Privatization, Credit Application, and Credit Constraints in Eastern Europe and Central Asia

Using data compiled by the World Bank from over 4,000 firms in 30 developing countries, this study examines the impact of a firm's privatization on its credit applications and credit constraints. The results indicate that privatized firms are more likely to be credit constrained, more likely to be discouraged when applying for credit, and more likely to face severe financing obstacles. In addition, privatized firms operating in underdeveloped economies are more likely to face credit constraints. The results confirm that relative to privatization, firm-government relationships play a more important role in a firm's credit constraints.

JEL classification: G15; G32; G34; O18
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INTRODUCTION

During the past three decades, privatization has been one of the main choices of policy in both developing and developed countries (Boubakri and Cosset, 1998). The business world experienced a dramatic shift from state-owned enterprises (SOEs) to privatization in that nearly 100 countries put effort in privatizing some or most of the SOEs (Schmidt, 1996). Accordingly, the academic area witnessed a veritable flood of research on the topic of firm privatization (Boycko, Shleifer, and Vishny, 1996; Perotti, 1995; Sappington and Stiglitz, 1987; Vickers and Yarrow, 1991). A variety of the extant research focuses on the positive effects of privatization including the effect of improving operating performance (Frydman, Gray, Hessel, and Rapaczynski, 1999; Jia, Sun, and Tong, 2005; Sun, Tong, and Tong, 2002) and the impact on social costs (Schmidt and Schnitzer, 1993; Yarrow, 1986).

According to the extant literature, privatization can be viewed as an effective remedy to the popular and troublesome agency problem in the public sector (Vickers and Yarrow, 1991). What is the effect of privatization on firms' credit applications and credit constraints? Is it appropriate to assume that privatization has an exclusively positive impact on both operating results and financing? To be more specific, is it easier or harder for privatized firms to acquire external credit or to avoid credit constraints? There are two possibilities. Privatization increases firm efficiency and improves a firm's operating results and profit (Frydman et al., 1999; Sun et al., 2002) making the firm more credit worthy to potential lenders and less likely to be credit constrained. Alternatively, a privatized firm may lose relatively strong bank-firm relationships or favorable support or benefits from prior state ownership (Cull and Xu, 2005), which may make it harder to acquire external financing. If the first effect dominates, there would be a positive relationship between firm privatization and credit constraints. Otherwise, privatization could make the privatized firm even less credit worthy thereby exacerbating the problem of credit rationing.

The purpose of the current study is to examine the impact of firm privatization on the possibility of credit constraints. Specifically, this study seeks to investigate the effect of privatization on firm financing in three ways: 1) whether privatized firms are more likely to be discouraged when considering applying

for credit, 2) whether their applications are more likely to be rejected, and 3) whether those privatized firms are more likely to be financially stressed.[1]

The data used in this study is from a World Bank survey that includes information of firms from around 30 countries in Eastern Europe and Central Asia. The survey collects detailed information about the firms' legal status, ownership, bank-firm relationships, government-firm relationships, firms' financing status, and other variables included in the following empirical analysis.

The results indicate that privatized firms tend are more likely to be credit constrained. Specifically, they are more likely to be discouraged even though they tend to have greater credit needs after privatization. The results also confirm that privatized firms are more likely to experience financial stress. In addition, the results provide evidence that privatized firms are more likely to be credit constrained when operating in underdeveloped economies. Finally, the study finds that when compared to the effects of privatization, the government-firm relationship seems to play a more important role when considering a firm's probability of credit constraints.

The importance of the current study is two-fold. First, the current study is the first to focus exclusively on the impact of privatization on a firm's credit applications and credit constraints. In addition, unlike many prior studies, most of which provide tremendous evidence that privatization benefits both firms and the society, the current study finds that privatization is not a panacea and it may put firms at a disadvantage regarding financing.

The remainder of the paper is organized as follows. The Background section reviews the theoretical and empirical literature concerning privatization and credit constraints. The Data Description section describes the data. The next section introduces the variables used and lays out the empirical model. The Results section presents the main analyses. The Robustness section provides the robustness tests related to the main findings, while the final section provides my conclusions.

BACKGROUND

This section consists of two parts: 1) the literature regarding privatization and 2) the literature concerning credit constraints. The latter is further divided into three topics: that include the literature regarding firms' without credit needs, the literature concerning discouraged firms, and the literature regarding firms whose credit application has been rejected.

Privatization

During the past couple of decades, there have been remarkable studies focusing on the privatization of firms (Dewenter and Malatesta, 1997; Eckel, Eckel, and Singal, 1997; Lopez-de-Silanes, 1997; Perotti and Guney, 1993). A vast majority of the prior literature focuses on privatization within specific country (countries). King and Pitchford (1998) study firms' privatization in Australia. Sun et al. (2002) and Jia et al. (2005) examine privatization in China. Dinc and Gupta (2011) explore the topic using data from India. La Porta and López-De-Silanes (1999) employ information from Mexico. Lipton, Sachs, and Summers (1990) examine firms in Poland. Barberis, Boycko, Shleifer, and Tsukanova (1995) study firms of Russia, while Boubakri and Cosset (1998) review firms in several developing countries.

That privatization has a positive impact on firm performance, including profitability and efficiency, is well established (Boubakri and Cosset, 1998; Cuervo and Villalonga, 2000; Frydman et al., 1999; La Porta and López-De-Silanes, 1999). D'souza and Megginson (1999) and Megginson, Nash, and van Randenborgh (1994) find that privatization has a significant positive effect on firm performance including output, operating efficiency, profitability, work force, and leverage ratios. Sun et al. (2002) also present some evidence concerning the impact of government ownership on the performance of privatized firms. They find that government ownership has a positive, but non-liner (in fact, reverse U-shape) relationship on the performance of partially privatized firms. To be more specific, either too much or too little government ownership is good to the partially privatized firm. Similarly, Jia et al. (2005) examine the partial privatization process of 53 state-owned firms in China. Their evidence suggests that privatization has a positive effect on firm performance including increased sales, net profits, and capital spending. In

addition, Sheshinski and López-Calva (2003) study the benefits of privatization from the perspective of both microeconomics and macroeconomics. They report that privatization has a positive effect on both a firm's profitability and efficiency. However, they note that no conclusive evidence can be obtained from the perspective of macroeconomics.

Some extant studies focus on the impact of privatization on social costs. For example, based on both theoretical and empirical cases, Yarrow (1986) examines the effect of privatization on social costs. He presents that the trade-off, between deficiencies in the government's control of public firms and possible market failures due to a lack of competition, determines whether there is any actual benefit to society. He concludes that extant privatization benefits a small group of investors at the cost of a vast amount of taxpayers instead of leading to "a market widening of share ownership" (Yarrow, 1986, p. 323). An equally interesting problem concerns the relationship between firm privatization and social costs. Schmidt and Schnitzer (1993) aptly describe a dilemma with firms' privatization decisions. This concerns the incentive to restructure, but with high social costs or lower social costs with government control, but a lack of incentive to restructure. They construct a model and provide suggestions to solve the dilemma. For instance, the government does not privatize all of the firms at the same time and keeps a small fraction of the firm's shares so as to maintain a positive effect, or the government maintains the right to replace the top manager of the privatized firm.

A couple of prior studies take issue of the privatization of banks. Focusing on bank privatization in transition economies, Bonin, Hasan, and Wachtel (2005) find that government-owned banks are far less efficient than foreign-owned banks. Thus, they suggest that firms attract a foreign-owned bank when pursuing privatization. They also provide evidence that both the time and the method of privatization are important to a bank's privatization. Very similar evidence comes from Clarke, Cull, and Shirley (2005), who find that bank privatization improves banks' performance. Going further than Bonin et al. (2005), they note that the positive effects of bank privatization are greater when foreign banks and strategic investors are allowed to participate in the privatization process and when the government can completely relinquish the privatized firm.

There are also some prior studies examining the relationship between privatization and the role of competition. Using data from manufacturing firms in Bulgaria and Romania, Konings, Van Cayseele, and Warzynski (2005) examine the impact of privatization and competitive pressure on price-cost margins. They find that privatized firms tend to reduce costs instead of raising prices. Thus, there is a positive relationship between privatization and the price-cost margin. They also provide evidence that the relationship is even stronger in highly competitive regions.[2] Vickers and Yarrow (1991) look more generally at the economic aspects of privatization by focusing on several features of the effect of privatization including the role of competition, government intervention, and monitoring managers. They focus on three specific countries (Great Britain, Chile, and Poland) and conclude that the impact of privatization is not unique, but tends to rely on the market and the financial markets in which it operates.

Credit Constraints and Firms' Credit Applications

This section focuses on the literature regarding credit constraints. It is further divided into three subsections: 1) a firm's credit needs, 2) discouraged firms, and 3) firms with credit constraints.

Literature on Credit Needs

The literature regarding credit constraints can traced to Stiglitz and Weiss (1981), who provide a theoretical basis for credit rationing. A bank rejects a firm's credit application while the bank has available funds. Based on their study, many studies that follow focus on the bank-firm relationship, financing obstacles, and credit constraints. However, most of the prior studies have one common thread in that they assume the firms are in need of credit (Berger and Udell, 2002; Chakravarty and Xiang, 2013). In other words, as some firms are without credit needs, they are not included in much of the prior research. Fortunately, during the past few years, there have been some studies focusing on firms without credit needs (Chakravarty and Xiang, 2016; Cole, 2011).

Bigsten, Collier, Dercon, Fafchamps, Gauthier, and Gunning (2003) examine credit constraints in seven African countries and find that more than half of the manufacturing firms in those countries reported they were not in need of credit. However, many firms use overdraft and/or trade credit as optional resources for funds instead of acquiring funds from formal financial institutions, most of which require collateral. They also provide evidence that larger firms are much more likely to receive credit. Cole and Sokolyk (2016) focus on firms within America and examine their credit applications. Using data from 1993, 1998, and 2003 Surveys of Small Business Finances, they include firms with credit needs and without credit needs. They provide evidence that firms without credit needs tend to be larger, with better bank-firm relationships, more profitable, and tend to occur in certain industries including retail, wholesale, or services. Chakravarty and Xiang (2016) extend Cole and Sokolyk's (2016) study by including 92 countries in their study. They focus exclusively on firms without credit needs. Their results provide evidence that firms without credit needs are more likely to be related by their legal status and are more likely to be self-reporting with greater financing obstacles.

Literature on Discouraged Firms

Kon and Storey (2003) may be the first to exclusively study discouraged firms. In their study, they find that discouraged firms may be good borrowers. However, due to limited information and/or information asymmetry, these potentially good borrowers may self-anticipate rejection by financial institutions and choose not to apply for credit becoming discouraged firms. In their study, they hypothesize that firms in more developed economies may be more likely to be discouraged than their peers in underdeveloped economies. However, they provide only a theoretical basis for these discouraged firms instead of providing empirical evidence.

Following Kon and Storey (2003), there are quite a few studies examining discouraged firms in the past few years (Cavalluzzo, Cavalluzzo, and Wolken, 2002; Chakravarty and Xiang, 2013; Han, Fraser, and Storey, 2009). Levenson and Willard (2000) include both discouraged firms and applied, but rejected firms when investigating credit constraints. Their results indicate that older and larger firms are less likely to be credit constrained than younger, smaller firms. Cavalluzzo et al. (2002) use data from the 1993 National Survey of Small Business Finances (NSSBF) and provide evidence that a firm's credit history and its financial status (e.g., asset turnover rate) are important factors related to the probability of firm's discouragement. Chakravarty and Yilmazer (2009) develop a multistage model in examining: 1) a firm's decision to apply for credit, 2) whether the application is approved, and 3) the level of the interest rate if approved. They find that a good bank-firm relationship increases the possibility of a firm applying for credit. However, they do not derive similar results for better interest rates. Following the same string, Han et al. (2009) and Chakravarty and Xiang (2013) are among the first empirical studies to focus exclusively on discouraged borrowers. One main difference between the two is that Han et al. (2009) examine small businesses in the U.S., while Chakravarty and Xiang (2013) explore small businesses within various economies throughout the world.

Literature Regarding the Availability of Credit and Financial Constraints

An incomplete list of this literature includes studies on bank-firm lending relationships, as well as credit availability (Berger and Udell, 1995; Cole, 1998; Petersen and Rajan, 1994, 1995), and on firms' financing obstacles (Beck, Demirgüç-Kunt, and Maksimovic, 2005; and Beck, Demirgüç-Kunt, Maksimovic, 2006).

Petersen and Rajan (1994) find that good bank-firm relationships are helpful for firms seeking credit from financial institutions. However, they do not find evidence to support the notion that the bank-firm relationship is also helpful in acquiring better interest rates. Berger and Udell (1995) support the positive effect of a bank-firm relationship in helping firms obtain credit. They also provide evidence that close bank-firm relationships are useful in helping firms to secure loans with lower interest rates. In addition, they determine that firms with close bank-firm relationships are less likely to provide collateral. Cole (1998) provides evidence that it is the bank-firm relationship itself, instead of its length, which has a positive effect in helping firms secure credit. Cole (1998) also compares solo bank relationships and

multi-bank relationships. The results indicate that a solo bank relationship is more helpful in obtaining credit than multi-bank relationships. One possible reason is that the information provided by a solo bank relationship is more valuable for financial institutions than that of the firm having multiple bank relationships.

Beck et al. (2005) extend the credit constraint study to the macro levels. They determine that the level of financial and institutional development of an economy is negatively correlated with the financing obstacles firms face within the economy. Beck et al. (2006) use data from the World Bank to examine the determinants of a firm's financing obstacles. They provide evidence that firm age, size, and its characteristics, including ownership, are key determinants of the financing obstacles it faces.

After reviewing prior studies, Brown, Ongena, Popov, and Yeşin (2011) may be, in some degree, similar to the current study. Brown et al. (2011) examine a firm's credit needs, discouraged firms, and rejected firms in Eastern Europe. The current study builds on this prior research, but differs in some aspects. First, the study of Brown et al. (2011) uses a privatization related variable in their study. However, they only include it as a control variable and do not explain any detailed information about the variable. The current study focuses exclusively on the impact of privatization on firm financing. In addition, Brown et al.'s study (2011) includes only 15 Eastern Europe countries (and another five western countries as comparison), while the current study includes a much wider range of countries (30 countries) in Eastern Europe and Central Asia. According to the 2009 World Bank classification based on the country level of Gross National Product per capita, the sample in the current study includes countries identified as low income economies (e.g., Kyrgyz Republic and Tajikistan), lower middle income economies (e.g., Kosovo and Moldova), upper middle income economies (e.g., Romania, Serbia, and Turkey), and upper income economies (e.g., Croatia, Hungary, and Poland).[3]

DATA DESCRIPTION

The data comes from the 2006-2009 Business Environment and Enterprise Performance Survey (BEEPS) which are launched jointly by the World Bank and the European Bank for Reconstructing and Development (EBRD). The surveys adopt a uniform and stratified random sampling methodology and use standardized survey instruments. The purpose of the survey is to get more information about the investment conditions within various countries and to better understand the determinants/factors having effect on firm's productivity. More detailed information related to the survey and the methodology can be got from the World Bank website.[4]

The 2006-2009 BEEPS collect not only qualitative but also quantitative information about firm's investment environment from numerous economies. The survey provides general information about firm's organization and ownership structure, productivity, financial information, operating results, business-government relations, and manager/owner characteristics. The survey also collects information about labor relations, legal environment, the degree of government corruption, and policy uncertainty in that country. The number of firms included in the current study is 4,714 from around 30 countries.

Following the multistage model provided by Chakravarty and Yilmazer (2009) and the prior research of Beck et al. (2005) and Beck et al. (2006) and Cole and Sokolyk (2016), three survey questions are used as dependent variables: *DISCOURAGED*, *REJECTED*, and *DEGREE_OF_FINANCING_STRESS*. These questions provide information concerning whether a firm needs credit, whether a firm applies for credit or is discouraged, whether a firm's application is rejected, and whether a firm is stressed when seeking financing. Specifically, *NO_CREDIT_NEED* is a dummy variable that takes a value of one if firms do not seek credit due to sufficient funds and zero is otherwise. *DISCOURAGED* takes a value of one if a firm needs credit, but is discouraged from doing so and zero otherwise. *REJECTED* is captured by the following question in the survey: "*In fiscal year 2007, did this establishment apply for any new loans or new lines of credit that were rejected*?" It takes a value of one if the application is rejected and zero otherwise. *DEGREE_OF_FINANCING_STRESS* is a dummy variable that takes a value of one if the firm answered that the degree of the access to finance obstacle is higher than moderate and zero otherwise.

DEFINING THE CANDIDATE EXPLANATORY VARIABLES AND THE EMPIRICAL MODEL

The purpose of the current study is to examine the impact of privatization on a firm's credit constraints. I follow the extant literature regarding credit rationing and constraints, which generally assumes that firms with better bank-firm relationships, higher levels of competition, and mild corruption/supportive operation environments or legal systems (Chakravarty and Scott, 1999; Chakravarty and Yilmazer, 2009; Cole, 1998; Han et al. 2009; Petersen and Rajan, 1994) are less likely to be credit constrained. Similarly, I follow the extant literature regarding firm privatization, which assumes that a firm's privatization has some impact on its operating results (Boubakri and Cosset, 1998; Frydman et al., 1999; La Porta and López-De-Silanes, 1999; Megginson et al., 1994). Building on the prior contributions made in both areas of privatization and firm financing, I expect that the same set of characteristics should be able to explain the credit constraints (with/without credit needs, discouraged, rejected, and financing stressed) of privatized firms. Accordingly, eight vectors of dependent variables are included in the model: general firm characteristics, legal status, original ownership, number of informal competitors, a firm's relationship with banks and the government, the characteristics of firm owner/top managers, and firm industry.

Firm Characteristics

The vector of general firm characteristics includes *FIRM_AGE* measured by the log of firm age. *FIRM_SIZE* is measured by the logarithm of the number of employees. *FOREIGN_OWNED* is measured by a dummy variable that takes a value of one if the firm is owned by foreign individuals, companies, or organizations and zero otherwise. *EXPORTER* is measured by a dummy variable that is equal to one if the firm exported directly or indirectly and zero otherwise.

Older firms and larger firms are expected to face fewer credit constraints as they tend to be better established, have survived the risky development stage successfully, and have developed more channels in acquiring external financing than younger and smaller firms. Similarly, foreign owned firms or exporters are less likely to be credit constrained as they tend to be more diversified with more channels to achieve credit from outside entities.

Legal Status Characteristics

Organizational form is measured by dummy variables for *SHAREHOLDING_COMPANY*, *LLC*, *SOLE_PROPRIETORSHIP*, and *PARTNERSHIP*. *SHAREHOLDING_COMPANY* is measured as a dummy variable that takes a value of one if the firm is a shareholding company whose shares trade publicly or privately and zero otherwise. *SOLE_PROPRIETORSHIP* is measured as a dummy variable that is equal to one if the firm is sole proprietorship and zero otherwise. *PARTNERSHIP* takes a value one if the firm is a partnership or a limited partnership and zero otherwise. *OTHER_LEGAL_STATUS* takes a value of one if the firm is none of the above and zero otherwise.

Sole proprietorships and partnerships are more likely to be credit constrained than shareholding companies as they have greater access financing channels. Shareholding companies, however, are more likely to be able to provide transparent information to the public and, as such, are more likely to be considered credit worthy, while less likely to be credit constrained. Similarly, other firms are more likely to be credit constrained when compared to shareholding companies.

Original Ownership

The vector of original ownership characteristics includes *PRIVATIZATION, PRIVATE, FOREIGN, STATE-OWNED, and OTHER_OWNERSHIP*. *PRIVATIZATION* takes a value of one if the firm was established as a privatization of a state-owned firm or as a private subsidiary of a formerly state-owned firm and zero otherwise. *PRIVATE* is equal to one if the firm was established as a private firm and zero otherwise. *FOREIGN* takes a value of one if the firm was established as a joint venture with foreign partners and zero otherwise. *STATE-OWNED* is equal to one if the firm was established as a state-owned

firm and zero otherwise, while *OTHER_OWNERSHIP* takes a value of one if the firm was established as something other than the forms mentioned above and zero otherwise.

The signal of credit constraints in privatized firms is hard to distinguish. When compared to state-owned firms, privatized firms, in some degree, lose the advantage of the strong relationship between firms and state-owned firms. As such, they are not as credit worthy as before. In addition, according to the extant literature, privatized firms tend to have improved efficiency and profit. Thus, they may be more credit worthy. Private firms are expected to be more credit constrained as they have fewer financing channels and greater operating and financing risks relative to state-owned firms. Similarly, foreign-owned firms may lack this advantage when compared to state-owned firms and are not as credit worthy as state-owned firms. The expected signal for firms established as other ownership is about the same when compared with that of state-owned firms: They are more likely to be credit constrained.

Competitor Characteristics

The competitor characteristic is measured by *INFORMAL_COMPETITOR*. *INFORMAL_COMPETITOR* is captured by the following question in the survey: "*Does this establishment compete against unregistered or informal firms?*" It takes a value of one if the firm replied yes and zero otherwise. It is expected that firms confronting informal competitors are more likely to be credit constrained.

Bank-Firm Relationship Characteristics

CHECKING(SAVING)_ACCOUNT measures the relationship between financial institutions and firms. It is a dummy variable that takes a value of one if firm has a checking and/or savings account and zero otherwise. The extant bank-firm relationship is generally considered beneficial to firm financing (Cole, 1998). As such, it is expected to be negatively related with a firm's possibility of credit constraints.

Government-Firm Relationship Characteristics

INFORMAL_PAYMENTS is used is to measure the relationship between the government and firms. *INFORMAL_PAYMENTS* refers to the frequency of informal payments to "get things done" (ranking from one to six representing never to always, respectively). It is expected that the level of frequency of informal payments is negatively associated with the possibility of being credit constrained.

Firm Owner/Manager Characteristics

The proxies of firm owner/manager characteristics are measured by *FEMALE* and *LN_PRIOR_EXPERIENCE*. *FEMALE* is a dummy variable that takes a value one if any of the top managers are female and zero otherwise. *LN_PRIOR_EXPERIENCE* is the (natural) logarithm of the number of years of work experience that a top manager has had in the same sector prior to running the current firm. A firm with a top female manager is expected to be more likely to be credit constrained. Firms with more experienced top managers are less likely to be credit constrained due to an available record in the same sector of industry.

Industry Characteristics

The last vector of proxies is related to industry characteristics. *MANUFACTURING* is measured by a dummy variable that takes a value of one if the firm is a manufacturing business and zero otherwise. *SERVICE* is measured by a dummy variable that is equal to one if the firm is a service business and zero otherwise. *FINANCE* is measured by a dummy variable that takes a value of one if the firm is a finance or insurance business and zero otherwise and *OTHER_INDUSTRY* is equal to one if the firm is none of the above industry and zero otherwise.

Firms in certain industries, including manufacturing and financing, are thought to be more likely to be credit constrained as they tend to have more complicated operating processes and greater credit needs when compared to firms in the service industry. I have no expectations concerning firms in other industries, but include them in the model to ascertain whether these firms suffer from credit constraints when compared with firms in other industries.

The regression model for the impact of privatization on a firm's credit constraints takes the following form:

$$CREDIT_CONSTRAINT\ (DISCOURAGED,\ REJECTED,\ or\ DEGREE_OF_FINANCING_STRESS)_{i,k}$$

$$= \alpha + \beta_1\ GENERAL_{i,k} + \beta_2\ LEGAL_STATUS_{i,k} + \beta_3\ ORIGINALLY_ESTABLISHED_{i,k} +$$

$$\beta_4\ COMPETITOR_{i,k} + \beta_5\ BANK_RELATIONSHIP_{i,k} + B_6\ GOVERNMENT_RELATIONSHIP_{i,k} +$$

$$\beta_7\ FIRM_OWNER_{i,k} + \beta_8\ INDUSTRY_{i,k} + \varepsilon_{i,k} \quad (1)$$

where the dependent variable, *CREDIT_CONSTRAINT,* is a set of three dummy variables (*DISCOURAGED*, *REJECTED*, and *DEGREE_OF_FINANCING_STRESS*) that take a value of one if credit constrained and zero otherwise.

RESULTS

Univariate Results

Appendix 1 presents the summary statistics for all of the above mentioned variables. There is a relatively large variation in firms' responses to firm age, size, privatization, informal competitors, and informal payments. Appendix 2 presents the correlation matrix between different firm characteristics. The purpose of providing this correlation matrix is to provide comfort to the readers that excessive correlation is not a significant factor in the regression results to follow. However, many of the firm characteristics are correlated with each other. For example, older firms tend to be larger. Larger firms are more likely to be manufacturing firms. Privatized firms are more likely to be shareholding companies and shareholding companies are more likely to be exporters. In order to determine the impact of privatization on a firm's credit constraints, a multivariate analysis is required to control for various related firm characteristics and country variables.

Multivariate Results

Basic Results

Appendix 3 presents the basic results of the study. There are three columns in the appendix table. Column (1) provides the results regarding whether a firm has been discouraged. Column (2) presents the results as to whether a firm's application is rejected, while Column (3) reports the results related with the financing stress faced by tested firms.

The results in Column (1), where the dependent variable indicates whether a firm is discouraged, demonstrates that older firms, foreign-owned firms, and firms exporting directly or indirectly are less likely to be discouraged. These results are consistent with the study of Chakravarty and Xiang (2013). Privatized firms are more likely to be discouraged than other firms. The results also indicate that when firms confront informal competitors, those firms are more likely to be discouraged. Firms that are in extant relationships with their financial institutions are less likely to be discouraged. Firms are more likely to be discouraged when those firms pay informal payments to the government more frequently. In addition, firms with top female managers are more likely to be discouraged. However, if the top manager has greater working experience in this sector, the firm is less likely to be discouraged. The regression also confirms that manufacturing firms are more likely to be discouraged, while firms in the financing area are less likely to be discouraged.

The results in Column (2), regarding whether privatized firms are more likely to be rejected when applying for credit, indicate that larger firms are less likely to be rejected when applying for bank credit. When firms are paying more informal payments to "have things done," they are more likely to be rejected. Also note that firms with top female managers are less likely to be rejected. However, it is only

significant at the 10% level. Additionally, manufacturing firms are more likely to be rejected when applying for credit. However, I do not obtain significant results (though at the cut point of the significance, 10.8%) that privatized firms are more likely to be rejected than their peers when applying for bank credit.

The results in Column (3), concerning the impact of privatization on the level of obstacles for firms to access financing, indicate that older firms, foreign-owned firms, and firms that export directly or indirectly encounter lower levels of obstacles when accessing financing. Privatized firms are more likely to confront higher levels of obstacles (significant at the 1% level). The results also confirm that firms with informal competitors are more likely to face higher levels of obstacles when seeking financing. Similar to the results in Columns of (1) and (2), manufacturing firms are more likely to encounter higher levels of obstacles related to access to financing.

Results with Country Variables Included

As mentioned in Beck et al. (2005) and Beck et al. (2006), country variables are likely to affect a firm's credit constraints. Following prior studies, two country variables (*INCOME_GROUP* and *COUNTRY_GROWTH_RATE*) are added in the model to explore whether a country's level of economic development helps to alleviate the probability a firm's credit constraints. According to the 2009 Gross National Income (GNI) per capita, calculated using the World Bank Atlas method, *INCOME_GROUP* is scaled from one to four: lower income ($995 or less), lower middle income ($996-$3,945), upper middle income ($3,946-$12,195), and high income ($12,196 or more).[5] Another country variable, *COUNTRY_GROWTH_RATE,* refers to the GDP growth rate for 2009.[6]

The results in Appenix 4 report that when the country variables are included, income group occurs negatively and significantly in Columns (1) and (3) at the level of 1% and 5%, respectively, indicating that firms operating in countries with higher GNI per capita are less likely to be discouraged and encounter lower levels of financing obstacles. Country growth rate appears positive and significant in Column (1) at the 5% level, while negative and significant in Column (3) at the 1% level. Firms operating in countries rapid growth face severe competition when applying for credit. As such, they are more likely to be discouraged. However, the positive trend of a country's development and possible support from various channels may allow a firm to experience lower levels of obstacles when financing in general. Additionally, the results related to other factors in Appendix 4 are very similar to those of the basic results in Appendix 3. For example, similar to the results in Appendix 3, privatization is negative and significant in Columns (1) and (3) at the 1% and 5% levels, respectively. Informal payments to government officials are positive and significant in all three columns at the 1% level. Moreover, manufacturing is positive and significant in all three columns.

In this section, when country variables are included, the results are consistent with the base results reported in Appendix 3. Privatized firms are more likely to be discouraged and to experience high levels of financing stress. When operating in lower level income group economies, privatized firms are more likely to be discouraged. When operating in lower level income group economies and in lower levels of country growth economies, privatized firms tend to report higher levels of financing stress.

Results of Controlling Ownership

Hope, Thomas, and Vyas (2011) examine the impact of financial credibility (whether a firm has its financial report audited by external auditors) on the probability that a firm will be credit constrained. They also study firm ownership (to be more specific, controlling ownership) on a firm's probability of experiencing credit constraints. They provide evidence that controlling ownership helps to alleviate a firm's probability of financing constraints. Following their thoughts, one controlling ownership variable is included in the model to further examine firm privatization and credit constraints. The results are presented in Appendix 5. The results indicate that privatized firms are more likely to be discouraged and more likely to face severe obstacles when obtaining financing (positive and significant in Columns (1)

and (3) at the 1% and 5% levels, respectively, consistent with the basic results in Appendix 3). In Column (2), when controlling ownership is considered, privatization still enters the regression positively and significantly (at 10% level). However, unlike Hope et al. (2011), the controlling ownership variable itself is only significant in Column (3) and is positive at the 5% level. It shows that firms with controlling ownership are more likely to reply with confronting severe obstacles in financing than firms without control owners/shareholders.

In sum, when controlling ownership is included in the regression, the results are very similar to the base results in Appendix 3. A firm's privatization is positively and significantly associated with the firm's possibility of being credit constrained (discouraged and more severe financing stress). The results also indicate that controlling ownership does not alleviate a firm's possibility of experiencing credit constraints.

The Relative Impact of Privatization vs. Government-Business Relationships

From the results in Appendices 3, 4, and 5, informal payments to government officials seem to be significant at the 1% level throughout all of regressions. Does this mean that when compared to privatization, informal payments play a more important role when considering firm's probability of experiencing credit constraints? I examine the relative importance of privatization and informal payments to government officials.

The results are presented in Appendix 6. The dependent variable in Panel A is DISCOURAGED. General firm information, legal status, forms the firm submitted when it was originally established (except PRIVATIZATION), the relative competitiveness measure, bank relationships, firm owner/top managers, and industry characteristics are included in all of the regressions, while PRIVATIZATION and INFORMAL_PAYMENTS take turns in their inclusion in each regression of Panel A in Appendix 6. In Column (1), when only PRIVATIZATION is included in the regression, it is positive and significant at the 1% level with a regression R2 of 5.87%. In Column (2), when only INFORMAL_PAYMENTS IS included in the regression, it is positive and significant at the 1% level with a regression R2 of 9.62%. This is a relatively large increase from the previous model. In Column (3), when both proxies are included, both privatization and informal payments are positive and significant, remaining at the 1% level, with a regression R2 of 10.22%. Thus, the results in Panel A indicate that when compared to privatization, information payments to government officials play a more important role in explaining a firm's discouragement when applying for credit.

The dependent variable in Panel B is REJECTED, while the dependent variable in Panel C is DEGREE_OF_STRESS. The results are very similar to those of Panel A. In Column (1) of Panel C, privatization is positive and significant at the 1% level with a regression R2 of 2.08%. In Column (2), the measure of informal payments is positive and significant at the 1% level with a regression R2 of 6.76%. When both privatization and informal payments are included in Column (3), both proxies are positive and significant 1% level with a regression R2 of 6.86%. Similar results can be found in Panel B.

In sum, the results in Appendix 6 provide evidence that relative to privatization, informal payments play a more important role in a firm's probability of experiencing credit constraints (application rejected/severe obstacles in obtaining financing). In fact, the results also indicate that informal payments seem to play a more important role than all of the others factors regarding credit constraints.

Robustness

In this section, I re-estimate the regressions by replacing the country level variables in Appendix 4 with two other country-level measures to re-verify that the results reported above are accurate. Appendix 4 reports the analyses of a firm's probability of experiencing credit constraints when controlling for the country-level variables (INCOME_GROUP and COUNTRY_GROWTH_RATE). The results indicate that privatization is positively and significantly associated with the probability of being discouraged when a firm is considering applying for credit. Privatization is also positively and significantly associated with the probability that a firm will face severe financing obstacles. To ensure that the results are robust, I

replace both country variables with two other similar measures (ECONOMIC FREEDOM and INFLATION). ECONOMIC FREEDOM is jointly provided the Heritage Foundation and the Wall Street Journal, providing a global portrait of economic freedom among various countries around the world. It is an index ranging from 0-100 to measure the degree of economic freedom of various countries. Specifically, the index measures a number of specific factors including business freedom, monetary freedom, investment freedom, financial freedom, property rights, and freedom from corruption.7 INFLATION (the annual percentage difference of Consumer Price Index) is from the Central Intelligence Agency (CIA) World Factbook (2006-2010).8

The results are presented in Appendix 7. Both country level proxies are negative and significant at the 1%- 10% levels. Firms operating in countries with higher levels of economic freedom are less likely to be discouraged when a firm is considering applying for credit. In addition, firms operating in economies with higher levels of inflation are less likely to indicate that they are experiencing severe financing obstacles.9 In general, the results in Appendix 7 are very similar to the results in Appendix 4.

In summary, the robustness analyses above provide evidence that the baseline results remain similar when country-level variables are replaced by other country level proxies. Thus, the robustness tests bolster the reliability in the conclusions drawn.

CONCLUSION

This study examines the impact of privatization on firms' credit applications and credit constraints. I focus on three main aspects: 1) whether privatized firms are more likely to be discouraged, 2) more likely to be rejected when applying for credit, and 2) more likely to experience severe difficulties in financing.

There are three main findings. First, the results provide evidence that privatized firms are more likely to be credit constrained. When compared to non-privatized firms, privatized firms are more likely to be discouraged when considering applying for credit. They are also more likely to experience severe financing obstacles. In addition, firms operating in counties with higher levels of income groups are less likely to be discouraged and less likely to experience severe difficulties in obtaining financing. Moreover, there is no significant evidence that controlling ownership can alleviate a firm's probability of encountering credit constraints. Finally, the current study demonstrates that relative to privatization, the relationship between firms and government (proxied as informal payments to government officials) plays a more important role in explaining a firm' probability of credit constraints (discouraged and/or with severe financing obstacles).

This study is beneficial to both policy makers and firm owners/top managers. Unlike most extant research related to firm privatization, in which firms can always benefit from it (e.g., improve operating performance and decrease the social costs of operation), the results in the current study provide evidence that privatization is not a panacea: Privatized firms may confront problems or difficulties in obtaining financing. From this point of view, policy makers may need to pay more attention to privatized firms by aiding them in the challenging process of obtaining financing. Alternatively, firm owners/top managers need to be prepared for the challenge after privatization as privatization is not always a remedy.

One limitation of the current study is that I do not observe the exact time when the firm became privatized. Thus, I know little about the comparisons between prior to privatization and post-privatization due to the paucity of reliable data. If I had access to firm data before and after the firm is privatized, I could then compare the credit constraints of privatized firms with other firms in a better light. Another limitation is that the study does not provide an explanation regarding possible reasons for the negative effects of privatization. Is it because the lack of state-owned firms makes financing more difficult for privatized firms or is the rapidly increasing need for credit due to improved efficiency or greater productivity? The third limitation of this study is that the results may only apply to a limited amount of small businesses in limited economies because: 1) only the survivors are included in the study and 2) this study does not provide evidence from other developed or underdeveloped economies around the world. Therefore, it should be acknowledged that this study only represents one modest step toward the understanding of firm privatization and its impact on firm financing and credit constraints. Further

exploration employing time panel analysis and with more available data across a variety of economies will be left for future research.

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ENDNOTES

1. A discouraged firm is defined as a firm with credit needs, but one who avoids applying for credit. Additional details can be found in Chakravarty and Yilmazer, 2009, Chakravarty and Xiang, 2013, and Kon and Storey, 2003.

2. They determine the "creation of competitive markets and privatization go together" (Konings et al., 2005, p. 124).

3. http://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD/countries?display=default.

4. https://www.enterprisesurveys.org/methodology/.

5. http://data.worldbank.org/about/country-classifications. Retrieved May 10, 2011.

6. http://en.wikipedia.org/wiki/List_of_countries_by_real_GDP_growth_rate. Retrieved May 10, 2011.

7.The Heritage Foundation and the Wall Street Journal provide the Index of Economic Freedom annually beginning in 1995. The 2009 Index of Economic Freedom is used in the current study to be consistent with the period over which the BEEPS were compiled. More details regarding the Index of Economic Freedom can be obtained from: http://www.heritage.org/Index/Download.aspx. The index uses a scale of 1-5: free: 80-100; mostly free: 70-79.9; moderately free: 60-69.9; mostly unfree: 50-59.9; repressed: 0-49.9; and NR (not ranked).

8. https://www.cia.gov/library/publications/the-world-factbook/fields/2092.html.

9. Inflation is negatively associated with firms' level of credit constraints. Higher levels of inflation encourage firms to borrow money from external creditors or use credit as they can benefit from using external funds.

CONTACT INFORMATION:

Name: Meifang Xiang
Mailing Address: 6720 Clovernook Rd, Middleton, WI 53562
Phone (Cell): 608-320-7568
Email: xiangm@uww.edu

APPENDIX 1
SUMMARY STATISTICS OF EXPLANATORY VARIABLES

DISCOURAGED is a dummy variable equal to one if the firm needs a credit loan, but does not apply for it in fiscal year 2007. *REJECTED* is a dummy variable captured by the following question in the survey: "*In fiscal year 2007, did this establishment apply for any new loans or new lines of credit that were rejected*?" *DEGREE_OF_FINANCING_STRESS* is a dummy variable that is equal to one if the firm replied that the degree of the access to finance obstacle is higher than moderate and zero otherwise. *ln_AGE* is measured by the log of firm age. *ln_SIZE* is measured by the logarithm of the number of employees. *FOREIGN_OWNED* is measured by a dummy variable that is equal to one if the firm is owned by foreign individuals, companies, or organizations and zero otherwise. *EXPORTER* is measured by a dummy variable that is equal to one if the firm exported directly or indirectly and zero otherwise. *SHAREHOLDING_COMPANY* is measured as a dummy variable that is equal to one if the firm is a publicly listed company and zero otherwise. *SOLE_PROPRIETORSHIP* is measured as a dummy variable that is equal to one if the firm is a sole proprietorship and zero otherwise. *PARTNERSHIP* takes a value of one if the firm is a partnership or a limited partnership and zero otherwise. *OTHER_LEGAL_STATUS* is measured as a dummy variable that is equal to one if the legal status is not any of the above and zero otherwise. *PRIVATIZATION* takes a value of one if the firm was established as a privatization of a state-owned firm or as a private subsidiary of a formerly state-owned firm and zero otherwise. *PRIVATE* takes a value of one if the firm was established as a private firm and zero otherwise. *FOREIGN* is equal to one if the firm was established as a joint venture with foreign partners and zero otherwise. *STATE_OWNED* takes a value of one if the firm was established as a state-owned firm and zero otherwise. *OTHER* takes a value of one if the firm was established as other forms and zero otherwise. *CONTROLLING_OWNER* takes a value of one if the largest shareholder/owner owns more than 50% of the business and zero otherwise. *INFORMAL_COMPETITOR* is captured by the following question in the survey: "*Does this establishment compete against unregistered or informal firms?*" It is equal to one if the firm replied yes and zero otherwise. *CHECKING(SAVING)_ACCOUNT* measures the relationship between financial institutions and firms. It is a dummy variable that is equal to one if the firm has a checking and/or savings account and zero otherwise. *INFORMAL_PAYMENTS* refers to the frequency of informal payments to "get things done" (ranking from one to six representing never to always, respectively). *FEMALE* is a dummy variable taking a value of one if any of the owners are female. *ln_PRIOR_EXPERIENCE* is the (natural) logarithm of the number of years of work experience that a top manager has had in the same sector before running the current firm. *MANUFACTURING* is measured by a dummy variable taking a value of one if the firm is a manufacturing business and zero otherwise. *SERVICE* is measured by a dummy variable that is equal to one if the firm is a service business and zero otherwise. *FINANCE* is measured by a dummy variable that takes a value of one if the firm is a finance or insurance business and zero otherwise. *INCOME_GROUP* is scaled from one to four based on the 2009 GNI per capita: lower income ($995 or less), lower middle income ($996-$3,945), upper middle income ($3,946-$12,195), and high income ($12,196 or more). *COUNTRY_GROWTH_RATE* refers to the GDP growth rate for 2009.

Variable	Mean	Median	SD	Max	Min	Observations
DISCOURAGED	0.341	0	0.474	1	0	4,714
REJECTED	0.160	0	0.367	1	0	3,555
DEGREE_OF_FINANCING_STRESS	0.268	0	0.443	1	0	4,714
ln__AGE	2.559	2.639	0.593	4.189	0.693	4,714
ln_SIZE	3.324	3.091	1.252	8.131	0.693	4,714
FOREIGN_OWNERSHIP	0.095	0	0.293	1	0	4,714
EXPORTER	0.207	0	0.405	1	0	4,714
SHAREHOLDING COMPANY	0.673	0	0.469	1	0	4,714
SOLE_PROPRIETORSHIP	0.196	0	0.397	1	0	4,714
PARTNERSHIP	0.100	0	0.300	1	0	4,714
OTHER_LEGAL_STATUS	0.029	0	0.170	1	0	4,714
PRIVATIZATION	0.197	0	0.398	1	0	4,714
PRIVATE	0.764	1	0.424	1	0	4,714
FOREIGN	0.022	0	0.147	1	0	4,714
STATE_OWNED	0.008	0	0.089	1	0	4,714
OTHER_OWNERSHIP	0.007	0	0.085	1	0	4,714
CONTROLLING_OWNER	0.768	1	0.421	1	0	4,714
INFORMAL_COMPETITORS	0.405	0	0.491	1	0	4,714
CHECKING(SAVING)_ACCOUNT	0.870	1	0.335	1	0	4,687
INFORMAL_PAYMENTS	2.077	2	1.317	6	1	4,714
FEMALE	0.413	0	0.492	1	0	4,714
ln_PRIOR_EXPERIENCE	2.647	2.772	0.679	4.204	0.693	4,714
MANUFACTORING	0.413	0	0.492	1	0	4,714
SERVICE	0.419	0	0.493	1	0	4,714
FINANCE	0.015	0	0.121	1	0	4,714
INCOME_GROUP	2.825	3	0.858	4	1	30
COUNTRY_GROWTH_RATE	-4.901	-5.600	6.898	9.3	-17.8	30

APPENDIX 2.
CORRELATION MATRIX OF VARIABLES

	ln__AGE	ln_SIZE	FOREIGN_OWNERSHIP	EXPORTER	SHAREHOLDING	SOLE_PROPRIETORSHIP	PARTNERSHIP	OTHER_OWNERSHIP	PRIVATIZATION	PRIVATE	FOREIGN	STATE_OWNED	OTHER-LEGAL_STATUS	INFORMAL_COMPETITORS	CHECKING(SAVING)_ACCOUNT	INFORMAL_PAYMENTS	FEMALE	ln_PRIOR_EXPERIENCE	MANUFACTORING	SERVICE	FINANCE
ln_SIZE	0.190***																				
FOREIGN_OWNERSHIP	-0.031**	0.230***																			
EXPORTER	0.114***	0.254***	0.218***																		
SHAREHOLDING	0.046***	0.248***	0.088***	0.123***																	
SOLE_PROPRIETORSHIP	-0.063***	-0.276***	-0.122***	-0.116***	-0.698***																
PARTNERSHIP	-0.031**	-0.015	0.011	-0.341**	-0.483***	-0.160***															
OTHER_OWNERSHIP	0.068***	-0.018	0.015	-0.009	-0.272***	-0.094***	-0.062***														
PRIVATIZATION	0.268***	0.202***	-0.030**	-0.061***	0.127***	-0.136***	-0.016	-0.008													
PRIVATE	-0.278***	-0.251***	-0.091***	0.017	-0.128***	0.168***	0.006	-0.040***	-0.893***												
FOREIGN	-0.008	0.111***	0.358000	0.094***	0.024*	-0.065***	0.018	0.047***	-0.076***	-0.267***											
STATE_OWNED	0.116***	0.069***	-0.030**	0.018	0.021	-0.038***	-0.001	0.031**	-0.046***	-0.164***	-0.014										
OTHER-LEGAL_STATUS	0.023*	0.035**	0.016	0.021	-0.019	-0.043***	0.015	0.120***	-0.045***	-0.160***	-0.013	-0.008									
INFORMAL_COMPETITORS	0.041***	-0.042***	-0.045***	0.007	-0.010	0.048***	-0.052***	0.011	-0.013	0.015	-0.007	-0.003	0.004								
CHECKING(SAVING)_ACCOUNT	0.059***	0.075***	0.035**	0.068***	0.124***	-0.050***	-0.112***	-0.025*	0.028**	-0.033**	0.025*	0.015	-0.026*	0.011							
INFORMAL_PAYMENTS	-0.028**	0.022	0.001	-0.039***	0.020	-0.024*	0.008	-0.012	0.047***	-0.057***	0.052***	-0.009	-0.015	0.126***	-0.044***						
FEMALE	0.083***	0.002	-0.009	0.002	0.045***	-0.100***	0.029**	0.048***	0.135***	-0.122***	-0.014	-0.016	0.019	0.009	-0.041***	0.0095					
ln_PRIOR_EXPERIENCE	0.361***	0.056***	-0.067***	0.077***	0.017	-0.026*	0.001	0.008	0.056***	-0.033**	-0.037***	-0.028**	-0.004	0.017	0.051***	-0.067***	0.024*				
MANUFACTORING	0.079***	0.138***	0.034**	0.282***	0.057***	-0.040***	-0.034**	-0.003	-0.012	-0.003	0.040***	0.007	-0.002	-0.031**	0.046***	-0.026*	-0.011	0.020			
SERVICE	-0.101***	-0.232***	-0.019	-0.244***	-0.080***	0.076***	0.016	0.014	-0.049***	0.063***	-0.028**	-0.025*	-0.008	0.018	-0.041***	0.002	0.052***	-0.070***	-0.713***		
FINANCE	-0.036**	0.001	0.040***	0.017	-0.001	-0.003	-0.001	0.013	-0.040***	0.045***	-0.007	-0.113	-0.011	-0.003	0.016	0.020	-0.012	-0.001	-0.102***	-0.104***	
OTHER_INDUSTRY	0.036**	0.124***	-0.028**	-0.062***	0.053***	-0.058***	0.006	-0.023*	0.112***	-0.110***	-0.013	0.032**	0.009	0.022	0.005	0.024*	-0.056***	0.056***	-0.337***	-0.342***	-0.049***

Note: ***, **, and * indicate statistical significance at the 0.01, 0.05, or 0.10 levels, respectively.

APPENDIX 3.
RESULTS OF FIRMS BEING CONSTRAINT

All models are estimated via logistic regression. The regression model estimated is:

$$CREDIT_CONSTRAINT\ (DISCOURAGED,\ REJECTED,\ or\ DEGREE_OF_FINANCING_STRESS)_{i,k} = \alpha + \beta_1\ GENERAL_{i,k} + \beta_2\ LEGAL_STATUS_{i,k} + \beta_3\ ORIGINALLY_ESTABLISHED_{i,k} + \beta_4\ COMPETITOR_{i,k} + \beta_5\ BANK_RELATIONSHIPS_{i,k} + B_6\ GOVERNMENT_RELATIONSHIPS_{i,k} + \beta_7\ FIRM_OWNER_{i,k} + \beta_8\ INDUSTRY_{i,k} + \varepsilon_{i,k}.$$

DISCOURAGED is a dummy variable that is equal to one if the firm needs a credit loan, but does not apply for it in fiscal year 2007. *REJECTED* is a dummy variable captured by the following question in the survey: "*In fiscal year 2007, did this establishment apply for any new loans or new lines of credit that were rejected*?" *DEGREE_OF_FINANCING_STRESS* is a dummy variable taking a value of one if the firm replied that the degree of the access to finance obstacle is higher than moderate and zero otherwise. *ln_AGE* is measured by the log of firm age. *ln_SIZE* is measured by the logarithm of the number of employees. *FOREIGN_OWNED* is measured by a dummy variable taking a value of one if the firm is owned by foreign individuals, companies, or organizations and zero otherwise. *EXPORTER* is measured by a dummy variable that is equal to one if the firm exported directly or indirectly and zero otherwise. *SHAREHOLDING_COMPANY* is measured as a dummy variable taking a value of one if the firm is a publicly listed company and zero otherwise. *SOLE_PROPRIETORSHIP* is measured as a dummy variable that is equal to one if the firm is a sole proprietorship and zero otherwise. *PARTNERSHIP* takes a value of one if the firm is a partnership or a limited partnership and zero otherwise. *OTHER_LEGAL_STATUS* is measured as a dummy variable taking a value of one if the legal status is not any of the above and zero otherwise. *PRIVATIZATION* takes a value of one if the firm was established as a privatization of a state-owned firm or as a private subsidiary of a formerly state-owned firm and zero otherwise. *PRIVATE* takes a value of one if the firm was established as a private firm and zero otherwise. *FOREIGN* takes a value of one if the firm was established as a joint venture with foreign partners and zero otherwise. *STATE_OWNED* takes a value of one if the firm was established as a state-owned firm and zero otherwise. *OTHER* is equal to one if the firm was established as other forms and zero otherwise. *INFORMAL_COMPETITOR* is captured by the following question in the survey: "*Does this establishment compete against unregistered or informal firms?*" It takes a value of one if the firm replied yes and zero otherwise. *CHECKING(SAVING)_ACCOUNT* measures the relationship between financial institutions and firms. It is a dummy variable taking a value of one if the firm has a checking and/or savings account and zero otherwise. *INFORMAL_PAYMENTS* refers to the frequency of informal payments to "get things done" (ranking from one to six representing never to always, respectively). *FEMALE* is a dummy variable taking a value of one if any of the owners are female. *ln_PRIOR_EXPERIENCE* is the (natural) logarithm of the number of years of work experience that a top manager has had in the same sector before running the current firm. *MANUFACTURING* is measured by a dummy variable that is equal to one if the firm is a manufacturing business and zero otherwise. *SERVICE* is measured by a dummy variable that takes a value of one if the firm is a service business and zero otherwise. *FINANCE* is measured by a dummy variable that is equal to one if the firm is a finance or insurance business and zero otherwise. Standard errors are in parentheses.*, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively

Variable	(1) Discouraged	(2) Rejected	(3) Degree of Financing Stress
Firm Characteristics			
General			
ln_ AGE	-0.013 (0.059)	-0.136 (0.088)	-0.091 (0.047)*
ln_ SIZE	-0.141 (0.029)***	-0.117 (0.039)***	-0.006 (0.021)
FOREIGN_OWNERSHIP	-0.516 (0.134)***	0.147 (0.163)	-0.315 (0.099)***
EXPORTER	-0.390 (0.089)***	-0.033 (0.108)	-0.254 (0.065)***
Legal Status			
SOLE_PROPRIETORSHIP	0.095 (0.085)	0.102 (0.139)	-0.032 (0.074)
PARTERSHIP	0.050 (0.106)	-0.374 (0.177)**	-0.272 (0.091)***
OTHER_LEGAL_STATUS	0.361 (0.170)**	-0.517 (0.408)	-0.004 (0.153)
Originally Established			
PRIVATIZATION	0.422 (0.083)***	0.202 (0.126)	0.196 (0.067)***
FOREIGN	0.165 (0.245)	-0.491 (0.426)	-0.029 (0.200)
STATE_OWNED	-0.307 (0.378)	-0.314 (0.618)	0.575 (0.249)**
OTHER	0.207 (0.352)	0.409 (0.473)	0.296 (0.274)
Relative Competitiveness Measure			
INFORMAL_COMPETITOR	0.182 (0.064)***	-0.034 (0.093)	0.209 (0.051)***
Bank Relationships			
CHECKING(SAVING)_ACCOUNT	-0.250 (0.091)***	-0.088 (0.154)	-0.060 (0.079)
Government Relationships			
INFORMAL_PAYMENTS	0.290 (0.023)***	0.228 (0.030)***	0.298 (0.017)***
Firm Owner/Top Manager			
FEMALE	0.140 (0.064)**	-0.173 (0.094)*	0.052 (0.051)
ln_PRIOR_EXPERIENCE	-0.138 (0.049)***	0.057 (0.072)	-0.030 (0.039)
Industry			

MANUFACTURING	0.376 (0.071)***	0.188 (0.108)*	0.258 (0.058)***
FINANCING	-0.825 (0.330)**	-0.165 (0.453)	0.076 (0.225)
OTHER_INDUSTRY	0.015 (0.100)	0.225 (0.139)	0.126 (0.078)
Intercept	<0.0001	<0.0001	<0.0001
Number of Observations	4,687	3,542	4,113
R^2 -max	0.1022	0.0394	0.0686

APPENDIX 4.
RESULTS OF BEING CREDIT CONSTRAINTED - THE IMPACT OF COUNTRY VARIABLES

All models are estimated via logistic regression. *DISCOURAGED* is a dummy variable that is equal to one if the firm needs a credit loan, but does not apply for it in fiscal year 2007. *REJECTED* is a dummy variable captured by the following question in the survey: "*In fiscal year 2007, did this establishment apply for any new loans or new lines of credit that were rejected*?" *DEGREE_OF_FINANCING_STRESS* is a dummy variable that takes a value of one if the firm replied that the degree of access to finance obstacle is higher than moderate and zero otherwise. *ln_AGE* is measured by the log of firm age. *ln_SIZE* is measured by the logarithm of the number of employees. *FOREIGN_OWNED* is measured by a dummy variable taking a value of one if the firm is owned by foreign individuals, companies, or organizations and zero otherwise. *EXPORTER* is measured by a dummy variable that is equal to one if a firm exported directly or indirectly and zero otherwise. *SHAREHOLDING_COMPANY* is measured as a dummy variable that is equal to one if the firm is a publicly listed company and zero otherwise. *SOLE_PROPRIETORSHIP* is measured as a dummy variable that takes a value of one if the firm is a sole proprietorship and zero otherwise. *PARTNERSHIP* takes a value of one if the firm is a partnership or limited partnership and zero otherwise. *OTHER_LEGAL_STATUS* is measured as a dummy variable that is equal to one if the legal status is not any of the above and zero otherwise. *PRIVATIZATION* takes a value of one if the firm was established as a privatization of a state-owned firm or as a private subsidiary of a formerly state-owned firm and zero otherwise. *PRIVATE* takes a value of one if the firm was established as a private firm and zero otherwise. *FOREIGN* takes a value of one if the firm was established as a joint venture with foreign partners and zero otherwise. *STATE_OWNED* is equal to one if the firm was established as a state-owned firm and zero otherwise. *OTHER* takes a value of one if the firm was established as other forms and zero otherwise. *INFORMAL_COMPETITOR* is captured by the following question in the survey: "*Does this establishment compete against unregistered or informal firms?*" It takes a value of one if the firm replied yes and zero otherwise. *CHECKING(SAVING)_ACCOUNT* measures the relationship between financial institutions and firms. It is a dummy variable taking a value of one if the firm has a checking and/or savings account and zero otherwise. *INFORMAL_PAYMENTS* refers to the frequency of informal payments to "get things done" (ranking from one to six representing never to always, respectively). *FEMALE* is a dummy variable that is equal to one if any of the owners are female. *ln_PRIOR_EXPERIENCE* is the (natural) logarithm of the number of years of work experience that a top manager has had in the same sector before running the current firm. *MANUFACTURING* is measured by a dummy variable that takes a value of one if the firm is a manufacturing business and zero otherwise. *SERVICE* is measured by a dummy variable that is equal to one if the firm is a service business and zero otherwise. *FINANCE* is measured by a dummy variable that takes a value of one if the firm is a finance or insurance business and zero otherwise. *INCOME_GROUP* is scaled from one to four based on the 2009 GNI per capita: lower income ($995 or less), lower middle income ($996-$3,945), upper middle income ($3,946-$12,195), and high income ($12,196 or more). *COUNTRY_GROWTH_RATE* refers to the GDP growth rate for 2009. Standard errors are in parentheses.*, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Variable	(1) Discouraged	(2) Rejected	(3) Degree of Financing Stress
Firm Characteristics			
General			
ln_ AGE	0.038 (0.062)	-0.088 (0.092)	-0.051 (0.049)
ln_ SIZE	-0.142 (0.030)***	-0.121 (0.041)***	0.005 (0.022)
FOREIGN_OWNERSHIP	-0.431 (0.139)***	0.204 (0.165)	-0.287 (0.101)
EXPORTER	-0.345 (0.096)***	-0.016 (0.114)	-0.217 (0.068)
Legal Status			
SOLE_PROPRIETORSHIP	0.194 (0.092)**	0.043 (0.144)	0.047 (0.077)
PARTERSHIP	-0.030 (0.111)	-0.536 (0.185)***	-0.218 (0.094)**
OTHER_LEGAL_STATUS	0.369 (0.195)*	-0.371 (0.421)	0.036 (0.174)
Originally Established As			
PRIVATIZATION	0.271 (0.089)***	0.158 (0.131)	0.145 (0.070)**
FOREIGN	-0.020 (0.253)	-0.606 (0.432)	-0.116 (0.203)
STATE_OWNED	-0.644 (0.411)	-0.240 (0.625)	0.543 (0.258)
OTHER	0.227 (0.369)	0.465 (0.476)	0.280 (0.283)
Relative Competitiveness Measure			
INFORMAL_COMPETITOR	0.144 (0.067)**	-0.063 (0.096)	0.181 (0.052)***
Bank Relationships			
CHECKING(SAVING)_ ACCOUNT	-0.218 (0.094)**	-0.042 (0.158)	-0.052 (0.081)
Government Relationships			
INFORMAL_PAYMENTS	0.246 (0.024)***	0.234 (0.031)***	0.294 (0.018)***
Firm Owner/Top Manager			
FEMALE	0.171 (0.067)**	-0.176 (0.096)	0.032 (0.053)
ln_PRIOR_EXPERIENCE	-0.089 (0.051)*	0.064 (0.074)	-0.021 (0.040)
Industry			

MANUFACTURING	0.390 (0.075)***	0.220 (0.111)**	0.208 (0.060)***
FINANCING	-0.834 (0.348)**	-0.142 (0.455)	0.023 (0.231)
OTHER_INDUSTRY	-0.001 (0.106)	0.177 (0.146)	0.104 (0.081)
Country Variables			
INCOME_GROUP	-0.295 (0.042)***	-0.047 (0.066)	-0.143 (0.034)***
COUNTRY_GROWTH_RATE	0.012 (0.005)**	0.034 (0.008)	-0.016 (0.004)***
Intercept	<0.0001	<0.0001	<0.0001
Number of Observations	4,525	3,568	4,127
R^2-max	0.12	0.05	0.07

APPENDIX 5.
RESULTS OF BEING CREDIT CONSTRAINTED – THE IMPACT OF CONTROLLING OWNERSHIP

All models are estimated via logistic regression. *DISCOURAGED* is a dummy variable taking a value of one if the firm needs a credit loan, but does not apply for it in fiscal year 2007. *REJECTED* is a dummy variable captured by the following question in the survey: "*In fiscal year 2007, did this establishment apply for any new loans or new lines of credit that were rejected*?" *DEGREE_OF_FINANCING_STRESS* is a dummy variable taking a value of one if the firm replied that the degree of access to finance obstacle is higher than moderate and zero otherwise. *ln_AGE* is measured by the log of firm age. *ln_SIZE* is measured by the logarithm of the number of employees. *FOREIGN_OWNED* is measured by a dummy variable taking a value of one if a firm is owned by foreign individuals, companies, or organizations and zero otherwise. *EXPORTER* is measured by a dummy variable that is equal to one if the firm exported directly or indirectly and zero otherwise. *SHAREHOLDING_COMPANY* is measured as a dummy variable that takes a value of one if the firm is a publicly listed company and zero otherwise. *SOLE_PROPRIETORSHIP* is measured as a dummy variable that is equal to one if the firm is a sole proprietorship and zero otherwise. *PARTNERSHIP* takes a value of one if the firm is a partnership or a limited partnership and zero otherwise. *OTHER_LEGAL_STATUS* is measured as a dummy variable that is equal to one if the legal status is not any of the above and zero otherwise. *PRIVATIZATION* takes a value of one if the firm was established as a privatization of a state-owned firm or as a private subsidiary of a formerly state-owned firm and zero otherwise. *PRIVATE* takes a value of one if the firm was established as a private firm and zero otherwise. *FOREIGN* is equal to one if the firm was established as a joint venture with foreign partners and zero otherwise. *STATE_OWNED* takes a value of one if the firm was established as a state-owned firm and zero otherwise. *OTHER* takes a value of one if the firm was established as other forms and zero otherwise. *CONTROLLING_OWNER* takes a value of one if the largest shareholder/owner owns more than 50% of the business and zero otherwise. *INFORMAL_COMPETITOR* is captured by the following question in the survey: "*Does this establishment compete against unregistered or informal firms?*" It takes a value of one if the firm replied yes and zero otherwise. *CHECKING(SAVING)_ACCOUNT* measures the relationship between financial institutions and firms. It is a dummy variable that takes a value of one if firm has a checking and/or savings account and zero otherwise. *INFORMAL_PAYMENTS* refers to the frequency of informal payments to "get things done" (ranking from one to six representing never to always, respectively). *FEMALE* is a dummy variable that is equal to one if any of the owners are female. *ln_PRIOR_EXPERIENCE* is the (natural) logarithm of the number of years of work experience that a top manager has had in the same sector before running the current firm. *MANUFACTURING* is measured by a dummy variable taking a value of one if the firm is a manufacturing business and zero otherwise. *SERVICE* is measured by a dummy variable that takes a value of one if the firm is a service business and zero otherwise. *FINANCE* is measured by a dummy variable that is equal to one if the firm is a finance or insurance business and zero otherwise. Standard errors are in parentheses.*, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Variable	(1) Discouraged	(2) Rejected	(3) Degree of Financing Stress
Firm Characteristics			
General			
ln_ AGE	0.011 (0.061)	-0.128 (0.090)	-0.095 (0.049)*
ln_ SIZE	-0.149 (0.030)***	-0.123 (0.041)***	-0.002 (0.022)
FOREIGN_OWNERSHIP	-0.462 (0.138)***	0.173 (0.165)	-0.313 (0.101)***
EXPORTER	-0.393 (0.091)***	-0.039 (0.110)	-0.250 (0.066)***
Legal Status			
SOLE_PROPRIETORSHIP	0.123 (0.088)	0.082 (0.143)	-0.059 (0.076)
PARTERSHIP	0.101 (0.108)	-0.346 (0.180)*	-0.229 (0.093)**
OTHER_LEGAL_STATUS	0.421 (0.183)	-0.524 (0.438)	0.029 (0.164)
Originally Established As			
PRIVATIZATION	0.406 (0.086)***	0.233 (0.130)*	0.163 (0.069)**
FOREIGN	0.152 (0.252)	-0.619 (0.456)	-0.069 (0.206)
STATE_OWNED	-0.276 (0.398)	-0.251 (0.620)	0.596 (0.255)**
OTHER	0.226 (0.378)	0.554 (0.484)	0.184 (0.300)
Controlling Ownership			
CONTROLLING_OWNER	-0.042 (0.080)	0.107 (0.112)	0.139 (0.063)**
Relative Competitiveness Measure			
INFORMAL_COMPETITOR	0.299 (0.024)***	-0.015 (0.095)	0.193 (0.052)***
Bank Relationships			
CHECKING(SAVING)_ACCOUNT	-0.250 (0.093)***	-0.106 (0.157)	-0.027 (0.081)
Government Relationships			
INFORMAL_PAYMENTS	0.299 (0.024)***	0.220 (0.031)***	0.301 (0.018)***
Firm Owner/Top Manager			
FEMALE	0.150	-0.146	0.071

	(0.066)**	(0.096)	(0.053)
ln_PRIOR_EXPERIENCE	-0.127 (0.051)**	0.059 (0.074)	-0.029 (0.040)
Industry			
MANUFACTURING	0.379 (0.073)***	0.219 (0.111)	0.270 (0.060)***
FINANCING	-0.787 (0.332)**	-0.004 (0.459)	0.134 (0.231)
OTHER_INDUSTRY	0.0001 (0.103)	0.223 (0.143)	0.165 (0.080)**
Intercept	<0.0001	<0.0001	<0.0001
Number of Observations	4,687	3,542	4,113
R^2-max	0.102	0.040	0.069

APPENDIX 6.
RELATIVE IMPORTANCE OF PRIVATIZATION VS. INFORMAL PAYMENTS

All models are estimated via logistic regression. *DISCOURAGED* is a dummy variable that takes a value of one if the firm needs a credit loan, but does not apply for it in fiscal year 2007. *REJECTED* is a dummy variable captured by the following question in the survey: "*In fiscal year 2007, did this establishment apply for any new loans or new lines of credit that were rejected*?" *DEGREE_OF_FINANCING_STRESS* is a dummy variable that is equal to one if the firm replied that the degree of access to finance obstacle is higher than moderate and zero otherwise. *ln_AGE* is measured by the log of firm age. *ln_SIZE* is measured by the logarithm of the number of employees. *FOREIGN_OWNED* is measured by a dummy variable that is equal to one if a firm is owned by foreign individuals, companies, or organizations and zero otherwise. *EXPORTER* is measured by a dummy variable that takes a value of one if firm exported directly or indirectly and zero otherwise. *SHAREHOLDING_COMPANY* is measured as a dummy variable taking a value of one if the firm is a publicly listed company and zero otherwise. *SOLE_PROPRIETORSHIP* is measured as a dummy variable that is equal to one if the firm is a sole proprietorship and zero otherwise. *PARTNERSHIP* takes a value of one if the firm is partnership or a limited partnership and zero otherwise. *OTHER_LEGAL_STATUS* is measured as a dummy variable that is equal to one if the legal status is not any of the above and zero otherwise. *PRIVATIZATION* takes a value of one if the firm was established as a privatization of a state-owned firm or as a private subsidiary of a formerly state-owned firm and zero otherwise. *PRIVATE* takes a value of one if the firm was established as a private firm and zero otherwise. *FOREIGN* takes a value of one if the firm was established as a joint venture with foreign partners and zero otherwise. *STATE_OWNED* takes a value of one if the firm was established as a state-owned firm and zero otherwise. *OTHER* takes a value of one if the firm was established as other forms and zero otherwise. *INFORMAL_COMPETITOR* is captured by the following question in the survey: "*Does this establishment compete against unregistered or informal firms?*" It takes a value of one if the firm replied yes and zero otherwise. *CHECKING(SAVING)_ACCOUNT* measures the relationship between financial institutions and firms. It is a dummy variable that is equal to one if the firm has a checking and/or savings account and zero otherwise. *INFORMAL_PAYMENTS* refers to the frequency of informal payments to "get things done" (ranking from one to six representing never to always, respectively). *FEMALE* is a dummy variable taking a value of one if any of the owners are female. *ln_PRIOR_EXPERIENCE* is the (natural) logarithm of the number of years of work experience that a top manager has had in the same sector before running the current firm. *MANUFACTURING* is measured by a dummy variable taking a value of one if the firm is a manufacturing business and zero otherwise. *SERVICE* is measured by a dummy variable that is equal to one if the firm is a service business and zero otherwise. *FINANCE* is measured by a dummy variable taking a value of one if the firm is a finance or insurance business and zero otherwise. Standard errors are in parentheses.*, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A. The Probability of Being Discouraged - Relative Importance of Privatization vs. Informal Payments

Variable	**(1) With Only *PRIVATIZATION***	**(2) With Only *INFORMAL_PAYMENTS***	**(3) With Both**
Firm Characteristics			
General			
ln_ AGE	-0.007 (0.060)	0.089 (0.059)	-0.013 (0.059)
ln_ SIZE	-0.135 (0.029)	-0.125 (0.029)***	-0.141 (0.029)***
FOREIGN_OWNERSHIP	-0.482 (0.136)***	-0.473 (0.138)***	-0.516 (0.134)***
EXPORTER	-0.412 (0.089)***	-0.441 (0.090)***	-0.390 (0.089)***
Legal Status			
SOLE_PROPRIETORSHIP	0.084 (0.084)	0.075 (0.085)	0.095 (0.085)
PARTERSHIP	0.097 (0.106)	0.091 (0.108)	0.050 (0.106)
OTHER_LEGAL_STATUS	0.373 (0.180)**	0.393 (0.182)**	0.361 (0.170)**
Originally Established As			
PRIVATIZATION	0.444 (0.084)***		0.422 (0.083)***
FOREIGN	0.353 (0.244)	0.058 (0.251)	0.165 (0.245)
STATE_OWNED	-0.292 (0.393)	-0.456 (0.396)	-0.307 (0.378)
OTHER	0.164 (0.369)	0.115 (0.378)	0.207 (0.352)
Relative Competitiveness Measure			
INFORMAL_COMPETITOR	0.297 (0.064)***	0.190 (0.065)***	0.182 (0.064)***
Bank Relationships			
CHECKING(SAVING)_ACCOUNT	-0.294 (0.092)***	-0.243 (0.093)***	-0.250 (0.091)***
Government Relationships			
INFORMAL_PAYMENTS		0.303 (0.024)***	0.290 (0.023)***
Firm Owner/Top Manager			
FEMALE	0.148 (0.065)**	0.188 (0.065)***	0.140 (0.064)**

ln_PRIOR_EXPERIENCE	-0.157 (0.050)***	-0.141 (0.0551)***	-0.138 (0.049)***
Industry			
MANUFACTURING	0.359 (0.071)***	0.376 (0.073)***	0.376 (0.071)***
FINANCING	-0.647 (0.326)**	-0.828 (0.332)**	-0.825 (0.330)**
OTHER_INDUSTRY	0.015 (0.101)	0.037 (0.102)	0.015 (0.100)
Intercept	<0.0001	<0.0001	<0.0001
Number of Observations	4,687	4,687	4,687
R^2-max	0.0587	0.0962	0.1022

Note: The dependent variable is *DISCOURAGED*.

Panel B. The Probability of Being Rejected - Relative Importance of Privatization vs. Informal Payments

Variable	**(1)** **With Only** ***PRIVATIZATION***	**(2)** **With Only** ***INFORMAL_PAYMENTS***	**(3)** **With Both**
Firm Characteristics			
General			
ln_ AGE	-0.147 (0.090)	-.087 (0.088)	-0.136 (0.088)
ln_ SIZE	-0.111 (0.048)***	-0.106 (0.0390***	-0.117 (0.039)***
FOREIGN_OWNERSHIP	0.163 (0.164)	0.181 (0.165)	0.147 (0.163)
EXPORTER	-0.101 (0.109)	-0.060 (0.109)	-0.033 (0.108)
Legal Status			
SOLE_PROPRIETORSHIP	0.084 (0.138)	0.100 (0.139)	0.102 (0.139)
PARTERSHIP	-0.326 (0.179)	-0.355 (0.179)**	-0.374 (0.177)**
OTHER_LEGAL_STATUS	-0.605 (0.435)	-0.529 (0.437)	-0.517 (0.408)
Originally Established As			
PRIVATIZATION	0.221 (0.129)*		0.202 (0.126)
FOREIGN	-0.397 (0.450)	-0.666 (0.455)	-0.491 (0.426)
STATE_OWNED	-0.302 (0.617)	-0.357 (0.6170	-0.314 (0.618)
OTHER	0.567 (0.476)	0.506 90.481)	0.409 (0.473)
Relative Competitiveness Measure			
INFORMAL_COMPETITOR	0.072 (0.093)	-0.021 (0.095)	-0.034 (0.093)
Bank Relationships			
CHECKING(SAVING)_ACCOUNT	-0.162 (0.156)	-0.107 (0.157)	-0.088 (0.154)
Government Relationships			
INFORMAL_PAYMENTS		0.219 (0.031)***	0.228 (0.030)***
Firm Owner/Top Manager			
FEMALE	-0.161 (0.095)	-0.140 (0.095)	-0.173 (0.094)*
ln_PRIOR_EXPERIENCE	0.028 (0.073)	0.042 (0.074)	0.057 (0.072)

Industry			
MANUFACTURING	0.203 (0.110)*	0.222 (0.110)**	0.188 (0.108)*
FINANCING	0.003 (0.453)	-0.012 (0.458)	-0.165 (0.453)
OTHER_INDUSTRY	0.233 (0.142)	0.247 (0.142)*	0.225 (0.139)
Intercept	<0.0001	<0.0001	<0.0001
Number of Observations	3,542	3,542	3,542
R^2-max	0.0166	0.0379	0.0394

Note: The dependent variable is *REJECTED*.

Panel C. The Degree of Financing Stress - Relative Importance of Privatization vs. Informal Payments

Variable	**(1)** **With Only** ***PRIVATIZATION***	**(2)** **With Only** ***INFORMAL_PAYMENTS***	**(3)** **With Both**
Firm Characteristics			
General			
ln_ AGE	-0.122 (0.048)**	-0.068 (0.047)	-0.091 (0.047)*
ln_ SIZE	0.008 (0.022)	0.007 (0.022)	-0.006 (0.021)
FOREIGN_OWNERSHIP	-0.320 (0.099)***	-0.309 (0.101)***	-0.315 (0.099)***
EXPORTER	-0.301 (0.065)***	-0.269 (0.066)***	-0.254 (0.065)***
Legal Status			
SOLE_PROPRIETORSHIP	-0.040 (0.073)	-0.034 (0.074)	-0.032 (0.074)
PARTERSHIP	-0.225 (0.0910**	-0.246 (0.093)***	-0.272 (0.091)***
OTHER_LEGAL_STATUS	-0.027 (0.161)	0.031 (0.163)	-0.004 (0.153)
Originally Established As			
PRIVATIZATION	0.184 (0.068)***		0.196 (0.067)***
FOREIGN	0.162 (0.099)	-0.4103 (0.205)	-0.029 (0.200)
STATE_OWNED	0.554 (0.251)**	0.539 (0.254)**	0.575 (0.249)**
OTHER	0.159 (0.293)	0.144 (0.259)	0.296 (0.274)
Relative Competitiveness Measure			
INFORMAL_COMPETITOR	0.299 (0.051)***	0.189 (0.052)***	0.209 (0.051)***
Bank Relationships			
CHECKING(SAVING)_ACCOUNT	-0.084 (0.080)	-0.029 (0.081)	-0.060 (0.079)
Government Relationships			
INFORMAL_PAYMENTS		0.302 (0.018)***	0.298 (0.017)***
Firm Owner/Top Manager			
FEMALE	0.052 (0.051)	0.073 (0.052)	0.052 (0.051)

ln_PRIOR_EXPERIENCE	-0.066 (0.039)*	-0.043 (0.040)	-0.030 (0.039)
Industry			
MANUFACTURING	0.246 (0.058)***	0.265 (0.060)***	0.258 (0.058)***
FINANCING	0.166 (0.226)	0.113 (0.230)	0.076 (0.225)
OTHER_INDUSTRY	0.176 (0.079)**	0.182 (0.079)**	0.126 (0.078)
Intercept	<0.0001	<0.0001	<0.0001
Number of Observations	4,113	4,113	4,113
R^2-max	0.0208	0.0676	0.0686

Note: The dependent variable is *DEGREE_OF_STRESS*.

APPENDIX 7.
ROBUSTNESS - COUNTRY LEVEL ANALYSES

All models are estimated via logistic regression. *DISCOURAGED* is a dummy variable taking a value of one if the firm needs a credit loan, but does not apply for it in fiscal year 2007. *REJECTED* is a dummy variable captured by the following question in the survey: "*In fiscal year 2007, did this establishment apply for any new loans or new lines of credit that were rejected*?" *DEGREE_OF_FINANCING_STRESS* is a dummy variable taking a value of one if the firm replied that the degree of access to finance obstacle is higher than moderate and zero otherwise. *ln_AGE* is measured by the log of firm age. *ln_SIZE* is measured by the logarithm of the number of employees. *FOREIGN_OWNED* is measured by a dummy variable that is equal to one if a firm is owned by foreign individuals, companies, or organizations and zero otherwise. *EXPORTER* is measured by a dummy variable taking a value of one if a firm exported directly or indirectly and zero otherwise. *SHAREHOLDING_COMPANY* is measured as a dummy variable that is equal to one if the firm is a publicly listed company and zero otherwise. *SOLE_PROPRIETORSHIP* is measured as a dummy variable taking a value of one if the firm is a sole proprietorship and zero otherwise. *PARTNERSHIP* takes a value of one if the firm is a partnership or a limited partnership and zero otherwise. *OTHER_LEGAL_STATUS* is measured as a dummy variable that is equal to one if the legal status is not any of the above and zero otherwise. *PRIVATIZATION* takes a value of one if the firm was established as a privatization of a state-owned firm or as a private subsidiary of a formerly state-owned firm and zero otherwise. *PRIVATE* takes a value of one if the firm was established as a private firm and zero otherwise. *FOREIGN* takes a value of one if the firm was established as a joint venture with foreign partners and zero otherwise. *STATE_OWNED* takes a value of one if the firm was established as a state-owned firm and zero otherwise. *OTHER* takes a value of one if the firm was established as other forms and zero otherwise. *INFORMAL_COMPETITOR* is captured by the following question in the survey: "*Does this establishment compete against unregistered or informal firms?*" It takes a value of one if the firm replied yes and zero otherwise. *CHECKING(SAVING)_ACCOUNT* measures the relationship between financial institutions and firms. It is a dummy variable that is equal to one if the firm has a checking and/or savings account and zero otherwise. *INFORMAL_PAYMENTS* refers to the frequency of informal payments to "get things done" (ranking from one to six representing never to always, respectively). *FEMALE* is a dummy variable taking a value of one if any of the owners are female. *ln_PRIOR_EXPERIENCE* is the (natural) logarithm of the number of years of work experience that a top manager has had in the same sector before running the current firm. *MANUFACTURING* is measured by a dummy variable that is equal to one if the firm is a manufacturing business and zero otherwise. *SERVICE* is measured by a dummy variable taking a value of one if the firm is a service business and zero otherwise. *FINANCE* is measured by a dummy variable taking a value of one if the firm is a finance or insurance business and zero otherwise. *ECONOMIC_FREEDOM* is an index providing a global portrait of economic freedom among various countries around the world. In the regression, the index uses a scale of 1-5: free: 80-100; mostly free: 70-79.9; moderately free: 60-69.9; mostly unfree: 50-59.9; Repressed: 0-49.9; and NR (not ranked). *INFLATION* refers to the annual percentage difference of Consumer Price Index. Standard errors are in parentheses.*, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Variable	(1) Discouraged	(2) Rejected	(3) Degree of Financing Stress
Firm Characteristics			
General			
ln_ AGE	0.008 (0.068)	-0.067 (0.095)	-0.093 (0.053)*
ln_ SIZE	-0.201 (0.034)***	-0.132 (0.043)***	-0018 (0.024)
FOREIGN_OWNERSHIP	-0.375 (0.150)**	0.204 (0.173)	-0.286 (0.108)***
EXPORTER	-0.280 (0.103)***	-0.069 (0.119)	-0.182 (0.072)**
Legal Status			
SOLE_PROPRIETORSHIP	0.182 (0.109)*	0.102 (0.151)	-0.074 (0.084)
PARTERSHIP	0.090 (0.114)	-0.370 (0.183)**	-0.281 (0.096)***
OTHER_LEGAL_STATUS	0.184 (0.238)	-0.266 (0.457)	-0.115 (0.205)
Originally Established As			
PRIVATIZATION	0.371 (0.097)***	0.225 (0.138)	0.127 (0.076)*
FOREIGN	0.066 (0.275)	-0.541 (0.463)	-0.189 (0.224)
STATE_OWNED	-0.593 (0.445)	-0.120 (0.629)	0.390 (0.279)
OTHER	0.066 (0.441)	0.543 (0.531)	0.165 (0.333)
Relative Competitiveness Measure			
INFORMAL_COMPETITOR	0.311 (0.073)***	-0.013 (0.100)	0.140 (0.056)**
Bank Relationships			
CHECKING(SAVING)_ACCOUNT	-0.421 (0.101)***	-0.115 (0.164)	-0.102 (0.086)
Government Relationships			
INFORMAL_PAYMENTS	0.267 (0.027)***	0.238 (0.033)***	0.277 (0.020)***
Firm Owner/Top Manager			
FEMALE	0.161 (0.073)**	-0.172 (0.101)	0.066 (0.056)
ln_PRIOR_EXPERIENCE	-0.100 (0.056)*	0.079 (0.078)	-0.018 (0.043)
Industry			

MANUFACTURING	0.330 (0.083)***	0.294 (0.118)**	0.211 (0.065)***
FINANCING	-0.812 (0.405)**	0.158 (0.465)	0.258 (0.251)
OTHER_INDUSTRY	0.003 (0.113)	0.194 (0.152)	0.158 (0.085)*
Country Variables			
ECONOMIC_FREEDOM	-0.058 (0.007)***	-0.028 (0.009)***	-0.032 (0.005)***
INFLATION	-0.039 (0.012)***	-0.029 (0.015)*	-0.020 (0.009)**
Intercept	<0.0001	<0.0001	0.0631
Number of Observations	3,960	3,221	3,140
R^2 -max	0.1424	0.0505	0.0741