55
Kuala Lumpur	57	2.71
Lima	27	1.28
Lithuania	2	0.09
London	4	0.19
Luxembourg	1	0.05
Madrid SIBE	15	0.71
Mexico	32	1.52
Munich	6	0.28
NASDAQ	2	0.09
Namibian	2	0.09
National India	87	4.13
New York	9	0.43
Nigeria	5	0.24
Non NASDAQ OTC	56	2.66
Paris-SBF	1	0.05
Philippine Stock	31	1.47
SEAQ International	2	0.09
Santiago	35	1.66
Sao Paulo	168	7.98
Singapore	3	0.14
Stuttgart	11	0.52
TSX Ventures	1	0.05
Thailand	33	1.58
Tokyo Stock Exchange	2	0.09
XETRA	22	1.05
Total	2107	100

Table 9. Institutional Arrangements, Financial Decisions, and Investment Outcomes: Effect of Exchange Listing I

The dependent variables are *Total Debt, Short Term Debt, Risk 1*, and *Risk 2* in 23 developing countries over the period 1997-2007. *Total Debt* and *Short Term Debt* are total and short term debt scaled by total assets to proxy for financial decisions. *Risk 1* and *Risk 2* are the volatility of *EBITDA/TA* and pretax *ROA*, respectively, to proxy for investment outcomes. We include only firms for which there are at least five annual observations on *EBITDA/TA* and pretax *ROA. Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; and *Creditor Rights* and *Shareholder Rights* represent investor protection. *Developed Exchange* is a dummy variable equal to 1 when the firm is listed on an exchange in a developed country. *Leverage* is *Total Debt* (Panel A) or *Short Term Debt* (Panel B) where total and short term debt are scaled by total assets. Firm Controls include *Asset Tangibility* (ratio of tangible assets to total assets), *Profitability* (ratio of pretax *ROA*), *Tax Rate* (average tax rate calculated as the ratio of income taxes to pretax income), *Market-to-Book* (ratio of market capitalization to book value of equity), *Firm Size* (natural logarithm of total assets). Country Controls include *Real GDP Growth* (growth rate in real GDP) and *Ln(GDPPC)* (natural logarithm of GDP per capita). *Financial Decisions* regressions are run with firm random effects, and *Investment Outcomes* regressions are weighted by the inverse of the number firms from the corresponding country. *, **, *** indicate significance at the 10, 5, and 1%, respectively.

	Financial Decisions		*Investment Outcomes*			
			Panel A : *Leverage* as *Total Debt*		Panel B : *Leverage* as *Short Term*	
	Total Debt	*ST Debt*	*Risk 1*	*Risk 2*	*Risk 1*	*Risk 2*
Civil	5.899	6.134	-3.096	-0.735	-2.546	-0.688
	(1.519)***	(1.214)***	(1.549)**	(0.821)	(1.504)*	(0.814)
Legal Formalism	3.554	4.631	-3.902	-2.347	-3.818	-2.314
	(1.013)***	(0.734)***	(1.020)***	(0.687)***	(0.948)***	(0.742)***
Creditor Rights	5.305	6.173	-3.311	-1.851	-3.225	-1.741
	(1.012)***	(0.815)***	(1.157)***	(0.594)***	(1.091)***	(0.648)***
Shareholder Rights	0.745	-0.303	0.071	0.407	0.427	0.478
	(0.686)	(0.545)	(0.418)	(0.252)	(0.419)	(0.278)*
Developed Exchange	-2.735	-0.653	2.627	1.832	2.572	1.783
	(1.085)**	(0.803)	(1.030)**	(0.697)***	(0.973)***	(0.656)***
Leverage			0.166	0.111	0.255	0.153
			(0.045)***	(0.023)***	(0.060)***	(0.030)***
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	No	No	No	No
Number of	5,917	5,917	587	618	587	618

Table 10. Institutional Arrangements, Financial Decisions, and Investment Outcomes: Effect of Exchange Listing II

The dependent variables are *Total Debt, Short Term Debt, Risk 1*, and *Risk 2* in 23 developing countries over the period 1997-2007. *Total Debt* and *Short Term Debt* are total and short term debt scaled by total assets to proxy for financial decisions. *Risk 1* and *Risk 2* are the volatility of *EBITDA/TA* and pretax *ROA*, respectively, to proxy for investment outcomes. We include only firms for which there are at least five annual observations on *EBITDA/TA* and pretax *ROA*. *Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; and *Creditor Rights* and *Shareholder Rights* represent investor protection. *Developed Exchange* is a dummy variable equal to 1 when the firm is listed on an exchange in a developed country. Firm Controls include *Asset Tangibility* (ratio of tangible assets to total assets), *Profitability* (ratio of pretax *ROA*), *Tax Rate* (average tax rate calculated as the ratio of income taxes to pretax income), *Market-to-Book* (ratio of market capitalization to book value of equity), *Firm Size* (natural logarithm of total assets). Country Controls include *Real GDP Growth* (growth rate in real GDP) and *Ln(GDPPC)* (natural logarithm of GDP per capita). *Financial Decisions* regressions are run with firm random effects, and *Investment Outcomes* regressions are weighted by the inverse of the number firms from the corresponding country. *, **, *** indicate significance at the 10, 5, and 1%, respectively.

	Financial Decisions		Investment Outcomes	
	Total Debt	ST Debt	Risk 1	Risk 2
Civil	4.882	6.564	-4.008	-1.013
	(1.889)***	(1.400)***	(2.173)*	(1.002)
Legal Formalism	2.200	4.832	-5.192	-2.933
	(1.219)*	(0.823)***	(1.372)***	(0.817)***
Creditor Rights	5.074	6.339	-3.867	-2.045
	(1.142)***	(0.866)***	(1.224)***	(0.625)***
Shareholder Rights	1.215	-0.262	0.546	0.604
	(0.737)*	(0.589)	(0.439)	(0.262)**
Developed Exchange * Civil	-0.632	-1.312	0.286	-0.332
	(2.814)	(1.844)	(2.035)	(1.359)
Developed Exchange * Legal Formalism	2.741	0.152	1.658	1.010
	(1.180)**	(0.774)	(0.968)*	(0.609)*
Developed Exchange * Credidor Rights	0.401	-0.104	0.719	0.391
	(1.478)	(1.065)	(0.895)	(0.602)
Developed Exchange * Shareholder Rights	-3.032	-0.051	-1.547	-0.748
	(1.319)**	(0.927)	(0.983)	(0.622)
Total Debt			0.161	0.109
			(0.045)***	(0.023)***
Firm Controls	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	No	No
Number of Observations	5,917	5,917	587	618

Table 11. Institutional Arrangements, Leverage, and Risk Taking: Two-Stage Least Squares

The dependent variables are *Total Debt, Short Term Debt, Risk 1*, and *Risk 2* in 23 developing countries over the period 1997-2007. Total and short term debt are scaled by total assets to proxy for financial decisions. *Risk 1* and *Risk 2* are the volatility of *EBITDA/TA* and pretax *ROA*, respectively, to proxy for investment outcomes. We include only firms for which there are at least five annual observations on *EBITDA/TA* and pretax *ROA*. *Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; and *Creditor Rights* and *Shareholder Rights* represent investor protection. We use two instruments for legal origin, the International Country Risk Guide Law and Order and the Regulatory Quality estimate from the World Bank governance indices, and report standard diagnostic tests. *Asset Tangibility* is the ratio of tangible assets to total assets; *Profitability* is the ratio of pretax *ROA*; *Tax Rate* is the average tax rate calculated as the ratio of income taxes to pretax income; *Market-to-Book* is the ratio of market capitalization to book value of equity; *Firm Size* is the natural logarithm of firm assets; *Real GDP Growth* is the growth rate in real GDP; and *Ln(GDPPC)* is the natural logarithm of GDP per capita. *Financial Decisions* regressions are run with firm random effects, and *Investment Outcomes* regressions are weighted by the inverse of the number firms from the corresponding country. *, **, *** indicate significance at the 10, 5, and 1%, respectively.

	Financial Decisions		Investment Outcomes	
	Total Debt	ST Debt	Risk 1	Risk 2
Civil	21.892	-11.702	-9.334	-6.409
	(13.689)	(6.042)*	(5.803)	(3.847)*
Legal Formalism	11.577	-3.333	-6.382	-3.777
	(6.397)*	(2.826)	(2.591)**	(1.746)**
Creditor Rights	12.329	-1.911	-5.316	-3.634
	(6.069)**	(2.762)	(2.764)*	(1.900)*
Shareholder Rights	3.941	-3.254	-1.695	-0.457
	(2.580)	(1.145)***	(1.063)	(0.659)
Total Debt			0.130	0.095
			(0.058)**	(0.023)***
Asset Tangibility	-0.007	-0.072		
	(0.012)	(0.011)***		
Profitability	-0.270	-0.225		
	(0.021)***	(0.018)***		
Tax Rate	-0.007	-0.013		
	(0.006)	(0.006)**		
Market To Book	0.004	-0.003	0.006	0.004
	(0.001)***	(0.001)***	(0.005)	(0.002)*
Firm Size	2.308	-0.380	-1.925	-1.278
	(0.270)***	(0.179)**	(0.369)***	(0.157)***
Real GDP Growth	-0.380	-0.513	-0.609	-0.749
	(0.061)***	(0.057)***	(0.570)	(0.245)***
Ln(GDPPC)	-7.453	1.459	3.565	1.300
	(2.292)***	(1.169)	(2.070)*	(1.038)
Industry Effects	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	-	-
Number of Observations	5,917	5,917	587	618
First Stage F test p-value	0.000	0.000	0.000	0.000

Sargan-Hansen p-value	0.1518	0.2285	0.988	0.115
Kleibergen-Paap Rank p-value	0.000	0.000	0.003	0.001

Table 12. Institutional Arrangements, Financial Decisions, and Investment Outcomes: Orthogonolizing Legal Formalism

The dependent variables are *Total Debt, Short Term Debt, Risk 1*, and *Risk 2* in 23 developing countries over the period 1997-2007. *Total Debt* and *Short Term Debt* are total and short term debt scaled by total assets to proxy for financial decisions. *Risk 1* and *Risk 2* are the volatility of *EBITDA/TA* and pretax *ROA*, respectively, to proxy for investment outcomes. We include only firms for which there are at least five annual observations on *EBITDA/TA* and pretax *ROA. Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism Orthogonolized* is a proxy for judicial efficiency orthogonolized with creditor rights; and *Creditor Rights* and *Shareholder Rights* represent investor protection. *Asset Tangibility* is the ratio of tangible assets to total assets; *Profitability* is the ratio of pretax *ROA; Tax Rate* is the average tax rate calculated as the ratio of income taxes to pretax income; *Market-to-Book* is the ratio of market capitalization to book value of equity ; *Firm Size* is the natural logarithm of firm assets; *Real GDP Growth* is the growth rate in real GDP; and *Ln(GDPPC)* is the natural logarithm of GDP per capita. *Financial Decisions* regressions are run with firm random effects, and *Investment Outcomes* regressions are weighted by the inverse of the number firms from the corresponding country. *, **, *** indicate significance at the 10, 5, and 1%, respectively.

	Financial Decisions		*Investment Outcomes*	
	Total Debt	*ST Debt*	*Risk 1*	*Risk 2*
Civil	6.751	6.346	-3.910	-1.334
	(1.480)***	(1.168)***	(1.678)**	(0.852)
Legal Formalism Orthogonolized	3.131	3.506	-3.292	-1.984
	(0.707)***	(0.510)***	(0.832)***	(0.545)***
Creditor Rights	5.849	6.304	-3.505	-1.981
	(0.997)***	(0.794)***	(1.240)***	(0.629)***
Shareholder Rights	0.934	-0.256	-0.092	0.315
	(0.671)	(0.539)	(0.458)	(0.268)
Total Debt			0.170	0.116
			(0.046)***	(0.023)***
Asset Tangibility	-0.004	-0.073		
	(0.018)	(0.013)***		
Profitability	-0.287	-0.198		
	(0.026)***	(0.027)***		
Tax Rate	-0.007	-0.013		
	(0.006)	(0.006)**		
Market To Book	0.002	-0.002	0.004	0.001
	(0.002)	(0.001)*	(0.005)	(0.003)
Firm Size	2.053	-0.284	-1.507	-0.943
	(0.277)***	(0.228)	(0.323)***	(0.167)***
Real GDP Growth	-0.546	-0.589	-0.598	-0.641
	(0.097)***	(0.121)***	(0.584)	(0.310)**
Ln(GDPPC)	-5.758	-2.316	3.229	1.024
	(0.607)***	(0.526)***	(0.969)***	(0.375)***
Industry Effects	Yes	Yes	Yes	Yes

Year Effects	Yes	Yes	-	-
Number of Observations	5,917	5,917	587	618

Table 13. Institutional Arrangements, Financial Decisions, and Investment Outcomes: Anti-Self Dealing

	Financial Decisions		Investment Outcomes	
	Total Debt	ST Debt	Risk 1	Risk 2
Civil	4.743	6.353	-3.461	-1.378
	(1.543)***	(1.230)***	(1.302)***	(0.763)*
Legal Formalism	5.212	5.195	-4.608	-2.966
	(1.240)***	(0.825)***	(1.182)***	(0.776)***
Creditor Rights	7.837	6.735	-3.779	-2.219
	(1.562)***	(1.057)***	(1.522)**	(0.636)***
Shareholder Rights	-8.163	-1.712	1.731	1.777
	(4.532)*	(3.120)	(2.886)	(1.257)
Total Debt			0.174	0.121
			(0.047)***	(0.023)***
Asset Tangibility	-0.003	-0.073		
	(0.018)	(0.013)***		
Profitability	-0.284	-0.195		
	(0.026)***	(0.026)***		
Tax Rate	-0.007	-0.013		
	(0.006)	(0.006)**		
Market To Book	0.002	-0.002	0.004	0.001
	(0.002)	(0.001)*	(0.005)	(0.003)
Firm Size	2.029	-0.295	-1.512	-0.965
	(0.277)***	(0.229)	(0.322)***	(0.166)***
Real GDP Growth	-0.548	-0.591	-0.581	-0.711
	(0.099)***	(0.122)***	(0.561)	(0.310)**
Ln(GDPPC)	-5.843	-2.346	3.255	1.062
	(0.635)***	(0.531)***	(0.996)***	(0.366)***
Industry Effects	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	-	-
Number of Observations	5,920	5,920	587	618

The dependent variables are *Total Debt, Short Term Debt, Risk 1*, and *Risk 2* in 23 developing countries over the period 1997-2007. *Total Debt* and *Short Term Debt* are total and short term debt scaled by total assets to proxy for financial decisions. *Risk 1* and *Risk 2* are the volatility of *EBITDA/TA* and pretax *ROA*, respectively, to proxy for investment outcomes. We include only firms for which there are at least five annual observations on *EBITDA/TA* and pretax *ROA*. *Civil* is a dummy variables for countries of civil legal origin, with common law countries being the omitted category; *Legal Formalism* is a proxy for judicial efficiency; *Creditor Rights* is creditor protection; and *Anti-Self-Dealing* measures the legal protection of minority shareholders against expropriation by corporate insiders. *Asset Tangibility* is the ratio of tangible assets to total assets; *Profitability* is the ratio of pretax *ROA*; *Tax Rate* is the average tax rate calculated as the ratio of income taxes to pretax income; *Market-to-Book* is the ratio of market capitalization to book value of equity ; *Firm Size* is the natural logarithm of firm assets; *Real GDP Growth* is the growth rate in real GDP; and *Ln(GDPPC)* is

the natural logarithm of GDP per capita. *Financial Decisions* regressions are run with firm random effects, and *Investment Outcomes* regressions are weighted by the inverse of the number firms from the corresponding country. *, **, *** indicate significance at the 10, 5, and 1%, respectively.

Appendix

	Number of Firms	Number of Observations
Argentina	17	107
Brazil	206	1334
Chile	46	323
Colombia	2	12
Egypt	11	39
India	338	1203
Indonesia	121	709
Jordan	10	35
Korea	313	1308
Lithuania	2	6
Malaysia	364	1661
Mexico	77	578
Morocco	5	30
Nigeria	5	7
Pakistan	24	165
Peru	32	187
Philippines	39	183
South Africa	233	1269
Sri Lanka	3	8
Thailand	191	1088
Turkey	57	286
Venezuela	10	58
Zambia	1	4