

Financing of Firms in Developing Countries

Lessons from Research

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April 2012



Abstract

This paper reviews and synthesizes theoretical and empirical research on the role of finance in developing countries. First, the paper presents the stylized facts about firms in developing nations as well as the legal, financial and broader institutional framework in which these firms

operate. Next, the paper focuses on the financing choices available to small and medium firms in developing countries and highlights areas needing additional research.

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Financing of Firms in Developing Countries: Lessons from Research

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Keywords: Financial development, Banks, Markets, Corporate finance, Growth, SMEs
JEL classification: G00, G3, 01

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1. Introduction

Recent development theory has shown financial development to be a critical determinant of entrepreneurship, innovation, and growth. However, access to finance and its determinants varies widely across firms and country-level institutions. Financial economists also disagree on the role different types of financial systems, bank versus market based and informal versus formal, play in a country's development. Research that analyzes the role of different financial systems in different countries and their differential impact at the firm level is crucial in shaping policy prescriptions for developing countries.

In this paper, we compile and assess the current knowledge on the role of finance in developing countries. In Section 2, we begin with a description of the stylized facts about firms in developing economies, setting the stage for discussing the institutional constraints these firms face and the impact of access to external finance. We review the findings about agency issues and corporate governance problems faced by large firms in developing economies. These firms have a different set of agency problems than those in developed countries, arising from their concentrated ownership structures, the importance of political connections in these countries and the prevalence of weak legal and financial systems. We also note that firm size distributions in developing economies are dominated by micro and small firms. Small firms, especially informal micro firms, are the biggest creators of employment in many of these countries. However, an examination of the financing patterns across firm sizes reveals that small firms are more constrained than large firms in access to external finance. This is important since although informal finance is very prevalent in many economies, at the margin it seems to be bank finance that is associated with firm growth. Overall, research shows that the firms in developing economies are not as productive as those in developed economies.

In Section 3, we discuss and critique the empirical challenges in development finance research and the different techniques that have evolved to address these challenges including cross-country regressions, instrumental variable approaches, and panel data methods. We also highlight how data issues and measurement error problems are more serious in development finance research compared to corporate finance research in developed economies. We then discuss the role of the theoretical models in this literature to generate predictions consistent with the empirical findings on differences in institutions across countries.

Section 4 details the different institutional constraints facing firms in developing economies. First, we highlight research establishing the link between financial development and economic growth. An extensive body of work in this area included cross-country, industry-level, and firm-level empirical evidence establishing that access to external finance has a positive effect on growth. We then discuss the literature in law and finance that has established the importance of legal institutions and property rights protection for financial development and has shown that many developing countries have weak legal institutions that do not support the rights of investors or afford contract protection. Firms and investors in these economies are also impeded by information barriers arising from poor accounting standards and lack of adequate information sharing through credit bureaus and public credit registries. Compounding these constraints is the role of government intervention in the form of state directed lending programs, corruption, and favoring politically connected firms.

In Section 5, we focus on corporate finance issues related to the firm and how they are affected by the institutions we discuss in section 4. The empirical studies here have focused on the institutional causes of financing constraints faced by firms and how firm financing patterns and capital structure choices vary between developed and developing countries. Reviewing the evidence on firm capital structure, we find that legal institutions and the level of bank and stock market development are important determinants of firms' choices of leverage and debt maturity structures. There is an emerging debate on the role of cash holdings. While some studies find that cash and lines of credit are liquidity substitutes, others find that lines of credit are the dominant source of corporate liquidity, and that firms use cash only as insurance against future cash flow shortfalls. More research is needed to understand what role institutions play in determining the role of cash and if this varies across different types of firms in different sectors.

In this section, we also review the capital issuance activity across the world. With globalization, there has been a large increase in global capital issuances including initial public offerings (IPOs), suggesting that many domestic firms are able to leapfrog their domestic institutions and raise money in international markets. There is an active debate in this area on the motivations of firms going abroad and the ensuing valuation effects. The most recent evidence seems to suggest that lowering the cost of capital and market timing are key drivers of international capital issuances. The section concludes with a review of international private

equity and venture capital markets, which are much less developed than those in developed countries.

A large part of this literature has focused on how small firms are more severely constrained by access to finance. In this section we also present new statistics across 99 developing countries on the percentage of small and medium enterprises (SMEs) with access to bank accounts, overdraft facility, and lines of credit. We find that the percentage of SMEs with access to these financial instruments increases monotonically from low to high income countries.

Sections 6 and 7 address the prevalence of different financial systems across the world and their relative merits. We begin with a review of the evidence on bank versus market based systems in Section 6. The evidence overwhelmingly suggests that banks and market based systems are complementary and co-evolve as countries become richer and more developed. New research also shows that different financial structures may be better at promoting economic activity at different stages of a country's economic development. Section 7 compares the role of formal versus informal financial systems and shows that they serve different segments of firm population and are not substitutes. Some studies have argued that countries like China are unique in their large reliance on informal and alternative financing channels compared to other countries. However, others have shown that even in China, the formal financing channel, specifically bank finance, is positively associated with higher growth and reinvestment while informal financing systems are not.

In Section 8, we highlight areas that need additional research and conclude with policy implications of the existing body of theoretical and empirical evidence on financing in developing countries.

2. Stylized Facts about Firms in Developing Countries

Much of our intuition about corporate finance comes from research conducted on firms in the U.S. or other developed countries. Firms in developing countries differ from firms in developed countries along several dimensions such as size distributions, ownership, financing patterns, and institutional constraints. In this section, we outline nine distinctive features about firms in

developing countries. This will serve as background for the discussion that follows and help us relate firm characteristics to the structural characteristics of the economies in which they operate.

1. ***Concentrated Ownership and Separation of Cash flow and Voting Rights:*** Most large corporations in developing countries have controlling shareholders that are often firms controlled by other firms with wealthy families at the top of the chain. As shown in Table 1 adapted from La Porta, Lopez-de-Silanes, and Shleifer (1999), except in economies with very good shareholder protection (high anti-director rights), relatively few firms are widely held and most are typically controlled by families or the state.

Thus, the dominant form of business organization in developing countries is a large, pyramidal, family-controlled business group consisting of several (sometimes hundreds) of listed and unlisted firms (See for e.g. Khanna and Palepu, 2000; La Porta, Lopez-de-Silanes, Shleifer, and Vishny (henceforth LLSV), 1999a; Claessens, Djankov, and Lang, 2000 and Morck, Stangeland and Yeung, 2000). The controlling shareholders in these firms typically exercise control by holding voting rights far in excess of their cash flow rights through pyramidal structures (see Table 1) and cross shareholdings (La Porta, Lopez-de-Silanes, and Shleifer, 1999; LLSV 2000). The agency problem in these companies is therefore not the failure of managers to serve shareholder interests as in a widely held corporation but rather the expropriation of minority shareholders by large controlling shareholders.

2. ***Capital Structure Choices:*** Debt finance, specifically bank finance, is the major source of external funding for firms of all sizes in developing countries (see Figure 1). The corporate bond market and organized securities markets are typically accessed by larger firms in need of long-term funding (e.g. Beck, Demirguc-Kunt, and Maksimovic, 2008).

Specific country and institutional factors (e.g. GDP growth, inflation, level of capital market development, investor protection, and taxation policy) explain systematic differences between leverage choices of developing country and developed country firms (e.g. Booth, Aivazian, Demirguc-Kunt, and Maksimovic, 2001; Giannetti, 2003; Fan, Titman, and Twite, 2010). Firms in developing countries have higher proportion of net fixed assets to total assets and also use less long term debt financing than firms in developed countries (Demirguc-Kunt, and Maksimovic, 1999). The lower amount of long-term financing per amount of fixed assets can be attributed to weak property rights and enforcement that reduces the value of collateral of firm assets and leads to lower investment in intangible assets (Claessens and Laeven, 2003).

3. ***Banks versus Markets:*** Both banks and markets have a role to play in providing access to finance and overall financial development. What matters for development is not whether a financial system is bank-based or market-based but the overall development of banks and markets (see Demirgüç-Kunt and Levine

2001; Levine 2002; Demirgüç-Kunt and Maksimovic, 2002). Figure 2 presents data over time and across country income groups (medians) for Private Credit by Deposit Money Banks and Other Financial Institutions to GDP, a standard indicator of financial intermediary development in the finance and growth literature. The figure shows that Private Credit varies positively with countries' level of economic development and has been increasing steadily especially in high-income countries. Figure 3 presents similar data for Stock Market Capitalization to GDP which indicates the size of the stock market relative to the economy. Figure 3 shows that this also varies positively with the level of economic development and has shown steep increases across all income groups over time. Demirguc-Kunt, Feyen, and Levine (2011) argue that financial structures may be better at promoting economic activity at different stages of a country's economic development.

4. ***Access to Foreign Capital:*** There has been a large increase in global IPO activity and seasoned equity offerings over the last decade suggesting that with globalization, home institutions and laws are becoming less important in raising financing on capital markets (Doidge, Karolyi, and Stulz, 2011; Kim and Weisbach, 2008). A foreign listing comes with many associated benefits including reduced cost of capital, an increased shareholder base, greater liquidity, enhanced prestige, and increased share price (e.g. Stulz, 1999; Karolyi, 2006; Doidge, Karolyi, and Stulz, 2004; Levine and Schmukler, 2007).

In addition, foreign direct investment (FDI) into the home country offers a partial substitute for local finance by easing financing constraints for large firms (e.g. Harrison, Love, and McMillan, 2004).

Foreign bank entry has potential for net benefits including introducing competition and increasing efficiency (e.g. Claessens, Demirgüç-Kunt, and Huizinga 2001; Bonin, Hasan, and Wachtel, 2004) and improving access to credit, especially for large firms (e.g. Clarke, Cull, and Martinez Peria, 2006). However, the empirical evidence also suggests that the underlying country-level institutional environment is an important determinant of the effects of foreign banks on lending in developing countries (e.g. Detragiache, Tressel, and Gupta, 2008; Gormley, 2010; Mian, 2006). The benefits of foreign banks are greater in countries with the necessary information and contractual frameworks and incentive structures that can facilitate automated transactions lending, which is the comparative advantage of foreign banks.

5. ***Cross-border Mergers:*** There has been a rapid increase in cross border merger activity over the last few years, with a vast majority involving private firms. Higher valued firms and firms from wealthier countries typically purchase lower valued firms and firms from poorer countries (Erel, Liao, and Weisbach, 2011; Makaew, 2010). Cross-border mergers come in waves that are correlated with business cycles (Makaew, 2010) and are influenced by geographic distance between acquirer and target, currency movements, and their stock market performances (Erel, Liao, and Weisbach, 2011).

6. **Productivity:** Firms in developing countries, on average, have very low labor productivity levels due to a mix of financial factors such as poor access to finance, and organizational factors such as poor management practices, and poor delegation. (See for e.g. Bloom and Van Reenen, 2007, 2010; Bloom, Mahajan, McKenzie, and Roberts, 2010; Bartelsman, Haltiwanger, and Scarpetta, 2009; Hsieh and Klenow, 2009.) However, a number of studies have shown that capital returns to investment in microenterprises in developing countries can be very high in some instances while the average marginal rates of returns across firms does not appear to be high (Banerjee and Duflo, 2005; Udry and Anagol, 2006; McKenzie, and Woodruff, 2008; Mel, McKenzie, and Woodruff, 2008).
7. **Industry Structure and Entrepreneurship:** Industry structure and growth in developing countries is affected by the level of financial development, the business environment, and the level of entrepreneurship. Industrial sectors that are relatively more in need of external finance are found to develop disproportionately faster in countries with more developed financial markets (Rajan and Zingales, 1998). Industries that are naturally-high entry industries have relatively lower entry in countries with more stringent bureaucratic entry regulations (Klapper, Laeven, and Rajan, 2006).
8. **Role of Small Firms:** Small firms are a large component of the overall population of firms in both industrial and developing countries (Bartelsman, Haltiwanger, and Scarpetta, 2004).² They play a particular important role in employment and job creation in developing economies. Small firms (1-100 workers) and mature firms (over 10 years old) have the largest shares of employment and job creation compared to larger and younger firms in developing countries (see Ayyagari, Demirguc-Kunt, and Maksimovic, 2011b and Ayyagari, Beck, and Demirguc-Kunt, 2007). However, small firms also face higher financing obstacles than larger firms and are more severely affected when they face financing constraints (See Beck, Demirguc-Kunt, and Maksimovic, 2005).
9. **Informality:** Informal firms (or firms that are not registered) account for up to half of all economic activity in developing countries. These firms are typically small, and compared to formal firms, they are extremely unproductive. They are typically run by less educated managers, do not export, do not have large customers and do not rely on external finance (see La Porta and Shleifer, 2008).

Informal financing channels that rely on relationship lending and informal governance mechanisms such as those based on trust, reputation, and relationships play an important role in facilitating access to finance in developing countries; this is especially true for small firms (e.g. Allen, Qian, and Qian, 2005; 2008). Informal finance, however, has been shown to be associated with lower firm

² Developing countries are often characterized by the “missing middle” in their distribution. Tybout (2000) shows that in developing countries there is a large spike in the size distribution for firms with 1-4 workers, a drop in the number of firms with 10-49 workers, followed by large numbers of firms with more than 50 workers.

growth and increased firm illegality (e.g. tax evasion) than formal finance (see Ayyagari, Demirguc-Kunt, and Maksimovic, 2010a; 2010b).

3. Firms in Developing Countries – Theories and Empirical Research Issues

3.1 *Models of Firms in Developing Countries*

When analyzing theoretical models of firm behavior in developing countries, a question that arises is the extent to which models intended to explain financing and corporate governance in developed countries help in understanding how firms cope with greater imperfections in developing economies. Many of the issues faced by developing country firms, such as agency problems and adverse selection issues are familiar from the standard corporate finance literature. However, the severity of these problems is presumed to be greater in developing countries, to the extent that it may affect firm behavior in ways not normally observed by researchers studying public firms in developed countries.

Shleifer and Wolfenzon (2002) provide a model that analyzes the extent to which a market imperfection, the ability of an entrepreneur to divert funds from outside shareholders, can predict differences in firm size, firm financing, and capital flows across countries. They start with an entrepreneur who has a project to finance in a country with imperfect protection for outside shareholders. The entrepreneur decides how much equity capital to raise from outside investors, thus also implicitly determining the scale of the project. Because of imperfections in the legal environment, the entrepreneur can choose to divert some of the profits of the project, subject to the risk that the theft might be detected and the entrepreneur fined if caught. The probability that theft is detected and the entrepreneur fined is given exogenously and is taken as an index of investor protection in the country. The size of the fine is a given function of the amount diverted. This simple framework yields the expected comparative statics: Tobin's Q and dividends are higher and private benefits lower in countries with better investor protection.

Shleifer and Wolfenzon then consider a two-country equilibrium model in which capital is either allowed to flow across countries freely or in which there is no cross country mobility. This enables them to obtain a number of general equilibrium results about the extent of external financing, equilibrium diversion and firm size, as a function of investor protection. In this structure with full capital mobility, countries with higher investor protection have lower

ownership concentration and larger firms. With no capital mobility across countries, they find that in countries with better investor protection, not only are more funds raised by firms, but these funds are also invested in higher-productivity projects.

The general equilibrium setup also facilitates policy experiments. In particular they examine the effect on entrepreneurs in a country with low investor protection of an unexpected improvement of protection under the two regimes - full capital mobility and no capital mobility. They look at two cases. When improvement in legal protection occurs after the firms are set up, entrepreneurs lose because their loss from the higher expected cost of diverting funds from outside investors exceeds their share of higher profits under improved investor protection. This loss is greater in the case of no mobility of capital since the base level of external financing is higher in that case. When improvements in investor protection occur before firms are set up, there are two cases. Entrepreneurs are better off with perfect mobility. However, when there is no mobility, increases in investor protection in general increases the cost of capital crowding out marginal would-be entrepreneurs. As a result these would-be entrepreneurs are worse off.

While simple in structure, the model in Shleifer and Wolfenzon (2002) shows that differences investor in protection across countries can generate predictions consistent with numerous empirical findings, both at the micro-level (e.g., on differences in ownership concentration across countries as in La Porta et al., 1997, 1999, and Claessens et al, 2002) and at the macro level (e.g., the question of why more capital does not flow from rich to poor countries in Lucas, 1990). That this model explains some of the regularities in firm size suggests that the relation between firm size and investor protection may be more complex in a context where the relation between external finance raised and firm size is itself endogenous.

Almeida and Wolfenzon (2004) analyze the role of conglomerate firms or business groups in economies with limited investor protection. Because of this friction, as in Shleifer and Wolfenzon (2002), productive projects will not be able to obtain full funding. Specifically, funds from a low productivity project in one firm will not be deployed to more productive projects in other firms because the high productivity businesses cannot commit not to divert profits to insiders. By contrast, a conglomerate operates an internal capital market, and can optimally allocate capital to the best project it controls. While a conglomerate's internal capital market

facilitates allocation among its portfolio of assets, this advantage means that a conglomerate will invest in internal projects even if better projects exist elsewhere in the economy. This differs from the case of a stand-alone firm which cannot deploy capital internally, and is more likely to redeploy capital using the public capital market. As a result, while conglomeration may be privately optimal for the conglomerate, it decreases the supply of capital through public markets to highly productive projects.

The model implies a non-monotonic relation between the level of investor protection and the effect of conglomerates on the allocation of capital in developing countries. When investor protection is very weak, projects cannot get funded in public markets. Conglomerates, with their internal capital markets facilitate at least partial reallocation of capital across projects. At the other extreme, with very high investor protection, public capital markets are so efficient that conglomerates do not favor internal projects and the allocation of capital is not affected by their presence. However, when investor protection is between these two extremes, conglomerates may choke off the supply of capital to public markets. As a result, the supply of capital to highly productive projects may decrease as conglomeration increases.

Almeida and Wolfenzon (2004) suggest that weak investor protections can affect the incentives of firms to become conglomerates. Although the intuition is compelling, the empirical evidence on this question is not settled. For example, Beck, Demirguc-Kunt and Maksimovic's (2006) find that, after controlling for several co-determinants, the largest firms in countries with less efficient legal systems are not larger than those in countries with more efficient legal systems, whereas the development of a country's financial system is positively related to firm size.

Almeida and Wolfenzon (2006) formally analyze how the ability to divert resources affects the formation of pyramidal firms in economies with weak investor protection. A ready explanation for such firms is that they enable a group of investors with small stakes to control large firms. Thus, for example, if a family owns 50% of Firm A's voting stock, and Firm A's only asset is a 50% stake in Firm B, then the family effectively controls an investment four times its size. Governance structures featuring a separation of ownership and control are common in many emerging markets (e.g. Claessens, Djankov, and Lang, 2000) and many developed

countries such as in Canada (e.g. Morck, Strangeland and Yeung, 2000). However, such control may also be effected using dual-class shares and may not require a pyramidal structure.

Almeida and Wolfenzon (2006) argue that there is a second motive for forming pyramidal firms. The controlling family of a pyramidal firm can use the cash flows from their original firm to acquire a controlling stake in a second firm, from which they can divert resources, while forcing the other investors in their original firm to share in the resulting cash shortfalls.

While their model is more general, the underlying bare-bones intuition is straightforward. Assume that an entrepreneur has access to a positive NPV project but does not have sufficient capital to fund the entire investment. Also, assume that the entrepreneur can divert a certain portion γ of the cash flows of the new firm without cost. Any potential outside investors will, of course, factor the expected diversion into their demand for shares in the new venture. Nevertheless, provided that the outside investors share of the non-diverted funds is sufficient to compensate them for supplying sufficient capital, the project will be financed. The entrepreneur will be able to appropriate the full NPV of the project, taking into account income both from his share of the earnings of capital he contributes, and his expected diversion of funds.

However, if γ is sufficiently large, the entrepreneur will not be able to persuade outside investors to participate in the project because he cannot commit not to steal from them in the future. In this circumstance, control of another firm can enable the entrepreneur to undertake the project by using the firm's resources to provide the capital for the new project that external investors are not willing to contribute. But this comes at a cost. While the entrepreneur can still divert a fraction γ of the cash flows from the new firm, he now has to share the remaining cash flows with the other shareholders of his original firm, which contributed part of the capital for the new firm. This reduces the value of the new project for the entrepreneur below its NPV, but leaves him better off than if that not been implemented as a result of poor investor protection.

This simple model makes predictions about the selection of firms that will be standalone and those will be owned within pyramids. Specifically, higher NPV projects will be standalone, and the proportion of standalone firms will be higher in countries with better investor protection. Moreover, by slightly generalizing the model it is possible to show that if business groups are

created to compensate for financial market failure due to inadequate investor protection and not because the founding family has better entrepreneurial skills, they will be organized as pyramids. Moreover, providing that the first firm is sufficiently profitable, outside investors in the original firm will be willing to contribute capital even if they realize that they may be expropriated by a future pyramidal structure.

Lack of investor protection has implications at the macro-level since it systematically influences the type of firms that will be able to enter industries and the characteristics of the industries that develop. Fulgheiri and Suominen (2010) develop a model illustrating the linkages between corporate governance, financing and industry growth. In their model, as above, entrepreneurs attempt to finance their projects in an environment with limited investor protection. Entrepreneurs who obtain financing enter the industry, so that in industry equilibrium the degree of competition is endogenous and depends on the level of investor protection.

The model is rich in that it considers both equity and debt financing. As before, the entrepreneur can issue equity and then divert some of the cash flow to equity for his own use. In addition, the entrepreneur can issue debt. However, leverage may lead to risk-shifting. Thus the firm's optimal capital structure and the ability to raise capital to invest in the project depends on the relative agency costs of debt and equity, which in turn depend on the extent to which the firm's technology permits risk shifting or diversion and on the level of investor protection.

This model yields a direct link between capital structures and industry concentration in equilibrium. To see this link, consider an exogenous decrease in investor protection. Lower protections for outside shareholders impair the entrepreneurs' capacity to raise equity capital. This tends to reduce entry into the industry. As a result, the industry is less competitive and the expected profits of the firms that do enter increase. Thus the firms that do enter can support a higher level of debt leading to lower, industry output, higher profits for incumbent firms, and higher inside ownership.

Fulgheiri and Suominen (2010) use this structure to explore the interaction of financing and industry development in developing countries. As in Shleifer and Wolfenzon (2004), but for different reasons, entrepreneurs do not unambiguously benefit from better investor protection. While better protection enables them to raise more capital, it also leads to greater entry, and

lower profits. Fulgheiri and Suominen (2010) argue that this trade-off leads to a stable separation in which some countries adopt high standards of investor protection, whereas entrepreneurs support lower standards.

For the questions normally considered in corporate finance the differences in investor protection between developed and developing countries are of primary importance. However, there are other institutional differences that may shape firm structure and financial policy. These differences are captured in the distinction between formal and informal firms in the development finance literature. Formal firms are those that operate within the purview of a country's regulatory and tax authorities. They may be registered, have the necessary permits to operate, comply with labor regulations and are known to the tax authorities. By contrast, informal firms are not registered and are likely to operate outside the purview of regulators and the taxation system.³

Rauch (1991) offers a model of firm size and productivity in an economy characterized by informality. In this model, firms can stay small, and operate outside the purview of government labor market regulators. Once they cross a certain threshold size, they are required to pay a minimum wage. All participants in the labor market also have managerial skills that would enable them to run firms. As in Lucas (1978), the skills levels vary. Those with low managerial skills naturally become workers. Those with a high level of managerial skills are able to create more wealth running larger firms and they gravitate to the formal sector. Those with intermediate skills manage informal firms. There, they take advantage of their ability to pay lower than minimum wages to their workers. Since their skills are not suited to operating large firms profitably the limitation on firm size in the informal sector does not constrain them. Rauch (1991) explores the effect of the labor regulations on the equilibrium distribution of firm sizes and shows that there is a discontinuity at the level at which minimum wage regulations come into effect.

Over the years, several variants of this model have been developed focusing on the requirement that formal firms pay taxes that informal firms can avoid (Fortin, Marceau and

³ The distinction between the two types is not necessarily that sharp in practice. See for example Ayyagari, Demirguc-Kunt, and Maksimovic (2010) on evidence that many firms in developing countries misreport revenues to tax authorities and pay bribes to regulators.

Savard, 1997, and Dabla-Norris, Gradstein and Inchauste, 2008). A recent model by de Paula and Schenikman (2011) focuses on the tradeoff between informality and the cost of funds. While informal firms can avoid taxes, their informal status makes it difficult for them to provide collateral to financial intermediaries, resulting in higher costs of capital. Again, skilled entrepreneurs value the availability of cheaper financing more than the ability to evade taxes on small scale operations. As a result, more-skilled entrepreneurs operate in the formal sector and their firms are larger and more capital intensive. Ayyagari, Demirguc-Kunt and Maksimovic (2010) argue that the tradeoff between tax avoidance and access to bank financing is not limited to small informal firms, but that it also affects larger registered firms, since they also have the option to illegally hide profits. However, if they do so, they forgo the ability to demonstrate their profitability and provide verifiable collateral to banks.

3.2 *Empirical Research Issues*

Empirical research in development finance faces challenges that are in many ways more severe than in other areas. Some of these challenges arise from the types of questions being investigated, and others from data issues.

Much research in development finance is inherently comparative in nature: often asking if the existence of some institution or law causes specific market imperfections, thereby affecting firm policies and performance. In corporate finance, empirical research usually employs fairly standard econometric techniques, often on a cross-country basis and sometimes in the context of natural experiments. Because some work is closely tied with the study of finite policy interventions by government agencies such as in the financing of small and micro-enterprises, some research in this area also lends itself to randomized controlled trials (RCTs).

While RCTs are still relatively rare in finance research, natural experiments fit easily into the event-study tradition of corporate finance. An early example of a study that uses a natural experimental setting is Johnson and Mitton (2003). The study examines the effect of 1997 Asian financial crisis on the value of politically-connected firms in Malaysia. The crisis reduced both the market value of Malaysian firms and the expected value of government subsidies to politically connected firms. The study shows that one of the principal policy responses, the imposition of capital controls in September 1998 strongly benefited firms affiliated to then Prime

Minister Mahathir, and hurt firms connected to his principal political rival. Because the introduction of controls coincided with major government realignment, it is possible to identify the value of connections to the political winners. On this basis, the paper concludes that “The evidence suggests Malaysian capital controls provided a screen behind which favored firms could be supported.” Using traditional event study methodology applied to a natural experiment, Johnson and Mitton (2003) attain their objective of analyzing the value of political connections in Malaysia during the crisis in 1997.

RCTs are widely used in development economics (see, for example, Duflo, Glennerster, and Kremer, 2008). In development finance they have most been used to study small scale enterprises and issues such as financial literacy. For example, Cole, Sampson, and Zia (2010) test whether the low use of bank accounts in Indonesian villages can be attributed to a lack of financial literacy of villagers or to the costs associated with the use of financial intermediaries. To test this, they randomly assign a program of lessons on bank accounts to half of a sample of 564 households. Independently, they randomly offer payments, ranging from U.S. \$3 to \$14, for opening a bank account. They find that that the program of financial literacy they offered had a smaller effect on increasing demand for bank accounts, whereas direct payments for opening bank accounts greatly stimulate demand.

RCTs and natural experiments have high internal validity provided that the required randomization and exogeneity conditions, respectively, are satisfied. Both techniques are also relatively easy to understand and compelling.⁴ However, in many instances to be useful as a guide for policy, the studies must be externally valid, so that its results can be generalized and applied out of sample. As pointed out by Cartwright (2007), attempts to generalize the results of a specific experiment out of sample require the researcher to make assumptions about the comparability of the experimental sample to the more general population. In practice, this often amounts to informal matching on observables between the sample and the population of interest. However, this generalization entails the loss of the principal advantage of RCTs, that in-sample they are not limited to matching on observables but also randomize over unobserved characteristics (Cartwright, 2007).

⁴ See Cox (1958) for a standard reference source.

Often we need to answer questions such as: Do capital controls also serve as a conduit for favors to firms outside crises periods? What are the institutional characteristics that create this type of connection between firms and governments? Are there other policies that are used by other countries as substitute for capital controls to funnel resources to connected firms? Several approaches have been tried in the literature to address such questions. The simplest is to posit a relation between the variable of interest and a set of plausible determinants. One then uses multivariate techniques to describe the association between the variables of interest and the postulated instruments. Evidence of association is taken to support the existence of the postulated relation. This approach is problematic in that many of the plausible determinants may themselves not be truly exogenous, leading to well-known biases.

A second, widely adopted, approach follows Rajan and Zingales' (1998) study of the effect of financial development on the growth rate of industries. They posit that industries that depend on external financing grow faster in countries with well-developed financial systems. The identification problem here, though, is that in any country, the extent to which a firm depends on external financing is itself endogenous and influenced by the development of the financial system. The solution that Rajan and Zingales (1998) adopt is to use the extent industries in the U.S. depend on external finance to classify industries into financially and financially independent industries. This classification does not depend on conditions in developing countries or growth rates of industries in developing countries.

Once industries are classified using U.S. data, Rajan and Zingales use a difference-in-differences approach where they use variation across industries in their dependence on external finance and variation across countries in their level of financial development to assess the impact of finance on industry growth. The specific equation they estimate is as follows:

$$\text{Industry Growth}_{i,k} = \alpha_i + \lambda_k + \beta (\text{External Dependence}_k \times \text{Financial Development}_i) + \gamma \text{Industry Share}_{i,k} + \delta (\text{Industry}_k \times \text{Country}_i) + \varepsilon_{i,k} \quad (1)$$

where Industry Growth is growth of value added in industry k in country i ; α and λ are vectors of industry and country dummies; External Dependence is industry k 's dependence on external finance; Financial Development is a measure of financial development in country i ; Industry Share is the initial share of industry k 's value added in total manufacturing value added of

country i ; Industry is a vector of other industry variables that do not vary across countries and Country is a vector of other country variables that do not vary across industries. The coefficient β in the above regression is the difference-in-difference estimate measuring the differential growth impact of financial development on high external finance dependent industries relative to low external finance dependent industries.

The Rajan-Zingales approach neatly sidesteps issues of endogeneity discussed above. However, as always, there is a cost in terms of additional assumptions. In particular, this approach takes as given that industries that are financially dependent in the U.S. would also be financially dependent in developing countries, and that the binding constraint on the growth rate for a financially dependent industry in a developing country is, in fact, financial dependence. In some cases, these assumptions appear very reasonable. In others, they appear less so. For example, high tech growth industries might be financially dependent in the U.S. However, such industries might also be technology dependent or affected by economies of agglomeration. Thus, the financial system may not, by itself, be a binding constraint but a better financial system may not cause such industries to grow faster in a developing country lacking the other conditions.⁵

Fisman and Love (2007) critique the methodology as not measuring the extent to which financial systems foster growth of inherently financially dependent industries but rather measuring whether financial intermediaries allow firms to respond to global shocks to growth opportunities.⁶

More broadly, consistent estimates when the explanatory variables are endogenous can in principle be obtained using instrumental variables (IV). However, finding variables that affect the endogenous explanatory variable but have no direct effect on the dependent variable is difficult in practice. This is a familiar problem in empirical corporate finance at the firm level. It

⁵ Hausman, Hwang, and Rodrik (2007) discuss how the sequence in which industries in a country develop depend on its income and other economics and policy conditions.

⁶ The Rajan and Zingales (1998) methodology has found extensive use in finance. Beck (2002, 2003) use the methodology to show that financial development influences the structure of trade balances; Cetorelli and Gambera (2001) use it to show that bank concentration promotes growth of industries that are heavy users of external finance; Claessens and Levine (2005) build on Rajan-Zingales to examine the joint impact of financial development and property rights protection on access to finance; and Beck, Demirguc-Kunt, and Levine (2004) show that industries that are naturally composed of smaller firms grow faster in countries with better-developed financial systems.

is often more challenging at the cross-country level, since tax or law changes, which are frequent candidates for firm-level instruments, are seldom the same across countries.

Finding instruments for country level variables, such as the quality of a country's bank regulators also poses difficult issues. To be exogenous, instruments have to be both sufficiently inflexible as to be unaffected by the usual ups and downs of the economy and important enough to affect government and corporate policies, yet have no direct effects on the dependent variables of interest. Several ingenious solutions have been proposed. Acemoglu, Johnson, and Robinson (2001), for example, use mortality rates of early European settlers in colonies as an instrument for the quality of the legal systems in those countries today.⁷ How plausible one finds such instruments in cross-country studies is a matter of judgment.

There is also, another problem that arises in the use of instruments in cross-country studies, referred to by Morck and Yeung (2011) as a "tragedy of the commons". Frequently, variables of interest have more than one cause. Thus, suppose that we are trying to predict the size of a country's banking sector, y . Suppose that in the true, unknown model, the casual structure is that y is a linear function of the country's institutions and laws, x_i , where $i = 1, \dots, n$, and an error term ε_i

$$y = a_0 + \sum_{i=1}^n b_i x_i + \varepsilon_i \quad (2)$$

Suppose also that there is a variable z such that $E(z\varepsilon) = 0$ and $E(zx_i) \neq 0$ for all i . Suppose further that since the true model is unknown research proceeds in a sequential manner. Thus, the first researcher estimates

$$y = a_0 + b_1 x_1 + \varepsilon_1 \quad (3)$$

using z as an instrument. Assuming that the instrument passes all the usual diagnostic tests, the estimates would appear credible. Similarly, a subsequent exercise in which x_2 was used in place of x_1 with z and an instrument would also appear credible judged by itself. However, the two together would suggest that z could not have been an appropriate instrument in the first regression or in the second regression, since once the second regression is performed it becomes obvious that the instrument in each case is correlated with an omitted variable, biasing the

⁷ The argument being that when the mortality rate was high, the legal system was set up to extract resources from the indigenous population rather than to protect property rights. See Murray for an econometric critique of this approach.

estimates. This problem is not specific to development finance. Durlauf, Johnson, and Temple (2005) discuss it in the context of growth regressions. However, Bazzi and Clemens (2010) illustrate its practical relevance by discussing several well-known cross-country studies that repeatedly use a limited number of instruments, such as legal origin, in contexts where they are highly likely to be correlated with omitted variables.

An alternative approach, adopted when there is sufficient time-variation, has been to use panel-study methods. This not only allows for the use of fixed effects, but also lagged dependent variables to model partial adjustment over time. Moreover, the use of lagged variables as instruments advocated by Arellano and Bond (1991) and Blundell and Bond (1998), appears to solve the problem of finding valid instruments for use in GMM estimators. However, Bazzi and Clemens (2010) point to a potential often overlooked problem: the lagged variable instruments might be weak instruments, resulting in biased estimators in small samples. They illustrate these concerns using several high profile studies that they argue reached unsupported conclusions because the lagged variables in panel GMM estimation were weak instruments. Their analysis strongly suggests that the use of lagged variables as instruments needs to be justified by evidence that these instruments are in fact not weak.

There has recently been a great deal of controversy about the interpretation of instrumental variables estimates in development economics and the relative merits of commonly used econometric techniques and RCTs (see in particular, Heckman and Uruza, 2010; Deaton, 2010; Imbens, 2010; and Angrist and Pischke, 2010). As pointed out by Cartwright (2007), among others, both standard econometric methods and RCTs share the property that under the assumptions required by the respective method, a valid causal conclusion can be reached. In practice, some of these assumptions are untestable, or may not fit the data at hand, and the use of any method entails trade-offs which can be controversial. Moreover, for a range of issues involving first order policy questions, RCTs are not feasible (Rodrik, 2008).

Notwithstanding these issues, Imbens (2010) argues, there are great advantages to adopting a RCT framework when examining questions where the researcher may have the ability to assign treatments to firms randomly, thereby sidestepping possible issues of self-selection and endogeneity. An example might be a study of whether small loans benefit micro-enterprises.

Since in these cases the loans are quite small by U.S. standards, the researcher might credibly be able to determine who receives the loan. However, it is unclear that this randomization is enough to produce unbiased results in the type of experiments conducted in Finance, where the subjects observe which treatment they are receiving. Bulte, Pan, Hella, Beekman and Di Falco (2012) argue that the experiments that are not double-blind can give rise to a pseudo-placebo effect which causes the subjects to alter their behavior. They show in the context of a development economics experiment that these pseudo-placebo effects may be large and can explain the entire treatment effect on the treated, as conventionally measured.

In many cases, however, the practical choices are between a more limited study using quasi-experimental techniques and a cross-country study using more descriptive techniques. Take for example, the question of whether privately owned or state banks are more likely to facilitate economic development. This question was examined by LaPorta, Lopez-de-Silanes, and Shleifer (2002) using a cross-section of 92 countries. For these countries they obtain the proportion of government ownership of the ten largest banks in 1970. They find that this quantity is associated with slower subsequent financial development and lower growth of per capita income and productivity. By contrast, Cole (2009) uses a regression-discontinuity design to examine the differences in outcomes in areas served by 18 private and 5 state-owned banks in India. The banks are chosen as being similar yet falling on different sides of the decision criterion used by the Indian government in deciding which banks to nationalize. Cole (2009) also finds that state ownership reduces economic development of the affected districts.⁸

The two papers illustrate the practical trade-offs in evaluating the two research designs. On the one hand it seems bold to argue that the experiences of 18 banks in one historical episode in one country prove that state ownership causes a reduction of economic growth across the world and time.⁹ On the other hand, as LaPorta, Lopez-de-Silanes, and Shleifer (2002) point out, their growth regressions, while describing the relation between bank ownership and economic growth, do not establish causality. In both cases, there are multiple ways in which the causality claims can be strengthened. To gain further traction, one could attempt to find additional similar natural experiments to replicate the regression-discontinuity design in other countries in the

⁸ The small sample size is due to the requirements of the regression discontinuity methodology. The paper also contains many other results pertaining to the distribution of credit in districts with private and state-bank branches.

⁹ As Cole points out, the regression discontinuity design is not fully random and results in state banks being larger.

former case, or apply matching or instrumental variable techniques in the latter case. Determining which of those approaches is more efficient, or even feasible, is likely to be question specific.

As Deaton (2010) points out, in many contexts that we are interested in, both RCTs and econometric techniques depending on IVs work best when the entities studied are relatively homogeneous. When there is heterogeneity in how subpopulations react to a specific instrument, the use of an arbitrary IV estimator may not provide a good estimate of the mean effect in the population of a change in the explanatory variables. To clarify matters, consider an example in which the researcher is attempting to estimate the effect of public firm status on the growth of firms, where the firms choose whether or not to be public. Since public status is endogenous, one might want to instrument for this status. However, if private firms are heterogeneous and different types of private firms are induced to become public in response to different instruments, each instrumental estimate of the effect of public status on growth will differ. Under conditions derived in Angrist and Imbens (1994), the estimates will each yield a local average treatment estimator (LATE).¹⁰ These will in general be different and depend on the specific instrument used. Deaton (2010) argues that, as a result, to be useful in addressing policy questions or testing theory, consideration has to be given, perhaps in a more formal model, to the effect of this type of heterogeneity on the interpretation of instrumental variable estimates. Moreover, heterogeneity also affects the interpretation of RCTs. Issues arise both in generalizing the results of a specific RCT to other populations discussed above and in the evaluation of claims of random assignment.¹¹

Empirical corporate finance research in developing countries also faces data challenges which are similar to, but more severe than research in developed countries. For instance, most of the firm-level data from developing countries used by researchers is obtained from commercial vendors and pertains to publicly traded firms. These vendors selected the countries and firms to cover sequentially in the 1990s and later, often on the basis of investor interest in particular markets and companies. Such interest is likely to be related to recent performance. Moreover,

¹⁰. See Angrist and Imbens (1994), Heckman (1996) and Heckman and Vytlacil (1999, 2007).

¹¹ In a typical experiment subjects are assigned to a treatment group and a control group. In case where one of the assignments is perceived to be more rewarding (e.g., the control group receives a cheap loan, the control group does not) more subjects have an incentive to game the experiment.

public firms are only a small portion of economically important firms in many developing countries. As a result, there is likely to be selection bias, particularly in the 1990s. To some extent, these problems with data have recently been mitigated by large scale multi-country firm surveys conducted by the World Bank. In particular, the World Bank's Enterprise Surveys program takes a stratified random sample of firm-level data from over 120,000 establishments in 125 countries. The surveys are quite exhaustive, providing information about firm financials, the obstacles they face, the level of competition and their interactions with the government and regulatory authorities. They have been used in many applications in finance, accounting and management research.

A second issue pertains to the measurement of the variables used in development finance. Often, the questions of interest hinge on how differences in institutions' across countries affect financing. Countries differ across many institutional dimensions, and it is often a priori unclear how to measure the relevant characteristics. Thus, for example, characteristics like "economic freedom," "security from arbitrary government seizures of property," and "the impartiality of the court system" are likely to have an important bearing on firm financing and often cannot be omitted from analysis. However, the conceptual and practical difficulties of measuring such characteristics often result in the use of indices created from survey data or drawn from appointed panels of experts. Some of these variables are likely to be subject to measurement errors. A somewhat less recognized problem is that these indices are then entered into regression equations in a linear manner, usually with little justification of why the dependent variable in question should vary linearly with an arbitrary index over its whole range. While this approach can be justified as reducing the risk of over-fitting in situation where theory does not offer much guidance on the functional form, it may also lead to the incorrect conclusion that no relation exists when in fact it does.¹²

4. Institutions and Access to Finance in Developing Countries

Firms' access to finance varies across countries, determined not only by differences in firm-specific characteristics, but also by the constraints posed by countries' varying financial

¹²For example, Ayyagari, Demircuc-Kunt, and Maksimovic (2008a) show that an index of democracy is associated with property rights protections over its higher ranges, but not over its lower ranges, suggesting that the usual linear specifications might be mis-specified.

development and institutional environments. In this section, we first review the broad evidence on finance and growth followed by the literature on the institutional frameworks that have been shown to be critical in fostering access to finance.

4.1 Finance and Growth

The relationship between finance and economic development has been a topic of extensive research ever since Schumpeter (1912) recognized the importance of the financial sector in promoting economic growth. Modern cross-country empirical work in this area began with papers by King and Levine (1993a, 1993b) who building on Goldsmith (1969) reported that financial development affects long-term economic growth. The table below adapted from King and Levine is typical of the variables used in cross-country literature showing a strong positive relationship between long-term economic growth and each three measures of financial development – DEPTH (size of financial intermediaries as measured by liquid liabilities of the financial system/GDP), BANK (ratio of bank credit divided by bank credit and central bank domestic assets), and PRIVY (credit to private enterprises divided by GDP).¹³ For growth, they use three growth indicators – average rate of real per capita GDP growth, average rate of growth in the capital stock per person, and total productivity growth. As shown in the table, the effects of financial development on growth are found to be economically large. For instance, from their paper, if Bolivia had increased in 1960 its financial depth from 10% to the mean value for developing countries (23%), then it would have grown 0.4% faster per annum.

Following King and Levine who focused largely on the banking system, Levine and Zervos (1998) construct measures of stock market development and investigate the link between markets and financial development. Using stock market turnover ratio as their primary measure of stock market liquidity, they find strong evidence that stock market liquidity facilitates long-run growth. Importantly, they also argue that the link between banks, stock markets, and growth is through productivity growth rather than physical capital accumulation.

The pure cross-country evidence in the above studies is problematic because the unobserved country-specific heterogeneity is part of the error term and may bias the estimates of

¹³ A more recent detailed database of measures of financial development can be found from the Financial Structures Database in Beck and Demirguc-Kunt (2009)

the included variables. Over the years, one strand of the literature has focused on panel data methods to draw inferences on causality. Studies such as Levine, Loayza, and Beck (2000) and Beck, Levine, and Loayza (2000) use a panel GMM estimator to establish a positive relationship between the exogenous component of financial development and economic growth, productivity growth, and capital accumulation.

Other researchers have tried to address causality using micro data at the industry and firm level. In an influential study, Rajan and Zingales (1998) argue that industries that are naturally more heavily dependent on external finance should benefit disproportionately more from greater financial development than industries that are not naturally heavy users of external finance. As discussed in section 3 of this paper, using data from the U.S. as a measure of industries' technological dependence on external finance, they find that financial development has a substantial impact on industrial growth, both through the expansion of existing establishments and formation of new establishments, by influencing the availability of external finance.

Demirguc-Kunt and Maksimovic (1998) use a different approach to examine the relations between external financing and institutions. They directly estimate the external financing needs of each individual firm by using a financial planning model. The model permits them to calculate how fast firms could be expected to grow without external finance but instead only with retained earnings and cash from operations. The extent to which firms are able to grow faster than this internally financed growth rate is a function of the dependence of firm's growth on external finance. They then show that the proportion of firms that grow at rates exceeding the non-externally-financed rate is positively associated with stock market liquidity, banking system size and the perceived efficiency of the legal system.

In a similar vein, Wurgler (2000) also employs industry-level data and computes investment elasticity that shows that countries with higher levels of financial development are better able than countries with lower levels at increasing (decreasing) investment in growing (declining) industries. Love (2003) shows that the sensitivity of investment to cash flow depends negatively on financial development, which is consistent with the evidence in the industry and firm-level studies.

Overall, the studies suggest an economically large impact of financial development on economic growth.¹⁴ The literature on the channels through which access to finance affects firm growth is however, more limited. Clearly, access to external finance can facilitate capital accumulation. However, on a macro scale, historians have identified innovation and technological progress as the principal causes of material progress over extended periods of time (see for example, Landes, 1969; Rosenberg, 1982; and Mokyr, 1990). Solow's (1957) path breaking analysis of growth in labor productivity in the U.S. has established that technological advances (broadly defined) and skill, rather than capital accumulation are the prime drivers of increases in labor productivity. Solow (1957) argued that approximately 80% of the increase in labor productivity in the U.S. over the period 1909-1949 was due to more productive use of capital and increases in the skill level of the labor force. More recently, Levine, Loayza, and Beck (2000) have shown that financial sector development helps economic growth through more efficient resource allocation rather than through increases in the scale of investment or savings mobilization. Cross-country time-series studies by Bekaert, Harvey, and Lundblad (2001, 2005) also show that financial liberalization boosts economic growth by improving the allocation of resources and the investment rate.

Klapper, Laeven, and Rajan (2006) identify an entrepreneurship channel. They use data on more than 3 million firms across Europe across the Amadeus database and find that easier access to external finance is positively related to the number of start-ups. While they find that onerous entry regulations such as high registration costs impede firm entry, they find that regulations associated with improving access to external finance such as accounting standards and property rights protection have a positive effect on firm entry.

Ayyagari, Demirguc-Kunt, and Maksimovic (2011) use Enterprise Surveys (from the World Bank) from 2002 to 2005 across 47 developing economies and posit innovation as one of the channels through which finance contributes to overall growth. They define innovation broadly to include not only core innovation activities, such as introducing new product lines and new technology, but also sourcing decisions that affect the overall organization of firms activities, and other types of activities that promote knowledge transfers, such as signing joint

¹⁴ See Beck, Demirguc-Kunt, and Levine (2007) for a discussion of how financial development influences income distribution and poverty.

ventures with foreign partners and obtaining new licensing agreements, all of which reflect overall firm dynamism. They find that the externally financed proportion of a firm's investment expenditures is positively related to firm innovation, controlling for investment opportunities. They hypothesize that this financing is most likely to be bank financing since they are looking at a sample of mainly small and medium companies in developing countries for whom bank financing is the most dominant form of external finance (e.g. Beck et al., 2008) in the absence of well developed equity markets and other market based sources. And indeed, they find that financing from banks is associated with high levels of innovation relative to financing from all other sources like internal funds, leasing arrangements, investment funds, trade credit, credit cards, equity, family and friends and other informal sources. They also find innovation increases with a greater share of the firm's borrowing in foreign currency.

4.2 *Legal Traditions and Property Rights*

In modern corporate finance, it is axiomatic that the firm is a “nexus of contracts” (Jensen and Meckling, 1976). Many of the predictions of corporate theory depend at some level on how well-protected property rights assigned by these contracts really are. People may be less willing to invest and more willing to engage in opportunistic behavior if property rights are insecure. Several theories have recently been advanced to explain the underlying determinants of property rights across countries.

According to the “law and finance view”, cross-country differences in legal origin help explain differences in financial development. The seminal papers in this area by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998 henceforth LLSV) showed that historically-determined differences in legal origin shapes both the laws governing financial transactions and the enforcement of these laws. LLSV (1998) argue that there are two broad legal traditions when it comes to the protection of investor rights: The Civil Law tradition, which uses statutes and comprehensive codes as a means of ordering legal material and relies heavily on legal scholars to ascertain and formulate rules and the English Common Law, practiced in England and its former colonies, where the law is formed by precedents from judicial decisions as opposed to contributions by legal scholars. LLSV further distinguish the Civil Law tradition into French, German, and Scandinavian legal traditions with the French Civil Law system being the most

rigid and codified compared to the other civil law traditions. LLSV argue that the legal traditions differ on the emphasis placed on protecting the rights of private investors relative to those of the State and that the French Civil Law tradition is the weakest in its protection of shareholder and creditor rights. In LLSV (1997), the authors show that whether a country's Commercial/Company law is based on English, French, German, or Scandinavian legal origins is a determinant of the country's level of bank and stock market development.

To understand whether a strong system of legal enforcement could substitute for weak laws, LLSV (1998) examine how the quality of enforcement - as measured by efficiency of the judicial system, rule of law, risk of expropriation by the government, likelihood of contract repudiation by the government, and quality of accounting standards as a measure of corporate governance- is different in legal families. These measures of quality of enforcement have become standard in the law and finance literature. In the table below, adapted from their paper, they show averages of each of the measures of quality of enforcement and accounting standards across the different legal origin families. The table clearly shows that in law enforcement, Scandinavian countries are clearly on top, followed by the German civil law family, and the English common law countries. With quality of accounting, again Scandinavian countries come out on top but English common law countries (69.62) are now significantly ahead of the German civil law (62.67) countries. On all measures of the rule of law as well as the quality of accounting, French civil law countries fare the worst. Thus, an investor in a French civil law country is poorly protected by both the laws and the system that enforces the laws.

The LLSV papers, in turn, spawned a large empirical literature digging deeper into the channels through which legal traditions matter. Beck, Demirguc-Kunt, and Levine (2003b, 2005) find that adaptability of the legal tradition to changing economic conditions of the economy is a crucial factor. Thus, legal traditions (e.g., English Common Law) that are more flexible than rigid systems such as the French Civil Law are better at promoting financial development.

Other papers relate legal institutions to ownership concentration (LLSV, 1999), access to external finance and growth (Demirguc-Kunt and Maksimovic, 1998; Rajan and Zingales, 1998), cross-firm and cross-industry capital allocation (Wurgler, 2000; Beck and Levine, 2002), the

informational efficiency of stock prices (Morck, Yeung, and Yu, 2000), financial fragility (Johnson, et al., 2000), and corporate governance ratings (Doidge, Karolyi, and Stulz, 2004).

A few studies have debated the relative importance of property rights protection versus access to finance. Johnson, McMillan, and Woodruff (2002) examine a sample of former Socialist economies and find that property rights protection dominates access to external finance in explaining the degree to which firms reinvest their profits. McMillan and Woodruff (2002) go on to argue that as economies progress further along in their transitions from planned to developed economies, the relative importance of market supporting financial institutions should increase. Cull and Xu (2005) re-examine this question in the context of China, which had made more progress in its transition to a market economy than those in the former Soviet Union by 2002 and find that indeed both property rights and access to external finance are associated with more firm reinvestment. Claessens and Laeven (2003) also study the joint impact of financial sector development and the quality of property rights protection on growth and the access of firms to external finance, and find both to be equally important. While the lack of financial sector development impedes firms' access to external finance, they find that insecure property rights also leads to a suboptimal asset allocation by firms, and the asset allocation effect is economically as important as the effect of a lack of financing.

While the law and finance view has been a dominant theory in explaining cross-country differences in financial development, other influential works that have proposed shaping the institutions underlying financial development, including the evolution of the legal system. Acemoglu, Johnson, and Robinson (2001) argue that many countries, especially former colonies, did not design the legal system to protect property rights but rather to facilitate the extraction of resources from the indigenous population. Thus, two systems with the same legal origin may in practice offer very different protections. Acemoglu et al. (2001, 2002) and Engerman and Sokoloff (1997) contend that European colonization offers a natural experiment to test this hypothesis. Europeans set up extractive systems in colonies that were not attractive for colonial settlement, either because of high settler mortality due to natural causes at the time of colonization, or because the indigenous population was relatively large. In colonies where settlement was feasible, countries set up the judicial systems to protect the property rights of the

settlers. This theory emphasizes the role of geography (latitude and natural endowments) and disease environment (which affected the settler mortality) in shaping property rights.

Others have proposed that differences in culture, defined as a system of beliefs, can help explain the differences in investor protection and financial development. Stulz and Williamson (2003) highlight the role of religion while Guiso, Sapienza, and Zingales (2004) highlight the role of social capital in shaping financial systems. Rajan and Zingales (2003), Haber (2004), Haber, Maurer, and Razo (2003), Pagano and Volpin (2001), and Roe (1994) focus on how political economy and political stability underlie the development of financial markets. Finally, Easterly and Levine (1997) and Alesina et al. (2003) show that ethnic fractionalization in a country is an important determinant of both rent seeking and the social polarization that affects property rights and social institutions.

The broad spectrum of studies above suggests that several factors - legal, cultural, political, ethnic, and geographic - influence the financial system and some studies have run a horse race between the various theories to understand which matters more. Beck, Demirguc-Kunt, and Levine (2003) empirically compare the law and finance theory with the endowment theory to conclude that both are equally important determinants of financial development. Ayyagari, Demirguc-Kunt, and Maksimovic (2008) run an empirical horse-race between the various theories using data from the World Business Environment Survey on firms' perceptions of how well protected their property rights are in practice. Using a regression based, variance decomposition approach, they compare the contribution to adjusted R-sq of different institutional theories in a regression of firms' perception of property rights on each of the institutional variables and firm level variables.

They conclude that all the institutional theories address first-order factors accounting for about 50% of the explainable cross-country variation in property rights (country dummies alone explain 17.82% and all the institutional theories together explain 8.88% of the variation in property rights as shown in the table above).¹⁵ However, among the institutional factors, the dominance of the Law and Finance view in explaining property rights variation depends critically on sample selection. In the table above, in the full sample, the Law and Finance view

¹⁵ Firm-level characteristics such as legal organization and ownership structure, are comparable to institutional factors in explaining variations in property rights protection

holds the dominant position in explaining variation in property rights protection (3.89%). Removing the former Socialist economies (which arguably have more in common than just legal tradition) significantly reduces the explanatory power of the legal variables by 44%, leaving them to explain just 2.16% of the variation in property rights, while the ethnic fractionalization variable explains 4.57% of the variation in property rights.

In a subsequent paper, using Directed Acyclic Graph methodology to address endogeneity issues, Ayyagari, Demirguc-Kunt, and Maksimovic (2012) again confirm that ethnic fractionalization is the dominant institutional predictor of property rights protection across the world.

The working hypothesis in the literature is that strong investor protections promote efficient contracting and increase firm value. Strong creditor rights may however, lead to premature liquidation of viable firms which are undergoing temporary distress (see, for example, Aghion, Hart, and Moore, 1992; Hart, La Porta, Lopez-de Silanes, and Moore, 1997). Vig (2011) examines this possibility in his study of the 2002 Securitization and Reconstruction of Financial Assets and Enforcement of Security Interests Act 2002 in India, This reform significantly straightened and made streamlined the process of liquidation firms which did not fulfill their contractual obligations to creditors. Vig (2011) finds that the act led to a reduction in debt, debt maturity, asset growth and an increase in liquidity hoarding by firms. As expected, these effects are expected to be larger for firms with tangible assets, since these assets are more easily secured. Thus, it is not the case that more investor protection is always better than less: very strong creditor rights can increase the likelihood of inefficient liquidation and cause firms to decrease leverage in response.

4.3 Information Quality and Availability

A critical element of corporate governance in any country is the quality of firm-specific information and its availability to regulators and investors. Greater transparency and better quality of firm specific information make for more efficient contracting between management and investors and also make it easier for firms to identify good investment opportunities.

A firm's information environment also plays an important role in determining the cost of capital by allowing investors to better recognize the value of the firm (Merton, 1987's investor recognition hypothesis) and have a better estimation of the risk and prospects for the firm (Barry and Brown, 1985). A large literature on credit markets has shown that asymmetric information prevents efficient allocation of lending, driving a wedge between lending and borrowing rates and also resulting in credit rationing (e.g. Stiglitz and Weiss, 1981).

There are two primary sources of information on firms in developing countries: The first is the information on large, publicly traded firms, which are in turn influenced by both formal laws and informal practices in the country. The second source is information on small businesses through the exchange of information between lenders via credit bureaus. We examine the international evidence on both aspects below.

In countries with developed capital markets such as the US, disclosure regimes involve audited balance sheets, income statements, and cash flow statements with supporting disclosures, all of which provide credible information on publicly traded firms. However, sophisticated disclosure regimes are expensive, and not all countries require the same level of disclosures of their firms. Finance scholars agree that the quality of accounting standards in a country serves as a measure of information quality, at least on the large public firms. LLSV (1998, 1999) compile an index of accounting standards across countries and find that the quality of accounting standards varies by legal origins. They show that countries with an English legal tradition have better accounting standards than French or German Civil Law countries. Levine, Loayza, and Beck (2000) show that cross-country differences in accounting standards also explain other institutional differences such as the differences in financial development. Leuz, Nanda, and Wysocki (2003) also establish a link between a country's legal and institutional environment and the quality of accounting earnings reported to investors.

While accounting standards are a measure of information quality at the country level, a second stream of literature has focused on measuring the information environment at the firm-level. Three approaches are of note here. First, papers by Durnev and Kim (2005) and Klapper and Love (2002) use data on the quality of governance practice compiled by Credit Lyonnais Securities Asia (CLSA) across 27 countries, and compiling indicators of a firm's disclosure

practices. Durnev and Kim (2005) find that firm-level governance and disclosure is positively related to a firm's growth opportunities, need for external financing, and concentration of cash flow rights. The market seems to recognize and reward better disclosure practices since in their sample, firms with higher governance and transparency rankings are valued higher in stock markets.

A second group of studies have proxies for the quality of disclosure practices. In his study on the East Asian financial crisis, Mitton (2002) uses two measures of disclosure quality. The first is that a firm has a listed American Depositary Receipt (ADR). Listing as an ADR can improve disclosure quality as a result of having to meet disclosure requirements mandated by the SEC and the listing exchange.¹⁶ Moreover, the larger pool of potentially more sophisticated investors also increases disclosure quality. The second measure of disclosure quality is that the firm's auditor is one of Big Six international accounting firms. Prior research has associated the Big Six Auditors with higher audit quality and greater transparency (e.g. Reed et al. 2000; Titman and Trueman, 1986). Mitton also shows that higher disclosure quality is associated with a better stock price performance during the crisis period.

Finally, in the third group of studies largely focused on US data, a large literature has used the number of analysts following the firm and the accuracy of analyst forecasts as measure of the information environment of the firm (see Lang and Lundholm, 1996; Healy, Hutton, and Palepu, 1999; Gebhardt, Lee, and Swaminathan, 2001, Lang, Lins, and Miller, 2003). International finance scholars have in turn used analyst coverage in the US as a measure of the quality of information available on foreign firms listing in the US as ADRs (Baker, Nofsinger, and Weaver, 2002; Lang , Lins, and Miller, 2003; Bailey, Karolyi, and Salva, 2006).

Overall, the literature on disclosure practices has suggested that higher accounting standards in a country and more extensive disclosure practices of individual firms, as measured in the studies cited above are associated with better governance. Furthermore, there is strong evidence to suggest that firm valuation is also closely linked to the quality of disclosures.

Understanding specific disclosure practices is typically only useful in the study of corporate governance in large public firms. For small firms in developing countries, a second

¹⁶ We elaborate more on the benefits associated with an ADR listing in Section 8 of the paper.

dimension of the availability of information and information quality is the information sharing that occurs between lenders through credit bureaus. Information sharing via credit bureaus has been shown to increase the competitiveness in the credit market (Vives, 1990), increase in the volume and efficiency of lending (Pagano and Jappelli, 1993) and lower default rates.

The empirical evidence overwhelming supports the positive impact of having credit bureaus. Jappelli and Pagano (2002) and Djankov, McLiesh, and Shleifer (2007) collect data on the existence and operation of credit bureaus around the world and find that bank lending is higher and credit risk is lower in countries where lenders share information. Brown, Jappelli, and Pagano (2009) use firm-level data in the transition countries of Eastern Europe and former Soviet Union to show that information sharing is associated with improved availability and lower cost of credit to firms, especially for more opaque firms and for firms in countries with weak legal environments.

Most studies distinguish between private and public credit registries, which have different policy prescriptions for governments wanting to reduce information asymmetry problems in access to finance for firms. Credit bureaus may operate on the principle of reciprocity collecting and distributing the information supplied by its members (private credit bureaus) or may be managed by country central banks that mandate the reporting of data on borrowers (public credit registries). Jappelli and Pagano (2002) find that public intervention is more likely where private arrangements have not arisen spontaneously and creditor rights are poorly protected. Other studies point to the differing impact of private versus public credit registries. Love and Mylenko (2003) find that existence of private credit registries is associated with lower financing constraints and higher share of bank financing, while the existence of public credit registries is not. However, Djankov, McLiesh, and Shleifer (2007) find that public registries are associated with more private credit but only in poorer countries while private credit bureaus are associated with more private credit, in both a subsample of poorer countries and the full sample. Overall, the evidence seems to suggest that private credit bureaus are particularly important in facilitating access to credit although public credit registries fulfill that role in markets where private information providers have not stepped in due to cost considerations.

4.4 Government Intervention, Corruption and Political Ties

In this section we examine the role of government intervention broadly by examining three distinct aspects – public rent seeking by government officials, political elitism where the government in power favors certain firms that they are politically associated with, and government intervention in determining access to finance through state ownership of banks and directed lending programs.

Developing economies are rife with corruption and inefficiencies associated with government intervention. A large theoretical literature has modeled corruption and government intervention (Rose-Ackerman, 1978; Shleifer and Vishny, 1993; 1994; Banerjee, 1997; Bliss and Di Tella, 1997; Ades and Di Tella, 1999; and Acemoglu and Verdier, 2000). In their seminal paper on corruption, Shleifer and Vishny (1993) show that corruption is costly to investment and economic development because of two main reasons: First, with a weak central government that cannot prevent individual government agencies from soliciting complementary bribes, the cumulative burden of bribes increases, thus hindering investment and growth. Second, the secrecy of corruption leads to investment distortions from high value projects to those that offer greater opportunities for hidden corruption. The solution they argue is to have better accounting systems (e.g. in the collection of taxes and custom duties) that prevent agents from stealing from the government and economic and political competition that can reduce the level of corruption and its adverse effects. Murphy, Shleifer, and Vishny (1994) argue that public rent seeking by government officials is particularly harmful for innovation since innovators are more vulnerable than established firms because they have a high (and inelastic) demand for government-supplied goods such as permits and licenses. And since innovation drives growth, corruption hampers growth severely.

The theoretical literature on the adverse consequences of corruption has been backed by a number of empirical studies. Several cross-country and country-specific studies have established that corruption hinders trade and investment and impedes financial development and growth (e.g. Mauro, 1995; 1997; Wei, 2000; Fisman and Svensson, 2006).¹⁷ See Bardhan (1997) and Tanzi

¹⁷ The idea of efficient corruption, that is, corruption that arises to facilitate beneficial trade between agents that would not otherwise have been possible, has been largely discredited by the cross-country studies finding negative outcomes of corruption.

(1998) for reviews on the damaging consequences of corruption in an economy. Most recently, Ayyagari, Demirguc-Kunt, and Maksimovic (2010) use data on bribe payments across 25,000 firms in 57 countries and show that corruption is indeed a tax on innovation as suggested by Murphy, Shleifer, and Vishny (1994). They find that innovating firms pay more bribes to government officials than non-innovating firms and that innovating firms that pay bribes do not receive better services than firms that do not bribe.

An alternate second mode of government intervention is through connections with the firms. There has been a large literature analyzing the benefits and disadvantages of political connections. One strand of this literature focuses on identifying connections between individual firms and government officials and shows how these connections increase firm value (e.g. Fisman, 2001; Johnson and Mitton, 2003; Faccio, 2004; Goldman, Rocholl and So, 2009). Faccio, Masulis, and McConnell (2006) find that politically connected firms are significantly more likely to be bailed out than similar non-connected firms suggesting that these firms receive financial assistance during periods of financial distress. Fan, Wong, and Zhang (2007) find that Chinese firms with politically connected CEOs underperform those without politically connected CEOs in terms of stock returns, earnings growth, sales growth and return on sales.

Finally, a third strand of the literature focuses on how political favors influence financing. Dinc (2004) provides cross-country bank-level evidence in 22 emerging markets of politically motivated lending at government owned banks. He shows that government owned banks increase their lending in election years relative to private banks. Other studies have taken a detailed single-country approach to analyze the consequences of government lending. Khwaja and Mian (2005) use loan-level data from Pakistan and find that government banks differentially favor politically connected firms by providing greater access to credit - firms that are politically connected borrow 45% more but also have 50% higher default rates. Sapienza (2004) also finds that Italian public banks charge lower interest rates than private banks. Further,, the stronger the political party in the area where the firm is borrowing, the lower the interest rates charged. Similarly, Cole (2009a) finds that in India, the amount of agricultural credit lent by government banks is higher in election years. All these studies point to the costs associated with politically motivated loans such as higher default rates and lower recovery rates. These studies are also consistent with the broader literature on how government ownership of banks in developing

countries is associated with slower financial development and growth and lower quality financial intermediation (La Porta, Lopez-de-Silanes, and Shleifer, 2002 and Cole, 2009b).

5. Firm Financing in Developing Countries

In this section, we focus on access to finance issues at the firm-level taking into account the institutional constraints that firms in developing countries operate under, as discussed in the previous section.

5.1 Financing Constraints

The studies in section 4 explored the broad intuitional causes of financial constraints faced by firms in developing countries. The more recent wave of studies has focused on describing the specific mechanisms by which institutions shape financial constraints of firms. Financial constraints affect firms in both developed and developing countries and are an active area of research in corporate finance. One strand of this literature has tried to infer financing constraints indirectly from investment-cash flow sensitivities (e.g. Fazzari, Hubbard, and Petersen, 1988; 2000)¹⁸ or the propensity of firms to save cash out of incremental cash flow (e.g. Almeida, Campello, and Weisbach, 2004). Most of these studies are based on large firms in developed economies which have limited implications for financing constraints of firms in developing countries, many of which face a broader set of constraints and for which there is less available financial data. Hence, below we focus only on studies that use more direct measures of firm financing constraints.

Beck, Demirguc- Kunt, and Maksimovic (2005) provide the first direct evidence of firms' perception of financing constraints and how they impact firm growth. They use a size-stratified survey of over 4000 firms in 54 countries, where firms reported on a scale of 1 (no obstacle) to 4 (major obstacle) the extent to which financing, legal, and corruption problems presented obstacles to the operation and growth of their businesses They use country random effects regressions to assess the impact of the three obstacles on firm growth controlling for various firm and country-specific variables. Table 4 below, adapted from their paper, shows that all three

¹⁸ Several papers have challenged the usefulness of investment-cash flow sensitivities to measure financing constraints on both theoretical and empirical grounds. See Kaplan and Zingales (1997, 2000), Almeida and Campello (2002), Cleary (1999), Erickson and Whited (2000), Altı (2003), Gomes (2001), Moyen (2004).

obstacles have a negative and significant impact on firm growth when entered individually. When entered together, the effect of the corruption obstacle is subsumed by the other two. They also show that the smallest firms are consistently the most adversely affected by all obstacles. Financial and institutional development weakens the constraining effects of financial, legal and corruption obstacles, and again the small firms benefit the most from developments in financial and legal institutions.¹⁹

Firms in developing countries complain about a laundry list of institutional obstacles that affects their day-to-day operations and growth. So in terms of policy prescriptions to governments on focusing reform priorities, it is not clear whether finance is a first order constraint to growth compared to other reported obstacles, thus deserving the most attention.

Ayyagari, Demirguc-Kunt, and Maksimovic (2008) attempt to answer this question using survey data on the different obstacles to growth that firms report - access to finance, inadequate security and enforcement of property rights, poor provision of infrastructure, inefficient regulation and taxation, corruption and macroeconomic instability. They find that not all of them are equally constraining. Some of the obstacles either affect firm growth only indirectly through their influence on other factors, or have no effect. Using regressions as well as Directed Acyclic Graph (DAG) methodology, they find that access to finance, emerges consistently as the most robust obstacle constraining firm growth. And of the many specific financing obstacles firms identify, only the cost of borrowing is directly associated with firm growth. But the cost of borrowing is itself affected by imperfections in financial markets such as difficulties with posting collateral, limited access to long-term financing, and firms that face high interest rates also perceive that the banks to which they have access are corrupt, underfunded, and require excessive paperwork.

Together, the studies reviewed in this section suggest that access to financing is one of the most constraining obstacles to growth for firms in developing countries.

¹⁹ Beck, Demirguc-Kunt, Laeven, and Maksimovic (2006) use the same data and find that the financing obstacles are a function of firm characteristics such as size, age, and ownership (domestic versus foreign).

5.2 *Firm Financing Patterns (Capital Structure Choice)*

An extensive theoretical literature in corporate finance shows that an optimal choice of securities and contracts can be used to mitigate agency conflicts²⁰ Further, this optimal choice depends on the information available to investors and their ability to monitor the firm and enforce their legal rights.²¹ Since accounting standards and information available to investors and investor protection rights vary across countries and, one should expect firms' financial structures to differ systematically across countries as well. The first generation of papers on capital structure choices across developing countries relied mainly on large publicly traded firms and was focused on explaining a firm's leverage choices. With the availability of firm-level survey data across small, medium, and large firms in developing countries on their financing choices, the second generation literature was able to study firm financing patterns more broadly. We review both streams of literature below.

Demirguc-Kunt and Maksimovic (1999) were the first to establish systematic differences in debt maturity choices of firms in developed versus developing countries. Examining 30 countries between 1980-1991, they find that firms in developed countries had more long term debt, regardless of firm size. They then explore whether these differences can be accounted for by firm and institutional characteristics.²² They find that large firms in countries with effective legal systems substitute long-term debt for short-term debt while small firms do not. As for institutional factors, they find limited evidence 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. They also find that stock market activity influences the debt levels of large firms but not small firms (large firms have more long-term debt in countries with active stock markets) whereas size of the banking sector influences debt levels of small firms but not large firms (small firms have less short term debt and more long term debt in countries with large banking sectors).

²⁰ See Jensen and Meckling (1976), Myers(1977), Myers and Majluf (1984).

²¹ See Diamond (1991, 1993), Rajan (1992), Hart and Moore (1995), Bolton and Scharfstein (1993), and Harris and Raviv (1990)

²² Jong, Kabir, and Nguyen (2008) find that country-specific factors also influence the roles of firm-specific determinants of leverage.

There have been a number of studies trying to isolate which country specific factors are important in explaining capital structure choices. Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001) find that while similar factors such as profitability and asset tangibility affect debt ratios in both developed and developing countries, there are also systematic differences in the way these ratios are affected by institutional factors such as capital market development, GDP growth, and inflation.²³ Giannetti (2003) uses data on unlisted companies from 26 European countries and finds that good creditor rights protection is important in obtaining financing for firms investing in intangible assets that cannot be provided as collateral (e.g. R&D) and also those in sectors with high volatile returns. Fan, Titman, and Twite (2010) find that a country's taxation and inflation policies as well as its legal and financial institutions have an important effect on capital structure and debt maturity choices. Firms use more debt when dividends are more highly taxed, use less debt and of shorter maturity when inflation is lower, and use more short-term debt in countries that are viewed as more corrupt. Controlling for corruption, the legal tradition, i.e. common law versus civil law only influences the debt maturity decision and not the leverage ratio.²⁴

While the above cross-country studies of capital structure are focused on domestic firms in different countries, Desai, Foley, and Hines (2005) analyze the capital structures of foreign affiliates of U.S. corporations. They find that multinational affiliates use less external debt in countries with underdeveloped capital markets and weak creditor rights and make greater use of internal capital markets (borrowings from parent companies) to overcome capital market imperfections. They also find the overall level and composition of debt to be very sensitive to tax incentives.

Overall the body of evidence suggests that institutional factors such as legal institutions, the level of banking and stock market development are important determinants of firms' leverage choices and choices short-term versus long-term debt.

²³ Rajan and Zingales (1995) use balance sheet data of large listed companies from G7 countries and find similar results - factors identified in previous studies as correlated with firm leverage in the US are similarly correlated in other countries.

²⁴ There is a large literature in international economics on how globalization (both financial liberalization and financial crises events) might affect debt maturity structures (e.g. Rodrik and Velasco (1999), Schmukler and Vesperoni (2006), Caballero and Krishnamurthy (1998), Calvo (1998), Calvo and Mendoza (1996), Calvo and Reinhart (2000), Chang and Velasco (1999, 2001a), Furman and Stiglitz (1998), and Sachs, Tornell, and Velasco (1999))

Most of the above studies have focused on public firms, which tend to be large and perhaps unrepresentative of firms across countries. Thus, the definitions of external financing focus on debt and equity, and do not take into account the possibility that in some countries firms may substitute other forms of financing. However, some progress has been made over the last 10 years largely due to the firm surveys conducted by the World Bank that have greatly expanded the information available about financing patterns of especially small and medium firms across countries. These sources include the Regional Program on Enterprise Development (RPED) studies for Sub-Saharan Africa in the 1990s; Business Environment and Enterprise Performance Surveys (BEEPS) for the transition economies; the World Business Environment Survey (WBES), conducted across 80 countries in 1999–2000; and the Enterprise Surveys (ES), conducted since 2002 and available for almost 100 countries.

The Enterprise Surveys use standardized survey instruments and a uniform sampling methodology to benchmark the investment climate of countries across the world and to analyze firm performance. They sample from the universe of registered businesses and follow a stratified random sampling methodology. These surveys include micro-, small, and medium enterprises that are not captured in data sets based on published financial statements. In addition to specific firm information, these surveys contain an array of questions on the business environment in which the firm operates, the proportion of investment and working capital that is financed externally, and also the source of external financing comes (i.e., debt, equity, suppliers' credit, leasing, and other sources such as development banks, moneylenders, public sector or other informal sources). The more recent surveys also contain sampling weights that allow us to draw inferences about the population of firms in each country.

Beck, Demirguc-Kunt, and Maksimovic (2008) use the World Business Environment Survey (WBES) and find that while the external financing of firm investment is not a function of institutions, the form of external financing is. Firms in countries with more developed institutions use bank and equity financing to a greater extent, whereas in institutionally underdeveloped countries trade credit finance and financing from residual sources substitute to offset the shortfall in external finance. Asset-based lending such as factoring, fixed-asset lending, and leasing are not dominant substitutes for bank finance in developing countries. They also find

evidence that the financing patterns of large firms in financially developing countries are consistent with the pecking order theory of capital structure.

When we examine data from the latest round of Enterprise Surveys, conducted from 2006-2010, we find that debt finance and bank finance in particular, is the most common type of external finance for firms of all sizes across countries. Although bank financing is the most prevalent type of external finance, a large proportion of firms, especially small and medium firms, do not have any bank loans. The firm survey results suggest that this reflects both firms being refused bank loans as well as a lack of demand for bank loans either because of other financing sources or lack of good projects to finance. Some of the common reasons why firms are excluded from bank finance include high interest rates, collateral requirements, corruption in banking, and cumbersome paperwork.

5.3 Cash Holdings and Liquidity Management

Most of the cross country studies of capital structure focus on debt levels and there have been relatively few studies of cash holdings and overall liquidity management of firms in developing countries. From the studies of US firms, we know that under capital market imperfections, there are two views on the optimal amount of cash holdings: According to the precautionary motive for liquidity, firms hold cash so as to not have to raise funds when external capital is expensive (Myers and Majluf, 1984; Almeida, Campello, and Weisbach, 2004; Acharya, Almeida, and Campello, 2007; and Gamba and Triantis, 2008); by contrast, according to the agency view, management and controlling shareholders may not use cash in the best interests of the firm, such as on excessive spending and value destroying acquisitions (Jensen (1986), Blanchard, Lopez-de-Silanes, and Shleifer (1994), Harford (1999), Opler et al. (1999), Dittmar, Mahrt-Smith, and Servaes (2003), Mikkelsen and Partch (2003), Pinkowitz, Stulz, and Williamson (2006), Dittmar and Mahrt-Smith (2007), Kalcheva and Lins (2007), and Harford, Mansi, and Maxwell (2008)). The tradeoff view of capital structure then predicts that firms trade off the precautionary motives with the agency motives in arriving at optimal cash balances. More recently, Bates, Kahle, and Stulz (2009) find that the average cash-to assets ratio for US industrial firms more than doubled over the period 1980 to 2006 and that this increase can be explained by the precautionary motive

for cash holdings rather than agency conflicts.²⁵ Kahle and Stulz (2010) focus on the 2008 US financial crisis and find that cash holdings went up substantially after September 2008 which is consistent with the observation that given the increase in risk and cost of financing, firms strengthened their balance sheets by hoarding cash.

Re-examining these hypotheses taking into account cross-country differences, one would predict that cash holdings should be larger in countries with weak investor protection (agency motive) and in countries with poorly developed capital markets (precautionary motive). However, Dittmar, Mahrt-Smith, and Servaes (2003) and Kalcheva and Lins (2007) find no evidence that firms hold more cash when capital markets are poorly developed but do find evidence that firms hold more cash when shareholder protection is weak. Lins, Servaes, and Tufano (2010) reconcile these findings with the theory in their survey of CFOs in public and private firms in 28 countries. They find that non-operational cash holdings (i.e. excess cash and marketable securities above that which is used in normal course of business) are only a small fraction of book assets and are used as a general insurance policy against future cash shortfalls. Lines of credit, on the other hand, are the dominant form of corporate liquidity and are strongly related to a firm's need for external financing to fund future investment opportunities. So while they find no evidence that non-operational cash is higher when credit markets are less developed, they do find that lines of credit, which are the more dominant source of liquidity, are larger when credit markets are less developed, thus consistent with the precautionary motive.

There is an emerging literature looking at corporate liquidity management choices during times of financial crises that has somewhat contradictory findings to the above. Campello, Giambona, Graham, and Harvey (2009) survey CFOs from 31 countries regarding liquidity choices before and after the 2007 credit crisis and find that firms view cash and lines of credit as liquidity substitutes – firms with high internal liquidity find credit lines less valuable and the positive sensitivity of credit line use to cash flows is unique among firms with low cash holdings. While Ayyagari, Demircuc-Kunt, and Maksimovic (2011) do not compare cash lines with lines of credit, they find that during sudden systemic stop (3S) episodes in emerging market

²⁵ The pecking order theory of capital structure however would predict that cash is built up when profits exceed investment needs and dividends are a way of depleting cash reserves. Though De Angelo, De Angelo, and Skinner (2000) note that disgorging cash via a special dividend payment is rare and building up cash through a dividend cut has negative market reactions.

economies in the 1990s, firms continued to build up their cash balances through the crisis periods. They question the notion of “phoenix miracles” or credit-less recoveries from financial system collapses by showing that firms in these crisis episodes used their positive cash flow shocks to add to their cash balances and repay short-term debt and even the firms facing negative cash flow shocks still had access to long-term debt markets and equity markets. They also find no evidence of a credit-less recovery at the firm-level in the 2008 U.S. financial crisis.

5.4 Issuance Activities

In this section, we first review the evidence on a firm’s decision to go public, the motivations for international capital issuances, and the prevalence of private equity and venture capital in developing countries.

5.4.1 IPOs

While there have been several studies regarding a firm’s decision to go public (e.g. Zingales, 1995; Pagano, Panetta, and Zingales, 1998; Chemmanur, He, and Nandy, 2010), most of the evidence is based on the U.S. and other developed financial markets. Few papers have examined the role of public equity markets in developing countries. More recently however, Doidge, Karolyi, and Stulz (2011) show that there has been a large increase in global IPO activity while the US IPO activity has declined over the same period. They study 30,000 IPOs from 90 countries between 1990 and 2007. They find that global IPOs defined to include both IPOs in which some of the shares are sold outside the home country of the firm going public, and also foreign IPOs, in which of all the shares are sold outside the home country, enable firms to overcome poor institutions in their country of origin. This in turn suggests that with globalization, home institutions and laws are becoming less important in influencing IPO activity.

Investigating why firms go public, Kim and Weisbach (2008) study IPOs and seasoned equity offerings from 38 countries between 1990 and 2003 and find that firms issue public equity to raise capital for investment. On average, firms use 28.4 cents of every dollar raised in an initial public offering (IPO) on capital expenditures and R&D. Gopalan and Gormley (2010) analyze the going-public decision using the collapse of the Indian equity market in 1997 as a

natural experiment to isolate shocks in firms' access to equity markets that are not driven by changes in investment opportunities. They find that following the collapse, newly public firms, non-group firms, and young firms experience the largest drops in growth and investment. They interpret these results as evidence that equity markets are an important source of finance for certain groups of firms in emerging markets and not easily replaced by alternate sources. Thus overall the empirical evidence documents the growing importance of public equity markets in raising financing in developing countries.

5.4.2 International Capital Issuances

Financial markets across the world are increasingly integrated. Thus, managers of firms, in developing countries have discretion not only over the type of securities to issue but also the location of issuance. A significant element of this globalization trend has been the migration of stock exchange activities abroad, particularly in the case of emerging markets. Claessens, Klingebiel, and Schmukler (2002) find that development of local stock markets also spurs the degree of migration in capital raising, listing, and trading to exchanges abroad. There is an extensive empirical literature documenting several motivations for internationalization (see Benos and Weisbach, 2004; Stulz, 1999; and Karolyi, 1998, 2006, for reviews). We outline the main arguments below.

According to the segmentation hypothesis, firms internationalize to lower their cost of capital and to facilitate corporate expansion. By going international, firms circumvent regulations, poor accounting standards, taxes, and illiquid domestic markets (see Black, 1974; Solnik, 1974; Stapleton and Subrahmanyam, 1977; Pagano, Roell, and Zechner (2002), Foerster and Karolyi, 1999; and Miller, 1999). Consistent with this hypothesis, several studies find positive abnormal returns surrounding internationalization (Errunza and Losq, 1985; Alexander, Eun, and Janakiramanan, 1988; Jayaraman, Shastri, and Tandon, 1993; Foerster and Karolyi, 1999; Miller, 1999; Errunza and Miller, 2000; and Sarkissian and Schill, 2003).

Related to cost of capital considerations, other studies have found that cross-listing increases international analyst coverage and firm disclosure and lowers the information costs faced by international investors (Baker, Nofsinger, and Weaver, 2002; Lang, Lins, and Miller, 2003; Bailey, Karolyi, and Salva, 2006). Cross-listing also results in increased liquidity both in

the home market and abroad, with potentially beneficial ramifications on the cost of capital (see Brennan and Subrahmanyam, 1996; Werner and Kleidon, 1996; Domowitz, Glen, and Madhavan, 1998; Aggarwal, Dahiya, and Klapper, 2007; Baruch, Karolyi, and Lemmon, 2007; and Halling, Pagano, Randl, and Zechner, 2008).

The market timing view suggests that firms raise capital abroad to exploit temporarily high prices for their securities during “hot” markets (Errunza and Miller, 2000 and Henderson, Jegadeesh, and Weisbach, 2006). Henderson, Weisbach, and Jegadeesh (2006) find evidence of market timing in both equity and debt markets – firms issue equity when the stock markets appears to be overvalued and time long-term debt issuances when interest rates are lower, and prior to increases in interest rates. They also show that firms are drawn to liquid and well regulated markets such as the U.S. and U.K. for new security issuance. Kim and Weisbach (2008) also find that firms issue public equity to raise capital for investment and to exploit favorable market conditions (market timing).

The “bonding” hypothesis argues that firms internationalize to bond themselves to a better corporate governance framework. For instance, firms cross-listing in the U.S. are subject to U.S. securities laws and disclosure rules, exchanges’ listing requirements, and additional monitoring by reputational intermediaries, such as analysts, institutional investors, and underwriters. Thus, by bonding to better corporate governance standards that limits the extraction of private benefits by corporate insiders, firms look more attractive to potential investors (Stulz, 1999; Coffee, 2002; Reese and Weisbach, 2002; and Doidge, Karolyi, and Stulz, 2004).

However, the bonding hypothesis also implies that controlling shareholders who have a large proportion of voting rights compared to cash flow rights and have a greater ability to extract private benefits are less likely to list in the U.S. Doidge, Karolyi, Lins, Miller, and Stulz (2009) investigate this proposition using ownership and control data on more than 4000 firms from 51 countries. They put together an extensive dataset consisting of cash flow and control rights held by the controlling (largest) blockholder in each company as well as the control rights held by a firm’s officers, directors, top-level managers, and their family members. They use

cross-sectional logit regressions to estimate whether the percentage of voting rights held by the controlling blockholder affect the probability of listing in the U.S. as a level 2 or level 3 ADR.

The table below adapted from Table III of their paper reports the marginal effects and shows that a one percentage point increase in the control rights held by the controlling blockholder decreases the probability of listing in the U.S. by 0.8%. Further, greater the separation of control rights and cash flow rights or higher the control rights held by the management group and its family, the value of private benefits is much higher to the controlling blockholder and the firm is less likely to be listed on a foreign exchange. . Overall, their results strongly suggest that ownership of control rights and the control wedge are strongly negatively associated with the probability of having a U.S. exchange listing.

The direct empirical evidence on the bonding view however has been mixed. Consistent with the bonding view, Doidge (2004) finds that cross-listed firms have lower voting premia and Reese and Weisbach (2002) show that firms from countries with high shareholder protection list in the U.S. to raise capital while those from weak shareholder protection countries list in the U.S. to bond themselves to better corporate governance. Other studies such as Licht (2003, 2004) and Pinegar and Ravichandran (2003) find no support for bonding. Siegel (2005) also points out that there are limits to the enforcement of U.S. securities laws and finds that cross-listing in the U.S. did not deter Mexican firm insiders from expropriating corporate resources.

Perhaps the piece of evidence that is most at odds with the bonding view pertains to increases in corporate valuation following internationalization. Doidge, Karolyi, and Stulz (2004) find that firms cross-listed in the U.S. have a Tobin's q ratio that is 16.5% than the q's of domestic firms. However, Gozzi, Levine, and Scmukler (2008) examine the valuation effects associated with internationalization and find no evidence of either an enduring effect on Tobin's q or an increase in the value of international firms relative to domestic firms. While they find no support for the bonding view their results are consistent with key predictions from segmentation and the market timing theories. Consistent with segmentation theories, Gozzi et al. (2008) find that firms expand after they internationalize and grow relative to domestic firms that have not lowered their cost of capital. Consistent with market timing, they find that Tobin's q rises before internationalization and then quickly returns to the pre-internationalization level. However, they

also find that firms expand many years after they internationalize suggesting that market timing is not the only force underlying internalization.

However, Doidge, Karolyi, and Stulz (2009) argue that the findings in Gozzi et al. (2008) are the result of the inclusion of other cross-listings besides US exchange listings. They argue that a valuation premium is not predicted by theory for those non-exchange cross listings. Doidge, Karolyi, and Stulz (2009) show that a US cross-listing premium exists every year from 1990 to 2005 for exchange listed firms for which a premium is predicted by the bonding view.

Several other papers use firm-level data to examine the motivations for going abroad and the effect of internationalization at the firm level. Sarkissian and Schill (2004) find evidence of a proximity effect, that is, geographical proximity and other affinity factors such as trade links and common language determine cross-listing. Ayyagari and Doidge (2010) find that controlling shareholders use a U.S. cross-listing to sell their stake and facilitate changes in ownership and control. Others have examined the effect of equity market liberalizations (e.g. Henry, 2003; Patro and Wald, 2005) in reducing the cost of capital.

While most of the theories and empirical evidence are based on equity capital issuances around the world, the theories also hold implications for debt issuances. Recent studies suggest that international debt issuances are equally, if not more, important. Gozzi, Levine, and Schmukler (2010) study the extent of internationalization at the firm level by analyzing 168,513 equity and debt issues of firms from 116 countries over the period 1991-2005. They find that debt markets dwarf equity markets both in their internationalization (35% of debt capital was raised abroad compared to 10% of equity issues) and how corporations raise capital (firms raise four times more money through bond sales relative to equity issues).

5.4.3 Private Equity and Venture Capital

Outside of bank financing and public debt and equity markets, private equity and venture capital are important financing sources in developed countries. The private equity market in the U.S. originated in the 1980s and has gone through several boom and bust phases. However, only recently have U.S. private equity firms have gone global in scope. And even then, Stromberg (2007) reports that private equity transactions outside of North America and Western Europe

only account for approximately 13% of global private equity transactions in number and 7% in value between 2001 and 2007. While these alternative sources of financing are relatively small in developing countries, there is a growing empirical literature documenting their increasingly important role in emerging markets. Before reviewing the literature, it is important to understand the difference between private equity and venture capital investments. Private equity firms (or leveraged buyout investment firms) are specialized investment firms that buy majority control of an existing firm using a relatively small portion of equity and a large portion of outside debt financing. This arrangement is distinct from venture capital firms that typically invest in young or emerging companies, and typically do not obtain majority control.

There are two strands of this literature, one examining the value of private equity and venture capital investments across countries and the other examining the difference in the structure of private equity and VC contracts between developed and developing countries. On the value of private equity investments, Bernstein, Lerner, Sorensen, and Stromberg (2010) examine the impact of private equity investments across 20 industries in 26 OECD countries between 1991 and 2007 and find that industries with higher private equity investments are associated with higher growth in total production, value added, wages and employment. Cumming and Walz (2010) study the returns of VC and private equity investments over 32 years in 39 countries and find a systematic bias in favor of over-reporting of unrealized returns especially by young, less experienced fund managers. They also find that quality of legal institutions and accounting standards affects such disclosure with higher average unrealized returns being reports in countries with weak institutions and accounting standards.

With regards to the contractual terms, Lerner and Schoar (2005) analyze 210 developing country private equity investments and find that systematic differences in legal enforcement impose constraints on the type of contracts. They find that investments in Common Law countries use convertible preferred stock with covenants while those in Civil Law countries rely on ownership (equity and board control) rather than contractual provisions to alleviate legal enforcement problems. Kaplan, Martel, and Stromberg (2007) analyze VC investments in 23 non-US countries and find that non-U.S. investments have weaker control, liquidation, and exit rights and are also less likely to use contingencies resulting in high-powered cash flow incentives compared to US VC investments. They find that liquidation preferences, anti-dilution

protections, vesting provisions and redemption rights are more typical in Common Law countries while milestones are less common. However, while contracts seem to differ across legal regimes, the most experienced VCs implement U.S. style contracts. Cumming and Johan (2011) also find that the legal experience of the VCs is more important than the legal regime of the country of the VC fund in structuring the contracts.

5.5 *Small Firm Financing*

The effect of financial development is not uniform across all firms. In this section, we review the literature that has found a differential impact of financial development and access to finance on small versus large firms. First, studies have shown that small firms are more likely to report access to finance as being a major obstacle than large firms. Ayyagari, Demirguc-Kunt, and Maksimovic (2008) use firm level survey data from the World Business Environment Survey (WBES) and find that small firms report higher financing obstacles than large firms. Not only do small firms report higher obstacles, they are also more severely affected. Beck, Demirguc-Kunt, and Maksimovic (2005) find that the growth of smaller firms is hindered most by financing constraints, especially collateral requirements, bureaucracy, the need for special connections, and interest rate payments. They also find the lack of specific forms of financing such as leasing and long-term finance to be particularly constraining for small firms.

Just as small firms face greater information barriers to raising funds than large firms in economies with underdeveloped financial systems, they also benefit disproportionately as the financial systems develop. Beck, Demirguc-Kunt, and Maksimovic (2005) find that previously constrained small firms benefit the most from financial development. Love (2003) also finds that small firms are disproportionately more disadvantaged in less financially developed countries than are large firms. Laeven (2003) finds that small firms' financing constraints decrease following financial liberalization episodes such as interest rate liberalization, elimination of credit controls, privatization and bank entry where as those of large firms actually increases, reflecting the loss of political patronage and erosion of entrenched interests.

To illustrate differences in access to finance across countries, we use latest set of Enterprise Surveys, led by the World Bank, consisting of 47,745 firms in 99 developing

countries, surveyed in the period 2006-2010.²⁶ The surveys are stratified by *Sector of activity* (population of industries include manufacturing sectors, construction, services, transport, storage, communications, and computer and related activities), *Firm size* (the strata include small firms (5-19 employees), medium firms (20-99 employees), and large firms (100 or more employees)), and *Geographical location* (selected based on centers of economic activity in the country) and provide sampling weights that take care of the varying probabilities of selection across different strata and are thus indispensable to making assertions about the whole population.

One of the strengths of the survey is the detailed data available on access to financing. The establishments in the survey responded to questions on whether the establishment has a checking and/or savings account at this time, whether the establishment has an overdraft facility and whether at this time, the establishment has a line of credit or loan from a financial institution.²⁷ Below, we present some statistics on access to finance in tables 7 and 8 and figures 4 and 5.

Table 7 presents data on the percentage of SMEs that have access to bank accounts, overdraft facilities, and line of credit. The table shows that there is great variation across countries in the access to bank accounts although the mean and median are high at 83.66% and 87.97% respectively. There is greater variation in access to overdraft facility. The percentage of SMEs with access to overdraft facility varies from 1.39% in Guinea Bissau to 99.38% in Brazil with a mean of 38.57% and median of 37.93%. The percentage of SMEs with access to a line of credit or loan varies from 3.05% in Afghanistan to 70.2% in Peru with a mean of 34.74% and median of 36%. Figure 4 shows that the percentage of SMEs with access to bank accounts, overdraft facilities, and line of credit/loan increases monotonically from low to high income countries.

²⁶ Ayyagari, Demircuc-Kunt, and Maksimovic (2011) use this database to examine the contribution of small firms to employment and job creation in developing countries.

²⁷ The following definitions are used in the survey: An *overdraft facility* is defined as a flexible account that allows firms to draw upon in the event their account balance becomes negative. The firm incurs fees or is subject to interest payments if it exercises this option. A *line of credit* is defined as an available amount of credit that the establishment can draw upon or leave untapped. Lines of credit usually carry monthly interest rates, and are repaid quickly (as soon as the establishment's cash flow allows for repayment). They may or may not have a defined date of expiration. A *loan* is generally a much less flexible form of finance. It comes in fixed amounts (rather than ranges), carry annual interest rates (either fixed or floating), and they carry a determined term to maturity (finite period for repayment). In case of more than one loan outstanding, consider the most recent acquired loan.

In a recent paper using U.S. Census data, Haltiwanger, Jarmin, and Miranda (2009) argue that there is no systematic relationship between firm size and growth once they control for firm age and find young businesses and startups to be critical for U.S. job creation. While this may be true of the U.S., we have little information on the importance of age versus size in other parts of the world, especially in developing economies, where there are greater barriers to entrepreneurship, and venture capital markets (very important for young firms in the U.S.) may not be so developed. Hence, below we investigate the access to finance statistics for young firms.

Table 8 presents data on access to finance for young establishments. In our sample of countries, the mean percentage of young firms below 2 years old that have access to a checking or saving account is 83.23% and median is 92.24%. If we were to use 5 years as the cut-off, the mean and median numbers are 85.06% and 90.21% respectively. Thus of the young firms in the population, a large proportion have access to bank accounts.

In the median country in our sample, 25.78% of firms less than two years old and 33.96% of firms less than five years old have access to an overdraft facility. The medians for access to lines of credit or loan from financial institutions are 23.58% for firms less than two years old and 33.97% for firms less than five years old. When we look across the low to high income groups in Figure 5, we do not find a monotonic increase for access to overdraft facility or line of credit. Instead, we find that the percentage of firms with access to overdraft facility and line of credit is significantly higher in the median high income countries (19.96% and 72.21% respectively) than in the median low income countries (12.16% and 9.36% respectively). We obtain similar patterns when we define young firms as being less than five years old as shown in Figure 6.

6. Bank-based versus Market-based Systems

6.1 Prevalence of Bank-based and Market-based Systems across the World

The long-standing debate on market-based versus bank-based systems was initially grounded in the context of Germany and Japan where banks play a leading role in capital allocation, overseeing investment decisions, mobilizing savings and providing risk management and the United Kingdom and United States, which have a market based system where securities markets,

together with banks, perform these functions.²⁸ Beck, Demirguc-Kunt and Levine (2000) construct a large cross-country panel database on the mixture of banks and financial markets across 150 countries.²⁹ Demirguc-Kunt and Levine (2001) construct measures of the comparative size and activity of stock markets and banks such as the ratio of Stock Market Liquidity (defined as the value of stock transactions as a share of national output) to Bank Credit (defined by the claims of the banking sector on the private sector as a share of GDP) and ratio of Market Capitalization (measured by the value of listed shares divided by GDP) to Bank Credit. An alternative measure focuses on the restrictions on bank activities with the idea that in financial systems where banks face fewer restrictions, they are potentially more powerful (e.g. Barth et al. 2001; Beck and Levine, 2002). Others have examined the percentage of assets of the ten largest banks in each country owned by the government as a measure of the extent to which the financial system is bank based (e.g. La Porta et al. 2002).

While the classification distinguishing between bank-based and market-based countries can vary, Beck and Levine (2002) show that these measures are highly correlated. Thus, bank-based financial systems also tend to be dominated by state-owned banks (e.g. Bangladesh, Pakistan, Costa Rica) and countries with no state ownership in the ten largest banks (e.g. Canada, Japan, U.K., U.S.) tend to be market based financial systems. Further, countries whose banking systems are dominated by state-owned banks also tend to impose more restrictions on their banks (e.g. Egypt, Bangladesh, and Israel). Demirguc-Kunt and Levine (2001) show that while both types of financial systems are more developed in richer countries, financial systems tend to become more market based as countries become richer. Further, countries with better institutions (e.g. a Common Law tradition, strong protection of shareholder rights, good accounting regulations, low levels of corruption) tend to be more market-based as shown in Demirguc-Kunt and Levine (2001) and Ergungor (2004).

6.2 Banks versus Market-based Systems – Theory and Empirical Evidence

The theoretical debate on the advantages of markets versus banks derives from the advantages (dis) of each in performing specific financial functions. First, financial intermediaries reduce the cost of acquiring and processing information and thus improve resource allocation, which in their

²⁸ See Gerschenkron, 1962; Goldsmith, 1969; Hoshi, Kashyap, and Scharfstein, 1990; and Allen and Gale, 1995

²⁹ The latest update of this database is November 2010 as of writing this paper.

absence would have to be borne as a large fixed cost by each investor in evaluating firms (Boyd and Prescott, 1986; Allen, 1990). Banks also have an advantage over markets in information acquisition arising from their long-run relationships with firms that allows them to be more effective in monitoring and ensuring repayment (Gerschenkron, 1962; Boot, Greenbaum and Thakor, 1993; Rajan and Zingales, 1999). Stiglitz (1985) emphasizes the free rider problem in well developed markets that quickly reveal information, reducing the incentives for individual investors to acquire information. Banks, on the other hand establish close ties with the firms they lend to and do not reveal information immediately in public markets creating incentives for them to research firms and their managers in more detail.

However, others have argued that bank-based systems may involve intermediaries with huge influence over firms that can have negative consequences. Powerful banks can extract more of the expected future profits from firms than in a market based system (Hellwig, 1991) and this may even reduce the firms' effort to undertake innovative, profitable ventures (Rajan, 1992; Morck and Nakamura, 1999). Allen and Gale (1999) also note that banks may not be effective gatherers of information in new uncertain situations involving innovative products and processes. Studies have also recognized the power of markets to provide valuable information to managers through stock prices (Boot and Thakor, 1997a; Subrahmanyam and Titman, 1999). Markets also stimulate information production since larger and more liquid markets also make it easier to profit from acquiring information by trading (Grossman and Stiglitz, 1980; Kyle, 1984). Morck, Yeung and Yu (2000) provide tests of the information content of stock markets.

Second, bank based systems have superior corporate governance due to their monitoring ability. Shleifer and Vishny (1997) argue that markets are not effective monitors since they are less able to address the agency problem of separation of ownership and control. Takeover threats are ineffective corporate control devices due to informational asymmetry between insiders and outsiders (Stiglitz, 1985), free-riding problems and the rapid dissemination of costly information that reduces incentives for making effective takeover bids (Grossman and Hart, 1980). Allen and Gale (2000) also stress the link between management and the corporate board (nominated by the management) as a reason why markets are not effective in exerting corporate control.

However, this view is not without controversy. Influential banks may collude with firms against other creditors, may collude with management that provides them with favors and thus fail to discipline management (Black and Moersch, 1998; Wenger and Kaserer, 1998). Banks also impede the responsiveness of the economy to market signals due to their long-term ties with firms (Hoshi, Kashyap and Sharfstein 1991, Peek and Rosengren, 1998). For instance, Rajan and Zingales (2003) argue that market-based systems are more effective in identifying and bankrupting truly distressed firms in response to adverse shocks than bank-based systems where bank managers may be reluctant to bankrupt firms with whom they have long relationships. Furthermore, other studies argue that challenges in governing banks themselves (Caprio and Levine, 2002; Caprio, Laeven and Levine, 2007) prevent banks from carrying out their corporate governance function effectively. Several studies have shown how the existence of concentrated bank owners (e.g, Haber, 2004; 2005; Maurer and Haber, 2007; La Porta, Lopez-de-Silanes and Zamarripa, 2003) leads to exploiting of other investors as well as high rates of connected lending. A large literature since Jensen and Meckling (1976) has also stressed the independent role of well functioning stock markets in fostering corporate governance. Public trading allows managerial compensation to be linked to stock prices which helps align interests of managers and owners (Diamond and Verrecchia, 1982; Jensen and Murphy, 1990). Takeover threats in well-developed markets also lead to aligning managerial incentives with those of the owners (Scharfstein, 1988; Stein, 1988).

Third, market based systems have been shown to be more effective in encouraging innovation and entrepreneurship. They are considered to be better at funding projects subject to diversity of opinion (Allen and Gale, 1999) and at committing not to refinance unprofitable projects, (Dewatripont and Maskin 1995). With markets, a large number of investors are involved in the investment decision based on their priors and information, which can particularly advantageous in the case of new innovative projects with a lot of uncertainty. With intermediated finance on the other hand, the investment decision is delegated to a single entity, the manager and the high diversity of opinion typically results in the underfunding of high risk projects. However, other studies since Greenwood and Jovanovic (1990) have stressed the quality of information produced by banks which leads to funding of more promising firms with the best chances of successful innovation (Morales, 2003; Acemoglu, Aghion, and Zilibotti, 2003).

Finally, bank based systems are also known to provide better inter-temporal risk sharing services (Allen and Gale, 1997), and more effective in resolving asset-substitution moral hazard (Boot and Thakor, 1997a). Market based systems on the other hand are shown to provide better cross-sectional risk sharing (Allen and Gale, 1997) and to create stronger financial innovation incentives (Boot and Thakor, 1997b).

Allen and Gale (1999) provide an in-depth analysis of the relative benefits of market-based and bank-based financial systems. Overall, the dominant view has been that banks and markets *compete*, with each other, and develop at the expense of the other (Allen and Gale, 1997, 1999; Boot and Thakor, 1997a; Dewatripont and Maskin, 1995).

In contrast to the theoretical work outlined above, the general consensus in the empirical literature is that both banks and markets matter for financial development and there is no evidence in favor of one being better than the other for access, financial sector development or economic growth. Levine and Zervos (1998) argue that stock markets provide different functions than those provided by banks and both types of systems are important for growth. Levine (2002) also finds that after controlling for the overall level of financial development, financial structure does not help in explaining cross-country differences in financial development.³⁰ At the industry level, Beck and Levine (2002) find that financial structure does not explain the differential growth rates of financially dependent industries across countries. Using firm-level data, Demirguc-Kunt and Maksimovic (2002) show that the firms' access to external financing is not a function of the relative development of stock markets to banks. What does seem to matter is the overall level of financial development. Demirguc-Kunt and Levine (2001) and Levine (2002) find that as countries become richer, both markets and banks become larger, more active and more efficient.

Furthermore, several studies have emphasized the complementary nature of banks and stock markets where stock market development increases the use of bank finance in developing countries (Demirguc-Kunt and Maksimovic, 1996). Sylla (1998) makes a strong case for the complementarity between banks and capital markets in fostering the growth of the US economy

³⁰ Tadesse (2002), however, argues that while market-based systems outperform bank-based systems among countries with developed financial sectors, bank-based systems are better among countries with underdeveloped financial sectors.

from 1790 to 1840. See Allen and Gale (2000), Holmstrom and Tirole (1997) and Song and Thakor (2010) for theoretical contributions on the complementarity and co-evolution of banks and markets.

However, this is not to say that financial structure is not important. Instead, the studies seem to suggest that since countries differ in their underlying institutions and follow different paths of development, there is great variation in the financial structure and not one optimal institutional structure fits all types of firms and economies. Lin (2010) outlines a New Structural Economics approach wherein there is an endogenously determined optimal financial structure at each stage of an economy's development. Demirguc-Kunt, Feyen, and Levine (2011) revisit the bank versus markets debate using data on 72 countries from 1980 to 2008 to explore whether deviations from an optimal financial structure is associated with development. They conclude that different financial structures may be better at promoting economic activity at different stages of a country's economic development. Allen et al. (2011) provide a comprehensive historical review of financial structures in the US, UK, Germany and Japan and how they contributed to their development process. The experiences of these four countries which all had different but sophisticated financial systems suggest that a variety of financial structure can lead to higher growth.

Moreover, financial structure also affects different firms differently. Demirguc-Kunt and Maksimovic (2002) suggest that at lower levels of financial development, firms' ability to obtain financing is affected in different ways by the two systems. A larger securities market is associated with better access of firms to long-term financing while banking development is more associated with availability of short-term financing. Morck, Yavuz, and Yeung (2010) find that in countries where banking systems are controlled by wealthy tycoons or families, there is less efficient capital allocation, more non-performing loans, more frequent banking crises, and slower income and productivity growth rates. Thus financial structure may have important implications for which firms and projects have access to finance.

There is also a literature suggesting a link between financial structure and growth of certain types of industries. For instance, concentrated banks tend to be associated with more mature, less risky firms whereas equity markets or fragmented banking systems are associated

with new, high risk (high technology) firms (e.g. Allen and Gale, 2000; Boyd and Smith, 1998; Dewatripont and Maskin, 1995; Carlin and Mayer, 2003). Cetorelli and Gambera (2001) show that bank concentration promotes the growth of those industrial sectors that are more in need of external finance by facilitating credit access to younger firms.³¹ However, they also find evidence of a general depressing effect on growth associated with a concentrated banking industry, which impacts all sectors and all firms indiscriminately.

7. Formal and Informal Systems

The financial intermediation literature has largely focused on the role of formal financial intermediaries such as commercial banks. More recent literature has begun to recognize the critical role played by informal financial systems in facilitating access to credit, especially in developing economies.³² Informal finance takes the form of loans from moneylenders, landlords, and family who base the financial transaction on business/personal relationships as well as loans from institutions such as credit cooperatives and savings and credit associations in certain countries that provide financial intermediation between savers and borrowers but do not rely on the state to enforce contractual legal obligations.

The dominant view is that informal financial institutions play a complementary role to the formal financial system by servicing the lower end of the market. Informal financial institutions rely on relationships and reputation and can more efficiently monitor and enforce repayment from a certain class of firms than can commercial banks and other formal financial institutions (the peer monitoring view as in Arnott and Stiglitz, 1991). According to this view however, informal financial systems cannot substitute for formal financial systems because their monitoring and enforcement mechanisms are ill-equipped to scale up and meet the needs of the higher end of the market.

³¹ We do not focus on the large literature on bank concentration and competition and the effect on bank performance and access to finance in this review. See Berger, Demirguc-Kunt, Levine, and Haubrich (2004), Degryse and Ongena (2008) and the cites therein for a review of that literature.

³² A parallel literature has focused on the role of informal networks or relationships in affecting access to credit. Petersen and Rajan (1994) and Berger and Udell (1995) focus on the information in firm-creditor relationships in controlling access to bank loans while Hellman, Lindsey, and Puri (2008) explore the impact of private information in bank venture capital relationships on bank lending decisions. Garmaise and Moskowitz (2003) show that banks and brokers in the commercial real estate market develop informal networks that have a significant effect on availability of finance to the brokers' clients.

The first step in analyzing the prevalence and effectiveness of informal financial systems is to define what we mean by informal finance. There are several related definitions in the literature on informal finance. From the financial intermediation literature (e.g. Diamond, 1984; Berger and Udell, 1998) the formal financial system consists of legal financial intermediaries functioning as delegated monitors whereas the informal financial system consists of non-intermediated financing from individuals. The economics literature (e.g. Kandori, 1992; Udry, 1994; Straub, 2005) characterizes informal finance by the use of self-enforcing contracts and social sanctions including coercion and violence to ensure repayment rather than formal legal enforcement mechanisms.³³ Ayyagari, Demirguc-Kunt, and Maksimovic (2010a) define the informal financial system as consisting of individual lenders or non-delegated monitors such as moneylenders, and institutions that may operate without state charter (as in the case of countries like China). They recognize that the distinction between formal and informal financing channels manifests in the type of enforcement mechanisms used. Thus, formal financial intermediaries such as banks typically lend conditional on collateral and rely on formal institutions such as courts or government channels to enforce repayment of loan contracts. Individual money lenders and the informal delegated lenders rarely require collateral and do not use the courts or the government, and relying instead on informal channels. Besley (1995) and the citations there in provide a survey of the different informal financial institutions in developing countries.

While the above work shows the existence of informal networks alongside formal systems, Allen, Qian, and Qian (2005) go further and suggest that China may be an important counter-example to the law and finance literature's focus on formal systems, since the fastest growing Chinese firms rely on alternative financing channels rather than formal external finance. They argue that private sector firms in China, despite facing weaker legal protections and poorer access to finance than firms in the state and listed sectors, are the fastest growing due to their reliance on alternative financing and governance mechanisms.

However there are several limitations to their story. First, they take as given institutional obstacles to formal financial development. Therefore, even if informal finance works in these environments, it is just a second-best solution. Second, due to data limitations, the results in

³³ This definition is consistent with the extensive theoretical literature in corporate finance on optimal financial structures where investors can observe the firm's cash flows but cannot enforce legal rights to these cash flows (e.g. Hart and Moore, 1995 and Bolton and Scharfstein, 1996).

Allen et al. (2005) are based largely on anecdotal evidence and on the analysis of the 17 largest, and perhaps unrepresentative, firms in the two most developed regions in the country. Finally, their definition of informal financing channels includes retained earnings, informal financing, equity issuance and all other sources of funds except bank loans, state funding and foreign investment.

Ayyagari, Demirguc-Kunt, and Maksimovic (2010a) use data on 2400 firms (including 1720 non-publicly traded and non-state companies) from China and confirm the wide use of financing channels other than bank finance. They find that only 20% of firm financing in their sample is sourced from banks, which is comparable to the use of bank financing in other developing countries, such as India, Indonesia, Brazil, Bangladesh, Nigeria, and Russia (see Table 8 below). However, they also find China has the smallest ratio of Internal Financing/Retained Earnings (only 15.24%) compared to all the other emerging markets. Further, while the use of funds from Family and Friends and Informal lending sources such as money lender or informal banks seems to be comparable with its use in other countries, China also has the highest average amount of Other Financing (42.70%) compared to the other developing countries.

When they look at the association between financing patterns and growth, they find that it is the formal financing channel, specifically bank finance that is positively associated with higher growth and reinvestment. They find no evidence that alternative financing channels such as informal sources have a positive impact on growth and reinvestment or that they substitute for the formal sector.

Their results are consistent with other studies emphasizing the role of institutions and formal finance in China. Cull and Xu (2005) find that profit reinvestment rates are affected by enterprise managers' perceptions about the security of property rights, the risk of expropriation by government officials, the efficiency and reliability of courts, and access to credit. In a more recent paper, Cull, Xu, and Zhu (2009) find that despite a biased and inefficient banking system, trade credit does not play an economically significant role in China. Cheng and Degryse (2006) explore the impact of the development of bank versus non-bank financial institutions on the growth rate of Chinese provinces over the period 1995-2003 and conclude that only bank loans

have a significant impact on local economic growth. Fan, Morck, Xu, and Yeung (2009) find that inward FDI within China flows disproportionately into provinces with less corrupt governments and governments that better protect private property rights.

Overall, the evidence suggests that while informal financing is very prevalent in China, it still offers a second-best solution since there is no evidence that informal financing is associated with higher growth or productivity of firms.

8. Conclusion

The last decade has seen an explosion of international finance research highlighting the issues firms in developing countries face in accessing external finance. Any review of this large body of work is bound to be subjective, reflecting the interests of the authors. Further, given the space constraints, this already long review provides only a cursory treatment of some important issues. Considering these caveats, here is what we have learned from the evidence on access to finance in developing countries:

- At the macro level, a large literature has established the importance of financial development for long-term economic growth. While some studies have suggested that entrepreneurship and innovation are the channels through which financial development affects growth, more work is required at the micro level to understand the different mechanisms through which access to external finance helps firms.
- While firms in developing countries complain about a number of business environment factors affecting their growth and operations, access to finance emerges as one of the most binding obstacles to firm growth. Small firms are more constrained than large firms in access to external finance, and are also the most likely to benefit from improvements in institutions and financial development.
- There is undisputable evidence that access to finance is a function of the underlying institutions such as good property rights protection, strong shareholder and creditor rights, stringent accounting standards, availability of high quality information, and less government interference in the form of corruption and political interference.

- When we examine firm financing patterns, bank finance is the most common type of external finance for firms of all sizes in developing countries.
- Global issuance activity has seen a sharp increase over the past decade suggesting that large companies in developing countries are able to leapfrog their domestic institutions and raise capital on global equity and debt markets.
- Private equity and venture capital transactions play a limited role in developing countries although they show an upward trend.
- While both banks and markets matter for development, new evidence suggests that different financial structures may be better at promoting economic activity at different stages of a country's economic development. However, more research is needed at the firm and industry level to understand how different institutions, regulations and taxes affect the impact of financial structure mix on access to finance.
- Informal financial systems play an important role in providing access to finance for a segment of firm population that are disadvantaged in formal credit markets. However at the margin, informal financial systems are still a second best solution to formal bank finance in influencing firm growth.
- From the various econometric techniques used in the literature, it is clear that the empirical research in corporate finance in developing countries faces several issues that are in some ways more severe than research on finance in developed countries, stemming from the questions being asked and data challenges. Considerable progress has been made in addressing causality issues, especially with policy relevant questions, by using natural experiments and randomized control trials. However practical considerations and data challenges imply the use of cross-country regressions in conjunction with quasi-experimental techniques and randomized experiments to address important policy-relevant issues.

Overall, access to finance in developing countries remains an active area of interest for researchers, both in the questions remaining unanswered and the econometric techniques that can

used to address causality issues satisfactorily. There is also a need for detailed panel data on firms of different sizes and legal organization forms in different economic environments to understand better the drivers of access to finance and the channels through which it impacts growth.

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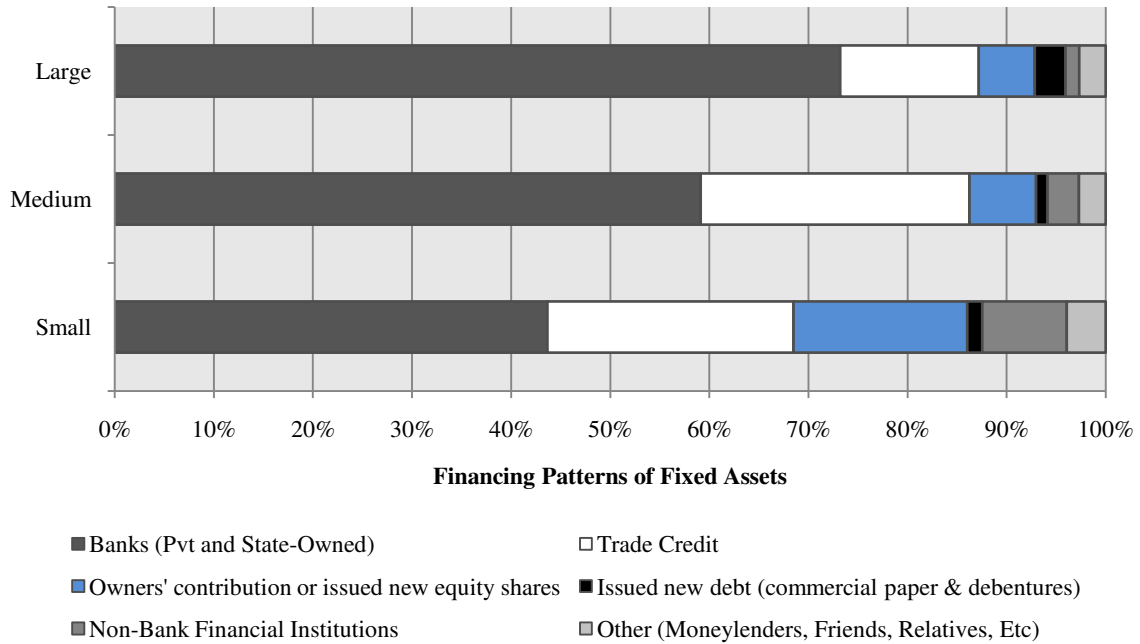
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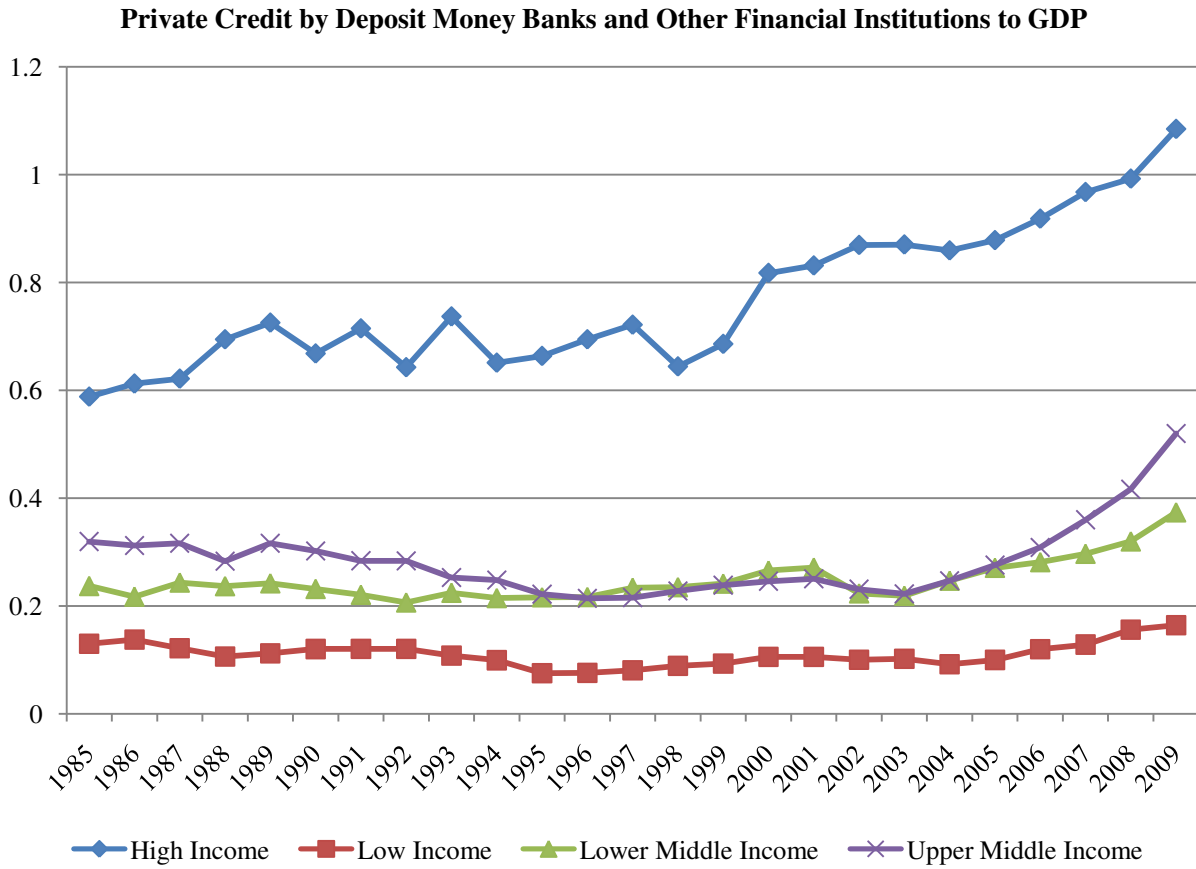
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Figure 1: External Financing Patterns of Fixed Asset Investment



This figure presents data from the Enterprise Surveys conducted by the World Bank over 2006-2010 in 99 countries. Firms in the survey were asked to report the proportion of fixed assets that was financed from internal funds/retained earnings, Owner' contribution or issued new equity shares, New debt issuances including commercial paper and debentures, Bank borrowing (both private and state-owned), Borrowing from non-bank financial institutions, Purchases on credit from suppliers and advances from customers, and Other (including moneylenders, friends, relatives, etc)

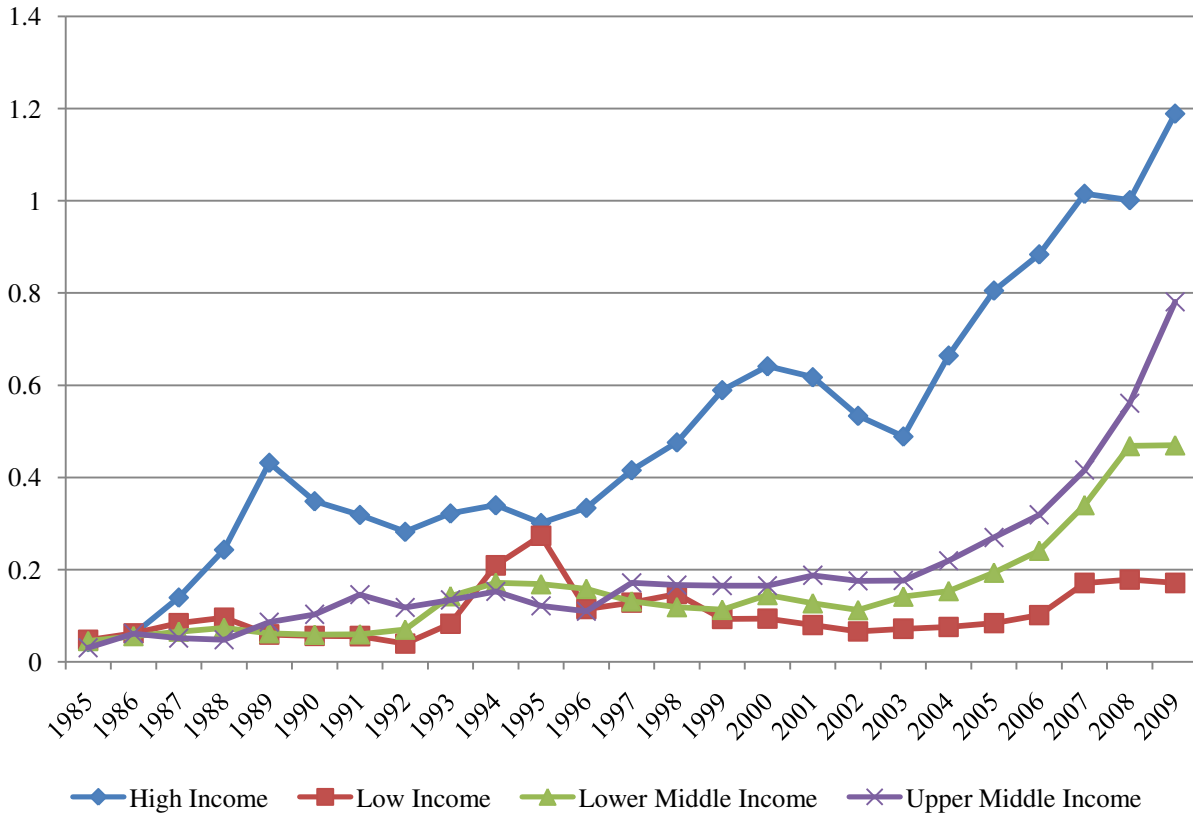
Figure 2: Development of Banking Systems



This figure presents the median value of Private Credit by Deposit Money Banks and Other Financial Institutions to GDP in each income group from 1985-2009. Source: Financial Structure Database (Beck and Demirguc-Kunt, 2009)

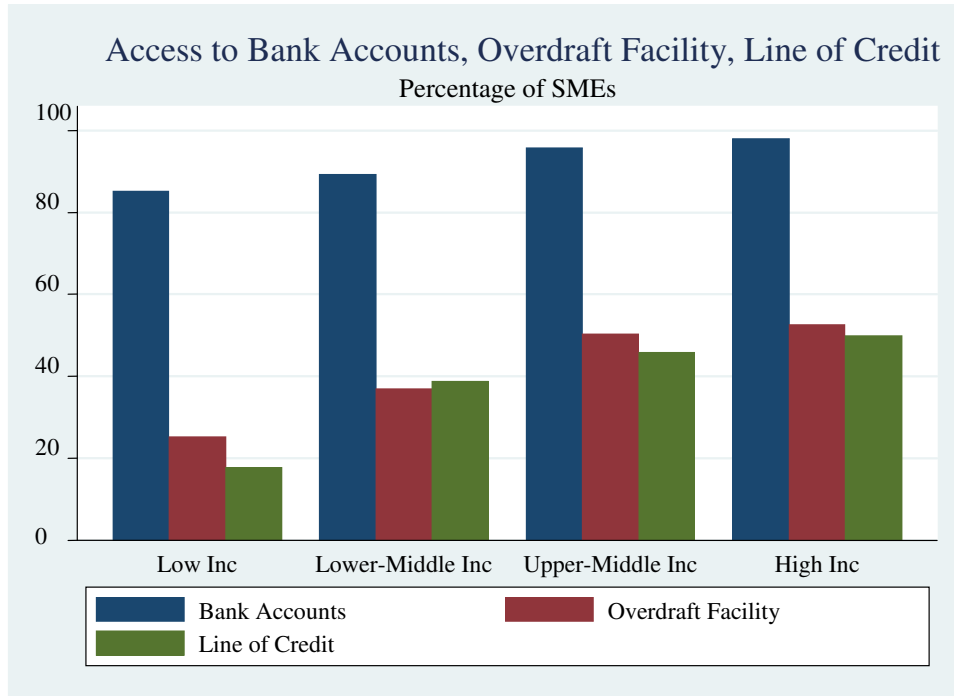
Figure 3: Stock Market Development

Stock Market Capitalization to GDP



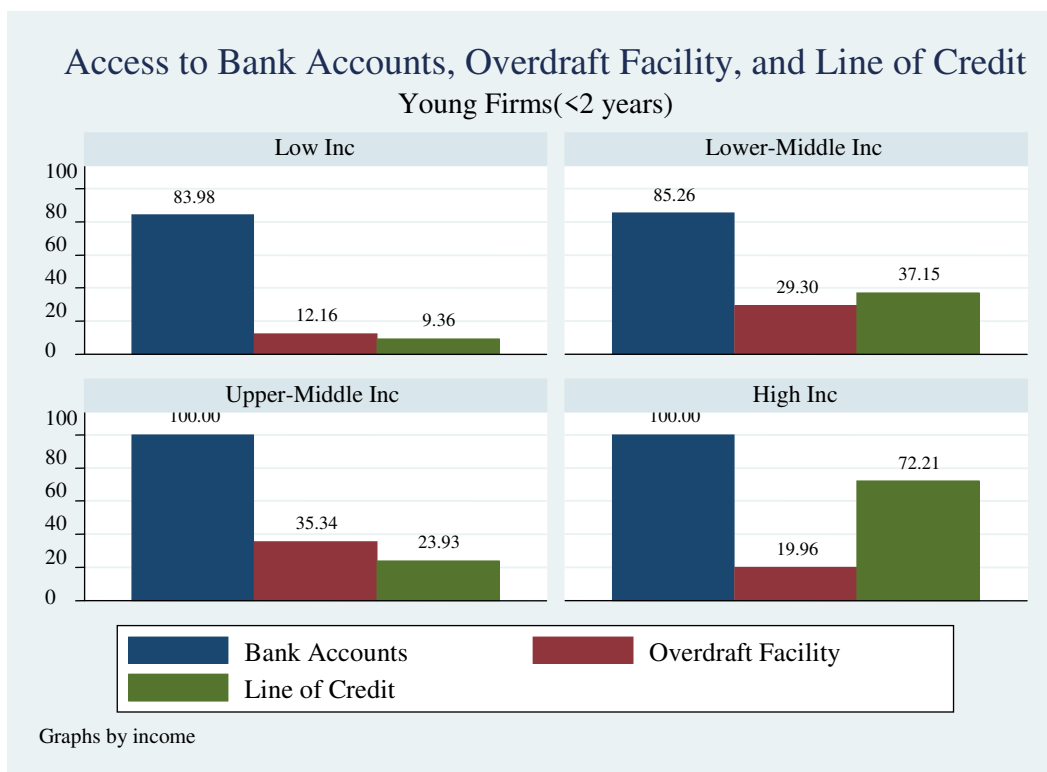
This figure presents the median value of Stock Market Capitalization to GDP in each income group from 1985-2009. Source: Financial Structure Database (Beck and Demirguc-Kunt, 2009)

Figure 4: SME Access to Bank Accounts, Overdraft Facility, Line of Credit



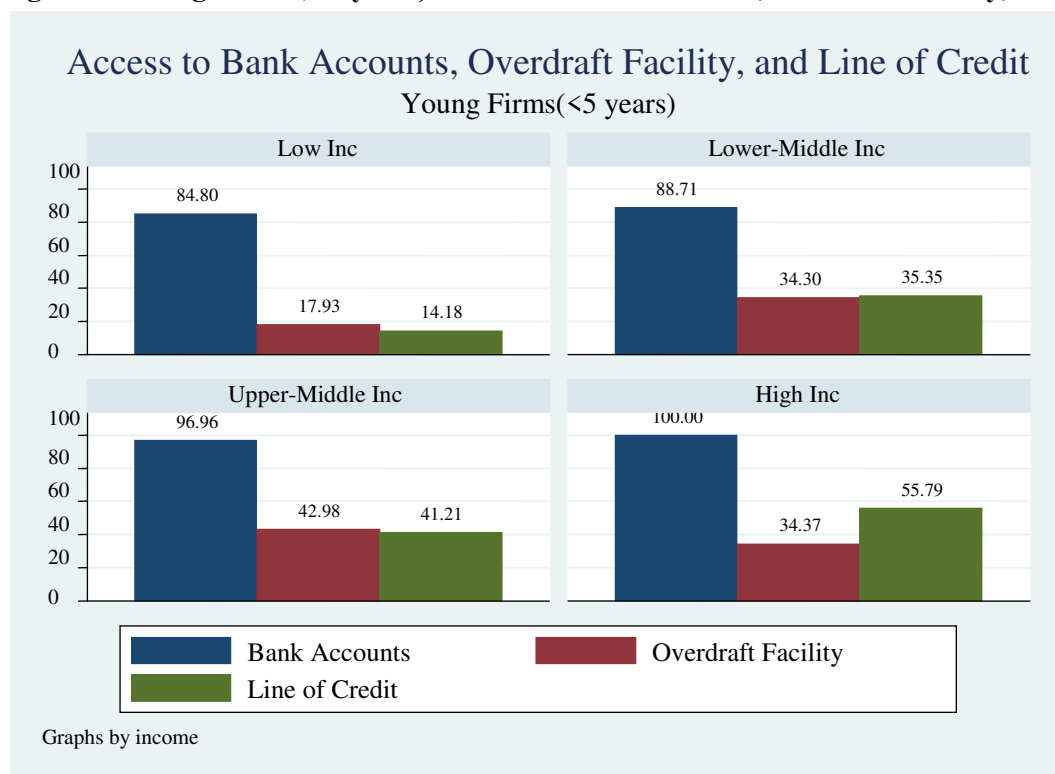
The figure presents the percentage of SMEs (defined as <100 employees) in each income group that have access to bank accounts, overdraft facility, and line of credit. The data is sourced from the Enterprise Surveys conducted by the World Bank over 2006-2010 in 99 countries. The establishments in the survey responded to questions on whether the establishment has a checking and/or savings account, whether the establishment has an overdraft facility and whether the establishment has a line of credit or loan from a financial institution.

Figure 5: Young Firms (<2 years)' Access to Bank Accounts, Overdraft Facility, Line of Credit



The figure presents the percentage of young firms (<2 years) in each income group that have access to bank accounts, overdraft facility, and line of credit. The data is sourced from the Enterprise Surveys conducted by the World Bank over 2006-2010 in 99 countries. The establishments in the survey responded to questions on whether the establishment has a checking and/or savings account, whether the establishment has an overdraft facility and whether the establishment has a line of credit or loan from a financial institution.

Figure 6: Young Firms (< 5 years)' Access to Bank Accounts, Overdraft Facility, Line of Credit



The figure presents the percentage of young firms (<5 years) in each income group that have access to bank accounts, overdraft facility, and line of credit. The data is sourced from the Enterprise Surveys conducted by the World Bank over 2006-2010 in 99 countries. The establishments in the survey responded to questions on whether the establishment has a checking and/or savings account, whether the establishment has an overdraft facility and whether the establishment has a line of credit or loan from a financial institution.

Table 1: Concentrated Ownership around the World

Country	Widely held	Family	State	Other (Includes Widely-held Financial, Widely-held Corporation, Miscellaneous)	Pyramidal Ownership
Countries with High Anti-Director Rights					
Argentina	0.00	0.65	0.15	0.20	0.05
Australia	0.65	0.05	0.05	0.25	0.14
Canada	0.60	0.25	0.00	0.15	0.13
Hong Kong SAR, China	0.10	0.70	0.05	0.15	0.39
Ireland	0.65	0.10	0.00	0.25	0.00
Japan	0.90	0.05	0.05	0.00	0.00
New Zealand	0.30	0.25	0.25	0.20	0.36
Norway	0.25	0.25	0.35	0.15	0.13
Singapore	0.15	0.30	0.45	0.10	0.41
Spain	0.35	0.15	0.30	0.20	0.38
U.K.	1.00	0.00	0.00	0.00	.
U.S.	0.80	0.20	0.00	0.00	0.00
<i>Mean</i>	<i>0.48</i>	<i>0.25</i>	<i>0.14</i>	<i>0.14</i>	<i>0.18</i>
Countries with Low Anti-Director Rights					
Austria	0.05	0.15	0.70	0.10	0.47
Belgium	0.05	0.50	0.05	0.40	0.79
Denmark	0.40	0.35	0.15	0.10	0.08
Finland	0.35	0.10	0.35	0.20	0.00
France	0.60	0.20	0.15	0.05	0.38
Germany	0.50	0.10	0.25	0.15	0.40
Greece	0.10	0.50	0.30	0.10	0.11
Israel	0.05	0.50	0.40	0.05	0.53
Italy	0.20	0.15	0.40	0.25	0.25
South Korea	0.55	0.20	0.15	0.10	0.33
Mexico	0.00	1.00	0.00	0.00	0.25
Netherlands	0.30	0.20	0.05	0.45	0.14
Portugal	0.10	0.45	0.25	0.20	0.44
Sweden	0.25	0.45	0.10	0.20	0.53
Switzerland	0.60	0.30	0.00	0.10	0.00
<i>Mean</i>	<i>0.27</i>	<i>0.34</i>	<i>0.22</i>	<i>0.16</i>	<i>0.31</i>

Source: [La Porta, Lopez-de-Silanes, and Shleifer \(1999, Table II and IV\)](#)

This table classifies countries according to their ranking in anti-director rights into high (above median) and low anti-director rights (below median). The table presents data on the control and ownership of the 20 largest firms by stock market capitalization at the end of 1995 using 20% voting rights as the criterion for control. Anti-director rights is an index of shareholder rights ranging from 0 to 6 from La Porta et al. (1998). Widely-held is a dummy that takes value 1 if there is no controlling shareholder and zero otherwise. Family and State are dummy variables that equal 1 if the controlling shareholder is a person (individual or family) or a State (domestic or foreign) respectively and zero otherwise. The other category takes the value 1 if the controlling shareholder is a widely held financial company or a widely held non-financial company or other miscellaneous organizations such as pension funds, mutual funds, voting trusts, management trusts, groups, subsidiaries, nonprofit organizations, and employees and zero otherwise. Pyramidal ownership equals one if the controlling shareholder exercises control through at least one publicly traded company, and zero otherwise.

Table 2: Financial Development and Long-term Economic Growth

	Dependent Variable:								
	Real per capita GDP growth			Real per capita capital growth			Productivity growth		
DEPTH	2.4**			2.2**			1.8**		
	(0.007)			(0.006)			(0.026)		
BANK		3.2**			2.2**			2.6**	
		(0.005)			(0.008)			(0.010)	
PRIVY			3.2**			2.5**			2.5*
			(0.002)			(0.007)			(0.006)
R-square	0.5	0.5	0.52	0.65	0.62	0.64	0.42	0.43	0.44

Source: [King and Levine \(1993, Table VII\)](#)

*, **, and *** indicate significance at 10%, 5%, and 1% level respectively. Other regressors in each of the regressions: Logarithm of initial income, logarithm of initial secondary school enrollment, ratio of government consumption expenditures to GDP, inflation rate, and ratio of exports plus imports to GDP. All the dependent and independent variables are averaged over the period 1960-1989.

Table 3: Legal Origin, Laws, and Enforcement

	Rule of Law and Enforcement					
	Efficiency of Judiciary System	Rule of Law	Corruption	Risk of Expropriation	Repudiation of Contracts by Government	Accounting Standards
English-origin average	8.15	6.46	7.06	7.91	7.41	69.62
French-origin average	6.56	6.05	5.84	7.46	6.84	51.17
German-origin average	8.54	8.68	8.03	9.45	9.47	62.62
Scandinavian-origin average	10	10	10	9.66	9.44	74
<i>Test of Means</i>						
English vs. French origin	2.65*	0.51	1.79***	0.9	1.06	4.66*
French vs. German origin	-2.53*	-2.55*	-2.49*	-3.20*	-3.90*	-2.10**
French vs. Scandinavian origin	-9.34*	-20.80*	-9.77*	-2.94*	-3.17*	-3.32*

Source: [La Porta, Lopez-de-Silanes, Shleifer, and Vishny \(1998, Table 5\)](#)

***, **, and * represent significance at 1%, 5%, and 10% level respectively. The table represents country average scores across each legal origin for each of the measures of legal institutions and accounting standards. French, German, and Scandinavian Legal origins take the value one when the country belongs to that particular legal tradition and 0 otherwise. The omitted reference category is the English common law tradition. Efficiency of the judiciary is scaled from 0 to 10 and represents investors' assessments of the efficiency and integrity of the legal environment as it affects business and is produced by the agency Business International Corp. Rule of law is scaled from 0 to 10 and is an assessment of the law and order tradition in the country produced by the agency International Country Risk (ICR). Corruption is scaled from 0 to 10 and is an assessment of the corruption in government also from ICR. Risk of expropriation is scaled from 0 to 10 and is an assessment of the risk of outright confiscation or forced nationalization, also from ICR. Repudiation of contracts by government is ICR's assessment of the risk of a modification in a contract taking the form of a repudiation, postponement or scaling down due to budget cut backs, indigenization pressure, government change or change in economic and social priorities. Accounting standards is an index created by examining and rating companies' 1990 annual reports on inclusion or omission of 90 key items from accounting statements.

Table 4: Institutional Determinants of Property Rights Protection

Dependent Variable: Firms' Perception of Property Rights

	Full Sample	Sample without former Socialist economies
<i>Contribution to adjusted R-square</i>		
Legal Origin dummies	3.89	2.16
Religion dummies	1.15	0.92
Ethnic Fractionalization	1.95	4.57
Latitude	2.24	2.16
All institutional theories together	8.88	8.41

Source: [Ayyagari, Demirguc-Kunt, and Maksimovic \(2005, Tables 5 and 7\)](#)

This table presents the contribution of each institutional theory to the adjusted R-square of a regression model of Property Rights regressed on each of the institutional theories entered one at a time. Legal Origin takes the value one for Common law, two for French civil law, three for German civil law, four for Scandinavian law, and five for Socialist law countries. Religion takes one of four different values depending on whether the dominant religious group in the country is Catholic, Protestant, Muslim, or Other. Ethnic Fractionalization is the probability that two randomly selected individuals in a country are not from the same ethnic group. Latitude is the absolute value of the latitude of the country scaled between zero and one. The Ethnic Fractionalization and Latitude variables are rescaled on a five-point scale.

Table 5: Impact of Obstacles on Firm Growth

	Dependent Variable: Firm growth over the past three years			
	1	2	3	4
Financing Obstacle	-0.031*** (0.009)			-0.023*** (0.009)
Legal Obstacle		-0.029*** (0.009)		-0.023*** (0.011)
Corruption			-0.021*** (0.009)	-0.007 (0.011)
Number of firms	4204	3968	3991	3800
Number of countries	54	54	54	54
R-square within	0.01	0.01	0.01	0.02
R-square between	0.28	0.27	0.25	0.26
R-square overall	0.02	0.03	0.02	0.02

Source: [Beck, Demircuc-Kunt, and Maksimovic \(2005, Table IV\)](#)

*, **, and *** represent significance at 10%, 5%, and 1% levels respectively.

Other regressors: Dummy for government ownership, Dummy for foreign ownership, Exporter dummy, Dummy that indicates if the firm receives subsidies from national or local authorities, Number of competitors, Industry dummies, Log GDP, Growth rate of GDP/capita, GDP/Capita, Inflation

Table 6: Controlling Blockholder's Voting Rights and Probability of Cross-Listing

Dependent Variable: Probability that a firm has a level 2 or level 3 ADR			
	Control Rights	Family/Management Control rights	Control-Cash flow rights
	-0.0078	-0.0082	-0.0209
	-(2.73)***	-(2.49)**	(-3.04)***
N	4062	4272	4062
Pseudo R-2	0.4834	0.4711	0.4862

Source: [Doidge, Karolyi, Lins, Miller, and Stulz \(2009, Table III\)](#)

***, **, and * indicate significance at the 1%, 5%, and 10% level respectively.

Time period: Ownership data is from 1995 to 1996. The dependent variable and all the other firm characteristics are measured as of the end of 1997.

Other regressors: Existence of an additional blockholder with at least 10% voting rights, Sales growth over the last two years, Global industry Q of the industry the firm belongs to, Firm leverage, Firm size (Log assets), Firm profitability (ROA), Firm's international orientation as measured by Foreign sales, an indicator for whether the firm's largest shareholder is the Government, Financial Flexibility index, Log GNP/capita, Economic proximity, and dummy for Civil law origin.

Table 8: Young Firms' Access to Finance

Nation	% of young firms (<2 years) that have			% of young firms (<5 years) that have		
	Bank Accounts	Overdrafts	Line of Credit	Bank Accounts	Overdrafts	Line of Credit
Afghanistan	100.00	35.71	0.00	100.00	35.78	2.29
Albania	89.43	79.32	14.13	87.53	78.93	22.05
Angola	63.08	3.39	3.30	71.78	2.72	3.21
Argentina	100.00	54.45	35.19	99.77	60.32	41.21
Armenia	75.00	44.14	42.52	88.95	32.88	37.30
Azerbaijan	100.00	0.00	11.90	74.85	13.58	28.48
Belarus	74.90	36.00	75.82	90.21	59.38	44.27
Benin	89.10	43.60	44.60	94.04	50.57	44.95
Bhutan	100.00	39.52	60.44	92.47	34.35	54.06
Bolivia	34.39	5.62	71.44	79.38	37.30	57.99
Bosnia and Herzegovina	100.00	0.00	0.00	100.00	62.30	60.18
Botswana	100.00	12.67	23.19	95.78	22.01	25.35
Brazil	100.00	22.80	22.80	99.86	92.23	81.10
Bulgaria	100.00	5.18	66.26	93.62	5.36	39.94
Burkina Faso	82.82	32.14	34.91	91.22	43.90	31.26
Burundi	83.32	8.49	8.49	88.89	24.60	25.93
Cameroon	100.00	45.24	39.80	94.36	59.08	18.74
Cape Verde	97.02	30.96	63.07	93.48	20.25	35.02
Chad	96.74	84.76	7.26	98.93	93.66	17.01
Chile	53.06	52.48	52.48	62.27	59.58	51.77
Colombia	98.81	79.61	61.14	99.45	60.00	48.85
Congo	83.31	8.42	0.00	75.99	54.21	0.00
Congo, Dem. Rep.	48.44	1.48	10.92	48.81	3.53	4.36
Croatia	100.00	0.00	97.58	100.00	33.96	88.70
Czech Republic	100.00	14.15	0.00	100.00	67.07	67.59
Ecuador	77.63	81.86	55.63	96.12	86.56	43.12
El Salvador	96.87	94.36	68.17	89.76	65.80	53.50
Eritrea				100.00	12.38	6.19
Estonia	100.00	0.00	100.00	100.00	43.49	58.21
Fiji	100.00	35.34	59.67	96.96	26.18	32.27
FYR Macedonia	100.00	0.00	0.00	100.00	19.78	54.52
Gabon	39.04	8.81	0.00	62.83	8.94	3.90
Gambia	65.53	11.34	3.87	69.60	22.02	8.38
Georgia	97.56	4.09	63.28	92.99	39.55	54.15
Ghana	79.16	12.97	13.90	71.25	12.83	14.18
Guatemala	86.17	37.13	11.05	89.78	42.30	21.79
Guinea	31.25	0.00	5.38	46.09	3.27	2.36
Guinea Bissau	84.64	0.00	10.24	59.18	0.00	3.12
Honduras	83.62	27.63	27.63	87.21	64.05	64.42
Hungary	100.00	25.78	46.83	100.00	33.20	36.12
Indonesia	55.79	0.12	2.36	46.38	6.63	15.88
Ivory Coast	68.00	20.98	15.83	67.69	11.62	9.06
Kazakhstan	47.57	4.47	4.47	84.55	15.82	25.89
Kosovo	100.00	100.00	9.88	73.67	81.78	61.71
Kyrgyz Republic	100.00	0.00	0.00	72.25	39.04	37.67
Lao PDR	100.00	40.89	40.89	95.97	8.48	14.65
Latvia	100.00	37.16	100.00	100.00	16.29	34.05
Lesotho	62.91	55.99	35.16	88.72	51.99	34.24

	% of young firms (<2 years) that have			% of young firms (<5 years) that have		
Nation	Bank Accounts	Overdrafts	Line of Credit	Bank Accounts	Overdrafts	Line of Credit
Liberia	51.14	0.00	0.00	64.98	1.15	10.41
Lithuania	100.00	0.00	10.65	98.15	12.29	49.17
Madagascar	100.00	10.88	4.21	96.59	19.17	14.76
Malawi	100.00	88.01	100.00	100.00	37.66	53.60
Mauritania	81.20	24.04	11.76	83.80	16.70	14.18
Mauritius	100.00	36.27	52.45	98.52	42.72	47.13
Mexico	68.64	24.21	1.49	53.46	26.00	4.31
Micronesia	100.00	0.00	50.00	100.00	0.00	43.29
Moldova	94.05	69.81	67.14	90.45	24.31	35.69
Mongolia	0.00	0.00	13.32	59.53	26.31	43.18
Montenegro	100.00	100.00	100.00	100.00	35.93	69.21
Mozambique	77.41	14.96	28.43	71.77	12.73	16.49
Namibia	100.00	53.07	33.57	97.30	49.58	31.44
Nepal	67.42	6.14	35.92	68.02	16.52	39.49
Nicaragua	95.18	90.37	83.89	85.74	50.16	13.94
Niger	100.00	23.93	6.85	92.83	31.98	14.15
Panama	100.00	63.32	47.68	98.97	57.21	45.73
Paraguay	60.45	32.30	31.07	84.21	50.85	46.49
Peru	98.97	10.85	89.78	99.36	65.83	83.91
Philippines	87.47	75.73	16.51	95.12	35.88	27.08
Poland	75.59	0.00	0.00	94.73	25.46	29.42
Romania	20.58	84.97	20.58	44.46	47.92	38.88
Russia	79.56	32.46	1.79	97.84	29.74	26.07
Rwanda	81.41	31.01	23.58	84.45	31.24	35.61
Samoa	80.00	40.00	60.00	88.69	56.55	66.07
Senegal	84.36	11.56	13.73	84.69	9.68	13.80
Serbia	100.00	77.14	0.00	100.00	68.72	66.44
Sierra Leone				59.27	38.53	7.94
Slovak Republic	48.83	48.83	1.40	11.69	34.78	53.36
Slovenia	100.00	100.00	100.00	100.00	71.67	63.28
South Africa	91.92	32.26	23.93	95.63	39.56	22.98
Swaziland	99.01	16.72	18.71	99.56	18.65	18.18
Tajikistan	88.28	10.96	29.84	80.71	12.06	33.97
Tanzania	94.72	4.94	6.58	86.93	4.66	13.38
Timor Leste	76.50	2.53	0.00	83.58	13.90	3.88
Togo	92.25	41.87	7.75	90.20	52.29	13.40
Tonga	100.00	44.57	67.45	100.00	32.34	59.67
Turkey	93.47	64.82	44.22	90.34	74.64	43.05
Uganda	82.57	5.93	1.54	85.15	10.42	13.37
Ukraine	67.56	27.45	14.25	77.41	34.24	17.91
Uruguay	84.91	35.34	39.19	68.87	42.98	31.46
Uzbekistan	100.00	0.00	42.95	98.49	0.00	14.31
Vanuatu	100.00	52.70	53.18	100.00	44.51	54.25
Venezuela						
Vietnam	93.18	0.86	39.15	88.50	8.14	38.40
Yemen	12.30	7.30	7.30	48.10	27.33	1.55

Table 9: Financing Patterns in Emerging Markets

	Number of firms	Retained Earnings	Local Commercial Banks	Foreign Owned Commercial Banks	Operations Finance	Investment Funds	Loans from Family and Friends	Equity	Informal Sources	Other
Bangladesh	892	59.92	28.41	1.22	4.55	0.26	4.27	0.38	0.35	0.64
Brazil	1351	56.32	13.09	1.21	12.12	8.45	1.21	4.29	1.04	2.27
China	1342	15.24	20.24	0.12	1.03	0.55	5.89	12.39	1.84	42.7
India	92	43.84	30.73	2.75	0.43	9.52	3.56	4.33	0.75	4.09
Indonesia	291	41.89	13.21	3.13	5.49	1.67	17.73	1.34	6.74	8.8
Nigeria	145	63.94	29.76	0	1.07	1.55	0.74	2.59	0.34	0
Russian Federation	701	82.47	5.57	0.36	5.87	0.73	1.74	0.36	1.02	1.87

Source: [Ayyagari, Demirguc-Kunt, and Maksimovic \(2010, Table 1\)](#)

Retained Earnings, Local Commercial Banks, Foreign Owned Commercial Banks, Equity, Operations Finance, Investment Funds, Loans from Family and Friends, Informal Sources (e.g. moneylender) and Other are financing proportions that stand for the proportion of new investments financed by each of these sources. Operations Finance consists of financing from leasing, trade credit and credit cards. Investment Funds includes funds from investment funds, development bank and other state services. All variables are drawn from the World Bank Enterprise Surveys.