

# Institutions, Financial Markets, and Firms' Choice of Debt Maturity

*Aslı Demirgüç-Kunt*

*Vojislav Maksimovic*

Do firms in developing countries use less long term debt than similar firms in industrial countries? This paper investigates the role of institutional factors in explaining firms' choice of debt maturity in a sample of 30 countries during 1980-91.



## Summary findings

Demirgüç-Kunt and Maksimovic examine the maturity of firm debt in 30 countries during the period 1980–91. They find systematic differences in the use of long-term debt between industrial and developing countries and between small and large firms.

In industrial countries, firms have more long-term debt and a greater proportion of their total debt is held as long-term debt. Large firms have more long-term debt, as a proportion of total assets and debt, than smaller firms do.

The authors try to explain the variations in debt composition by differences in the effectiveness of legal systems, the development of stock markets and the banking sector, the level of government subsidies, and firm characteristics.

In countries with an effective legal system, both large and small firms have more long-term debt relative to assets and their debt is of longer maturity. Both large and small firms in countries with a tradition of common law

use less long-term debt, relative to their assets, than do firms in countries with a tradition of civil law. Large firms in common law countries also use less short-term debt.

In countries with active stock markets, large firms have more long-term debt and debt of longer maturity. Neither the level of activity nor the size of the market is correlated with financing choices of small firms.

By contrast, in countries with large banking sectors, small firms have less short-term debt and their debt is of longer maturity. Variation in the size of the banking sector does not have a corresponding correlation with the capital structures of large firms. Government subsidies to industry increase long-term debt levels of both small and large firms.

For all firms, inflation is associated with less use of long-term debt. The authors also find evidence of maturity-matching for both large and small firms.

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# Institutions, Financial Markets, and Firms' Choice of Debt Maturity

*Aslı Demirgüç-Kunt*  
World Bank

*Vojislav Maksimovic\**  
University of Maryland

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Conflicts of interest between the firm's insiders and outside investors are important determinants of the firm's ability to obtain capital. These conflicts can be mitigated by the appropriate choice of securities or contracts between the firm and its investors.<sup>1</sup> An extensive theoretical literature in corporate finance shows that optimal choice of securities for this purpose depends on the ability of outsiders to monitor compliance and enforce their legal rights.<sup>2</sup> Since the capacity of investors to protect their investment depends on the financial and legal institutions, firms' financial structures should differ systematically across countries. But little is known about how observed differences in the institutional and legal environments across countries affect the financing choices of firms.

In this paper we examine how differences in financial and legal institutions affect the use of debt, and in particular, the choice of debt maturity by firms in a sample of 30 countries in 1980-91. The sample includes both developed and developing countries, and countries with both common law and civil law based legal systems. We ask four questions.

First, are there any systematic differences in the maturity of debt claims issued by firms in different countries? Second, if there are, can such differences be accounted for by the characteristics of the firms in each country? Third, can the differences in the use of debt be explained by institutional differences, particularly in the development of markets and the enforceability of contracts?

Differences in the use of debt could occur if institutional arrangements in each country facilitate the use of particular securities to control the opportunistic behavior by firms' insiders. Finally, is there evidence that some firms, especially small firms, obtain less long-term debt financing in countries with less developed financial systems? Financial intermediaries may have a comparative advantage

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<sup>1</sup> The starting point for the analysis of the role of financial securities in the resolution of conflicts between different classes of stakeholders are the papers by Jensen and Meckling (1976), Myers (1977) and Myers and Majluf (1984). Jensen and Meckling (1976) define the firm itself as a "nexus of contracts."

<sup>2</sup> For recent examples of optimal financial structures when investors can observe the firm's cash flows but cannot enforce legal rights to these cash flows see Hart and Moore (1995) and Bolton and Scharfstein (1993). For a comprehensive review of the financial structure literature see Harris and Raviv (1990).

in monitoring firms, in particular small firms. Thus, access to credit by small firms, which require extensive monitoring, may depend on the size of the banking sector.

Several authors have explored the effect of the institutional environment on firm financing choices in specific countries. Hoshi, Kashyap, and Scharfstein (1990) have shown that membership in industrial groups linked to banks reduces financial constraints on Japanese firms. Calomiris (1993) has examined the effect of differences between the banking systems of Germany and the United States on firm financing. Rajan and Zingales (1995) have explored capital structure decisions of firms in five developed countries and Demirgüç-Kunt and Maksimovic (1995) have considered financing choices in a sample of 10 developing countries.

There have been fewer cross-sectional studies of the effect of financial and legal institutions on firm financing. Demirgüç-Kunt and Maksimovic (1996a) have explored the relationship between firm growth and access to external finance for a sample of both developed and developing countries. They show that the proportion of firms in each country that grow at rates that exceed those that can be financed internally is correlated with the perceived effectiveness of the country's legal system and several indicators of financial market and institutional development.<sup>3</sup> Demirgüç-Kunt and Maksimovic (1996a) use only one indicator of the effectiveness of a country's legal system. In a comparative study of legal systems, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (LLSV) (1996) have argued the legal tradition on which a country's legal system is based, as well as several specific protections, may also be important in determining whether investors can enforce their claims on the firm's assets. Their paper classifies the legal systems of a sample of countries according to their legal

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<sup>3</sup> Rajan and Zingales (1996) independently examine the effect of the development of financial institutions on industry growth in a sample of countries. Demirgüç-Kunt and Maksimovic (1996b) have explored complementarities in stock market and banking sector development on financing decision of firms in a cross-country sample of firms. Neither of these addresses the question of debt maturity or the quality of enforcement of contracts by the legal systems in each country. Empirical studies of debt maturity, including Barclay and Smith (1995) and Stohs and Mauer (1996), have focused on term financing in the United States only.

tradition and whether they grant investors those specific protections. In our tests below, we use their classification of legal systems to supplement an index measuring the effectiveness of each country's legal system.

The rest of the paper is organized as follows. In Section 2 we take a preliminary look at the differences in term financing between countries and discuss possible explanations advanced in the literature. Section 3 discusses the determinants of financial maturity across countries. Section 4 reports cross-sectional empirical tests. Section 5 concludes.

## **2 CROSS-COUNTRY COMPARISON OF TERM FINANCING**

Financial theory suggests that a major factor in firms' choice of capital structure is the reduction of the cost of contracting between firms and their providers of capital. These costs depend both on the characteristics of firms and the institutional environment in which the contracting takes place. Thus, since countries have very different institutional systems and different compositions of firms, observed financial structures should vary systematically both across countries.

We can obtain an initial assessment of the extent of these differences by comparing the long-term and short-term indebtedness of firms for a sample of countries at different levels of economic development. Our sample consists of firms in 19 developed economies and 11 developing countries for 1980-91. The developed countries in our sample are Austria, Australia, Belgium, Canada, Finland, France, Germany, Hong Kong, Italy, Japan, the Netherlands, New Zealand, Norway, Sweden, Singapore, Spain, Switzerland, the United Kingdom, and the United States. The developing countries are Brazil, India, Jordan, Korea, Malaysia, Mexico, Pakistan, South Africa, Thailand, Turkey, and Zimbabwe.<sup>4</sup>

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<sup>4</sup> The selection of countries and the variables discussed in this section are described in detail in Section 3 below.

Figure 1 displays the average of long-term debt to total asset ratios for firms in our sample for each of the 30 countries. The developing countries in our sample are denoted by the darker outline.

Norway has the highest ratio of long-term debt to assets, whereas Zimbabwe has the lowest, at about one-fifth of Norway's. There is a marked clustering of developing countries at the bottom of the range, indicating that firms in these countries do not use as much long-term debt financing. Figure 2 displays the ratios of short-term liabilities to total assets.<sup>5</sup> While the tendency is not as clear-cut, firms in developing countries rely more on short-term financial instruments. This pattern is confirmed in Figure 3, which displays the ratio of long-term to total liabilities in our sample of countries. As a proportion of total debt, firms in developing countries use less long-term debt.

The differences in financing patterns across countries reflect differences in institutions and contracting environments across countries. However, firms with different characteristics may have different access to financial markets and institutions even within the same economy. Such differences may be reflected in different financing patterns. Figure 4 depicts the ratios of short-term, long-term and total indebtedness and the ratio of long-term to total debt by firm size. The firms in each country in the sample are divided into quartiles by value of total assets, and the average debt ratios of each quartile, calculated across countries, is reported. Inspection of the figure reveals that there are marked and consistent differences across quartiles in the use of long-term debt. Large firms report higher ratios of long-term debt to total assets and long-term debt to total liabilities. By contrast, there do not appear to be differences in the ratios of short-term debt to total assets across firm size quartiles.

The figures indicate that there are differences in financing patterns for countries at different levels of development and for large and small firms. The most pronounced differences are in the use of long-

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<sup>5</sup> Note that short-liabilities include trade credit and other accounts payable, as well as notes payable to banks.



term debt contracts. In the remainder of the paper we investigate whether these differences can be explained by firm characteristics, the characteristics of contracting environments and institutions across countries.

### **3 MARKETS, INSTITUTIONS, AND DEBT MATURITY**

In order for the firm to obtain outside financing, and in particular loans, the firm must credibly commit to respect contracts with investors that control opportunistic behavior. The type of contracts that permit commitment in any particular case depend both on firm characteristics and on the institutions in the economy that facilitate monitoring and enforcement of financial contracts.

When the legal system is inefficient or costly to use, short-term debt is more likely to be employed than long-term debt. As Diamond (1991, 1993) has argued, short-term financing may reduce the expropriation of creditors by borrowers. The short maturity limits the period during which an opportunistic firm can exploit its creditors without being in default. It allows the creditors to review the firm's decisions frequently and, if necessary, to vary the terms of the financing before the sufficient losses have accumulated to make default by the borrower optimal. Thus, we would expect an inverse relationship between the inefficiency of a country's legal system and the use of long-term debt.<sup>6</sup> To the extent that there are fixed litigation costs in enforcing contracts, long-term debt is likely to be used most heavily by large firms. The fixed costs may also make the use of long-term debt, particularly by small firms, less responsive to small year-to-year changes in the economic environment.

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<sup>6</sup> This presupposes the existence of a trade-off between the use of long-term and short-term debt. As pointed out by Diamond (1991), short-term financing may give creditors excessive control over the firm's actions. In particular, they may force the firm to abandon valuable long-run projects that benefit the owners if they do not sufficiently benefit the short-term creditors. This situation is most likely to occur if the benefits received by the owners cannot be assigned contractually to the creditors.

The government can facilitate the issuance of long-term debt by maintaining a predictable value of the currency. High, and in particular, variable rates of inflation make it costly for investors and firms to contract. This problem is compounded when the legal resolution of disputes is subject to delay.<sup>7</sup>

The government can also promote the use of long-term financing directly by granting implicit loan guarantees when it adopts a policy of subsidizing loss-making firms or sectors.

Two types of institutions, financial intermediaries and stock-markets, directly influence the financial structure choices of firms. A prime function of financial intermediaries, such as banks, is that of monitoring borrowers. As Diamond (1984) argues, intermediaries have economies of scale in obtaining information. Intermediaries may also have greater incentives to use the collected information to discipline borrowers than small investors subject to free-rider problems. Thus, we would expect that a developed banking sector would facilitate access to external finance, particularly among smaller firms.<sup>8</sup> The implications for debt maturity of firms are less clearcut. A developed banking sector may lead to an increase in the availability of short-term financing, since this form of financing enables intermediaries to utilize their comparative advantage in monitoring. However, their economies of scale and their ability to monitor covenants may permit banks to offer long-term loans that would not be available in a dispersed market. Which of these tendencies predominates is an empirical question.

Large stock markets provide opportunities for diversification by entrepreneurs. Thus, in countries with developed stock markets there may be an incentive for firms to substitute from long-term debt to equity. But stock markets also transmit information that is useful to creditors. As Grossman (1976)

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<sup>7</sup> In principle debt contracts can be indexed. For example, in Brazil all contracts specify a government price index used to adjust the nominal payments for inflation. This solution is not fully satisfactory in practice. During the sample period the indices may have been subject to risk of adjustments made for political reasons. Furthermore, the judicial system does not index judgments, which are subject to appeal and other delays. Perhaps not coincidentally, Table 1 reveals that Brazilian firms have little long-term debt.

<sup>8</sup> See Rajan (1992) for an analysis of the relationship between firms and financial intermediaries.

and Grossman and Stiglitz (1980) demonstrate, prices quoted in financial markets at least partially reveal information that more informed investors possess.<sup>9</sup> This revelation of information may make lending to a publicly quoted firm less risky. As a result, the existence of active stock markets may increase the ability of firms to obtain long-term credit. Demirgüç-Kunt and Maksimovic (1996b) provide empirical evidence that in countries with developing financial markets firm debt-equity ratios increase with an increase in stock market size and activity.

The amount of long-term and short-term debt that is optimal for a firm when financial markets are perfect in general depends on the opportunities that the firm's insiders have for diverting resources and on the assets which the firm has to serve as collateral. Thus, theory predicts that firms whose principal asset is the present value of growth opportunities do not optimally borrow against that asset (Myers 1977). By contrast, firms with a large quantity of fixed assets already in place do not distort their incentive value when they borrow. The fixed assets also facilitate borrowing by serving as collateral. The observed financial structure choices depend on these considerations and on the institutional factors discussed above. We next investigate the relationship empirically.

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<sup>9</sup> The incentives of stock-market investors to monitor the firm depends on the ownership structure. See Admati, Pfleiderer and Zechner (1994).

### 3 FIRMS AND COUNTRIES IN OUR SAMPLE

#### 3A. *Economic Variables*

In Table I we summarize some important facts about the economic development of the countries in our sample.<sup>10</sup> The gross domestic product per capita (GDP/CAP) is a broad indicator of differences in wealth in each country. In 1991 GDP/CAP in the sample ranged from \$27,492 in Switzerland to \$359 in Pakistan. Thus, the sample includes some of the richest and poorest countries in the world.

Three additional macroeconomic indicators are presented in Table I. The average annual growth rate of the gross domestic product over the sample period may be an indicator of the financing needs of firms. On an individual firm level, the existence of growth opportunities may also affect the optimal financing of projects (Myers 1977). The average inflation rate over the sample period, shown in the third column, provides both an indicator of the government's management of the economy and evidence on whether the local currency provides a stable measure of value to be used in long-term contracting. There are major variations in the average rate of inflation in the sample countries. The average annual rate of inflation is highest in Brazil, at 327.6 percent, and lowest in Japan at 1.5 percent a year.

The final economic indicator shown in Table I is a measure of the government's subsidies to the corporate sector in each country. Government subsidies affect financial structure decisions because implicit or explicit backing of corporations by the government may distort market incentives and permit some firms to obtain long-term loans on favorable terms.<sup>11</sup> Our measure of the government's subsidies is the level of government grants as a percentage of the gross domestic product. More

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<sup>10</sup> The sources for the variables discussed in this section are given in the Appendix.

<sup>11</sup> The *Dome Petroleum* Harvard Business School case provides a graphic illustration of the effect of implicit government loan guarantees on financial structure. Their effect is qualitatively similar to that of deposit insurance in the banking sector. For a discussion of deposit guarantees see Kane (1989).

precisely, we measure the sum of grants on current account by the public authorities to (i) private industries and public corporations and (ii) government enterprises to compensate for the losses which are the consequence of policies of the public authorities.<sup>12</sup> As the last column of Table I reveals, the level of government subsidies is significant in some countries, and exceeds 10 percent of the GDP in the case of Brazil.

### ***3B. Legal and Financial Institutions***

We explore the relationship between firms' financing choices and the state of development of both the legal and the financial institutions in our sample of countries. The principal indicators of legal and financial development are given in Table II.

#### *Legal Institutions*

We expect that high incomes, measured by gross domestic product per capita, to be positively correlated with the effectiveness of state institutions that enforce contracts, and thus, of the effect of the legal environment on financial structure decisions. As a more direct indicator of the efficiency of the legal system in each country, we use a commercially available index of the level of law and order in each country, LAWORDER. This index, prepared by the International Country Risk Guide is scored on a six point scale and aggregates annual reports by a panel of more than a hundred analysts. It measures the extent to which citizens of a country are willing to accept the established institutions to make and implement laws and to adjudicate disputes. Low levels of the index denote less reliance on the legal system to mediate disputes. A second indicator, the index of legal efficiency, produced by Business International Corporation is also presented for comparison. This second indicator is an

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<sup>12</sup> Thus, this variable measures realized expenditures but not direct instructions to business or the level of ex-ante commitments made by each government. Over a period, we would expect a correlation between commitments and expenditures.

index of the efficiency and integrity of the legal environment as it affects business, and in particular foreign firms. This index is scored from zero to ten, with lower scores indicating lower efficiency.

LLSV have argued that legal systems based on common law may offer investors different protections than those based on civil law.<sup>13</sup> Such differences may translate into differences in the optimal contracts between firms and investors. To test for this relationship we follow LLSV in defining an indicator variable, COMMON, which is one if the country's legal system is based on common law and zero if it based on civil law. As Table II reveals, the legal systems of thirteen countries in our sample are based on common law and those of seventeen countries are based on civil law.

Financial structure choices may also be affected by the specific provisions of each countries commercial laws. To investigate further the effect of differences in legal systems we use the indicators of creditor and shareholder rights compiled and discussed in detail LLSV. LLSV classify countries according to whether they provide creditors with the following five specific protections. First, whether the bankruptcy laws prohibit an automatic stay on assets, which would prevent automatic liquidations of insolvent firms by secured creditors. The existence of an automatic stay benefits managers and shareholders over secured creditors.<sup>14</sup> Second, whether secured creditors are permitted to repossess their collateral in bankruptcy or whether some third party claims, such as those of the government or the employees take priority. Third, whether the bankruptcy law prohibits borrowers from unilaterally obtaining court protection from creditor demands. If distressed borrowers can obtain such protection unilaterally, their bargaining power is increased. Fourth, whether creditors can dismiss managers and replace them with administrators when a firm becomes bankrupt. In addition, LLSV note whether the law of each country requires all firms to maintain a

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<sup>13</sup> Watson (1974) discusses differences in legal traditions based on common law and on civil law.

<sup>14</sup> Note that this provision may also benefit unsecured creditors over secured creditors.

reserve of equity capital. In countries where this requirement exists, firms that do not fulfill it may be dissolved.

In principle, the creditor rights identified are important in defining feasible contracts between firms and investors. However, there may be no direct statistical relationship between the existence of a specific right and a specific financial contract, such as long-term debt, even when that right is important in enforcing the contract. For example, if the existence of a specific right is necessary, but not sufficient, to make a financial contract enforceable, the statistical relationship between that right and the use of the contract may be weak. The relationship between a particular creditor protection and particular debt contract may also be affected by the existence of spillover effects of the creditor protection on other contracts. For example, strong creditor rights may increase the incentives of financial institutions to monitor firms, thereby also making stock investments in those firms more attractive. The size of these spillovers may depend on the development of the stock market and financial institutions and on the precise provisions of the investor protection laws. Spillovers may also work in the opposite direction. In some, but not all, countries financial intermediaries hold both the stocks and debt of corporations.<sup>15</sup> As a result, intermediaries with an equity stake in a firm may be willing to make loans even when creditor protection is relatively weak.

With these caveats in mind, our examination of the relationship between specific creditor protections and financial structure is exploratory in nature. We give each country a score on an empirically defined “index of creditor rights” based on whether its laws grant creditors the legal protections identified above. Specifically, we give each country a score of one for each of the following conditions that its bankruptcy law satisfies: (i) does not permit an automatic stay on assets, (ii) does not allow borrowers to unilaterally seek bankruptcy protection, (iii) assures secured creditors the

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<sup>15</sup> Hauswald (1996) examines how ownership of both stock and equity by intermediaries alters their incentives to reorganize firms in distress.

right to collateral, and (iv) does not grant the managers tenure pending resolution of bankruptcy. If corporations are required to maintain a capital reserve, then the size of that reserve as a proportion of assets is added to the index. The index is presented in Table 2. Scores range from a high of 4 and a low of 0.1. Some developing countries, such as India and Pakistan, score highly, whereas some developed countries, like France and Germany, have low scores. In addition to using our empirical index of creditor rights, in the regressions below we also test separately for the effect of each component of the creditor rights index.

We proxy for the rights of shareholders using an index developed by LLSV. This index is scored on a scale of one to five. It is obtained by adding a score of one for each of the following elements fulfilled: (i) if shareholders are allowed to vote by mail, (ii) if they are not required to deposit their shares with a trustee prior to voting, (iii) if the law allows cumulative voting for directors and (iv) if the law gives minority shareholders special protection, and (v) if the minimum percentage of share capital that entitles a shareholder to call for an extraordinary general meeting is less than or equal to 10 percent. This index measures the costs faced by minority investors who want to influence decisionmaking within the firm, and is presented, for completeness, in Table II.

The index is subject to the same caveats as the index of creditor rights presented earlier. Whether the costs faced by small shareholders when exercising their rights are important in determining firms' financial structure decisions will depend on whether there also exist large investors or financial intermediaries that can enforce shareholder rights. If these large investors exist, then costs faced by small outside investors may not be material in determining financing patterns.



### *Financial Institutions*

Access to publicly traded equity markets is measured by the ratio of stock market capitalization to gross domestic product (MCAP/GDP).<sup>16</sup> Within our sample there is considerable variation in this ratio, ranging from 1.35 in South Africa to 0.04 in Pakistan. Interestingly, in some of the more developed countries, such as Italy, the MCAP/GDP is lower than is some of the developing countries, such as Malaysia (0.15 compared with 0.88, respectively).<sup>17</sup>

In addition to size, we also measure the activity in the stock markets of each country. The activity level of the equity markets is measured by the turnover ratio (TOR), computed by dividing the total value traded by the market capitalization. Higher values of the turnover ratio indicate a higher level of liquidity. As noted above, a high turnover may also increase the incentives for investors to become informed. Thus, a high turnover may facilitate external monitoring of corporations. This variable was found to be a good indicator of stock market development by Demirgüç-Kunt and Levine (1995) and Demirgüç-Kunt and Maksimovic (1996a,b).

Access to financial intermediaries by firms is measured by the ratio of the domestic assets of deposit banks to the gross domestic product. Again, there are wide variations across countries, both within the developed countries (for example, Japan has a ratio of 1.2 while the United States has a ratio of 0.48) and developing countries (compare Malaysia at .77 with Turkey at 0.25).

### *3C Firm Specific Characteristics*

An important consideration in the choice of financial structure by firms is the reduction of agency costs. The particular types of agency costs to which the firm is exposed and their magnitude will in

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<sup>16</sup> See Demirgüç-Kunt and Levine (1995) for a discussion of alternative indices of stock market development. The statistics on financial markets and intermediaries quoted in this paragraph are compiled in that paper.

<sup>17</sup> For a discussion of the determinants of market size see Pagano (1993) and Allen and Gale (1994).

general vary from firm to firm. Thus, the observed differences in financial structures in our sample of countries depend in part on the characteristics of the population of firms in each economy. We control for the differences in firm characteristics between countries by introducing firm-specific variables that are suggested by theory and that are empirically useful in explaining financial structure decisions of individual firms in a subset of our sample (Demirgüç-Kunt and Maksimovic 1995).

The firm-level data for the developed economies are taken from Global Vantage. We include all the countries in the database for which there are more than 40 firms available.<sup>18</sup> The firm-level data for developing countries are from the International Finance Corporation's (IFC) database. They consist of financial statement data for approximately one hundred largest publicly traded corporations in these economies. The data are described in detail, together with primary sources, in Singh, Hamid, Salimi and Nakano (1992).<sup>19</sup> For both databases, the number of firms available in each country and the years available are listed in the Appendix.

Two of the firm specific variables we use are descriptors of the firm's operating characteristics. The ratio of net fixed assets of firms to their total assets (NFATA) is an indicator of the structure of the firm's assets. Fixed assets may serve as collateral debt. Thus, firms with a high ratio of fixed assets may have greater borrowing capacity. Moreover, since firms have been found to match the maturity of assets with that of liabilities in the United States (Stohs and Mauer 1995), NFATA may be correlated with long-term leverage. The ratio of net sales to net fixed assets (NSNFA) is a descriptor of the firm's operating cycle. A firm with high NSNFA may need short-term financing to support

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<sup>18</sup> Outliers, many of them obvious data errors, were removed prior to analysis. To standardize the procedure, for each variable we computed the interval between the 95<sup>th</sup> percentile and the 5<sup>th</sup> percentile observations. Outliers were defined as observations that did not lie within a band centered on the median observation and having a width twelve times the length of the computed interval. Fewer than one percent of observations were eliminated in this way.

<sup>19</sup> Singh, Hamid, Salimi and Nakano (1992) does not list the primary sources for the data for Brazil, which were gathered after that technical report was prepared. The data were collected from the publications of the Vargas Foundation of Brazil.

sales. It may generate short-term assets, such as cash, accounts receivables and notes from its customers. Thus, if firms match the maturity of their assets and liabilities, a high ratio of NSNFA will be associated with short-term indebtedness.

Two variables measure the cash constraints of firms. A high ratio of dividends to total assets, DIVTA suggests that the firm has a cash surplus relative to its investment needs. Firms in this position would be expected to reduce their leverage. The second indicator of liquidity is the ratio of the firms earnings before interest and taxes to its total assets (PROFIT). Several studies have found a strong negative relationship between this variable and leverage, both in the United States (e.g., Spence 1985) and in developing countries (Demirgüç-Kunt and Maksimovic 1995a).<sup>20</sup>

The preliminary evidence presented in the figures above suggests that the financing decisions of large and small firms may be differently determined. Accordingly, for the most part we analyze them separately. For each economy we divide our panel of firms into quartiles based on asset size. Our sample of large firms consists of the largest quartile of firms in each country. The sample of small firms consists of firms in that quartile of firms in each country which most closely approximates the smallest quartile of firms in our developing countries in size, where size is measured by the ratio of firm's assets to the economy's gross domestic product. Thus, the firms in this sample have approximately the same size relative to their economies. For each country, the firm-specific variables are constructed by taking annual averages of the values for the sub-samples of large and small firms separately.

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<sup>20</sup> Firms' capital structures also depend on the tax advantages of debt and equity financing. See Swoboda and Zechner (1995) for a comparative discussion of tax systems. Several factors make the effect of tax incentives on the capital structures of firms difficult to quantify. The complexity of tax systems, with both federal and local taxes, makes it difficult to compare the benefits debt across a large sample of countries. As shown by Graham et al (1996), effective tax rates may significantly differ from statutory tax rates. Moreover, our interest is not on the total amount of debt that a firm has, but on the composition of the firm's debt and the ratio of long-term to short-term debt. The implications of different tax systems for the composition of debt and for debt maturity are not clearcut. As a result, we do not include tax variables in our cross-sectional regressions.

We present correlations matrices for the variables in Table III. Simple correlations between country means of the variables of interest (LTDTA, STDTA, and LTDTD) and the explanatory variables are shown in Table IIIA for large and small firms separately. The two variables measuring for the effectiveness of the legal system, LAWORDER and LEGAL, are significantly correlated with all of our financial structure variables. The effectiveness of the legal system is highly correlated with greater reliance on long-term debt and smaller reliance on short-term debt. The signs of the correlations between the financial structure variables and the gross domestic product per capita parallel those between the financial structure variables and the legal effectiveness variables. However, the correlations with the legal effectiveness variables are higher and more statistically significant. Of the other legal variables, the most interesting correlations are with the creditor rights index. High scores on the index of creditor rights are associated with a greater reliance of short-term debt over long-term debt and lower absolute levels of the ratio of long-term debt to total debt. This is consistent with the argument by Diamond (1991) that lenders that engage in monitoring have an incentive to make short maturity loans. The correlations between the financial structure variables and two other legal variables, the index of shareholder rights and the dummy for common law are of smaller magnitude. Finally, correlations involving the institutional and firm-specific control variables show less evidence of statistical significance.

Panel IIIB explores the raw correlations between the explanatory variables using data for all firms in the sample, regardless of size. The legal effectiveness variables, LAWORDER and the LEGAL, are highly positively correlated with income per capita, and with the existence of a large banking sector. The relationship between these variables and the other institutional variables are mixed. However, firms in countries with an effective legal system, as measured by both these variables, tend to have a lower ratio of net fixed assets to total assets, to be on the average less profitable and to pay out lower dividends than firms in countries with less effective legal systems.

The three legal variables that measure specific characteristics of the legal system show fewer significant correlations. As pointed out by LLSV, countries with a common law tradition have better shareholder and creditor rights. However, in these countries the correlation with shareholder rights is stronger, indicating a relative predilection for protecting shareholders. This may be one of the explanations for the positive correlation that we observe between the common law dummy variable and MCAP/GDP and the negative correlation between this dummy and BANK/GDP.

Inspection of the table also reveals that countries with large banking systems tend to have higher ratios of market capitalization to gross domestic product. This finding has also been reported by Levine and Demirgüç-Kunt (1995). Large banking systems are also negatively correlated with inflation. Finally, it is interesting to note that firms in countries with larger banking systems have lower ratios of net fixed assets to total assets. This would be consistent with the hypothesis that financial intermediaries have a greater willingness to lend against short-term assets, perhaps as a result of their ability to monitor corporations.

Table IV presents summary statistics for the variables we use in the regressions reported below.

#### **4 DETERMINANTS OF FINANCIAL STRUCTURE**

Differences in institutions between countries may affect the borrowing of firms in developed and developing countries in two ways. First, these differences may affect the absolute levels of long-term and short-term borrowing. Second, they may create incentives to alter the mix of long-term and short-term debt. Accordingly, we analyze both the ratio of long-term to total debt and the levels of long-term and short-term debt relative to total assets.

Significant changes in the legal systems of countries from year to year are rare, and the indicators of investors legal protections do not vary over time. Accordingly, we investigate the determinants of

financial structure in a cross-section, taking as our observations the time-series country means of each variable. This specification, estimated using White's adjustment for heteroscedasticity, is reported in Panels A-C of Tables V.<sup>21</sup>

#### **4.1 Long-Term Debt**

Panel A of Table V presents OLS regressions explaining the ratio of long-term debt to total assets (LTD/TA) for the largest and smallest quartiles of firms in each country over the sample period.

Column (1) of Panel A reports the regression of LTD/TA of large firms on the gross domestic product per capita. GDP/CAP measures systematic differences that exist in corporate long-term indebtedness between richer and poorer economies. For large firms this variable "explains," 44 percent of the differences in long-term financing over the sample period. The positive coefficient, significant at the 1 percent level, indicates that sample corporations in richer countries use long-term financing more. The size of the coefficient indicates that differences in the GDP per capita in our sample are associated with very different levels of long-term debt. Thus, a relatively small \$1,000 increase in the GDP per capita (the difference between, say, Pakistan and Thailand) translates into an increment of 0.09 in the value of the ratio of long term debt to total assets. Increases of \$10,000 in the GDP per capita (the difference between, say, Pakistan and Singapore) translates into an increase of 0.09 in long-term leverage, whereas differences between some of the richest and poorest countries in the sample (the difference of approximately \$20,000 between, say, Pakistan and Norway) is associated with an impressive increase of 0.18 in the value of the ratio of long-term debt to total assets.

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<sup>21</sup> We have also estimated panel regressions in which each financial structure variable of interest is regressed on the explanatory variables and country and year dummies. This specification is potentially misspecified because it treats cross-sectional and time-series variation equally. Moreover, annual observations may not be independent. However, it has the advantage of using all the data, and was reported in an earlier version of this paper. Below we note some additional insights suggested by the panel results.

The results of corresponding regression of the LTD/TA of small firms on GDP per capita are qualitatively similar. Together with dummies, GDP per capita “explains” 41 percent of the variation in the panel. However, the coefficient of GDP per capita indicates that the variation in the use of long-term debt in richer and poorer countries by larger and smaller firms is of similar magnitude. For both large and small firms, GDP per capita loses significance when the model is augmented with our institutional explanatory variables.

In the remainder of Panel A we attempt to determine what specific institutional variables explain differences in the use of debt between countries. In columns (2) and (4) we regress the LTD/TA on the full set of firm-specific and institutional variables and on our indicators of legal system for large and small firms respectively. There is high degree of consistency between results of the large and small firms’ cross-sectional equations. Two results pertaining to the legal environment are of particular interest. First, reliance on long-term debt by both large and small firms is higher in countries with an effective legal system.<sup>22</sup> This finding is consistent with the findings of Demirguc-Kunt and Maksimovic (1996) that the effectiveness of the legal system is highly correlated with external financing of firm growth. Second, both large and small firms in countries with the common law tradition have less long-term debt. Of the investor rights variables, only the index of shareholder rights is statistically significant at the 5 percent level, and only for the large firm equation. The positive coefficient indicates that shareholder rights are associated with a greater use of long-term debt. Interestingly, high values of the index of creditor rights are not correlated with the use of long-term debt. We explore the role of creditor rights in more detail below.

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<sup>22</sup> In the reported equations the efficiency of the legal system is measured by the variable LAWORDER. The variable LEGAL is not used since this index is targeted towards foreign firms. When this variable is entered instead of LAWORDER, its coefficient was of the same sign, although not always significant, and if so, at a lower level.

Of the financial institutions variables, only the coefficient of the stockmarket's turnover ratio, TOR, is significant.<sup>23</sup> It is positive and significant at the 1 percent level in the large firm equation, and positive and significant at the 10 percent level in the small firm equation. These coefficients indicate that an active stock market is associated with a higher long-term leverage, more clearly so in the case of large firms. This result is consistent with the finding that shareholder rights are associated with higher long-term leverage of large firms, reported above.

Our indicator for the size of the intermediary sector, measured by the ratio of bank assets to the gross domestic product, does not explain cross-sectional variation in the use of long-term debt by either small or large firms. However, extensive government subsidies are associated a high ratio of long-term debt to assets for both large and small firms.

Two of the control variables are also significant in both equations. High average rates of inflation are negatively related to the use of long-term debt for both large and small firms. High average net fixed asset to total asset ratios are associated with a higher ratio of long-term debt to total assets. This is consistent with the notion that fixed assets may serve as good collateral for long-term debt.<sup>24</sup>

Taken together, the results suggest that for both large and small firms, the observed variation in the levels of long-term debt across countries is related to the effectiveness of the legal system, the liquidity of the stock market, the availability of collateral, the rate of inflation and the level of government subsidies. There is some evidence that increased shareholder protection increases the amount of long-term debt used by large firms.<sup>25</sup>

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<sup>23</sup> The stock market size variable MCAP/GDP is not included in the reported specifications since it is not significant. This is consistent with the results in Demirgüç-Kunt and Maksimovic (1996a).

<sup>24</sup> Neither PROFIT nor DIVTA variables develop significant coefficients, when entered into the regression equation together or separately. To conserve degrees of freedom, DIVTA was dropped from subsequent regressions.

<sup>25</sup> Panel results suggest that year to year within country variations in the explanatory variables may affect large and small firms differently. Within countries, changes in the use of long-term by large firms is related to



## 4.2 Short-Term Debt

Panel B of Table V examines cross-country variation in the use of short-term debt. In contrast with the long-term debt equations reported in Panel A, for both large and small firms, cross-sectional variation in the gross national product per capita by itself does not explain differences in the use of short-term debt. Since the gross national product per capita is a proxy for the effectiveness of institutions, this finding suggests that cross-country institutional differences are less important in explaining differences in the use of short-term debt. The estimates of the expanded specification (2) confirm this.

For large firms, the coefficients of two legal indicator variables are significant. Large firms in countries with more effective legal systems have less short-term debt. The same is true for countries whose legal system is based on common law. However, we do not find that the use of short-term debt by small firms is affected either by the effectiveness of the legal system or by whether or not the legal system is based on common law. The indices of shareholder or creditor rights do not help explain the use of short-term debt for either large or small firms.

The coefficient of only one of the financial system variables is statistically significant. Small firms in countries with a large banking sector have less short-term debt. Cross-country variation in the stock market or in values of the indices of investor protection does not help explain differences in the

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changes in the efficiency of the legal system, the level of government subsidies and the activity level in the stock market. These factors were not associated with changes in the use of long-term debt by small firms in the panel regressions. This difference may occur because small firms, which may have less access to financial markets, governmental subsidies and the legal system, are less likely to be affected by marginal improvements in financial markets and the legal system and changes in the level of subsidies. This is consistent with the additional finding that within country variation in long-term borrowing by small firms was more strongly related to yearly changes in the size of the banking sector. By contrast, the cross-sectional differences between countries that we measure in the paper are likely to be of a greater magnitude. Thus, they affect small firms as well as large firms.

usage of short-term debt. Similarly, the indicator of government subsidies as a fraction of the gross domestic does not improve the explanatory power of the regressions.

Inspection of columns (2) and (4) reveals that several firm-specific variables help explain short-term leverage. One of these variables, the ratio of net sales to net fixed assets NSNFA is positively associated with short-term borrowing for both small and large firms. A high ratio of net fixed assets to total assets is associated with lower levels of short-term borrowing for large firms. This is consistent with the notion that such firms more easily match the maturity of borrowing with the maturity of their assets. Thus, large firms with fixed assets may borrow long-term in preference to short-term borrowing. Interestingly, more profitable large firms have more short-term debt, whereas we do not obtain a similar significant relationship for small firms. Small firms that grow fast rely more heavily on short-term debt. This finding is consistent with Myers (1977) hypothesis that growth options are not financed using long-term debt.

### **4.3 Debt Maturity**

We explore how the maturity of the firm's liabilities varies across countries in Panel C. As our indicator of maturity, we utilize the ratio of long-term liabilities to total-liabilities. The specifications used parallel the regressions reported in Panels A and B. However, to control for the firm's total debt level we add the lagged ratio of total liabilities to total assets to the explanatory variables to the specifications in Panel C.

The coefficients of debt maturity on the gross domestic product per capita indicate that firms in more developed countries have debt of longer maturity. The results of cross-country regressions of debt maturity on firm-specific and institutional variables are consistent with the results for long-term and short-term debt reported above. The indicator of the legal system's efficiency in settling disputes,

LAWORDER, is positive and significant at the 1 percent level in the large firm equation and positive significant at the 10 percent level in the small firms equation. Thus, we find evidence that the higher the quality of legal institutions, the greater the proportion of long-term financing. There is also some evidence that the maturity of debt is longer for small firms in common law countries (the coefficient of the dummy COMMON is positive and significant at the 10 percent level in the small firm equation (2)). There is no evidence of a similar significant effect for the largest firms in each country. These results are consistent with the previous finding that both large and small firms in common law countries use less long-term debt and that large firms only in common law countries use less short-term debt.

Consistent with the previously reported results, large firms in countries with active stock markets have longer maturity of debt. Interestingly, small firms in countries with large banking systems also have debt of longer maturity. Together with the finding that small firms in countries with large banking systems have less short-term debt, this finding suggests that a large banking sector enables small firms to extend the maturity of their debt.

The coefficients of several of the control variables are of interest. The coefficient of inflation is negative for both large and small firms, but is only significant in former case. High ratios of sales of net sales to net fixed assets are negatively associated with long-maturity of debt for both large and small firms. Small firms in countries that are growing fast have less debt than small firms in slow growing countries. A high ratio of net fixed assets to total assets and high profits are negative and significant in the large firm equation. They are also negative, but not significant in the small firm equation.

#### 4.4 Specific Legal Protections

In Table V we find no evidence that the index of creditor rights helps predict either short-term and long-term leverage or debt maturity. In this subsection we explore the relationship between creditor rights and debt levels in more detail. To this end, we replace the creditor rights index by its individual components in the large-firm and small-firm cross-sectional equations in Panels A-C of Table V. Table VI shows the coefficients of the individual components of the index in these equations. For convenience, we also present the coefficients of the index from Panels A-C of Table V.

Inspection of Table VI reveals that the variation in most of the components of the creditor rights index in this sample is not significantly related to the debt composition decisions of large firms. The one exception is variation in the right of secured creditors to seize collateral in bankruptcy. This right is associated with increased short-term borrowing and a significantly shorter maturity of debt for large firms. The interpretation of a significant partial correlation between any single legal protection and the use of a financial contract must be tentative because the importance of the protection may vary in different systems. However, this partial correlation is consistent with the proposition that short-term lenders may have a greater incentive to monitor borrowers and benefit most from an ability to repossess secured assets, as suggested by Diamond (1991). Interestingly, the rights of secured creditors are not similarly correlated with the financing decisions of small firms.<sup>26</sup>

Small firms in countries whose laws allow managers to stay in control during reorganizations have significantly less short-term debt. As a result of this, the ratio of long-term debt to short-term debt is higher for these firms in such countries. Again, interpretation must be tentative. It is however, also

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<sup>26</sup> Note that in some countries, such as the United States, trade creditors may possess rights which other secured creditors do not possess. Thus, systematic differences in the amount of trade credit used by large and small firms would confound our results.

consistent with the conjecture that more monitoring occurs with short-term debt, and that the availability of short-term financing is reduced when the ability of creditors to act in protection of their interests is curtailed.

Table VI provides some evidence that small firms in countries where there exists an automatic stay on assets of bankrupt firms borrow more, although the maturity of their debt remains unaffected. In bankruptcy, an automatic stay benefits borrowers at the expense of secured creditors. Thus, owners of small firms may wish to borrow more if the automatic stay credibly commits lenders not to expropriate them in the event that their firms become financially distressed.

## **5 CONCLUSIONS**

We examine maturity of firms' liabilities in thirty developed and developing countries during 1980-91. We find systematic differences in the use of long term debt between developed and developing countries and small and large firms. In developed countries firms have more long term debt and greater proportion of their total debt is held as long term debt. This is true regardless of firm size across our sample of countries. Also large firms have more long term debt- as a proportion of total assets and debt- compared to smaller firms. We attempt to explain the observed cross-country variation leverage and maturity of liabilities by differences in the legal systems, financial institutions, government subsidies, as well as firm characteristics and macroeconomic factors, such as the rate of inflation and the economy's growth rate.

We find that both large and small firms in countries with legal systems that are perceived to be effective have more long-term debt relative to assets and that their debt is of longer maturity. Large firms in countries with effective legal systems have lower short-term liabilities, suggesting that such firms may be substituting long-term debt for short-term debt. We do not find evidence of a similar

reduction in short-term liabilities by small firms, perhaps because small firms tend to use less long-term debt than large firms. These conclusions are consistent with the findings of Demirgüç-Kunt and Maksimovic (1996) that a higher proportion of firms in countries with effective legal systems finance their growth externally.

We also test the hypothesis that tradition on which a country's legal system is based may influence the optimal financing of firms in that country. We find that both large and small firms in countries with a common law tradition use less long-term debt, relative to their assets, than firms in countries with a civil law tradition. Large firms in common law countries also use less short-term debt. The maturity of debt of large firms in common law and civil law countries does not differ significantly, whereas it is longer for small firms.

The structure of financial institutions is also an important determinant of firms' financing choices. Consistent with Demirgüç-Kunt and Maksimovic (1996) results on external financing of investment, we find that whereas the variation in the size of the stock market relative to the country's economy is not correlated with financing patterns, variation in the level of activity of the stock market does have explanatory power for large firms. In countries with active stock markets large firms have more long-term debt and debt of longer maturity. Neither the level of activity nor the size of the market is correlated with financing choices of small firms. By contrast, in countries with a large banking sector, small firms have less short-term debt and their debt is of longer maturity. Variation in the size of the banking sector does not have a corresponding correlation with the capital structures of large firms. Thus, at the margin large banking sectors enable smaller firms to substitute long-term debt for short-term debt.

We also find that the magnitude of government subsidies to industry is positively related to the use of long-term debt by both large and small firms, perhaps as a result of implicit guarantees. Inflation

is negatively related to the use of long-term debt. Variation in several of the firm-specific characteristics is also related to the use of debt of different maturities. In particular, high ratios of net fixed assets to total assets are positively related to the use of long-term debt by both large and small firms and less short-term borrowing by large firms only. This finding suggests that large firms can more easily use their fixed assets obtain long-term debt. By contrast, high ratios of sales to fixed assets are associated with more extensive use of short-term debt. This would be consistent with maturity matching if firms with high ratios of sales to fixed assets also have high ratios of accounts receivable to fixed assets.

In sum, the underlying legal and institutional differences explain a large portion of the variation in the use of long-term debt. While we have identified relationships between financial institutions and legal system origin and efficiency, on the one hand, and financial structures of firms, we have been not been able to consistently relate specific investor protections with firm financing. This is not surprising because the constraints that specific features of the legal system impose of contracting by firms and investors may be depend on the characteristics of the financial system in each country. The exact way in which this happens is an open research question.

The paper has several policy implications. First, it provides evidence confirming that firms in developing countries have less long term debt, even after accounting for their characteristics.

Second, the paper shows that this lack of term finance is mainly due to institutional differences, such as the extent of government subsidies, different level of development of stock markets and banks, and differences in the underlying legal infrastructure. Third, the results indicate that while policies that help develop legal and financial infrastructure of countries are effective in increasing the access of firms to long term debt, different policies would be necessary to lengthen the debt maturity of large and small firms. Improvements in legal effectiveness seem to benefit all firms, although this result is much less significant for the smallest firms, which have limited access to the legal system.

Similarly, policies that would help improve the functioning and liquidity of stock markets, would again benefit mostly the large firms. In contrast, policies that would lead to improvements in the development of the banking system would improve the access of smaller firms to long term credit.

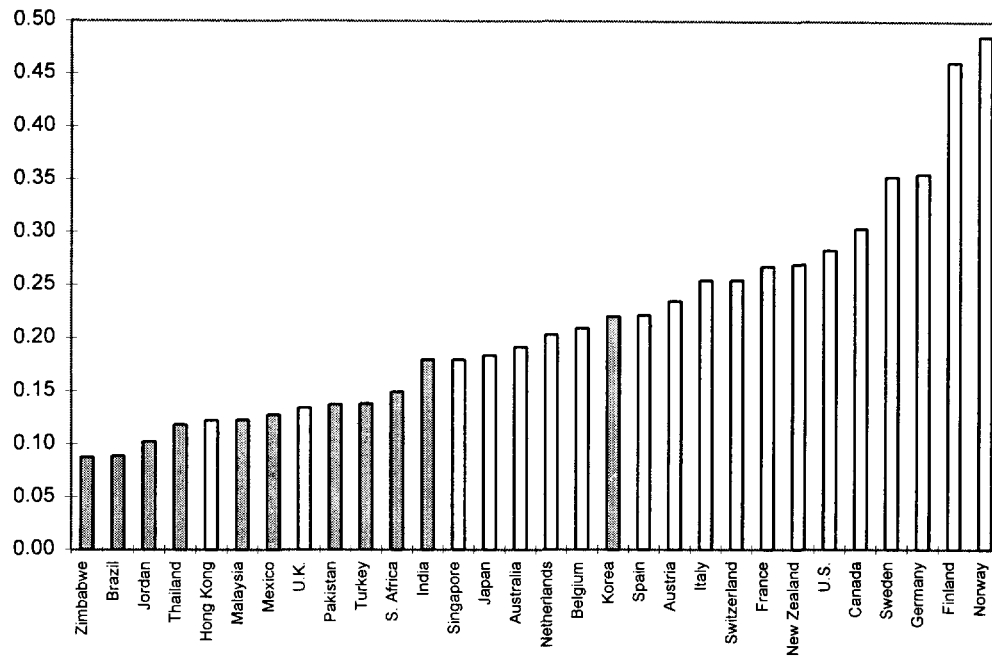


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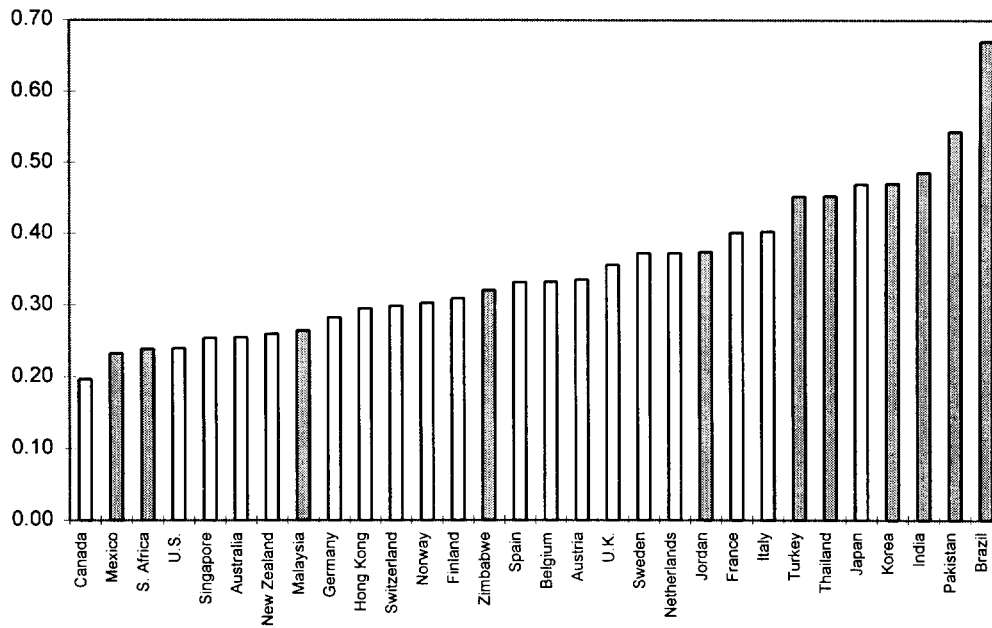
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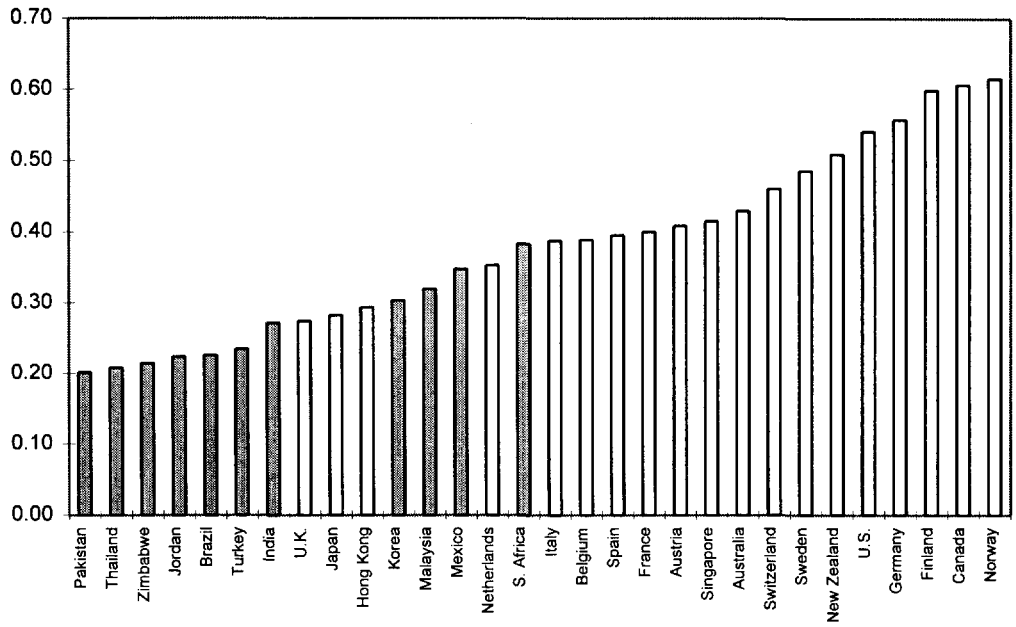
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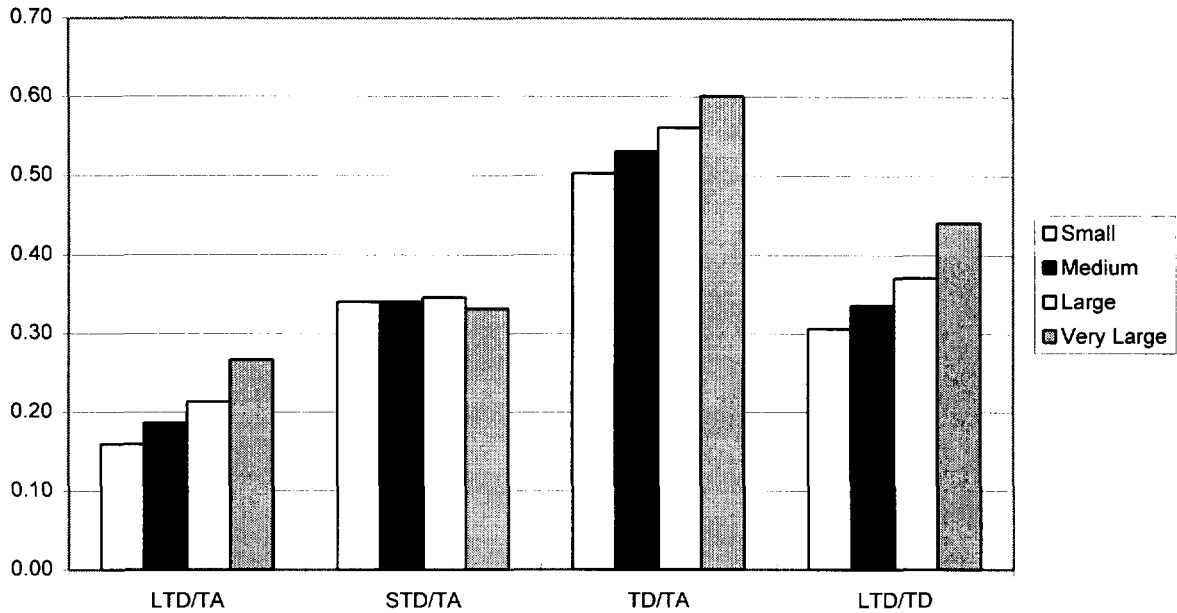
**Figure 1. Long Term Debt/Total Asset Ratios.** The figure presents the average long-term debt to total asset ratios for firms in each country for 1980-91. Developing countries are denoted by the darker outline. The countries in the figure are ordered by their utilization of long- term debt financing.



**Figure 2. Short Term Debt/Total Asset Ratios.** The figure presents the average short-term debt to total asset ratios for firms in each country for 1980-91. Developing countries are denoted by the darker outline. The countries in the figure are ordered by their utilization of short-term debt financing.



**Figure 3. Long Term Debt/Total Debt Ratios.** The figure presents the average long-term debt to total debt ratios for firms in each country for 1980-91. Developing countries are denoted by the darker outline. The countries in the figure are ordered by their debt maturity.



**Figure 4. Debt Ratios: Small vs. Large Firms.** The figure presents the average long-term debt to asset (LTD/TA), short-term debt to asset (STD/TA), total debt to total asset (TD/TA) and long-term debt to total debt (LTD/TD) ratios across thirty countries by firm size. The firms in each country are divided into quartiles by value of total assets, and the average debt ratios of each quartile, calculated across countries, is reported. Countries in the sample are: Australia, Austria, Belgium, Brazil, Canada, Germany, Finland, France, Hong Kong, India, Italy, Jordan, Japan, Korea, Malaysia, Mexico, Netherlands, Norway, New Zealand, Pakistan, Singapore, Spain, Switzerland, Sweden, Thailand, Turkey, United Kingdom, United States, South Africa, and Zimbabwe.

**Table I**  
**Economic Indicators**

GDP/CAP is the real GDP per capita in US\$ in 1991. It is obtained from World Bank National Accounts. Growth rate is the average annual growth rate in GDP/CAP for 1980-91. Average annual inflation is given for 1980-91. It is the annual inflation of the GDP deflator, obtained from World Bank National Accounts. Government subsidies are defined as grants on current account by the public authorities to (i) private industries and public corporations and (ii) government enterprises. The figures are as percent of GDP averaged over 1983-91. Data are obtained from various issues of the World Competitiveness Report, The World Economic Forum & IMD International, Geneva, Switzerland.

	GDP/CAP (US \$)	Growth 80-91 (percent)	Inflation 80-91 (percent)	Government subsidies to private and public enterprises 83-91
Switzerland	27,492	1.7	3.8	1.4
Japan	23,584	3.9	1.5	0.6
Norway	19,664	1.7	5.2	5.9
Sweden	19,649	1.6	7.4	4.8
United States	18,972	1.9	4.2	0.6
Finland	18,046	1.6	6.6	3.0
France	17,365	1.8	5.7	2.4
Austria	17,288	2.2	3.6	1.3
Netherlands	16,479	2.3	1.8	2.6
Germany	16,439	1.8	2.8	2.0
Canada	16,098	2.0	4.3	1.9
Belgium	16,051	2.2	4.2	3.5
Italy	14,570	2.5	9.5	2.9
Australia	13,095	1.6	7.0	3.0
United Kingdom	12,585	2.3	5.8	1.5
New Zealand	10,643	1.0	10.3	1.2
Singapore	10,294	4.9	1.9	1.9
Hong Kong	9,820	5.8	7.5	n.a.
Spain	8,752	3.3	8.9	2.4
Korea	4,259	6.8	5.6	6.3
Malaysia	2,465	3.6	1.7	4.6
South Africa	2,198	-1.0	14.4	n.a.
Brazil	2,073	2.1	327.6	10.7
Mexico	1,801	1.0	66.5	2.3
Turkey	1,375	3.1	44.7	2.2
Jordan	1,372	-2.1	1.6	n.a.
Thailand	1,362	7.0	3.7	1.4
Zimbabwe	630	1.7	12.5	n.a.
India	375	3.3	8.2	5.8
Pakistan	359	3.9	7.0	5.4



**Table II**  
**Institutional Indicators**

Law and order indicator, produced by International Country Risk rating agency, reflects the degree to which the citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes. It is scored 0-6 with higher scores indicating sound political institutions and a strong court system. Lower scores indicate a tradition of depending on physical force or illegal means to settle claims. Values reported are 1985-91 averages. Legal efficiency indicator, produced by Business International Corporation, is an assessment of the efficiency and integrity of the legal environment as it affects business, particularly foreign firms. It is scored 0-10 with lower scores for lower efficiency levels. An average value for 1980-1983 is available. Common Law Dummy takes the value one for common law countries and the value zero for others. Creditor rights is an index that ranges from 0 to 4.5 and aggregates creditor rights and Shareholder rights is an index that ranges from 0 to 5 and aggregates shareholder rights as described in the text. These three variables are obtained from La Porta, Lopez-de-Silanes, Shleifer and Vishny (1996). Market capitalization/GDP is the stock market capitalization divided by GDP. Turnover is the total value of shares traded divided by market capitalization. Stock market data are from IFC's Emerging Market Data Base. Values are 1980-1991 averages. Bank/GDP is the total assets of the deposit money banks divided by GDP. It is obtained from IMF, International Financial Statistics. Bank is the summation of IFS lines 22a through 22f. Values are 1980-1991 averages. GDP values are from World Bank National Accounts.

	Law and Order Indicator	Legal Efficiency Indicator	Common Law Dummy	Creditor Rights Index	Shareholder Rights Index	Market Capitalization/GDP	Turnover	Bank/GDP
Switzerland	6.00	10.00	0	1.50	1.00	0.75	0.40	1.56
Japan	5.00	10.00	0	2.25	3.00	0.96	0.52	1.21
Norway	6.00	10.00	0	2.20	3.00	0.18	0.41	0.75
Sweden	6.00	10.00	0	2.20	3.00	0.44	0.24	0.69
United States	6.00	10.00	1	1.00	5.00	0.60	0.58	0.48
Finland	6.00	10.00	0	1.00	2.00	0.18	0.18	0.71
France	5.00	8.00	0	0.10	2.00	0.23	0.31	0.96
Austria	6.00	9.50	0	3.10	2.00	0.08	0.55	1.13
Netherlands	6.00	10.00	0	2.00	2.00	0.44	0.39	0.93
Germany	5.57	9.00	0	3.10	1.00	0.24	1.22	1.04
Canada	6.00	9.25	1	1.00	4.00	0.46	0.28	0.48
Belgium	6.00	9.50	0	2.10	0.00	0.31	0.12	0.57
Italy	5.00	6.75	0	2.20	0.00	0.15	0.24	0.53
Australia	6.00	10.00	1	1.00	4.00	0.50	0.29	0.51
United Kingdom	4.43	10.00	1	4.00	4.00	0.85	0.38	0.81
New Zealand	6.00	10.00	1	3.00	4.00	0.38	0.15	0.44
Singapore	5.00	10.00	1	4.00	3.00	0.93	0.32	0.94
Hong Kong	4.71	10.00	1	4.00	4.00	1.19	0.40	n.a.
Spain	4.00	6.25	0	2.20	2.00	0.22	0.30	0.90
Korea	2.17	6.00	0	3.50	2.00	0.22	0.69	0.46
Malaysia	3.86	9.00	1	4.00	3.00	0.79	0.15	0.77
South Africa	1.71	6.00	1	3.00	4.00	1.35	0.05	0.38
Brazil	4.00	5.75	0	1.20	3.00	0.11	0.48	0.23
Mexico	3.00	6.00	0	0.20	0.00	0.10	0.69	0.21
Turkey	2.67	4.00	0	2.20	2.00	0.05	0.08	0.25
Jordan	2.00	8.66	0	n.a.	1.00	0.47	0.13	0.66
Thailand	3.57	3.25	1	3.10	3.00	0.18	0.59	0.60
Zimbabwe	2.00	7.50	1	4.00	3.00	0.10	0.08	0.17
India	1.71	8.00	1	4.00	2.00	0.07	0.59	0.32
Pakistan	2.00	5.00	1	4.00	4.00	0.04	0.11	0.33

**Table III**  
**Correlation Matrices**

Dependent variables are long term debt to total asset ratio (LTDTA), short term debt to total asset ratio (STDTA), and long term debt to total debt ratios (LTDTD). Independent variables are defined as follows: NFATA is the net fixed assets divided by total assets. PROFIT is the income before interest and taxes divided by total assets. NSNFA is the net sales divided by net fixed assets. DIVTA is the dividends divided by total assets. GDP/CAP is the GDP per capita. GROWTH is the growth rate of the real GDP per capita. INFLATION is the inflation rate of the GDP deflator. TOR is stock market turnover defined as the total value of shares traded divided by market capitalization. MCAP/GDP is the stock market capitalization of the country divided by its GDP. BANK/GDP is the total assets of the deposit money banks divided by GDP. GOV. SUBS./GDP are the grants on current account by the public authorities to (i) private industries and public corporations and (ii) government enterprises, divided by GDP. LAW & ORDER, scored 1 to 6, is an indicator of the degree to which citizens of a country are able to utilize the existing legal system to mediate disputes and enforce contracts. LEGAL is an index, scored 0 to 10, assessing the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms." For both indices lower scores indicate lower enforcement/efficiency levels. COMMON is a dummy variable that takes the value 1 for common law countries and the value zero for others. SHAREHOLDER RIGHTS is an index that ranges from 0 to 5 and aggregates shareholder rights and CREDITOR RIGHTS is an index that ranges from 0 to 4.5 and aggregates creditor rights as described in the text. All variables, except last four, are averaged over 1980-91 when available, so that each country has one observation. In panel A averages of firm level variables (LTDTA, STDTA, LTDTD, NFATA, PROFIT, NSNFA, DIVTA) are calculated for the largest and smallest firms separately. Panel B calculates averages using all firms in the sample. Correlations reported are Pearson correlation coefficients. P-values are given in italics. Number of observations are reported under the respective p-values.

**Panel A: Correlations of Dependent and Independent Variables**

	NFATA	PROFIT	NSNFA	DIVTA	GDP/CAP	GROWTH	INFL.	TOR	MCAP/ GDP	BANK /GDP	GOV. SUB./GDP	LAW & ORDER	LEGAL	COMMON	SHR. RIGHTS	CRD. RIGHTS
<b>Large Firms</b>																
LTDTA	-.127	-.132	-.269	-.437	.676	-.226	-.372	.192	-.108	.290	-.205	.639	.460	-.194	.061	-.337
	<i>.511</i>	<i>.488</i>	<i>.158</i>	<i>.018</i>	<i>.000</i>	<i>.230</i>	<i>.043</i>	<i>.308</i>	<i>.569</i>	<i>.127</i>	<i>.316</i>	<i>.000</i>	<i>.011</i>	<i>.304</i>	<i>.748</i>	<i>.073</i>
	29	30	29	29	30	30	30	30	30	29	26	30	30	30	30	29
STDTA	-.520	.159	.553	.035	-.094	.262	-.229	-.108	-.286	.074	.072	-.338	-.353	-.334	-.282	.166
	<i>.004</i>	<i>.402</i>	<i>.002</i>	<i>.855</i>	<i>.620</i>	<i>.162</i>	<i>.223</i>	<i>.569</i>	<i>.125</i>	<i>.703</i>	<i>.725</i>	<i>.068</i>	<i>.056</i>	<i>.071</i>	<i>.132</i>	<i>.391</i>
	29	30	29	29	30	30	30	30	30	29	26	30	30	30	30	29
LTDTD	.152	-.173	-.470	-.290	.547	-.284	-.214	.193	.141	.186	-.291	.658	.533	.092	.209	-.343
	<i>.432</i>	<i>.360</i>	<i>.010</i>	<i>.127</i>	<i>.002</i>	<i>.128</i>	<i>.257</i>	<i>.306</i>	<i>.458</i>	<i>.334</i>	<i>.149</i>	<i>.000</i>	<i>.003</i>	<i>.629</i>	<i>.268</i>	<i>.069</i>
	29	30	29	29	30	30	30	30	30	29	26	30	30	30	30	29
<b>Small Firms:</b>																
LTDTA	-.184	-.227	-.079	-.473	.655	-.146	-.231	.215	-.205	.208	-.044	.556	.402	-.303	-.052	-.331
	<i>.339</i>	<i>.228</i>	<i>.684</i>	<i>.010</i>	<i>.000</i>	<i>.443</i>	<i>.219</i>	<i>.253</i>	<i>.277</i>	<i>.278</i>	<i>.832</i>	<i>.001</i>	<i>.028</i>	<i>.103</i>	<i>.783</i>	<i>.080</i>
	29	30	29	29	30	30	30	30	30	29	26	30	30	30	30	29
STDTA	-.186	.414	.221	.023	-.320	.539	-.073	.070	-.289	-.121	.168	-.448	-.436	-.083	-.103	.309
	<i>.335</i>	<i>.023</i>	<i>.249</i>	<i>.907</i>	<i>.085</i>	<i>.002</i>	<i>.700</i>	<i>.714</i>	<i>.121</i>	<i>.533</i>	<i>.413</i>	<i>.013</i>	<i>.016</i>	<i>.664</i>	<i>.587</i>	<i>.103</i>
	29	30	29	29	30	30	30	30	30	29	26	30	30	30	30	29
LTDTD	-.163	-.318	-.133	-.462	.726	-.250	-.232	.211	-.099	.251	-.176	.685	.521	-.191	.009	-.397
	<i>.398</i>	<i>.087</i>	<i>.491</i>	<i>.012</i>	<i>.000</i>	<i>.183</i>	<i>.218</i>	<i>.263</i>	<i>.601</i>	<i>.189</i>	<i>.391</i>	<i>.000</i>	<i>.003</i>	<i>.313</i>	<i>.962</i>	<i>.033</i>
	29	30	29	29	30	30	30	30	30	29	26	30	30	30	30	29

**Panel B: Cross-Correlations of Independent Variables**

	PROFIT	NSNFA	DIVTA	GDP/CAP	GROWTH	INFL.	TOR	MCAP/ GDP	BANK /GDP	GOV. SUB./GDP	LAW & ORDER	LEGAL	COMMON	SHR. RIGHTS	CRD. RIGHTS
NFATA	.122	-.612	.224	-.607	-.232	.639	-.050	-.069	-.621	.461	-.471	-.440	.171	.172	-.109
	.527	.000	.252	.001	.226	.000	.798	.723	.000	.018	.010	.017	.374	.371	.583
PROFIT		.108	.818	-.423	.034	-.080	-.292	.095	-.378	-.090	-.504	-.494	.227	.177	.324
		.576	.000	.020	.858	.675	.118	.619	.044	.663	.005	.006	.227	.350	.087
NSNFA			.001	.217	.255	-.431	.103	.144	.281	-.332	.035	.075	.219	.234	.231
			.998	.258	.182	.020	.595	.457	.147	.098	.858	.698	.253	.222	.237
DIVTA				-.489	-.044	-.106	-.387	.350	-.349	-.299	-.465	-.351	.361	.204	.339
				.007	.822	.585	.038	.063	.069	.146	.011	.062	.055	.289	.077
GDP/CAP					-.176	-.323	.196	.179	.697	-.404	.872	.709	-.350	-.053	-.429
					.353	.082	.300	.343	.000	.041	.000	.000	.058	.781	.020
GROWTH						-.089	.164	.004	.054	.142	-.084	-.255	.194	.176	.426
						.641	.387	.983	.779	.489	.658	.173	.305	.351	.021
INFLATION							.066	-.232	-.391	.649	-.179	-.363	-.197	-.013	-.258
							.728	.218	.036	.000	.345	.049	.296	.948	.176
TOR								-.140	.262	-.013	.140	.025	-.211	-.187	-.040
								.459	.170	.950	.460	.894	.263	.322	.835
MCAP/GDP									.367	-.436	.101	.414	.370	.412	.216
									.050	.026	.595	.023	.044	.024	.259
BANK/GDP										-.391	.531	.521	-.351	-.189	-.038
										.048	.003	.004	.062	.325	.847
GOV. SUB./GDP											-.381	-.286	-.210	-.056	.142
											.055	.156	.303	.786	.488
LAW & ORDER												.699	-.206	.039	-.432
												.000	.275	.837	.019
LEGAL													.026	.149	-.060
													.891	.433	.757
COMMON														.722	.473
														.000	.010
SHAREHOLDER RIGHTS															.235
															.220

**Table IV**  
**Summary Statistics**

Firm-level variables are reported separately for large and small firms. These are defined as follows: LTDTA is long term debt to total asset ratio, STDTA is short term debt to total asset ratio, and LTDTD is long term debt to total debt ratios. NFATA is the net fixed assets divided by total assets. PROFIT is the income before interest and taxes divided by total assets. NSNFA is the net sales divided by net fixed assets. DIVTA is the dividends divided by total assets. Institutional variables are available at the country level. GDP/CAP is the GDP per capita in thousands of US\$. GROWTH is the growth rate of the real GDP per capita. INFLATION is the inflation rate of the GDP deflator. TOR is stock market turnover defined as the total value of shares traded divided by market capitalization. MCAP/GDP is the stock market capitalization of the country divided by its GDP. BANK/GDP is the total assets of the deposit money banks divided by GDP. GOV. SUBS./GDP are the grants on current account by the public authorities to (i) private industries and public corporations and (ii) government enterprises, divided by GDP. LAW & ORDER, scored 1 to 6, is an indicator of the degree to which citizens of a country are able to utilize the existing legal system to mediate disputes and enforce contracts. LEGAL is an index, scored 0 to 10, assessing the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms." For both indices lower scores indicate lower enforcement/efficiency levels. COMMON is a dummy variable that takes the value 1 for common law countries and the value zero for others. SHAREHOLDER RIGHTS is an index that ranges from 0 to 5 and aggregates shareholder rights and CREDITOR RIGHTS is an index that ranges from 0 to 4.5 and aggregates creditor rights as described in the text. All variables, except the last four, are averaged over 1980-91 when available, so that each country has one observation.

	N	Mean	Std Dev	Minimum	Maximum
<b>Large Firms</b>					
LTDTA	30	0.269	0.103	0.105	0.528
STDTA	30	0.326	0.099	0.170	0.489
LTDTD	30	0.446	0.125	0.248	0.706
NFATA	29	0.412	0.104	0.227	0.704
PROFIT	30	0.100	0.032	0.070	0.202
NSNFA	29	4.687	3.738	0.883	19.632
DIVTA	29	0.019	0.012	0.002	0.052
<b>Small Firms</b>					
LTDTA	30	0.175	0.115	0.056	0.500
STDTA	30	0.338	0.088	0.227	0.538
LTDTD	30	0.321	0.146	0.158	0.664
NFATA	29	0.355	0.088	0.149	0.534
PROFIT	30	0.110	0.044	0.048	0.273
NSNFA	29	6.236	3.545	1.436	16.997
DIVTA	29	0.028	0.022	0.002	0.088
<b>Economic and Institutional Variables</b>					
GDP/CAP	30	10.234	7.737	0.299	26.348
GROWTH	30	0.024	0.020	-0.023	0.070
INFLATION	30	0.141	0.341	0.016	1.866
TOR	30	0.364	0.248	0.053	1.221
MCAP/GDP	30	0.419	0.358	0.043	1.351
BANK/GDP	29	0.654	0.335	0.163	1.562
GOV. SUBS./GDP	26	3.130	2.262	0.600	10.686
LAW & ORDER	30	4.447	1.597	1.714	6.000
LEGAL	30	8.247	2.069	3.250	10.000
COMMON	30	0.433	0.504	0.000	1.000
SHR. RIGHTS	30	2.533	1.332	0.000	5.000
CRD. RIGHTS	29	2.453	1.224	0.100	4.000

**Table V**  
**Determinants of Debt Maturity**

**Panel A: Long-Term Debt** -- The regression equation estimated is:  $LTD/TA = \alpha + \beta_1 GDP/CAP + \beta_2 NFATA + \beta_3 PROFIT + \beta_4 NSNFA + \beta_5 GROWTH + \beta_6 TOR + \beta_7 BANK/GDP + \beta_8 GOV. SUBS./GDP + \beta_9 INFLATION + \beta_{10} LAW \& ORDER + \beta_{11} SHAREHOLDER RIGHTS + \beta_{12} CREDITOR RIGHTS + \beta_{13} COMMON-LAW DUMMY + \epsilon$ . Dependent variable (LTD/TA) is the long term debt to total asset ratio. GDP/CAP is the GDP per capita. NFATA is the net fixed assets divided by total assets. PROFIT is the income before interest and taxes divided by total assets. NSNFA is the net sales divided by net fixed assets. GROWTH is the growth rate of the real GDP per capital. TOR is stock market turnover defined as the total value of shares divided by market capitalization. BANK/GDP is the total assets of the deposit money banks divided by GDP. GOV. SUBS./GDP are the grants on current account by the public authorities to (i) private industries and public corporations and (ii) government enterprises, divided by GDP. INFLATION is the inflation rate of the GDP deflator. LAW & ORDER, scored 1 to 6, is an indicator of the degree to which citizens of a country are able to utilize the existing legal system to mediate disputes and enforce contracts. SHAREHOLDER RIGHTS is an index that ranges from 0 to 5 and aggregates shareholder rights and CREDITOR RIGHTS is an index that ranges from 0 to 4.5 and aggregates creditor rights as described in the text. COMMON-LAW DUMMY takes the value 1 for common law countries and the value zero for others. All variables, except the last three, are averaged over 1980-91. White's heteroskedasticity-consistent standard errors are given in parantheses.

	Large Firms		Small Firms	
	(1)	(2)	(1)	(2)
GDP/CAP	.009*** (.002)		.010*** (.002)	
NFATA		.287** (.130)		.469** (.208)
PROFIT		.281 (.336)		.189 (.398)
NSNFA		-.002 (.002)		.007 (.006)
GROWTH		-.434 (.501)		-.411 (.959)
TOR		.111*** (.035)		.113* (.062)
BANK/GDP		-.052 (.040)		-.094 (.052)
GOV. SUBS./GDP		.019*** (.006)		.026*** (.007)
INFLATION		-.275*** (.028)		-.263*** (.043)
LAW & ORDER		.043*** (.010)		.052** (.019)
SHAREHOLDER RIGHTS		.023** (.009)		.015 (.013)
CREDITOR RIGHTS		-.014 (.009)		-.011 (.015)
COMMON-LAW DUMMY		-.074** (.031)		-.106*** (.041)
Adj. R <sup>2</sup>	.44	.62	.41	.28
No. of Observations	30	26	30	26

\*, \*\* and \*\*\* indicate significance levels of 10, 5 and 1 percent respectively.

**Panel B: Short-Term Debt** -- The regression equation estimated is:  $STD/TA = \alpha + \beta_1 GDP/CAP + \beta_2 NFATA + \beta_3 PROFIT + \beta_4 NSNFA + \beta_5 GROWTH + \beta_6 TOR + \beta_7 BANK/GDP + \beta_8 GOV. SUBS./GDP + \beta_9 INFLATION + \beta_{10} LAW \& ORDER + \beta_{11} SHAREHOLDER RIGHTS + \beta_{12} CREDITOR RIGHTS + \beta_{13} COMMON-LAW DUMMY + \epsilon$ . Dependent variable (STD/TA) is the short term debt to total asset ratio. GDP/CAP is the GDP per capita. NFATA is the net fixed assets divided by total assets. PROFIT is the income before interest and taxes divided by total assets. NSNFA is the net sales divided by net fixed assets. GROWTH is the growth rate of the real GDP per capital. TOR is stock market turnover defined as the total value of shares divided by market capitalization. BANK/GDP is the total assets of the deposit money banks divided by GDP. GOV. SUBS./GDP are the grants on current account by the public authorities to (i) private industries and public corporations and (ii) government enterprises, divided by GDP. INFLATION is the inflation rate of the GDP deflator. LAW & ORDER, scored 1 to 6, is an indicator of the degree to which citizens of a country are able to utilize the existing legal system to mediate disputes and enforce contracts. SHAREHOLDER RIGHTS is an index that ranges from 0 to 5 and aggregates shareholder rights and CREDITOR RIGHTS is an index that ranges from 0 to 4.5 and aggregates creditor rights as described in the text. COMMON-LAW DUMMY takes the value 1 for common law countries and the value zero for others. All variables, except the last three, are averaged over 1980-91. White's heteroskedasticity-consistent standard errors are given in parantheses.

	Large Firms		Small Firms	
	(1)	(2)	(1)	(2)
GDP/CAP	-0.001 (.002)		-0.003 (.002)	
NFATA		-.601*** (.110)		.035 (.113)
PROFIT		.738** (.365)		.286 (.302)
NSNFA		.005* (.003)		.019*** (.005)
GROWTH		.274 (.598)		2.838*** (.638)
TOR		-.035 (.028)		-.005 (.045)
BANK/GDP		-.044 (.034)		-.094** (.026)
GOV. SUBS./GDP		.007 (.007)		-.006 (.008)
INFLATION		-.037 (.031)		.016 (.032)
LAW & ORDER		-.033*** (.010)		-.008 (.008)
SHAREHOLDER RIGHTS		.012 (.008)		-.006 (.010)
CREDITOR RIGHTS		.001 (.007)		.006 (.009)
COMMON-LAW DUMMY		-.103** (.036)		-.068 (.042)
Adj. R <sup>2</sup>	.00	.75	.07	.69
No. of Observations	30	26	30	26

\*, \*\* and \*\*\* indicate significance levels of 10, 5 and 1 percent respectively.

**Panel C: Debt Maturity** -- The regression equation estimated is:  $LTD/TD = \alpha + \beta_1 GDP/CAP + \beta_2 NFATA + \beta_3 PROFIT + \beta_4 NSNFA + \beta_5 GROWTH + \beta_6 TOR + \beta_7 BANK/GDP + \beta_8 GOV. SUBS./GDP + \beta_9 INFLATION + \beta_{10} LAW \& ORDER + \beta_{11} SHAREHOLDER RIGHTS + \beta_{12} CREDITOR RIGHTS + \beta_{13} COMMON-LAW DUMMY + \beta_{14} TD/TA_{t-1} + \epsilon$ . Dependent variable (LTD/TD) is the long term debt to total debt ratio. GDP/CAP is the GDP per capita. NFATA is the net fixed assets divided by total assets. PROFIT is the income before interest and taxes divided by total assets. NSNFA is the net sales divided by net fixed assets. GROWTH is the growth rate of the real GDP per capital. TOR is stock market turnover defined as the total value of shares divided by market capitalization. BANK/GDP is the total assets of the deposit money banks divided by GDP. GOV. SUBS./GDP are the grants on current account by the public authorities to (i) private industries and public corporations and (ii) government enterprises, divided by GDP. INFLATION is the inflation rate of the GDP deflator. LAW & ORDER, scored 1 to 6, is an indicator of the degree to which citizens of a country are able to utilize the existing legal system to mediate disputes and enforce contracts. SHAREHOLDER RIGHTS is an index that ranges from 0 to 5 and aggregates shareholder rights and CREDITOR RIGHTS is an index that ranges from 0 to 4.5 and aggregates creditor rights as described in the text. COMMON- LAW DUMMY takes the value 1 for common law countries and the value zero for others.  $TD/TA_{t-1}$  is total leverage one period lagged. All variables, except shareholder rights, creditor rights and common law dummy, are averaged over 1980-91. White's heteroskedasticity-consistent standard errors are given in parantheses.

	Large Firms		Small Firms	
	(1)	(2)	(1)	(2)
GDP/CAP	.009*** (.003)		.014*** (.003)	
NFATA		.682*** (.101)		.022 (.209)
PROFIT		-.838* (.461)		-.192 (.423)
NSNFA		-.006* (.003)		-.022** (.009)
GROWTH		-.441 (.736)		-3.962*** (1.266)
TOR		.089** (.036)		.050 (.073)
BANK/GDP		-.018 (.038)		.108* (.058)
GOV. SUBS./GDP		-.002 (.008)		.012 (.010)
INFLATION		-.136** (.056)		-.078 (.054)
LAW & ORDER		.055*** (.010)		.031* (.018)
SHAREHOLDER RIGHTS		.003 (.012)		.005 (.015)
CREDITOR RIGHTS		-.010 (.010)		-.017 (.016)
COMMON-LAW DUMMY		.059 (.051)		.115* (.061)
TD/TA <sub>t-1</sub>		.236 (.173)		.821*** (.176)
Adj. R <sup>2</sup>	.27	.73	.51	.66
No. of Observations	30	26	30	26

\*, \*\* and \*\*\* indicate significance levels of 15, 10, 5 and 1 percent respectively.

**Table VI**  
**Impact of Creditor Rights**

The regression equation estimated is specification (2) from Table V, panels A, B, and C. Aggregate creditor rights variable is replaced by individual indicators. Creditor right variables are restrictions for going into reorganization, automatic stay on assets, secured creditors paid first, management stays in reorganization, and legal reserve requirement as a percentage of capital. Entries are respective coefficient estimates for the individual legal indicator obtained from the basic equation. White's heteroskedasticity-consistent standard errors are given in parentheses.

	Large Firms	Small Firms
<b>LTD/TA</b>		
CREDITOR RIGHTS	-.014 (.009)	-.011 (.015)
Restrictions for going into reorganization	-.018 (.036)	-.050 (.057)
Automatic stay on assets	-.009 (.027)	.083** (.036)
Secured creditors first paid	-.039 (.036)	.095 (.076)
Management stays in reorganization	.029 (.037)	-.106 (.072)
Legal reserve required as % of capital	.020 (.143)	-.303 (.248)
<b>STD/TA:</b>		
CREDITOR RIGHTS	.001 (.007)	.006 (.009)
Restrictions for going into reorganization	-.011 (.027)	.003 (.026)
Automatic stay on assets	.006 (.021)	.040* (.021)
Secured creditors first paid	.044* (.024)	-.025 (.026)
Management stays in reorganization	-.018 (.032)	-.072*** (.036)
Legal reserve required as % of capital	-.034 (.079)	.015 (.102)
<b>LTD/TD:</b>		
CREDITOR RIGHTS	-.010 (.010)	-.017 (.016)
Restrictions for going into reorganization	.011 (.035)	.020 (.038)
Automatic stay on assets	-.016 (.023)	-.049 (.040)
Secured creditors first paid	-.072** (.030)	.017 (.041)
Management stays in reorganization	.062 (.037)	.157*** (.056)
Legal reserve required as % of capital	.082 (.116)	.040 (.143)

\*, \*\* and \*\*\* indicate significance levels of 10, 5 and 1 percent respectively.



## Appendix

### *Number of Firms and the Sample Period*

	Number of Firms	Time Period
Australia	401	1983-91
Austria	44	1983-91
Belgium	89	1983-91
Brazil*	100	1985-91
Canada	494	1983-91
Switzerland	150	1983-91
Germany	359	1983-91
Spain	116	1983-91
Finland	55	1983-91
France	544	1983-91
United Kingdom	1275	1983-91
Hong Kong	173	1983-91
India*	100	1980-90
Italy	81	1983-91
Jordan*	38	1980-90
Japan	1104	1983-91
Korea*	100	1980-90
Mexico*	100	1984-91
Malaysia	143	1983-91
Netherlands	165	1983-91
Norway	52	1983-91
New Zealand	41	1983-91
Pakistan*	100	1980-88
Singapore	213	1983-91
Sweden	68	1983-91
Thailand	137	1983-91
Turkey*	45	1982-90
United States	3247	1983-91
South Africa	67	1983-91
Zimbabwe*	48	1980-88

For those countries with \*, the data source for the firm level variables is IFC's corporate finance data base. Otherwise, the data are from Global Vantage data base.

## **Variable Definitions and Sources**

### **Firm-Level Data:**

Global Vantage definitions:

Variables are from the industry/commercial tape of Global Vantage data base, frozen as of December 1995.

LTD/TA= (total liabilities-current liabilities)/total assets=(DA118-DA104)/DA89.

STD/TA=current liabilities/total assets= DA104/DA89.

LTD/TD= (total liabilities-current liabilities)/total liabilities= (DA118-DA104)/DA118.

TD/TA= total liabilities/total assets= DA118/DA89.

NFATA= net fixed assets/total assets=DA76/DA89.

PROFIT= (income before income taxes+interest expenses)/total assets= (DA21+DA15)/DA89.

NSNFA= net sales/net fixed assets= DA1/DA76.

DIVTA=total dividends/total assets= DA34/DA89.

For the 8 countries that are from IFC's corporate finance data base, variables were created according to the definitions given above.

### **Other data sources:**

Inflation is the annual inflation of the GDP deflator and is obtained from World Bank National Accounts.

Real GDP per capita and its growth rate are obtained from World Bank National Accounts.

Bank/gdp is the deposit money bank domestic assets to gdp, obtained from IMF, International Financial Statistics, various years. Deposit money domestic assets are the summation of IFS lines 22a through 22f.

Stock market variables, market capitalization and turnover, are from IFC's Emerging Markets Data Base. The original source for developed countries is Morgan Stanley Capital International.

Law and Order indicator is obtained from ICRG, International Country Risk Guide. It has been used by Knack, S. and P. Keefer, 1995, Institutions and Economic Performance: Cross-country Tests Using Alternative Institutional Measures, Economics and Politics 7 (3):207-227.

Legal efficiency indicator is from Business International Corporation.

Other legal indicators, common law dummy, creditor rights and shareholder rights indicators are obtained from La Porta, Lopez-de-Silanes, Shleifer and Vishny (1996).

Government subsidies to private and public enterprises data are obtained from various issues of the World Competitiveness Report, The World Economic Forum & IMD International, Geneva, Switzerland.

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