

**A New Lease on Life:
Institutions, External Financing, and Growth**

Gregory W. Brown*

Kenan-Flagler Business School
The University of North Carolina at Chapel Hill
CB 3490, McColl Building
Chapel Hill, NC 27599-3490
Phone: (919) 962-9250
Fax: (919) 962-2068
E-mail: gregwbrown@unc.edu

Larry W. Chavis

Kenan-Flagler Business School
University of North Carolina at Chapel Hill
CB 3490, McColl Building
Chapel Hill, NC 27599-3490
Phone: (919) 962-8215
Fax: (919) 962-7186
E-mail: larry_chavis@unc.edu

Leora F. Klapper

Development Research Group
The World Bank
1818 H St., NW
Washington, DC 20433
Phone: (202) 473-8738
Email: LKlapper@Worldbank.org

July, 2010

* Corresponding author. We thank Thorsten Beck, Brahim Coulibaly, Asli Demirgüç-Kunt, Mary Hallward-Driemer, and Inessa Love, as well as seminar participants at the 2008 Meetings of the American Finance Association, the World Bank, and the University of North Carolina for valuable comments. The opinions expressed do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

**A New Lease on Life:
Institutions, External Financing, and Growth**

Abstract

This research utilizes data from the World Bank Investment Climate Survey to examine the use of external capital for almost 70,000 small and medium-sized firms in 103 developing and developed countries. Contrary to conventional wisdom, we find that most small firms in even the poorest countries have access to some type of external financing, however, the sources differ systematically by institutional and firm characteristics. For example, firms in poorer countries, with generally weaker institutions, use far less leasing for new investment and instead rely more on informal sources of capital such as money lenders and credit cards. We confirm that access to external capital is related to faster growth. Surprisingly, leasing is the only source of external finance related to growth in GDP and the manufacturing sector.

1 Introduction

Perhaps the most fundamental issue in financial economics is how firms obtain capital to fund operations and investment. It is almost an article of faith that well-functioning capital markets provide a means for more rapid business development. For better or worse, this has resulted in financial development policies that target the liberalization of capital markets and other financial institutions. Although in recent decades, small and mid-sized enterprises (SMEs) have been shown to be the primary engines of economic growth (Acs and Audrestsch, 1988, 1990, 2001), few large scale studies of SMEs actually document the role that external capital plays in the overall financing and growth of these businesses.

This study attempts to fill a gap in the literature by examining data collected as part of the World Bank Investment Climate Survey of about 70,000 SMEs in 103 developing and developed countries. We ask the following questions: What factors, specifically institutional factors, affect the types of financing available to firms in developed and developing countries? And, given these factors that influence the mix of financing, does the precise composition of external financing have a real effect on growth? The present investigation analyzes not just the degree of external financing, but also a variety of types of external financing, including local and foreign bank financing, leasing, and informal sources (e.g., friends and family, local money lenders, and credit cards).

Previous cross-country studies have examined the capital structure choices of listed firms.¹ Evidence suggests that financing decisions depend on financial, legal, and institutional maturity (e.g., as described in La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997, 1998). Consistent with this conclusion, we also find evidence of the importance of

institutions for private businesses, but our analysis reveals some subtler and unexpected relations. The relative importance of internal financing (i.e., retained earnings) for new investment and working capital is similar across different levels of economic development. Internal financing actually makes up a slightly larger share of financing in high income countries. Consistent with previous findings, the use of external financing increases with income level, rule of law, and availability of credit information. However, conditional on access to external financing, the biggest effects are seen for non-bank financing. Moreover, the degree of reliance for an average firm on bank financing is similar across stage of economic development. We also find that the role of institutional factors appears to have an important impact on the *mix* of external financing types. As institutions improve, firms substitute away from informal financing in favor of bank financing and especially leasing. The magnitudes of these effects are large. For example, we document more than a five-fold increase in leasing for new investment by firms in high-income countries relative to those in low-income countries, with leasing making up about a quarter of the external financing for new investment for manufacturers in high-income countries (verses only 3.2% in low-income countries).

Our paper also examines the relation between the mix of external financing types and growth. Firms in developing countries face many challenges, including the need for investment. These difficulties are often compounded by state-owned or under-capitalized banking sectors that are able to offer only a limited range of products. Furthermore, small and mid-sized companies often possess insufficient collateral or credit history to access more traditional bank financing. These constraints may also apply to availability of lease financing.

¹ See Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2002) and Beck, Demirgüç-Kunt, and Maksimovic (2008), among others.

We find that the use of bank and lease financing both have a large positive effect on firm growth, as measured by the change in the number of permanent employees over the previous two years. Despite this result, our analysis is hindered by only having past growth rates for firms and thus we cannot establish causality at the firm level.

Consequently, we focus on identifying the relation between the mix of external financing and subsequent growth at the aggregate level. We find that subsequent growth in both GDP per capita and the manufacturing sector is positively affected only by the prevalence of lease financing and not the availability of bank or informal financing. Furthermore, the relation between growth and leasing is economically large (and larger in countries with weak rule of law). For example, an increase in the percentage of firms using leasing from 15% to 25% in a weak rule of law country is associated with about a 1.3% increase in the aggregate growth rate of the manufacturing sector.

Taken together, our results show that the extent of external financing may not be as important as the mix of external financing for SMEs and aggregate economic growth. In addition, the use of bank borrowing, which is the most common source of external financing, varies less as the level of economic development and institutions change. In contrast, leasing activity both varies more and does a better job of explaining the growth rates in GDP and the manufacturing sector.

The remainder of this paper proceeds as follows. In section 2 we review related literature in detail and present our hypotheses. The data are summarized in section 3, and in section 4 we present our main results. Section 5 provides additional analysis comparing firms that lease and those that do not. In section 6 we conclude.

2 Related Literature and Motivation

A growing stream of literature has shown not only that SMEs report higher financing obstacles than large firms, but also that the effect of these financing constraints is stronger for SMEs (see Beck, Demirgüç-Kunt, and Maksimovic 2008, for an overview). Both the high transaction costs related to relationship lending and the high risk intrinsic to SME lending can explain the reluctance of financial institutions to reach out to SMEs. While the size of the SME sector does not seem to have a causal impact on growth, an economy depends on new and innovative enterprises, which are frequently small (Klapper, Amit, Guillén, and Quesada, 2007). These two observations have led policy makers to focus on policies and institutions that help alleviate SMEs' financing constraints.

In this section, we review existing research on external financing activities with a special emphasis on the role of external financing in the development of SMEs. In general, research has shown cross-country evidence of large, positive effects of financial sector development on total factor productivity growth and GDP growth (Levine, Loayza, and Beck 2000, among others). Other papers explore the effect of capital structure decisions on firm performance, at both the firm and the industry level (Demirgüç-Kunt and Maksimovic, 1998; Rajan and Zingales, 1998). Our analysis adds to this literature by examining the mix of external financing and its effect on firm growth.

2.1 Bank financing

Bank lending is one of the oldest, largest, and most widespread sources of external capital. Domestic banks include smaller “community” banks offering relationship-oriented lending services to SMEs based on soft, proprietary information such as information about the character and reliability of the firm's owner (Berger, Hasan, and Klapper, 2004). In addition,

some domestic banks are large firms that typically base their lending decisions on information that is quantifiable and verifiable at the time of origination, such as certified audited financial statements, payment histories, collateral that is easy to value and sell, and/or credit scores. These large domestic banks tend to have shorter, less exclusive, less personal, and longer-distance associations with SMEs (Cole, Goldberg, and White, 2004; Berger, Miller, Petersen, Rajan, and Stein, 2005).

Foreign bank participation has increased in emerging markets around the world, in part because of bank restructurings, financial crises, state-owned bank privatizations, and the removal of barriers to direct foreign ownership of financial firms. Foreign banks may be able to overcome the disadvantages of SME lending related to size, distance, and differing home market conditions, because they often step into markets in which the supply of credit to SMEs from domestic banks is lacking. Information-based theories of banking relations (see, e.g., Stein, 2002) suggest that foreign banks, by virtue of their size and remote headquarters location, may be less able to process soft information about opaque local firms or their local market conditions. Therefore, these banks may be more likely to exploit their advantages in processing hard information by entering into relations with more transparent firms. Alternative explanations for the tendency of foreign banks to lend to more transparent firms include their typically urban locations and the comparative advantages experienced by these large institutions in making large loans.

2.2 Informal financing

Informal sources of financing include informal money lenders, microfinance institutions, personal credit cards, family and friends, large informal associations, and unregulated financial institutions. Microloans are generally defined as very small, unsecured,

short-term loans. Firms that borrow from microlenders are often self-employed entrepreneurs and are less likely to conduct operations with a business license, keep audited accounting records, and pay taxes. Commercial banks may be unwilling to lend to such clients using standard credit practices, but microlenders may be able to provide credit using alternative practices (Armendariz de Aghion and Morduch, 2000; Robinson, 2001).

Family and friends and other informal sources, such as money lenders, are known to be popular sources of external financing for SMEs. In a study of Indian SMEs in the start-up and growth phases, family and friends provided affordable and accessible funding (Allen, Chakrabarti, De, Qian, and Qian, 2006). Similarly, in a sample of Chinese companies, more firms used informal financing than bank financing, although only bank financing was associated with higher growth rates (Ayyagari, Demirgüç-Kunt, and Maksimovic, 2010). Yet financing from friends and family has been said to be “unreliable, untimely” and to bear “significant nonfinancial costs” (Djankov, Lieberman, Mukherjee, and Nenova, 2003, p. 9). A study of firms in 29 countries by Safavian and Wimpey (2007) finds that firms choose informal financing over more formal routes when the quality of the regulatory environment is weak. For instance, the likelihood of using informal finance is 17% higher for firms that report paying bribes to tax officials. These companies are willing to bear the costs of informal financing in order to evade government corruption.

2.3 Leasing

A key potential benefit of leasing is access to capital for firms that do not yet have assets to pledge for loan collateral. Small enterprises can often leverage a modest cash deposit to enter into a leasing agreement. Leasing differs from collateral-based lending in that the choice whether to offer financing is frequently determined by the ability of the asset to

contribute to cash flow (either to the lessee or to the lessor in the case of forced liquidation) rather than the balance sheet value of the collateral. Thus, it is thought to be particularly valuable in many low- and middle-income countries where unsecured loans can be difficult to obtain. Leasing arrangements generally allow the lender to retain legal ownership of the asset, which facilitates seizure in the case of default and can considerably reduce the risk to lenders (lessors). In effect, leasing may increase the debt capacity of firms (Eisfeldt and Rampini, 2009).

The findings of Casas-Arce and Saiz (2010) in developing country housing markets suggest something different. They show that the leasing of housing units is underutilized in countries with weak legal systems because “market participants will tend to avoid the use of contracts when operating in an environment with very inefficient courts” (p. 2). Lerner and Schoar (2005) also find that the quality of legal enforcement constrains the type of contracts that are used in private equity transactions across countries. Thus, while asset-based financing may substitute for bank financing in some situations, it may be adversely affected by the same weak institutional environment that hinders the development of a working banking sector. Moreover, the situation may be more difficult for the development of leasing because leasing mainly benefits small and mid-sized companies since there is less political motivation to develop the required legal and regulatory infrastructure (Carter, Bargar, and Kuczynski, 1996).

Following the arguments above, leasing might play a special role in financing growth in countries with weak institutional frameworks (see Berger and Udell, 2006). If bank lending requires good collateral laws or registries and efficient courts in the case of default, then leasing will be more likely to have a differential impact on firm growth in a country with

a weak regulatory environment. However, if in that country leasing relies on similar legal regulations and structures as other types of external financing, it may have no special role. Alternatively, Ho, Lam, and Sami (2004) contend that leasing firms desire to “avoid under-investment problems owing to higher debt” (p. 386) and find that higher levels of leasing are one of the defining characteristics of high-growth firms in Hong Kong.

In light of the previous research, we propose that the high levels of leasing in developed economies indicate that asset-based forms of financing are indeed an important part of the optimal capital structure for many firms. Thus, while some literature has suggested that asset-based financing can substitute for bank financing in the presence of weak institutions, we also examine whether such weak institutions hinder the full development of asset-based lending.

2.4 Other sources of external financing

Previous literature finds that trade credit, or interfirm financing, is used relatively more than bank financing in countries with weaker lending environments (Petersen and Rajan, 1995). A worldwide study of 39 countries finds that trade credit use is greater than bank credit in countries with weak legal environments (Demirgüç-Kunt and Maksimovic, 2002). Fisman and Love (2003) highlight the importance of interfirm financing by demonstrating that industries with a greater dependence on trade-credit financing exhibit higher rates of growth in countries with relatively weak financial institutions. Furthermore, trade credit may substitute for bank credit during periods of financial tightening (Calomiris, Himmelberg, and Wachtel, 1995; Love, Preve, and Sarria-Allende, 2007). Studies have also found that competition encourages trade credit provision in five African nations (Fisman and Raturi, 2004) and that small firms in Vietnam are more likely to both grant and receive trade credit

than large firms (McMillan and Woodruff, 1999). Trade credit from suppliers (i.e., payables) may also be used as a way to finance the credit extended to customers, particularly for credit-constrained firms with weaker market power (Fabbri and Klapper, 2008). While many subjects in McMillan and Woodruff's (1999) study use trade credit to substitute for a lack of bank financing, trade credit work in the absence of strong legal institutions requires significant personal monitoring. Thus, the use of trade credit is lower overall in developing countries than in markets that have more efficient means of checking the creditworthiness of a trading partner.² These studies suggest the existence of a trade-off between bank and interfirm financing.

Many governments provide credit guarantees or second-tier banking to promote SME lending. Because coordination failure among private parties and first-mover disadvantages could prevent private providers from entering the market for credit guarantees or prevent lenders from pooling resources for such a scheme (De la Torre, Martínez Pería, and Schmukler, 2010), governments might have socio-political rationales for granting government credit to the private sector. In addition, grants might be provided by foreign non-governmental organizations (NGOs) and citizen associations specifically for the promotion of SMEs or priority sectors.

2.5 Institutional factors related to external financing

Prior research has identified a multitude of important institutional factors that may explain differences in income levels, growth rates, firms financing patterns, etc. This poses a challenge to researchers since many of the measures are highly correlated or empirical results may be obtained by data snooping. In our analysis we utilize a limited set of institutional

² Sources of information about customers and suppliers include private credit bureaus, public credit registries, electronic business registries, and private data providers (e.g., Dun and Bradstreet). These sources are often

factors that have been identified by prior research as important for external finance and that are available for the wide range of countries that we examine.

Rule of Law (Kaufmann, Kraay, and Mastruzzi, 2007) measures “the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence” (p. 4). While various measures of rule of law capture the broad legal and security environment, they are not designed specifically to capture institutional qualities important to business operations and financing. Consequently, we supplement this measure with the *Investment Freedom* and *Financial Freedom* indices constructed by the Heritage Foundation.³ The *Investment Freedom* index measures “restrictions on the flow both of internal and international capital” by subjectively evaluating the effect of the legal environment on foreign investment, land ownership, sectoral investments, expropriation, foreign exchange transactions, and capital mobility. The *Financial Freedom* index measures “how free the banking system is from regulation and government control and aggregate issues like ... the ease in which financial service firms can operate” by evaluating central bank independence, the regulatory environment, enforcement of contractual obligations, fraud prevention, and restrictions on financial services. We hypothesize that these measures will provide more direct assessments of the institutional characteristics most important to external financing than broader rule of law measures.

We also utilize several indicators of the business environment from the World Bank.⁴ *Legal Rights*, a 0 to 10 index, measures how effectively collateral and bankruptcy laws

lacking in developing countries (Klapper et al., 2007).

³ Data and detailed definitions are available at http://heritage.org/index/PDF/2010/Index2010_Appendix.pdf.

⁴ Data and detailed definitions of the indicators we use are available at www.doingbusiness.org, info.worldbank.org/governance/wgi/index.asp, and data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS.

support access to credit. *Closing Business Costs* is a measure of the cost of closing a business in a country as a percentage of the firm's value. The *Credit Information* index measures, on a 0 to 6 scale, the scope and quality of credit information in a country through either public or private registries. Finally, *Domestic Credit* provides a measure of the total amount of domestic credit supplied to the private sector as a percentage of GDP.

Selection of these variables as our measures of institutional quality relies on our subjective assessment of what characteristics are most important for determining variations in external financing patterns. However, we believe that they capture a wide range of important characteristics related to the possible determinants of external financing types discussed above (and subsequently). In addition, while all of the factors are significantly correlated with each other, none of the correlations are extreme (all below 0.55), and the average correlation is only 0.14.⁵ Consequently, the measures appear to capture reasonably distinct institutional features.

3 Data and Summary Statistics

This paper utilizes data from the Investment Climate Surveys (ICSs) conducted by the World Bank with partners in over 100 developed and developing countries, including many low-income countries.⁶ The surveys were conducted from 1999 to 2006 and about half of the countries in our sample are surveyed in more than one year. The primary goal of the ICSs is to provide quantitative data that allow for the assessment of the impact of a country's business environment on firm performance in an internationally comparable manner. The surveys are designed to be administered in the context of face-to-face interviews with managing directors, accountants, human resource managers, and other relevant company staff. Interviews may be

⁵ A complete table of variable correlations is available from the authors on request.

conducted in partnership with a local chamber of commerce or business association. The ICS begins with a core set of questions that are common across all countries. However, survey managers at the country or regional level are permitted to extend the survey. To maintain cross-country comparability, core questions cannot be reworded except as necessary for accurate translation. In addition, all core questions are asked using standardized instructions provided by the survey's designers.

By design, ICS samples are stratified by size, sector, and location. The cost of face-to-face interviews can limit the choice of locations to areas with a high concentration of establishments in the selected sectors. In practice, this means that survey responses are sometimes limited to urban centers. Actual interview locations are selected based on budget, the size of the country, and unique geographic characteristics. ICSs are conducted with the knowledge and support of relevant government authorities. However, the governments are not provided the raw data or other information that would allow them to identify the responses of individual firms, and businesses are informed of this confidentiality prior to the interviews so as to encourage truthful responses. Survey managers are charged with the responsibility of identifying outliers or anomalies from incorrectly reported (or entered) data during the data entry process.⁷

The final dataset comprises a large sample of firms across multiple sectors (manufacturing, services, agriculture, and construction). Usable data include both quantitative and qualitative information on firm characteristics, including sources of financing, barriers to growth, access to infrastructure services, legal difficulties, and

⁶ Complete data are available at: <http://www.enterprisesurveys.org/>.

⁷ The preceding discussion of the survey draws largely from Productivity and Investment Climate Survey (PICS): Implementation Manual (2003). For additional details see: http://iresearch.worldbank.org/InvestmentClimate/Help/pics_manual.pdf.

corruption. The dataset also includes some measures of firm performance such as multiple years of historical data on employment.

Our analysis focuses on survey questions examining the main sources of business financing. Specifically, the survey asks firms to list the percentage contribution over the previous year of the following sources of financing:

- internal funds and retained earnings
- local commercial banks (loans and/or overdraft)
- foreign-owned commercial banks
- leasing arrangements
- trade credit
- family and friends
- informal sources (e.g., money lenders)
- credit cards
- grants (investment funds, special development financing, or other state services)
- equity, sale of stock
- other sources of financing

Firms are asked to report separately the sources used to finance working capital and new investments. From the full sample of 77,159 firms, responses regarding sources of financing are available for 69,065 firms in 103 countries. Not all firms that report sources of financing use external financing, nor do all firms reporting use of external financing report values for both working capital and new investment.⁸

Table 1 reports country-level and firm-level summary statistics for our sample by country income group. We use World Bank definitions for low income, lower-middle income, upper-middle income, and high income. Low and middle-income countries are well represented in our sample, whereas fewer (10) high income countries are surveyed. The total of 164 survey years exceeds the number of countries in our sample because some countries

⁸ Appendix A lists the countries in our sample and the average percentage of external financing by major type of financing and rule of law quartile.

are surveyed more than once. *Gross Domestic Product (GDP) per Capita* ranges from an average of 386 USD in low-income countries to over 15,000 USD in high-income countries.

As noted above, we examine a variety of country-level institutional factors, which we summarize in Panel A. Indicators of institutional quality and the business environment reveal consistent patterns across countries. As has been well established by prior research, *Rule of Law* tends to increase with country income level. The *Legal Rights* index and *Investment Freedom* index show a similar monotonic increase across income levels. In contrast, *Financial Freedom* is on average highest among upper-middle income countries. The costs associated with closing a business shows no significant trend across income groups though in high income countries the value (9.9%) is much lower than in low- and middle-income countries (about 15%). The *Credit Information* index, which measures the efficiency of rules affecting the quality of and access to credit information, increases monotonically with country income group as does the level of total *Domestic Credit* as a percent of GDP. We also table measures of growth rates for the country as a whole and the manufacturing sector. Both exhibit an inverted-U shape as a function of country income level. However, manufacturing as a percent of GDP and the value of the manufacturing sector both increase monotonically with income.

In Panel B of Table 1, we report the firm-level statistics for the full sample by country income level. Our sample of firms is very large across low and middle-income countries with more than 15,000 firms in each group, but has fewer firms (5,058) in high income countries. Though most firms in the sample (60%) are small businesses with 50 or fewer employees, a number of large enterprises drive the mean to 138.1 employees in the year prior to the survey. In our sample, the average number of employees is somewhat higher in lower-middle income

countries than in other countries. The growth rate of firms as measured by number of permanent employees declines somewhat with income level. This is consistent with higher average population growth rates in lower income countries.

Firm Age is defined as the number of years since the firm was founded. The average *Firm Age* in our sample is 15.9 years, but firms in wealthier countries tend to be slightly older. *Exporter* is defined as a categorical variable equal to 1 for firms that report more than 10% foreign sales either directly or indirectly (e.g., through intermediaries). The percentage of exporters in our sample is 22.7% and does not show an obvious trend across income groups. In this study, we consider foreign sales as an indicator of the firm's exposure to local market conditions as well as a measure of access to foreign credit markets (e.g., foreign bank loans).

Corporation is an indicator variable denoting whether the firm is a limited liability corporation. Corporations, which are more likely to have disclosure requirements, account for 47.9% of the sample. A smaller proportion of firms in high-income countries are incorporated. *Audit* is an indicator variable denoting whether the firm's financial statements have been reviewed by an external auditor. On average, 51.7% of firms are audited, though the rate tends to be higher in wealthier countries. As income level increases the percentage of firms in the manufacturing sector tends to decline and the percentage of firms in the service sector tends to increase.

To simplify the analysis we combine some similar types of external financing in our primary analysis though our conclusions are robust to an analysis using the disaggregated data

(We also present some statistics for the disaggregated data in the next table).⁹ In all countries, more than 80% of firms report using retained earnings for working capital or new investment. The retained earnings percentages are very similar across income levels and reveal no consistent trend. About 63.4% of firms use some sort of external financing. On the surface, these results suggest that the effects of financing patterns on firms' operations could be less dependent on the availability of external financing and more dependent on the *mix* of external financing. Among the three sources of external financing we examine in detail, the most common source is bank borrowing (31.8% of firms), followed by informal financing (14.3% of firms) and finally, lease financing (6.6% of firms). However, these all-country averages mask significant variation by income level. For example, the frequency of bank financing increases from an average of 25.9% for low income countries to 41.7% for high income countries whereas the frequency of informal financing falls from 17.1% to 7.5%. The most dramatic relative change is observed for the frequency of lease financing which increases from 2.6% in low income countries to 19.1% in high income countries.

4 Results

4.1 Descriptive statistics and trends in external financing

Table 2 provides detailed data for each type of external financing for both working capital (Panel A) and new investment (Panel B) by country income group. The reported values represent the share of total external financing for each type of financing listed in the rows. More firms tend to report using external financing for working capital than new

⁹ Additional details are provided below, but we combine local and foreign bank financing into a single bank financing variable. We also combine external financing from family and friends, credit cards, and other informal sources to create a single variable for informal financing.

investment, though we cannot ascertain if this result is driven by a difference in relative demand for working capital and new investment.

On average, banks are the largest source of external funds and provide about a third of external financing for both working capital and new investment. Trade credit is almost as important as bank financing for working capital, but represents only 10.9% of financing for new investment. In contrast, leasing is a very small amount of financing for working capital but makes up 8% of external financing for new investment. Given the nature of these sources of capital, this is an intuitive result. Specifically, trade credit is usually extended by suppliers for inputs to produce goods (e.g., parts, raw materials, etc.) whereas leasing is more likely to be used for long-lived capital goods that represent fixed factors of production (e.g., machinery or manufacturing space). However, the trend in leasing across income groups is striking—lease financing varies from just 2.6% of external financing for new investment in low-income countries to 20.6% in high-income countries. This swing of 18% represents the largest difference for any financing variable (including retained earnings) across any income group pair. In contrast, a surprising result in Table 2 is the relatively stable use of bank financing for new investment. In all income groups, bank financing is between 35% and 45% of external funds.

For most other types of financing the relative importance and trends across country income groups are similar for working capital and new investment.¹⁰ However, there are some differences. For example, in low income countries firms rely relatively more on friends and family for working capital and more on credit cards for new investment. In each case though, the use declines with income level. Since there are few theories (or prior empirical

¹⁰ This raises a potential concern that firms cannot always clearly distinguish uses of external financing between new investment and working capital.

results) on the global use of credit cards versus family and friends to obtain financing, we are not sure how to interpret this result. Partly for this reason (i.e., not having differentiating hypotheses) and partly to simplify the exposition, we combine the use of credit cards, family and friends, and other informal sources into a single source that we call “informal” financing for the remainder of the analysis. Likewise, we combine local and foreign bank financing because foreign banks represent a small part of total bank financing and there are no important trends across country income groups (or other characteristics we have examined). We also exclude a detailed discussion of results regarding the use of trade credit except in a few interesting instances which we discuss specifically.

While equity (which includes capital from ‘other’ financing activities) represents an important source of external financing for working capital and new investment, we find little if any trend across country income group. For the businesses in our sample, new equity is almost exclusively the sale of private (non-listed) equity. In a few countries we are unable to disentangle whether this is a genuine sale of new equity or more akin to retained earnings.¹¹ In addition, we are not able to say anything about the use of “other sources” of external financing because no additional data are collected on this category. Consequently, we exclude the “equity and other” component from the reported results. While there is clearly a trade-off between providing an analysis at the most detailed and comprehensive level and making the analysis tractable, we believe that the reported results for the three categories of bank financing, leasing, and informal sources capture the most important aspects of external financing choices by firms.

¹¹ Perhaps because of translation issues, it appears that in a few countries respondents may have confused the sale of equity ownership to an outside investor with an infusion of personal wealth into an individually owned business.

In Table 3 we report some results pertaining to these three major financing groups for new investment. Here and in some of our subsequent analysis, we report results separately for manufacturing firms because previous research suggests these firms are potent drivers of aggregate growth in developing economies. Panel A reports the percent of firms using each type of financing conditional on using any type of external financing. About half of firms use bank financing which also tends to increase across income groups. Manufacturing firms rely somewhat more on bank financing. For all firms and manufacturers we again see the dramatic increase in leasing as income levels rise. Only 6.4% of firms with external financing in low income countries use leasing compared to 33.7% in high income countries. As country income level increases, the use of financing from informal sources declines significantly for both all firms and just manufacturing firms.

Panel B of Table 3 shows the percent of external financing for each type of financing conditional on using that type of financing. By construction, these values are larger since we are only considering firms that use that type of financing. Surprisingly though, in every case, the particular type of financing represents the majority of external financing. For example, when we consider firms in high income countries that use leasing, we see that leasing provides 61.2% of their total external financing. Also surprising is the lack of significant trends across country income groups for bank financing and leasing despite the strong trends in Panel A. This suggests that the most important part of bank financing and leasing is gaining access in the first place. In other words, firms that use any bank financing or leasing use it extensively (and largely independent of country income group). In contrast, the downward trend in the importance in informal financing across income groups is still evident when we condition on its use.

The statistics in Table 3 highlight the importance of bank financing as a source of external finance, especially in high-income countries. However, the trends in financing towards leasing and away from informal sources are also important. We observe that access to a type of financing appears to be the important ingredient since firms rely heavily on each financing type they use.

4.2 Determinants of external financing

As a benchmark for our main results, we start by examining determinants of the use of any type of external capital. In Table 4 we report results for tests in which the dependent variable is a binary variable describing the use of any external financing for working capital or for new investment.¹² These regressions include either country fixed effects (column 1) or various country level variables described above. Reported coefficients are marginal effects of a one unit change in the independent variable.

Consistent with the conclusions of Beck and Demirgüç-Kunt (2006), who find that small firms use less external financing, we find a significant positive relation between firm size (as measured by number of employees) and external financing. Firm age has a weak negative effect on the chance of using external financing and being an exporter has no significant effect. Corporations are much more likely to use external financing. Firms with partial state ownership are less likely to access external financing most likely because such firms have access to government funding at a lower cost. This interpretation is consistent with the insignificant effect of being a privatized firm on the probability of accessing external financing. For example, other aspects of state ownership, such as preferred positioning in the

¹² We conduct most of our analysis after combining these two uses; however, our conclusions and most of our results are robust to analyzing working capital and new investment separately.

product market, would be likely to persist after privatization. Thus we would expect to see persistence in the negative effect of state ownership on external financing.

As suggested by the results in Table 1, we do not find a relation between income group and the use of external financing. This result is not due to other correlated country-level factors capturing the effect of income level; however, it may be the case that other firm-level factors in the regressions also capture country-level variation in income. Regardless, we know from Table 1 that the effect of income level on the average rate of accessing any type of external finance access is not large, such that this (lack of an) effect appears to be consistent across the analysis. Again, the implication is that a relation between standard-of-living and external financing is more likely due to the mix of external financing rather than simple access to any type of external financing. It also suggests that other country-level factors, not just income levels, are necessary to explain variation in external finance access.

Specifications (3)–(9) in Table 4 include country-level measures of the quality of institutions previously identified as important in determining the availability of external financing. The results differ across measures with not all factors serving as significant determinants. *Rule of Law*, *Investment Freedom*, *Financial Freedom*, *Credit Information*, and *Domestic Credit* are strongly positively related to firms accessing external capital. These results are as expected given the results of previous studies associating a stronger business environment with greater access to financing (for example, Djankov, McLiesh, and Shleifer, 2007; Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2002, 2003; Aivazian, Booth, Demirgüç-Kunt, and Maksimovic, 2001).¹³ However, *Legal Rights* and *Closing Business Costs* are not statistically significant factors. This does not mean that these factors are

¹³ In the case of domestic credit, there is also a mechanical relationship since the use of bank credit both identifies the dependent variable and is a determinant of the magnitude of total domestic credit.

irrelevant to external financing, just that they do not appear to determine which firms make use of any source of external capital. As we show below, these factors are indeed important for determining the mix of external capital.

Grouping all types of funding together masks variation in the determinants of different types of external financing. Consequently, we repeat our analysis for each major type of capital separately and report the results in Table 5.¹⁴ We also segment the sample into upper income (high income and upper-middle income) countries and lower income (low income and lower-middle income) countries to examine how the effects of factors differs across income levels. Splitting the countries into upper-income and lower-income groups can help us gain insights into how various factors affect external financing. However, it also comes with the cost that, especially for country-level factors, there is less variation inside the subsamples. At this point, we include country dummy variables to focus on firm-level factors; subsequently, we examine country-level factors.

Regardless of financing type or income level, firm size is important. The largest effect is the positive impact on bank financing. Size has a negative effect on informal financing and small positive effect on lease financing. This is consistent with larger firms having more established or reliable cashflows that allow them to substitute away from informal financing toward more formal financing, especially banking. Firm age has a similarly mixed effect on financing type. Older firms trade informal financing for bank financing, with age having little effect on lease financing. Being an exporter has a mild positive effect on bank financing but only in upper-income countries. Exports do not affect the use of lease or informal financing.

¹⁴ Results for firm-level factors are usually very similar if we examine financing for working capital and new investment separately. This suggests that the firm-level factors at work are governing access to the given type of financing (e.g., leasing market) as opposed to the specific use of the capital determining access to the financing type.

Incorporated businesses are more likely to use bank financing and less likely to use informal financing, especially in upper-income countries. The effect of being incorporated on leasing is positive (and significant in the full sample) but of a smaller magnitude. Having audited financial statements has, at best, a small effect on access to bank financing. In contrast, audits appear to facilitate a shift away from informal financing toward leasing though the magnitudes of the effects are not large.

In general, foreign or state ownership has a negative effect on firms accessing all types of external capital. Again, we conjecture that this negative effect is related to the role of foreign or state owners in supplying capital in place of banks, leases, or informal sources. Likewise, privatized companies are less likely to use leasing or informal financing. The effect is especially strong for lease financing in upper-income countries. This may be the result of a typical privatized firm already having owned assets in place and thus having less of a need for leasing capital assets. The strength of the effect in upper-income countries may also be indicative of privatized firms being in more mature lines of business with fewer growth opportunities vis-à-vis privatized firms in lower-income countries. Together, these results reiterate an important substitution effect between more institutional types of financing, such as bank debt and leasing, and less institutional sources of financing, including family and friends, credit cards, and other informal sources.

Overall, the results in Table 5 present a puzzle. Specifically, all of the firm-specific factors we examine are important for explaining at least one type of financing, but none are sufficient for explaining the magnitude of the shift toward leasing (and away from informal sources) documented in Tables 2 and 3. The effects either go in the same direction or the magnitudes of the coefficients are insufficient to account for the full size of the shift. One

possible solution to this puzzle is that country-level factors (captured in these regressions with dummy variables) are primary determinants of the mix of financing at the firm level.

Consequently, we turn our attention to the role of institutional factors.

Table 6 summarizes results from an analysis like that presented in Table 5 but with regressions that include country-level institutional factors instead of country dummy variables.¹⁵ For brevity we only report the coefficient on the institutional factor, so the table summarizes results for 63 separate regressions. The results indicate that each of the factors we examined previously is an important determinant of external financing, but that different factors are important for different types of financing.

First, *Rule of Law* is positively related to the use of lease financing and negatively related to the use of informal financing. While the effect is significant in the full sample and both subgroups, it is especially strong in upper-income countries. There is no relation between *Rule of Law* and bank financing. This finding suggests that the well-documented effects of rule of law on financing work primarily through the substitution away from informal financing toward lease financing or are only relevant for large companies (not in our sample).

Next we examine the roles of *Investment Freedom* and *Financial Freedom* which measure restrictions on the flow of both internal and external capital. *Investment Freedom* exhibits similar effects to *Rule of Law* in upper-income countries. This similarity is consistent with the aspects of *Rule of Law* related to foreign investment, land ownership, sectoral investment restrictions, expropriation, and capital control (i.e., the determinants of the

¹⁵ We only include one country-level institutional factor at a time because of concerns about the correlations between these factors. However, the results are generally similar if we include multiple institutional factors in the regressions.

Investment Freedom index) having a first order effect on the composition of external financing. That better freedoms are associated with more leasing suggests that weak institutions constrain leasing activity (as opposed to promoting leasing as suggested by Berger and Udell, 2006). Similar results for the *Financial Freedom* index also support this interpretation. Firms in countries with more independent central banks, limited government ownership of financial institutions, market determined credit allocation, and strong fraud protection are more likely to use lease financing. We reiterate the unexpected result that *Investment Freedom* and *Financial Freedom* have no statistically significant effect on the use of bank financing.

The *Legal Rights* index measures how collateral and bankruptcy laws support access to credit. We anticipate that legal rights will have the most effect on the explicit granting of credit component of rule of law since banks will benefit from the ability to enforce property rights for troubled loans. The positive coefficient on bank financing is consistent with this prediction. While the effect is of the same magnitude in both upper- and lower-income countries, it is only statistically significant in lower-income countries. In contrast, the *Legal Rights* index appears to facilitate substitution away from informal financing towards leasing in upper-income countries. This may be because of variation across countries in how courts enforce lease contracts.

As noted above, the deadweight costs of closing a business are important to the claimants of a failed firm. We hypothesize that high costs of closing a business might increase the benefits of leasing if leased assets are less subject to the deadweight costs of bankruptcy. However, we do not find this to be the case—high costs of closing a business are typically associated with less lease financing and less bank financing, especially in lower-

income countries. Thus, the deadweight costs associated with bankruptcy tend to depress the use of both types of external capital.¹⁶

The availability of credit information should facilitate bank financing since banks explicitly extend credit. Credit information should be less important to leasing companies since firms rarely take legal ownership of leased assets. Likewise, informal financing sources are more likely to rely on firsthand knowledge versus formal credit reporting; however, we find some unexpected results for the role of credit information. There is no overall effect of credit information on the use of bank financing. Instead, there is a negative relation in upper-income countries and a positive relation in lower-income countries. In results not reported here, we show that this is related to the use of trade credit. In upper-income countries, the availability of trade credit to firms with good credit information causes a substitution away from bank credit. In lower income countries where trade credit is less available, credit information is more important for determining bank financing. As expected, credit information is relatively unimportant for lease financing or informal financing.

Finally, we examine the role of available domestic credit. Examining total domestic credit helps determine if the overall size of credit markets, and thus availability of credit in the broader economy, impacts the mix of external financing for SMEs. Domestic credit in most countries comes from banks so we expect, and document, a positive (and partially mechanical) relation with bank financing. Surprisingly, the relation varies significantly across income levels and is only statistically significant in upper-income countries. The availability of domestic credit has an overall negative effect on lease financing, and the effect is larger in upper-income countries. This is consistent with the hypothesis that bank lending acts as a

¹⁶ However, the coefficient on *Closing Business Costs* is (weakly) positive for bank financing in upper-income countries.

substitute for lease financing and informal financing. It is counter to the hypothesis that domestic credit facilitates leasing. Thus, leasing appears to operate largely through a distinct channel that is not heavily dependent on availability of domestic credit to lessors. These relations corroborate anecdotal evidence suggesting that large multinational durable equipment manufacturers, foreign banks, and the International Finance Corporation provide capital for leased equipment when domestic bank financing is hard to obtain.¹⁷ As expected, the availability of domestic credit also has a strong negative effect on the use of informal financing.

Most of the statistically significant effects reported in Table 6 are also economically important. For example, a change in Rule of Law from the 25th percentile to the 75th percentile is associated with a 17.6% reduction in the chance of using informal financing and a 4.8% increase in the chance of using lease financing. The largest effects for bank financing are from *Domestic Credit* and *Legal Rights*. The largest effects for lease financing are from *Rule of Law* and *Investment Freedom*. Finally, the most important factors for informal financing are *Rule of Law* and *Domestic Credit*.

Together, these results show that country-level institutional variables describing factors related to financing activities are better than firm-level variables at explaining the substitution away from less formal financing (money lenders, friends and family, etc.) and toward more arms-length types of financing (bank lending and leasing). However, different factors appear to be important for each major type of formal financing. Perhaps most importantly, there is no indication that leasing allows firms to avoid legal and institutional

¹⁷ See, for example, "Leasing in Development: Guidelines for Emerging Economies," Mathew Fletcher, Rachel Freeman, Murat Sultanov, and Umedjan Umarov. International Finance Corporation: Washington, D.C., November 2005.

constraints as suggested by some previous research. Rather, the use of leasing seems to be on average at least as sensitive to variation in *Rule of Law*, *Investment Freedom*, and *Financial Freedom* as other types of financing.

Thus far, we have examined whether or not firms use a particular type of financing, and not the extent of the use of each type. We examine the extent of use with two-stage Heckman regressions, in which the first stage is the dummy variable indicating access to a given type of financing and the second stage is a continuous variable equal to the percentage of financing from that same source. These results (available upon request) indicate that many of the same firm-specific and institutional factors that determine the type(s) of external financing firms use are also important determinants of the extent of use.

4.3 The effect of external financing on growth

Clearly financing patterns vary across firms due to country-level institutional differences, yet a fundamental question remains. Do differences in external finance sources affect the production process and real output? Firms may be able to obtain all the financing they desire through the various formal and informal channels. In such a case, while some sources are potentially more flexible, affordable, or otherwise desirable, the differences could be marginal and not have an appreciable effect on a firm's ability to operate at its desired levels.

The problem with attempting to answer this question at the firm level is that our data is cross-sectional and financing variables are likely to be endogenous when estimating firm growth. Nonetheless, we have conducted the analysis at the firm level by examining the effect of external financing on firm growth as measured by the change in employment (detailed results are available on request). Because accounting data are unavailable for most

firms, the growth in number of employees provides a measure that is a consistent and intuitively plausible alternative to growth in sales, assets, or profit. Evidence from the subset of developed-country firms with available accounting data indicates that these growth rates are highly correlated for individual firms. We include as explanatory variables the indicator variables for each type of external financing, as well as other variables that are likely to explain growth, such as firm age, size, etc. We find that both bank financing and leasing are associated with significantly higher levels of growth. The magnitudes of the effects are similar in strong *Rule of Law* countries. However, leasing has a much larger effect on growth in low *Rule of Law* countries. The use of informal financing is sometimes associated with slower growth, but the effect is small. These results are robust to the inclusion of institutional factors or country fixed-effects.

Because firm-level growth data are only available for the years prior to the survey, we concentrate our analysis on estimating the effect of aggregate financing patterns on country level growth after the surveys were completed. In addition, estimating country level growth is more meaningful from a policy perspective. For instance, if access to leasing or other types of financing only lets a firm grow more quickly at the expense of another local firm, then the overall economy may obtain no net gains. Thus, a country-level analysis will better measure welfare effects.

To estimate the effect of financing patterns on country growth, we use as our dependent variable growth in GDP per capita the year after the Investment Climate Survey was conducted in a given country. In Table 7 we report the results from regressions with the percentage of firms in a country using each of the three types of financing (leasing, bank financing, and informal financing) as well as GDP per capita in the year of the survey, log of

per capita GDP the year of the survey and fixed effects for survey year and geographic region. By regressing the growth rate the year after of the survey on the growth rate over the previous year, we are estimating the impact of aggregate financing patterns on the change in GDP per capita growth from year to year.

The results of this analysis are unexpected. The first column of Table 7 shows that for the full set of countries in our sample, only the aggregate percentage of firms using leasing has a statistically significant and positive impact on the rate of GDP per capita growth. The economic significance of the aggregate level of leasing is moderate in the full sample. A 10 percentage point increase (about one standard deviation) in the percentage of firms using leasing increases GDP per capita growth by 0.2 percentage points. Specifications (2) and (3) repeat the estimation for countries below and above the median level of *Rule of Law*, respectively. The results show that the impact of lease financing is much larger in countries with below median (weak) *Rule of Law* index values. In weak *Rule of Law* countries, a 10 percentage point increase in firms using lease financing is associated with a 1.8 percentage point increase in the rate of GDP per capita growth. This is a very large effect when compared to the average rate of GDP per capita growth of 5.6% in weak *Rule of Law* countries. A 10 percentage point increase is roughly equivalent to moving from the average aggregate percentage of firms using leasing in the countries below the median level of *Rule of Law* (2.7%) to the average for countries above the median (12.3%). The only other significant effect from financing documented in Table 7 is that in low *Rule of Law* countries the percentage of firms using informal financing has a small negative impact on growth.¹⁸

¹⁸ As expected, we also see in each of the three specifications that future GDP growth is strongly correlated with current GDP growth.

Leasing is particularly important in the procurement of capital equipment and facilities in the manufacturing sector. Thus, another important question is how the aggregate level of leasing affects growth of the manufacturing sector. We estimate regressions similar to those reported for GDP per capita growth but with the rate of growth in the manufacturing sector the year after the survey as the dependent variable. Results are reported in Table 8 and we find a similar pattern. Leasing is the only type of financing with a positive and significant impact on manufacturing growth. Again, we find that the strongest (and only statistically significant) impact is in weak *Rule of Law* countries. The size of the impact is similar to that discussed above for GDP per capita growth. A 10 percentage point increase in the firms using leasing would increase manufacturing growth by 1.3 percentage points which compares to an average manufacturing growth rate of 5.2%.

These findings are noteworthy and have important policy implications. Despite the extensive use of (and research focus on) bank lending to small and medium-sized enterprises, the primary differentiating factor for aggregate economic growth related to external financing appears to be leasing activity. The effects of leasing are both statistically and economically significant. Furthermore, they are concentrated in countries with relatively weak *Rule of Law* where efforts to promote economic development with public policy are most focused. Consequently, these findings suggest the possibility of adjustments to legal and other institutional policies that promote leasing and generate significant real economic gains. Presumably, policy prescriptions focused on leasing would be simpler and more feasible than broader policy and institutional changes.

5 Why Leasing?

The preceding analysis indicates a special association between leasing and growth. In this section, we take a quick look at possible reasons why leasing in countries with weak rule of law could lead to such large growth differentials. One possibility is reverse causality—firms in faster growing countries have better access to leasing. However, reverse causality is also a potential explanation for a positive relation between growth and bank lending that we do not document. In addition, we control for past growth in our analysis. So, it is not obvious why faster growth would relate to a stronger differential effect for leasing that depends on the rule of law. So, while we cannot rule out reverse causality, it seems an unlikely explanation given our results.

To examine a potential causal relation between leasing and growth, we analyze a number of additional questions in the ICS survey. In developing the intuitions for these tests, we rely heavily on the International Finance Corporation (IFC) publication Leasing in Emerging Markets (Carter, Barger and Kuczynski, 1996) which provides a detailed analysis and discussion of the IFC's efforts to promote leasing over the preceding twenty-year period. At a basic level, the IFC recognizes the importance of the legal framework for leasing:

“The rights and duties of the lessor as legal owner of the equipment and the rights and duties of the lessee as user should be clearly stated. The legal owner needs a clear, simple, workable and timely process to reclaim an asset if the terms of the lease are breached by the lessee, including automatic right of repossession without lengthy court proceedings and the right to claim payments due and other damages...In some transforming economies where laws have been evolving, it has been necessary to clarify that the lessee also has no right to create a lien on leased assets.” (Carter et al., 1996, p. 23)

The IFC's experience suggests that there are legal qualities facilitating leasing that are not standard across all countries, and that problems are more likely to be present in lower-income (or “transforming”) economies. For example, if a firm leases a piece of equipment but stops

making payments and the lessor cannot recover the equipment, this amounts to theft by the lessee firm. It may also be that the theft of equipment by a third party is more likely in countries with a weaker rule of law. On the other hand, leasing provides security benefits over other types of financing in that it provides for the dedicated use of funds. Since assets are typically obtained directly from the lessor, the lessee cannot use the capital for other purposes. To see if the risk of outright theft can help explain the result for *Rule of Law*, we examine the survey question asking firms whether "... crime, theft, and disorder are a problem for the operation and growth of your business" on a scale from zero (no obstacle) to 4 (severe obstacle). In Table 9 we report the results for weak and strong *Rule of Law* terciles by use of lease financing. However, we find no significant differences between firms that use leasing and those that do not in either weak or strong *Rule of Law* countries. We also calculate differences in differences but find no effects.

The IFC believes that leasing is likely to have a variety of other positive effects on firm growth. These potential benefits fall into two general categories. First, leasing can help increase the availability of external capital; secondly, leasing can also help firms increase productivity by improving the efficiency of their operations.

There are several possible mechanisms by which leasing might increase access to external capital differentially for SMEs in weak *Rule of Law* countries. For example, the IFC notes that

"...in many developing countries capital markets are relatively undeveloped, and banks often prefer to lend to larger firms that can offer stronger [balance sheets]. Banks are also reluctant to undertake term lending. New or small firms without strong collateral...typically do not have access to much bank lending; leasing or supplier credits may be their only external financing options." (Carter et al., 1996, p. 19)

Leasing thus may enable a firm to obtain needed equipment based on its generated cash flow rather than its credit history, assets, or capital base. In addition, the IFC suggests that leasing

can effectively finance a higher percentage of the capital cost of equipment compared to bank borrowing, thus effectively lowering the down payment. Leasing can also provide a mechanism for obtaining foreign capital outside of the domestic legal structure (i.e., via a leasing agreement that would be subject to foreign legal proceedings).

We study these possible explanations for the importance of leasing by examining responses to a variety of survey questions related to the availability of outside capital. The results are reported in Table 9 under “Capital Availability.” Fixed assets can provide collateral for bank loans, so we expect that firms that lease will exhibit less ownership than nonleasing firms. A review of the percentage of companies for which the last loan required collateral or a deposit shows that firms that lease are significantly more likely to have had such a secured loan. This suggests that leasing (which presumably would not have this requirement) may provide some benefit over bank financing. However, a similar difference exists in strong *Rule of Law* countries, so collateral requirements are unlikely to provide the explanation for the differential impact of leasing on growth.

The intuition above also suggests that firms may turn to leasing because bank credit is constrained. These constraints could be more binding in weak *Rule of Law* countries. To investigate this hypothesis, we check for the existence and extent of use of bank lines of credit. In fact, firms that use leasing are significantly more likely to have a bank line of credit and use it to a greater extent; however, the differences are similar in both weak and strong *Rule of Law* countries. As a final measure of the impact of leasing on capital availability, we examine how much firms borrow in foreign currency. The use of foreign currency debt could measure the availability of foreign lending (a substitute for leasing), or alternatively it could serve as an indicator that firms are able to access foreign capital markets. The results indicate

that leasing firms in weak *Rule of Law* countries have a greater proportion of their debt denominated in foreign currency than do nonleasing firms. Thus, leasing actually serves as a complement to foreign currency borrowing and provides an additional source of external financing. These findings are also consistent with the hypothesis that leasing provides for more financial flexibility. We again find a similar, but smaller, effect in strong *Rule of Law* countries, so the difference in differences is only marginally significant. Taken together, these results suggest that leasing is associated with increasing capital availability, but these effects are often similar in weak and strong *Rule of Law* countries.

The second general way in which leasing might benefit firms in weak *Rule of Law* countries is through gains in operational efficiency. Carter, et al., (1996) notes that leasing is often more flexible and timely than borrowing. Processing a leasing transaction is faster than processing a new loan, and leased equipment can often be upgraded with minimal transaction costs. In addition, leasing contracts are regularly structured to meet the expansion prospects or cash-flow needs of the lessee. Leasing companies can also provide expertise in operations and logistics that banks or other sources of external capital are unlikely to possess. In the case of an outright purchase, these benefits might not be available, or they might only be available at an additional cost from other third-party suppliers, especially in countries in which equipment manufacturers do not have a direct presence.

To determine whether leasing conveys operating efficiency benefits, we examine the responses to several survey questions related to operations. Results are presented in Table 9 under “Operating Efficiency.” We first examine the level of capacity utilization and find that firms using leasing are able to operate at significantly higher utilization rates. In weak *Rule of Law* countries, firms that lease have somewhat shorter planning horizons whereas the opposite

is true in strong *Rule of Law* countries; however, for both of these variables the differences in differences between strong and weak *Rule of Law* countries are not statistically significant. The responses to a direct survey question about innovation indicate that leasing firms in weak *Rule of Law* countries reveal that a higher percentage of firms that use leasing have acquired innovations from equipment suppliers than firms that do not use leasing. Surprisingly, we find the opposite effect in strong *Rule of Law* countries. Thus, the difference in differences across weak and strong Rule of Law countries (adjusted for sector fixed effects) is -9.3 percentage points and highly statistically significant.

Taken together, these results suggest that leasing may have an effect on both capital availability and operational efficiency, but the differential impact related to the quality of rule of law is more difficult to identify. While our analysis is only a first pass at this question, the differences appear to be related to how lessors transfer technology to lessees.

6 Conclusion

While a substantial amount of research has provided evidence on the relationship between availability of capital and economic growth, less is known about the precise mechanism(s) at work. In this study, we examine detailed firm-level data on types of financing for small and mid-sized companies, which are likely affected by external financing constraints. While we find a number of interesting results, several stand out as particularly salient.

First, a large percentage of SMEs use some type of external financing, even in the world's poorest countries. What seems to differ across countries (and especially country income levels) is the type of external financing used and, in particular, the movement away

from informal sources toward leasing. Surprisingly, the use of bank debt for new investment is relatively constant across country income groups.

Second, access to external capital does have a measurable impact on growth rates; however, almost all of the differential growth between poorer and wealthier countries that is attributable to external financing is associated with the use of leasing. These findings for leasing also explain the way that *Rule of Law* affects firm growth through the finance channel. Together, the results suggest that the efforts of organizations such as the International Financing Corporation to develop institutions and promote leasing markets are well placed. In addition, our findings suggest the need to better understand the way that specific changes in legal systems might facilitate the availability of lease financing for small and mid-sized firms in both developing and developed countries.

References

- Acs, Zoltan and David Audretsch, 1988. Innovation in Large and Small Firms: An Empirical Analysis, *American Economic Review* 78(4), 678-690.
- Acs, Zoltan and David Audretsch, 1990. *Innovation and Small Firms*, MIT Press, Cambridge, MA.
- Acs, Zoltan and David Audretsch, 2001. The Emergence of the Entrepreneurial Society, *Presentation for the Acceptance of the 2001 International Award for Entrepreneurship and Small Business Research*, Stockholm, May, 2001.
- Aivazian, Varouj A., Laurence Booth, Asli Demirgüç-Kunt, and Vojislav Maksimovic, 2001. Capital Structures in Developing Countries, *Journal of Finance* 56, 87–130.
- Allen, Franklin, Rajesh Chakrabarti, Sankar De, Jun Qian, and Meijun Qian, 2006. Financing Firms in India, World Bank Policy Research Working Paper 3975.
- Armendariz de Aghion, Beatriz and Jonathan Morduch, 2000. Microfinance Beyond Group Lending, *The Economics of Transition* 8(2), 401 – 420.
- Ayyagari, Meghana, Thorsten Beck, and Asli Demirgüç-Kunt, 2007. Small and Medium Enterprises across the Globe, *Small Business Economics* 29(4), 415-434.
- Ayyagari, Meghana, Asli Demirgüç-Kunt, and Vojislav Maksimovic, 2010. Formal versus Informal Finance: Evidence from China, *Review of Financial Studies*, forthcoming.
- Beck, Thorsten, and Asli Demirgüç-Kunt, 2006. Small and Medium-Size Enterprises: Access to Finance as a Growth Constraint, *Journal of Banking and Finance* 30(11), 2931-2943.
- Beck, Thorsten, Asli Demirgüç-Kunt, and Vojislav Maksimovic, 2008. Financing Patterns Around the World: Are Small Firms Different? *Journal of Financial Economics* 89(3), 467-487.
- Berger, Allen N., Iftekhar Hasan, and Leora Klapper, 2004. Further Evidence on the Link between Finance and Growth: An International Analysis of Community Banking and Economic Performance, *Journal of Financial Services Research* 25(2-3), 169-202.
- Berger, Allen N., Nathan H. Miller, Mitchell A. Petersen, Raghuram G. Rajan, Jeremy C. Stein, 2005. Does function follow organizational form? Evidence from the lending practices of large and small banks, *Journal of Financial Economics* 76(2), 237-269.
- Berger, Allen N. and Gregory F. Udell, 2006. A More Complete Conceptual Framework for SME Finance, *Journal of Banking and Finance* 30(11), 2945-2966.

- Booth, Laurence, Varouj Aivazian, Asli Demirgüç-Kunt, and Vojislav Maksimovic, 2002, Capital Structures in Developing Countries, *Journal of Finance* 56(1), 87-130.
- Calomiris, Charles, Charles Himmelberg, and Paul Wachtel, 1995. Commercial Paper, Corporate Finance and the Business Cycle: A Microeconomic Perspective, Carnegie-Rochester Series on Public Policy 42, 203-250.
- Carter, Laurence, Teresa Barger, and Irving Kuczynski, 1996. *Leasing in Emerging Markets*, IFC Lessons of Experience Series, World Bank, Washington, DC.
- Casas-Arce, Pablo and Albert Saiz, 2010. Owing Versus Renting: Do Courts Matter? *Journal of Law and Economics*, forthcoming.
- Cole, Rebel A., Lawrence G. Goldberg, and Lawrence J. White, 2004. Cookie-cutter versus character: The micro structure of small business lending by large and small banks. *Journal of Financial and Quantitative Analysis*, 39(2), 227-251.
- De la Torre, Augusto, María Soledad Martínez Pería, and Sergio Schmukler, 2010. Bank Involvement with SMEs: Beyond Relationship Lending, *Journal of Banking and Finance* 34(9), 2280-2293.
- Demirgüç-Kunt, Asli and Vojislav Maksimovic, 1998. Law, Finance and Firm Growth, *Journal of Finance* 53(6), 2107-2137.
- Demirgüç-Kunt, Asli and Vojislav Maksimovic, 2002. Firms as Financial Intermediaries: Evidence from Trade Credit Data, Working paper, World Bank.
- Djankov, Simeon, Raphael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, 2002. The Regulation of Entry, *Quarterly Journal of Economics* 117, 1-35.
- Djankov, Simeon, Raphael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, 2003. Courts: The Lex Mundi project, *Quarterly Journal of Economics* 118, 453-517.
- Djankov, Simeon, Ira Lieberman, Joyita Mukherjee, and Tatiana Nenova, 2003. Going Informal: Benefits and Costs, in Boyan Belev, ed.: *The Informal Economy of the EU Accession Countries* (Center for the Study of Democracy).
- Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer, 2007. Private Credit in 129 Countries, *Journal of Financial Economics* 84(2), 299-329.
- Eisfeldt, Andrea, and Adriano Rampini, 2009, Leasing, Ability to Repossess, and Debt Capacity, *Review of Financial Studies* 22(4), 1621-1657.
- Fabrizi, Daniela and Leora Klapper, 2008. Trade Credit Supply, Market Power and the Matching of Trade Credit Terms, Working paper, World Bank.

- Fisman, Raymond and Inessa Love, 2003. Trade Credit, Financial Intermediary Development, and Industry Growth, *Journal of Finance* 58, 353-374.
- Fisman, Raymond and Mayank Raturi, 2004. Does Competition Encourage Credit Provision? Evidence from African Trade Credit Relations, *Review of Economics and Statistics* 86, 345-352.
- Ho, Simon, Kevin Lam, and Heibatollah Sami, 2004. The Investment Opportunity Set, Director Ownership, and Corporate Policies: Evidence from an Emerging Market, *Journal of Corporate Finance* 10(3), 383-408.
- Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, 2007. Governance Matters VI: Aggregate and Individual Governance Indicators 1996–2006, World Bank Policy Research Working Paper 4280.
- Klapper, Leora, Raphael Amit, Mauro F. Guillén, and Juan Manuel Quesada, 2007. Entrepreneurship and Firm Formation Across Countries, Working paper, World Bank.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, 1997. Legal Determinants of External Finance, *Journal of Finance* 52, 1131-1150.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, 1998. Law and Finance, *Journal of Political Economy* 106, 1113-1155.
- Lerner, Josh and Antoinette Schoar, 2005. Does Legal Enforcement Affect Financial Transactions? The Contractual Channel in Private Equity, *Quarterly Journal of Economics* 120, 223-246.
- Levine, Ross, Norman Loayza, and Thorsten Beck, 2000. Financial Intermediation and Growth: Causality and Causes, *Journal of Monetary Economics* 46, 31-77.
- Love, Inessa, Lorenzo A. Preve, and Virginia Sarria-Allende, 2007. Trade Credit and Bank Credit: Evidence from Recent Financial Crises, *Journal of Financial Economics* 83(2), 453-469.
- McMillan, John and Christopher Woodruff, 1999. Interfirm Relations and Informal Credit in Vietnam, *Quarterly Journal of Economics* 114, 1285-1320.
- Petersen, Mitchell and Raghuram G. Rajan, 1995. The Effect of Credit Market Competition on Lending Relations, *Quarterly Journal of Economics* 110, 407-443.
- Rajan, Raghuram and Luigi Zingales, 1998. Financial Dependence and Growth, *American Economic Review* 88, 559-586.
- Robinson, Marguerite, 2001. *The Microfinance Revolution: Sustainable Finance for the Poor*, World Bank, Washington, D.C.

Safavian, Mehnaz and Joshua Wimpey, 2007. When Do Enterprises Prefer Informal Credit?
World Bank Policy Research Working Paper 4435.

Stein, Jeremy C., 2002. Information Production and Capital Allocation: Decentralized versus
Hierarchical Firms, *The Journal of Finance*, 62(5), 1891-1921.

Appendix A: External Financing by Country

This table reports the percentage of firms using primary types of external financing by country for both working capital and new investment. Also tabulated is the Kaufmann, Kraay and Mastruzzi, 2007 measure of *Rule of Law*. Summary measures are provided for Rule of Law quartiles. Data on external finance for working capital are not available for Bhutan, Nepal, and Nigeria.

Country	Working Capital			New Investment			Rule of Law
	Banking	Leasing	Informal	Banking	Leasing	Informal	
Albania	17%	0%	11%	17%	1%	12%	-0.80
Algeria	29%	0%	12%	27%	0%	11%	-0.72
Angola	3%	0%	16%	7%	0%	14%	-1.40
Argentina	29%	0%	11%	9%	0%	18%	-0.55
Armenia	30%	2%	20%	24%	2%	24%	-0.47
Azerbaijan	2%	0%	11%	3%	1%	15%	-0.80
Bangladesh	68%	2%	18%	57%	5%	16%	-0.87
Belarus	14%	7%	13%	15%	9%	12%	-1.06
Benin	30%	1%	11%	24%	1%	7%	-0.63
Bhutan				27%	0%	5%	0.58
Bolivia	41%	0%	20%	34%	0%	7%	-0.87
Bosnia and Herzegovina	34%	2%	15%	26%	5%	14%	-0.62
Botswana	14%	0%	11%	20%	0%	6%	0.66
Brazil	53%	6%	16%	28%	8%	7%	-0.45
Bulgaria	23%	8%	15%	23%	9%	13%	-0.19
Burkina Faso	20%	0%	22%	22%	0%	6%	-0.58
Burundi	18%	0%	17%	15%	0%	28%	-1.20
Cambodia	6%	2%	48%	7%	2%	41%	-1.14
Cameroon	47%	0%	24%	22%	0%	11%	-1.07
Cape Verde	17%	0%	0%	18%	0%	0%	0.36
Chile	50%	8%	4%	44%	13%	2%	1.16
China	38%	0%	14%	29%	0%	12%	-0.42
Colombia	60%	0%	24%	45%	0%	8%	-0.72
Costa Rica	16%	4%	23%	15%	2%	12%	0.56
Croatia	35%	13%	13%	39%	12%	9%	0.06
Czech Republic	16%	10%	14%	16%	18%	15%	0.74
Dominican Republic	34%	7%	13%	7%	2%	2%	-0.67
Ecuador	49%	6%	19%	41%	4%	13%	-0.88
Egypt	12%	0%	7%	12%	0%	4%	0.03
El Salvador	47%	3%	18%	44%	3%	9%	-0.44
Eritrea	38%	0%	3%	42%	0%	2%	-0.72
Estonia	18%	21%	9%	33%	38%	12%	0.81
Ethiopia	40%	0%	14%	31%	0%	12%	-0.80
Gambia	9%	0%	15%	10%	0%	14%	-0.25
Georgia	22%	1%	12%	27%	1%	12%	-0.75
Germany	42%	18%	5%	45%	35%	4%	1.73
Greece	26%	6%	4%	26%	7%	2%	0.65
Guatemala	35%	9%	16%	31%	9%	12%	-1.06
Guinea	2%	0%	10%	1%	0%	7%	-1.27
Guinea-Bissau	1%	0%	30%	0%	0%	20%	-1.28
Guyana	33%	0%	4%	33%	1%	3%	-0.75
Honduras	39%	3%	16%	36%	2%	12%	-0.76
Hungary	30%	9%	10%	27%	13%	8%	0.71
Indonesia	30%	2%	26%	34%	5%	32%	-0.86
Ireland	46%	1%	5%	37%	21%	3%	1.59
Kazakhstan	26%	2%	12%	23%	4%	11%	-0.80
Kenya	53%	1%	4%	42%	2%	3%	-0.99
South Korea	41%	3%	9%	40%	2%	5%	0.78
Kosovo	24%	0%	17%	19%	1%	15%	-0.97
Kyrgyz Republic	16%	1%	19%	8%	3%	12%	-1.08
Laos	18%	0%	12%	14%	0%	7%	-1.03
Latvia	27%	15%	18%	29%	22%	12%	0.47

Lebanon	69%	3%	16%	53%	3%	8%	-0.33
Lesotho	17%	0%	3%	12%	0%	12%	-0.19
Lithuania	25%	16%	9%	20%	23%	14%	0.47
Macedonia	13%	3%	22%	17%	2%	15%	-0.35
Madagascar	20%	1%	10%	18%	4%	5%	-0.22
Malawi	35%	0%	3%	31%	2%	5%	-0.26
Malaysia	56%	10%	8%	45%	14%	5%	0.56
Mali	23%	0%	2%	22%	0%	3%	-0.16
Mauritania	9%	0%	29%	8%	0%	24%	-0.54
Mauritius	60%	7%	5%	48%	16%	3%	0.87
Mexico	8%	0%	14%	12%	0%	9%	-0.51
Moldova	29%	1%	22%	24%	4%	15%	-0.57
Mongolia	23%	1%	11%	41%	1%	6%	-0.20
Morocco	10%	2%	2%	28%	14%	1%	-0.08
Mozambique	11%	1%	2%	13%	0%	1%	-0.68
Namibia	16%	0%	4%	21%	0%	2%	-0.04
Nepal				37%	0%	6%	-0.83
Nicaragua	29%	1%	18%	27%	1%	10%	-0.65
Niger	26%	0%	2%	16%	0%	1%	-0.85
Nigeria				36%	0%	3%	-1.41
Oman	43%	5%	9%	31%	17%	7%	0.69
Pakistan	14%	2%	20%	15%	5%	26%	-0.87
Panama	38%	0%	5%	36%	0%	2%	-0.14
Paraguay	26%	0%	12%	14%	0%	5%	-1.00
Peru	49%	3%	13%	46%	2%	4%	-0.78
Philippines	19%	2%	19%	22%	4%	18%	-0.44
Poland	22%	10%	10%	25%	13%	8%	0.33
Portugal	20%	9%	4%	24%	18%	3%	1.08
Romania	28%	12%	12%	24%	11%	12%	-0.23
Russia	17%	3%	16%	16%	7%	11%	-0.88
Rwanda	20%	0%	10%	18%	0%	7%	-0.90
Saudi Arabia	38%	5%	13%	31%	2%	7%	0.19
Senegal	27%	0%	6%	30%	1%	6%	-0.18
Serbia and Montenegro	22%	2%	12%	16%	2%	6%	-0.86
Slavakia	21%	20%	12%	17%	27%	11%	0.44
Slovenia	27%	7%	4%	34%	14%	6%	0.79
South Africa	44%	5%	4%	27%	19%	3%	0.18
Spain	36%	0%	6%	33%	19%	3%	1.10
Sri Lanka	52%	10%	11%	26%	9%	5%	0.05
Swaziland	13%	0%	23%	13%	0%	9%	-0.78
Syria	6%	0%	20%	8%	0%	21%	-0.43
Tajikistan	5%	1%	22%	2%	1%	18%	-0.98
Tanzania	21%	0%	16%	18%	0%	8%	-0.42
Thailand	73%	2%	9%	75%	2%	6%	0.10
Turkey	30%	8%	13%	30%	11%	11%	0.08
Uganda	10%	0%	9%	15%	0%	2%	-0.69
Ukraine	13%	0%	8%	16%	5%	16%	-0.57
Uzbekistan	7%	0%	4%	4%	0%	3%	-1.41
Vietnam	53%	2%	19%	38%	1%	11%	-0.41
Zambia	41%	5%	7%	25%	11%	5%	-0.62
Total	28%	3%	13%	26%	7%	10%	-0.28

Rule of Law Quartiles

1st Quartile	23.4%	1.6%	16.9%	20.0%	2.1%	12.9%	-1.04
2nd Quartile	26.7%	1.1%	13.7%	22.9%	1.7%	10.1%	-0.67
3rd Quartile	28.7%	3.0%	11.7%	26.4%	3.8%	8.7%	-0.22
4th Quartile	33.7%	7.9%	8.5%	31.5%	14.3%	6.3%	0.68

Appendix B: Explanatory Variable Definitions

Firm-Level Variables	Definition (relevant survey question identifiers in parentheses)
Audited	Indicator variable set to a value of 1 for firms whose financial statements have been reviewed by an external auditor (c232), and zero otherwise.
Corporation	Indicator variable set to a value of 1 for firms that are a limited liability corporation (c202), and zero otherwise.
Employees	Average number of permanent and temporary workers (c262a1, c263a1y).
Firm Age	Number of years since the firm was founded (c201).
Exporter	Percentage of sales directly or indirectly exported abroad (c211a2, c211a3).
Foreign Owner	The firm's largest shareholder is a foreign company (q205b).
Privatized	The firm was previously government owned (q2041).
Country-Level Variables	Definition
Credit Information Index	Measurement of "the efficiency of rules affecting the scope, access, and quality of credit information." (From the World Bank Doing Business database, http://www.doingbusiness.org/).
Rule of Law	Measurement of "the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence" (Kaufmann, Kraay and Mastruzzi, 2007, p. 4). From the World Bank Worldwide Governance Indicators database.
Investment Freedom	The Scale is 0 to 100 and measures the restrictions on the flow both of internal and international capital. It looks at issues like how open the country is to foreign investments, the restrictions on foreign exchange and if foreign capital is treated differently than domestic capital. From the Heritage Foundation.
Financial Freedom	The scale is 0 to 100 and measures how free the banking sector is from regulation and government control and aggregates issues like government interference in credit allocation and the ease in which financial service firms can be opened. From the Heritage Foundation.
Legal Rights	A 0 to 10 index, where higher scores indicate collateral and

	bankruptcy laws supported access to credit. From the World Bank Doing Business database, http://www.doingbusiness.org/ .
Closing Business Costs	The cost of closing a business in a country as a percentage of the firm's value. From the World Bank Doing Business database, http://www.doingbusiness.org/ .
Credit Information	A 0 to 6 index that measures the scope and quality of credit information in a country through either public or private registries. From the World Bank Doing Business database, http://www.doingbusiness.org/ .
Domestic Credit	Domestic credit provided to the private sector as a percentage of GDP. From the World Bank.
GDP per Capita	World Bank's official estimates of gross domestic product (GDP) per capita, based on GDP converted to current U.S. dollars using the Atlas method. GDP takes into account all production in the domestic economy. The Atlas method smooths exchange rate fluctuations using a three-year moving average, price-adjusted conversion factor.
Low Income	Countries with GNI per capita less than \$766.
Lower-Middle Income	Countries with GNI per capita between \$766 and \$3,035.
Upper-Middle Income	Countries with GNI per capita between \$3,036 and \$9,385.
High Income	Countries with GNI per capita in excess of \$9,385.

Table 1: Summary Statistics by Country Income Group

This table reports data for the primary variables examined in the study by income group and for all countries. Reported values are sample means except for the number of country surveys and the number of firms which are sum totals. Panel A reports country-level variables and Panel B reports firm-level variables. Detailed variable definitions are provided in Appendix B. Income groups are determined by World Bank classification. Low-income countries have gross national income (GNI) per capita of less than \$766; lower-middle-income countries have GNI per capita between \$766 and \$3,035; upper-middle-income countries have GNI per capita between \$3,036 and \$9,385; and high-income countries have GNI per capita in excess of \$9,385.

Panel A: Country-Level Variables

	Low Income	Lower- middle Income	Upper- middle Income	High Income	All Countries	Std. Dev.
Number of Country Surveys	53	64	37	10	164	
GDP per Capita (USD)	\$386	\$1,655	\$4,886	\$15,063	\$2,791	\$3,961
Rule of Law	-0.71	-0.55	0.37	1.00	-0.30	0.68
Investment Freedom (rescale by /100)	0.45	0.48	0.62	0.64	0.51	0.17
Financial Freedom (rescale by /100)	0.43	0.49	0.66	0.56	0.52	0.19
Legal Rights	4.3	4.7	5.3	5.5	4.8	1.9
Closing Business Costs	15.1%	16.9%	14.5%	9.9%	15.3%	10.2%
Credit Information	1.2	2.9	4.0	4.4	2.7	2.1
Domestic Credit (% GDP)	16.2%	28.4%	43.1%	91.8%	32.2%	30.7%
GDP per Capita Growth (year after survey)	4.0%	6.4%	5.9%	3.1%	5.3%	4.0%
Manufacturing Sector Growth (year after survey)	5.8%	7.5%	7.5%	6.3%	6.9%	8.2%
Manufacturing as a % of GDP (year after survey)	13.7%	18.1%	19.0%	20.3%	17.0%	7.3%
Value of the Manufacturing Sector (year after survey)	19.9	21.7	22.4	24.0	21.4	2.0

Panel B: Firm-Level Variables

	Low Income	Lower- middle Income	Upper- middle Income	High Income	All Countries	Std. Dev.
Number of Firms	17,350	31,298	15,032	5,058	68,738	
Permanent Employees 1 Year Ago	110.2	171.6	115.3	95.9	138.1	669.6
2-Year Permanent Employment Growth	14.0%	14.8%	11.4%	6.3%	13.0%	48.5%
Firm Age	13.2	16.0	18.0	18.7	15.9	15.3
Exporter	16.6%	23.4%	28.3%	22.9%	22.7%	41.9%
Corporation	44.2%	48.0%	55.8%	36.3%	47.9%	49.9%
Audited	41.9%	53.1%	57.4%	60.6%	51.7%	50.0%
Privatized	7.9%	5.9%	5.8%	2.9%	6.2%	24.0%
Manufacturing	61.9%	62.0%	54.5%	33.9%	58.3%	49.3%
Services	26.5%	30.2%	36.9%	51.9%	32.3%	46.8%
Financing Variables (percent of all firms using each type):						
Retained Earnings	88.1%	80.6%	83.1%	91.7%	83.8%	36.8%
Any External Financing	64.5%	61.9%	65.3%	63.8%	63.4%	48.2%
Bank Financing	25.9%	32.5%	33.7%	41.7%	31.8%	46.6%
Lease Financing	2.6%	4.1%	12.5%	19.1%	6.6%	24.8%
Informal Finance	17.1%	14.5%	13.1%	7.5%	14.3%	35.0%

Table 2: Sources of External Financing

This table reports average firm-level use of financing types as a percentage of external financing by income group. Only firms reporting the use of external financing for working capital or new investment are included. Values for working capital and new investment are reported separately in Panel A and Panel B, respectively. Sample sizes differ across panels because not all firms report external financing for working capital and new investment.

Panel A: Working Capital

	Low Income	Lower- middle Income	Upper- middle Income	High Income	Total
Local Banks	26.1%	32.9%	32.8%	41.1%	31.7%
Foreign Banks	1.2%	2.4%	2.2%	2.3%	2.0%
Leasing	0.5%	1.3%	4.8%	5.0%	2.1%
Trade Credit	39.5%	29.4%	28.1%	23.0%	31.3%
Credit Cards	0.7%	0.9%	1.5%	2.2%	1.1%
Family & Friends	12.2%	11.2%	8.3%	5.0%	10.4%
Other Informal Sources	2.2%	3.5%	1.9%	0.6%	2.6%
Grants	1.8%	1.3%	3.7%	1.0%	1.9%
Equity and Other	15.8%	17.0%	16.8%	19.8%	16.8%
Observations	9,935	16,651	8,133	2,824	37,543

Panel B: New Investment

	Low Income	Lower- middle Income	Upper- middle Income	High Income	Total
Local Banks	38.0%	39.6%	35.8%	45.4%	38.9%
Foreign Banks	1.9%	4.3%	3.3%	2.4%	3.3%
Leasing	2.6%	5.0%	14.4%	20.6%	8.0%
Trade Credit	10.6%	11.8%	10.1%	8.4%	10.9%
Family & Friends	0.4%	0.5%	0.7%	1.8%	0.6%
Credit Cards	14.1%	11.4%	8.0%	3.5%	10.5%
Other Informal Sources	5.8%	3.9%	2.5%	0.3%	3.7%
Grants	3.6%	4.3%	4.5%	1.6%	3.9%
Equity and Other	22.9%	19.1%	20.7%	15.9%	20.1%
Observations	5,599	10,760	5,510	2,117	23,986

Table 3: External Financing for New Investment

This table reports statistics on external financing for new investment for each major type of financing by country income group and for all firms (total). Panel A reports the percent of firms using each type of financing for firms that use any type of external financing. Panel B reports the percent of total external financing that comes from the type specified in the row for firms that use that type of financing. Results are provided for all firms and manufacturing firms only.

Panel A: Percent of Firms Using Each Type of Financing Conditional on Any External Capital

	Low Income	Lower- middle Income	Upper- middle Income	High Income	Total
<i>All Firms</i>					
Bank Financing	48.6%	51.5%	48.7%	61.9%	51.1%
Leasing	6.4%	8.0%	23.2%	33.7%	13.4%
Informal Financing	25.5%	19.9%	15.9%	6.8%	19.2%
<i>Manufacturing Only</i>					
Bank Financing	56.2%	57.3%	53.1%	67.3%	56.6%
Leasing	3.2%	8.3%	19.6%	25.6%	10.1%
Informal Financing	18.4%	15.4%	14.6%	7.1%	15.7%

Panel B: Percent of External Financing for Firms that Use Each Type of Financing

	Low Income	Lower- middle Income	Upper- middle Income	High Income	Total
<i>All Firms</i>					
Bank Financing	82.4%	85.1%	80.1%	77.1%	82.5%
Leasing	40.7%	63.4%	62.7%	61.2%	60.1%
Informal Financing	78.0%	77.2%	66.0%	56.0%	74.7%
<i>Manufacturing Only</i>					
Bank Financing	86.8%	85.3%	82.7%	78.5%	84.8%
Leasing	58.0%	64.5%	60.0%	57.0%	61.4%
Informal Financing	70.6%	71.2%	69.1%	52.0%	70.2%

Table 4. Determinants of External Financing

This table presents results from a probit model estimation of the determinants of private external capital. The dependant variable is a binary variable describing the use of any external financing for working capital or new investment. Marginal effects are reported along with robust *p*-values (adjusted for clustering at the survey level) in brackets. All regressions contain sector and survey year fixed effects. Variable definitions are provided in Appendix B. Asterisks (*, **, ***) denote significance at the 10%, 5% and 1% levels, respectively.

Probit Regressions	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Employees (log, t-1)	0.038 [0.000]***	0.039 [0.000]***	0.045 [0.000]***	0.042 [0.000]***	0.043 [0.000]***	0.039 [0.000]***	0.040 [0.000]***	0.039 [0.000]***	0.038 [0.000]***
Firm Age (log)	-0.001 [0.863]	-0.013 [0.104]	-0.016 [0.035]**	-0.018 [0.020]**	-0.015 [0.061]*	-0.011 [0.171]	-0.013 [0.113]	-0.014 [0.088]*	-0.015 [0.040]**
Exporter	0.005 [0.796]	0.022 [0.250]	0.018 [0.324]	0.015 [0.475]	0.015 [0.456]	0.019 [0.323]	0.020 [0.289]	0.020 [0.282]	0.019 [0.301]
Corporation	0.096 [0.001]***	0.117 [0.000]***	0.117 [0.000]***	0.119 [0.000]***	0.111 [0.000]***	0.121 [0.000]***	0.114 [0.000]***	0.107 [0.001]***	0.119 [0.000]***
Audit	0.052 [0.004]***	0.034 [0.192]	0.020 [0.407]	0.022 [0.393]	0.027 [0.284]	0.042 [0.075]*	0.029 [0.248]	0.039 [0.105]	0.021 [0.389]
Foreign Owner	-0.010 [0.850]	-0.042 [0.402]	-0.043 [0.414]	-0.026 [0.598]	-0.035 [0.475]	-0.033 [0.554]	-0.050 [0.332]	-0.029 [0.578]	-0.035 [0.492]
State Owner	-0.183 [0.000]***	-0.176 [0.004]***	-0.176 [0.004]***	-0.162 [0.009]***	-0.172 [0.008]***	-0.177 [0.002]***	-0.172 [0.005]***	-0.175 [0.004]***	-0.162 [0.007]***
Privatized	-0.011 [0.606]	-0.019 [0.583]	-0.011 [0.754]	-0.003 [0.935]	-0.019 [0.626]	-0.035 [0.271]	-0.019 [0.604]	-0.016 [0.630]	0.008 [0.816]
GDP per captia (log)		0.011 [0.592]	-0.033 [0.117]	-0.013 [0.456]	0.001 [0.962]	0.005 [0.780]	0.011 [0.598]	-0.0241 [0.255]	-0.013 [0.527]
Rule of Law			0.120 [0.002]***						
Investment Freedom				0.376 [0.002]***					
Financial Freedom					0.254 [0.019]**				
Legal Rights						0.013 [0.342]			
Closing Business Costs							-0.227 [0.272]		
Credit Information								0.026 [0.038]**	
Domestic Credit									0.172 [0.010]**
Fixed Effects:									
Country	Yes	No	No	No	No	No	No	No	No
Sector	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	60,044	60,012	59,916	57,539	57,539	58,660	60,012	60,012	58,376
% Accessing Financing	63.1%	63.1%	63.2%	62.5%	62.5%	63.0%	63.1%	63.1%	63.5%
Pseudo R ²	0.141	0.052	0.061	0.058	0.054	0.056	0.054	0.057	0.059

Table 5. Determinants of Type of External Finance

This table presents results from a probit model estimation of the determinants of types of external capital. The dependent variables are binary and describe the use of a given type of external financing either for working capital or for new investment. Robust *p*-values are in brackets. All regressions contain sector, survey and country fixed effects. Separate results are provided for upper-income (high and upper middle income) countries as well as lower-income (low and lower middle income) countries. Detailed variable definitions are provided in Appendix B. Asterisks (*, **, ***) denote significance at the 10%, 5% and 1% levels, respectively.

	Bank Financing			Lease Financing			Informal Financing		
	All Countries	Upper-Income	Lower-Income	All Countries	Upper-Income	Lower-Income	All Countries	Upper-Income	Lower-Income
		Countries	Countries		Countries	Countries		Countries	
Employees (log, t-1)	0.081 [0.000]***	0.063 [0.000]***	0.089 [0.000]***	0.013 [0.000]***	0.026 [0.000]***	0.008 [0.000]***	-0.044 [0.000]***	-0.042 [0.000]***	-0.044 [0.000]***
Firm Age (log)	0.028 [0.043]**	0.018 [0.093]*	0.032 [0.079]*	-0.001 [0.815]	-0.002 [0.790]	-0.001 [0.725]	-0.049 [0.001]***	-0.024 [0.000]***	-0.059 [0.002]***
Exporter	0.011 [0.500]	0.034 [0.019]**	0.003 [0.861]	0.004 [0.415]	0.013 [0.308]	-0.001 [0.843]	-0.003 [0.800]	0.004 [0.721]	-0.004 [0.790]
Corporation	0.039 [0.022]**	0.061 [0.041]**	0.034 [0.088]*	0.012 [0.076]*	0.026 [0.179]	0.007 [0.193]	-0.024 [0.029]**	-0.027 [0.027]**	-0.023 [0.148]
Audit	0.026 [0.364]	0.048 [0.089]*	0.014 [0.729]	0.011 [0.042]**	0.014 [0.386]	0.009 [0.018]**	-0.022 [0.063]*	-0.034 [0.003]***	-0.016 [0.330]
Foreign Owner	0.024 [0.738]	-0.115 [0.000]***	0.091 [0.338]	-0.013 [0.036]**	-0.036 [0.022]**	-0.004 [0.460]	-0.127 [0.000]***	-0.070 [0.002]***	-0.150 [0.000]***
State Owner	-0.206 [0.000]***	-0.261 [0.000]***	-0.185 [0.002]***	-0.039 [0.000]***	-0.112 [0.000]***	-0.014 [0.047]**	-0.104 [0.000]***	-0.083 [0.002]***	-0.112 [0.000]***
Privatized	0.012 [0.787]	-0.011 [0.706]	0.018 [0.768]	-0.016 [0.038]**	-0.090 [0.000]***	0.003 [0.609]	-0.030 [0.049]**	-0.010 [0.717]	-0.036 [0.056]*
Fixed Effects:									
Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	37,915	11,635	26,262	27,815	9,635	18,180	37,893	11,635	26,240
% Accessing Type of Financing	51%	55%	49%	13%	26%	7%	22%	18%	24%
Pseudo-R ²	0.20	0.14	0.23	0.21	0.12	0.17	0.14	0.12	0.15

Table 6. Institutional Determinants of Type of External Finance

The table reports marginal effects for institutional variables from 63 separate regressions like those reported in Table 4. The dependent variable in each regression is a binary variable describing the use of any external financing of the type listed in the column heading. All regressions contain the same variables as Table 4 specification 2 (Permanent employees 1 year ago (log), Firm age (log), Exporter, Coporation, Audit, Foreign Owner, State Owner, Privatized, GDP per capita (log), Sector and Survey Year fixed effects) plus the additional institutional variable listed below. Robust *p*-values are presented in brackets. Seperate results are provided for upper-income (high and upper middle income) countries as well as lower-income (low and lower middle income) countries. Detailed variable definitions are provided in the Appendix. Asterisks (*, **, ***) denote significance at the 10%, 5% and 1% levels, respectively.

Probit Regressions	Bank Financing			Lease Financing			Informal Financing		
	All Countries	Upper-Income Countries	Lower-Income Countries	All Countries	Upper-Income Countries	Lower-Income Countries	All Countries	Upper-Income Countries	Lower-Income Countries
Rule of Law	-0.022 [0.636]	-0.006 [0.919]	-0.005 [0.945]	0.036 [0.001]***	0.169 [0.001]***	0.017 [0.061]*	-0.130 [0.000]***	-0.123 [0.000]***	-0.089 [0.055]*
Investment Freedom	-0.080 [0.506]	-0.308 [0.114]	0.100 [0.467]	0.081 [0.003]***	0.431 [0.000]***	0.019 [0.229]	-0.184 [0.024]**	-0.156 [0.084]*	0.033 [0.752]
Financial Freedom	0.045 [0.659]	-0.091 [0.424]	0.133 [0.315]	0.059 [0.015]**	0.210 [0.037]**	0.012 [0.348]	-0.106 [0.187]	-0.093 [0.099]*	-0.016 [0.884]
Legal Rights	0.019 [0.035]**	0.019 [0.152]	0.020 [0.080]*	0.000 [0.953]	0.018 [0.065]*	-0.002 [0.230]	-0.013 [0.148]	-0.019 [0.005]***	-0.008 [0.509]
Closing Business Costs	-0.035 [0.096]*	0.077 [0.069]*	-0.044 [0.030]**	-0.148 [0.007]***	-0.068 [0.863]	-0.083 [0.000]***	-0.119 [0.559]	0.053 [0.853]	-0.255 [0.240]
Credit Information	0.016 [0.170]	-0.031 [0.023]**	0.035 [0.015]**	0.005 [0.061]*	0.006 [0.464]	0.003 [0.141]	0.004 [0.678]	-0.002 [0.721]	0.003 [0.791]
Domestic Credit	0.122 [0.065]*	0.248 [0.000]***	0.041 [0.610]	-0.025 [0.045]**	-0.059 [0.075]*	-0.019 [0.310]	-0.127 [0.000]***	-0.109 [0.001]***	-0.108 [0.003]***

Table 7. Country Growth Rates and External Financing

This table presents results from the estimation of an OLS model of the determinants of country level growth. The dependent variable is the growth rate of GDP per capita the year after the firm survey was conducted (t+1). Robust *p*-values (adjusted for clustering at the region level) are in brackets. All regressions contain survey and region fixed effects. Specification (2) contains only countries with *Rule of Law* values less than the median of -0.45. Specification (3) contains only countries with *Rule of Law* scores greater than or equal to the median. Detailed variable definitions are provided in Appendix B. Asterisks (*, **, ***) denote significance at the 10%, 5% and 1% levels, respectively.

	All Countries (1)	Rule of Law	
		Weak (2)	Strong (3)
% of Firms with Bank Financing	-0.002 [0.695]	-0.023 [0.379]	0.028 [0.278]
% of Firms with Lease Financing	0.023 [0.026]**	0.179 [0.020]**	0.047 [0.008]***
% of Firms with Informal Financing	-0.002 [0.893]	-0.035 [0.074]*	0.048 [0.125]
GDP per Capita Growth (year t)	0.819 [0.000]***	0.960 [0.000]***	0.429 [0.028]**
GDP per Capita (log, year t)	-0.002 [0.412]	0.000 [0.957]	-0.006 [0.038]**
Observations	164	83	81
R-squared	0.69	0.78	0.65

Table 8. Manufacturing Growth Rates and External Financing

This table presents results from the estimation of an OLS model of the determinants of country level manufacturing sector growth. The dependent variable is the growth rate of the manufacturing sector the year after the survey was conducted. Robust p -values (adjusted for clustering at the region level) are in brackets. All regressions contain survey and region fixed effects. Specification (2) contains only countries with *Rule of Law* values less than the median of -0.45. Specification (3) contains only countries with *Rule of Law* scores greater than or equal to the median. Detailed variable definitions are provided in the Appendix. Asterisks (*, **, ***) denote significance at the 10%, 5% and 1% levels, respectively.

	All Countries (1)	Rule of Law	
		Weak (2)	Strong (3)
% of Manufacturing Firms using Banking	0.006 [0.906]	0.030 [0.446]	-0.037 [0.723]
% of Manufacturing Firms using Leasing	0.091 [0.000]***	0.127 [0.016]**	0.047 [0.555]
% of Manufacturing Firms usings Informal Financi	-0.006 [0.938]	-0.121 [0.537]	0.045 [0.749]
Growth of Manufacturing Sector (year t)	0.430 [0.010]***	0.562 [0.007]***	0.206 [0.164]
Manufacturing as a % of GDP (year t)	0.001 [0.541]	0.002 [0.400]	0.000 [0.898]
Value of the Manufacturing Sector (log, USD)	0.003 [0.142]	0.002 [0.738]	0.001 [0.803]
Observations	142	68	74
R-squared	0.24	0.46	0.19

Table 9: Differences in Firm Characteristics by Country Rule of Law and Use of Leasing

This table provides summary statistics for survey responses to additional questions by *Rule of Law* tercile and the use of lease financing. Survey questions are grouped by our subjective assessment regarding the pertinence for leasing motivations. Survey question identifiers are provided in parentheses. Under "Rule of Law Detail" we provide a breakdown of responses to a specific survey question about crime, theft, and disorder, specifically, how severe an obstacle firms perceive these to be (on a scale of 0-4). Statistics under "Capital Availability" relate to the possible benefits of additional capital that leasing could provide. Statistics under "Operating Efficiency" relate to possible operating efficiency benefits that leasing may provide to firms. Differences between responses by firms using leases along with corresponding *p*-values are also presented. The last two columns provide differences in differences adjusted for sector fixed effects between Strong and Weak *Rule of Law* terciles and associate *p*-values from one-sided tests.

	Rule of Law (terciles)								Adjusted Difference in Difference (Strong - Weak)	
	Weak				Strong				Diff-Diff	<i>p</i> -value
	Leasing	Nonleasing	Diff.	<i>p</i> -value	Leasing	Nonleasing	Diff.	<i>p</i> -value		
Rule of Law Detail										
Crime, theft, and disorder severity (c218p)	1.35	1.38	-0.03	0.64	0.95	0.98	-0.03	0.267	0.02	0.478
Capital Availability										
Firms with recent loan requiring collateral or deposit (c229b)	85.2%	77.5%	7.7%	< 0.001	81.1%	74.6%	6.5%	< 0.001	-1.8%	0.345
Firms with line of credit (c228)	63.9%	40.6%	23.3%	<0.001	72.9%	52.5%	20.4%	< 0.001	-1.2%	0.448
Percentage of credit unused (c228y)	41.7%	47.0%	-5.3%	0.131	40.4%	46.2%	-5.8%	< 0.001	-0.8%	0.468
Borrowing in foreign currency (c230)	18.0%	8.1%	9.9%	<0.001	16.0%	12.5%	3.5%	< 0.001	-5.4%	0.096
Operating Efficiency										
Capacity utilization (c250)	76.1%	73.8%	2.3%	0.025	80.7%	78.3%	2.3%	< 0.001	-1.4%	0.201
Investment planning (c255c), in months	9.56	11.05	-1.49	0.108	13.85	11.92	1.93	0.043	3.25	0.131
Firms acquiring innovations from equipment suppliers (c259i8)	19.4%	13.6%	5.8%	0.025	13.5%	18.6%	-5.0%	< 0.001	-9.3%	0.001