

## THE IMPACT OF THE 2008 GLOBAL CRISIS ON ACCESS TO FINANCE

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### Abstract

In this study, we examine the impact of the 2008 Global Crisis on access to finance. We use three measures of *access to finance*: “Number of bank branches per 100,000 adults”, “Value traded of top 10 traded companies to total value traded (%)”, and “Market capitalization outside of top 10 largest companies to total market capitalization (%)”. We use non-parametric tests in our analyses. Our results show that in the run-up to the crisis and after the crisis, there was no significant change in any of these three measures. However, during the crisis period, we find that “Value traded of top 10 traded companies to total value traded (%)” has gone up and this change is marginally significant. We do not find any impact on the other two measures during the crisis. We conclude that the global crisis only had a marginally significant impact on access to finance.

**Key Words:** access to finance, bank branches, global crisis, financial crises

**Classification JEL:** G01, G10, G20, G21, G32

### 1. INTRODUCTION

In this study, we examine the impact of the 2008 Global Crisis on “access to finance”. “Access to finance” can be defined as the ability of firms or individuals to obtain financial services, which includes credit, insurance and other risk management services, deposit, and payment. There are several factors that are shown to have a significant impact on “access to finance”. The previous studies have examined the issue from different perspectives.

First, shared cultural norms, language, and religion bear a heavy influence upon the perceived proper uses of credit in a given society. Second, the governing authorities in any geographical region with a banking system are presented with the challenge of developing a regulatory framework which prevents financial fraud, yet maximizes the efficient use of capital. Third, the framework in which contracts are enforced and disputes resolved, as well as the adaptability of that framework to the changing enforcement needs of the population, are crucial in proper loan underwriting and credit monitoring. Fourth, the level of aggregate real wealth of a region, consisting of its natural resources, infrastructure, technology, human knowledge and skill, as well as the quality of local financial systems, play a major role in firms’ decisions to invest. First, shared cultural norms, language, and religion bear a heavy influence upon the perceived proper uses of credit in a given society.

In this study, we are hoping to contribute to the literature by focusing the macro-economy as a possible factor in explaining “access to finance”. More specifically, we focus on the impact of the recent global crisis on firms’ and individuals’ access to finance. To achieve our objective, we use three measures: “Number of bank branches per 100,000 adults”, “Value traded of top 10 traded companies to total value traded (%)”, and “Market capitalization outside of top 10 largest companies to total market capitalization (%)”. The first measure deals with individuals’ access to finance and the remaining measures deal with firms’ access to finance.

The paper proceeds as follows: Section 2 discusses the previous literature. Section 3 explains our hypotheses. Section 4 describes the data. Section 5 shows the empirical results; finally, Section 6 concludes.

### 2. LITERATURE REVIEW

Previous papers examine access to finance from different perspectives. Some of these papers look at how a country’s culture affects access to finance. Others look at how different factors like regulations, contract enforcement, and level of aggregate real wealth affect access to finance.

As mentioned above, several studies have shown that the level of aggregate real wealth of a region affects a firm's decision to invest. The aggregate real wealth consists of a region's natural resources, infrastructure, technology, human knowledge and skill, as well as the quality of local financial systems. Alfaro et al. (2004) argues that “the full benefits of long-term stable flows may also not be realized in the absence of well-functioning financial markets.” Asiedu (2006) examines the impact of foreign direct investment in Africa. The author shows that neither the quantity of natural resources nor the quantity of FDI affects access to credit. According to the author's survey results, corruption, taxes, regulation, weak infrastructure, and lack of access to global market are the most important factors in explaining access to credit.

Clark, Cull & Peria (2001) examine developing countries and look at the impact of entry by foreign banks on domestic financial markets. While there is a view that the entry of foreign banks, especially large ones, would reduce access to credit for smaller lenders, the authors in this study show that this is not the case. Gelos, Sahay, & Sanderis (2011) agree with Asiedu (2006) in that resource-abundant countries don't necessarily have greater access to credit markets. The authors also show that neither a country's links with the rest of the world through trade and FDI nor defaults in the previous year affect access to credit significantly. The authors also show that the perceived stability and quality of lawmaking and governing bodies matter significantly, as well as the susceptibility to financial shocks.

Several other papers examine how shared cultural norms, language, and religion affect the perceived proper uses of credit in a given society. Zeller (1998) contends that groups that have clear internal rules of conduct have a significantly higher repayment performance. Zeller (1998) also shows that the establishment of minimum asset requirements and limits on the geographical living distances of members are important factors in repayment performance. Stiglitz (1990) examine the problems faced by non-local financial institutions when they lend to rural, third world locations. He discusses the success of the Grameen Bank in Bangladesh. He shows the difficulty in enforcing contracts, information asymmetry due to geography, and the high cost of alleviating this asymmetry.

Stulz & Williamson (2003) examine how language and religion affect creditor rights. The authors find that, with regard to creditor rights, English-speaking countries score higher than non-English-speaking countries, non-Christian countries score higher than Christian countries, and Protestant countries score higher than Catholic countries. They argue that countries of the Western tradition score the highest in creditor rights.

Several other studies show the factors that are important in proper loan underwriting and credit monitoring. These studies show that the framework in which contracts are enforced and disputes resolved and the adaptability of that framework to the changing enforcement needs of the population are important factors that explain proper loan underwriting and credit monitoring. Beck, Demirguc-Kunt & Levine (2001) show that financial development in common law countries is significantly higher in most categories than civil law countries (2001). Levine (2005) examines the financial strength and credit access of developing nations and shows the importance of private property as a base of contract enforcement.

Demirguc-Kunt, & Levine (2005) contend that countries with French Legal origins are not as efficient at debt enforcement as common law societies which base their decisions on principles of equity. Djankov, McLiesh, & Schleifer (2005) contend that developed economies tend to emphasize creditor rights, while developing economies will instead depend on information-sharing and credit registries. The authors also show that creditor rights are emphasized more in common law countries than civil law countries, and that creditor rights remain stable over time. The authors suggest a government role in facilitating the sharing of information in civil law countries, as governments in such countries are well-positioned to collect and disseminate this information due to their centralized nature. Djankov et al. (2006) show that debt enforcement around the world is highly inefficient.

Several other papers focus on the impact of regulations on access to finance. These studies examine the challenge of developing a regulatory framework which prevents financial fraud while maximizing the efficient use of capital. These papers argue that the regulatory environment plays a vital role in the stability and efficiency of financial and banking systems in developing countries. Barth, Caprio, & Levine (2001) contend that restrictions on banking powers do not appear to have a material effect on the overall financial health of a country. On the other hand, the authors argue that restrictions on non-banking, commercial activities of banks such as securities and insurance underwriting as well as real estate investments can lead to banking inefficiencies. Booth et al. (2001) contend that private firms in developing countries form their capital structure based on the same motivating factors as developed countries. The authors contend, on the other hand that, the factors specific to individual countries such as the regulatory environment, concentration of bank ownership, and differences in accounting practices and reporting standards can alter these private firms' decisions.

Graham & Woods (2006) contend that several factors like the quality and efficiency of regulation, the degree to which it is employed in the areas in which it is most needed, and the degree to which private sector solutions are allowed to be implemented when appropriate, affect financial stability. Jalilian, Kirkpatrick, & Parker (2007) argue that both efficiency and quality of regulations are vital in optimizing a nation's economic output. Finally, Barth et al. (2009) show that the corruption of banking officials highly discourages foreign investment. The authors contend that information-sharing is important in reducing the risk of bribery, and add that private credit bureaus are key in reducing lending corruption.

### 3. HYPOTHESES

Due to the global crisis, we expect all access to finance measures to worsen. We expect to find significantly fewer bank branches for individuals after the crisis and we expect some panic in the financial markets as well. Due to this panic, for firms, we expect stock trading to be more concentrated on the largest companies. Due to higher demand for the largest firms' stocks, we also expect the market value to be more concentrated on the top 10 largest companies (hence less concentrated on firms outside of the top 10 largest companies) after the crisis when compared to the pre-crisis period.

Our hypotheses can be stated as follows:

Hypothesis 1: There are fewer bank branches available to individuals after the global crisis when compared to the pre-crisis period.

Hypothesis 2: Stock trading is more concentrated on the largest companies after the crisis when compared to the pre-crisis period.

Hypothesis 3: Market value is less concentrated on firms outside the top 10 largest companies after the crisis when compared to the pre-crisis period.

Table 1 shows the expected change in our access to finance variables due to the global crisis.

**Table 1. The Expected Change in the Variables**

<b>Variable</b>	<b>Up</b>	<b>Down</b>
Bank branches		X
Value traded of top 10	X	
Market cap. outside of top 10		X

#### **4. DATA**

In this study, as measures of access to finance, we use three variables. These are listed below with their sources explained in parenthesis. We actually collected the data from World Bank but World Bank collected them from different sources.

Our “access to finance” measures are:

Bank branches per 100,000 adults: Number of commercial bank branches per 100,000 adults. The data is from commercial banks-bank survey (International Monetary Fund, Financial Access Survey). This is a measure for individuals' access to finance.

Value traded of top 10 traded companies to total value traded (%): Value of all traded shares of the top ten traded companies as a share of total value of all traded shares in a stock market exchange (World Federation of Exchanges). This is a firm-level measure.

Market cap. outside of top 10 largest companies to total market cap. (%): Value of listed shares outside of the top ten largest companies to total value of all listed shares (World Federation of Exchanges). This is a firm-level access to finance measure.

Figures 1, 2, and 3 show the trend in each of the three measures over our sample period.

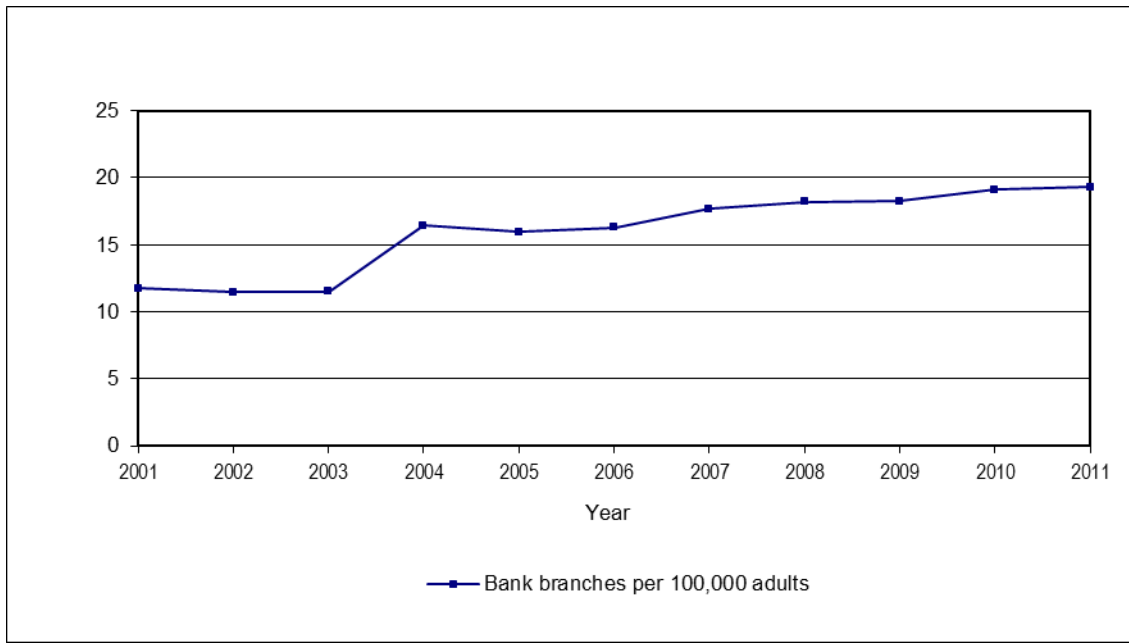


Fig. 1. Bank Branches per 100,000 Adults

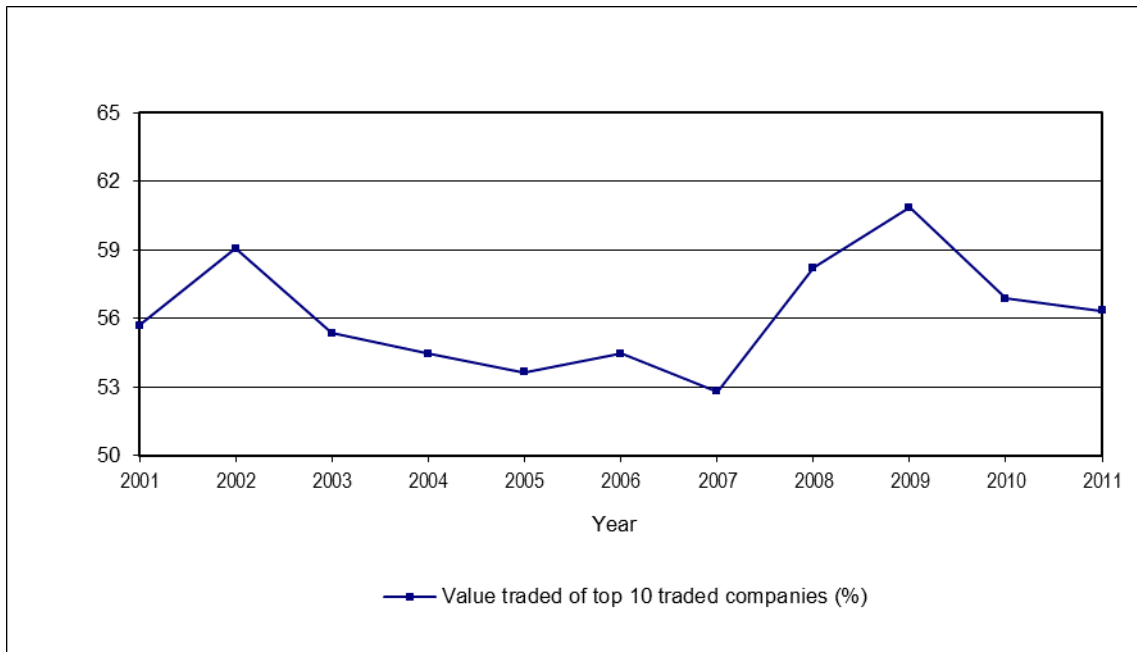
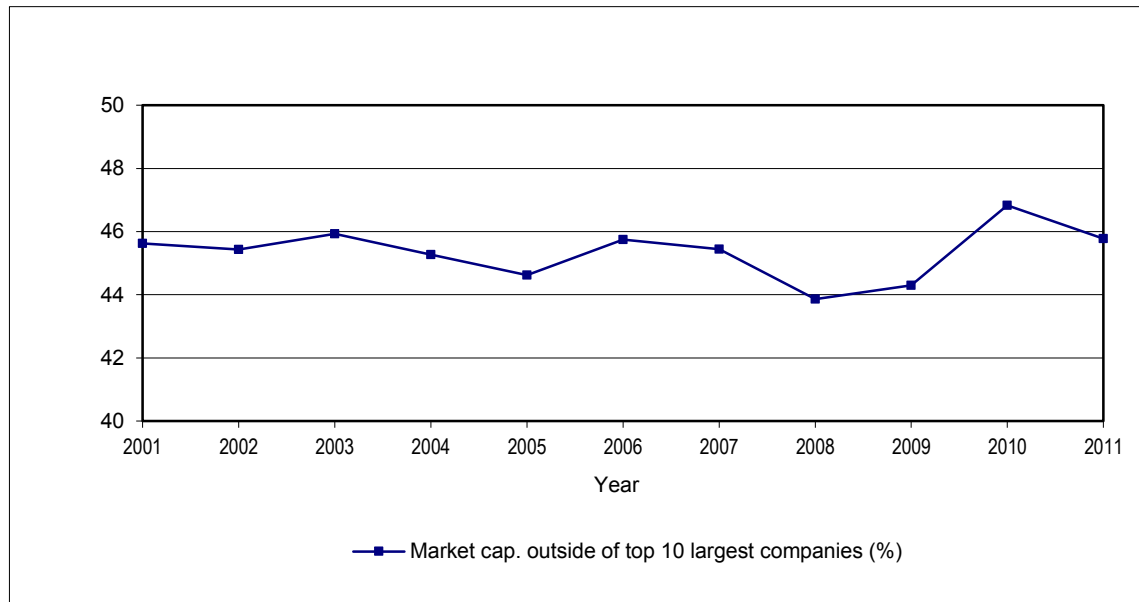


Fig. 2. Value Traded of Top 10 Traded Companies (%)



**Fig. 3. Market Capitalization Outside of Top 10 Largest Companies (%)**

Table 2 shows the summary statistics for our three “access to finance” measures. Table 3 shows the trend in each variable in tabular form.

**Table 2. Summary Statistics**

Variable	Mean	Std	Min	Max
Bank branches	19.31	16.84	0.66	89.73
Value traded of top 10	56.33	26.85	8.29	99.65
Market cap. outside of top 10	45.78	20.15	4.44	74.77

**Table 3. Access to Finance Variables over Time**

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bank branches	11.7	11.4	11.5	16.4	16.0	16.3	17.7	18.2	18.2	19.1	19.3
Value traded of top 10	55.7	59.1	55.4	54.5	53.6	54.5	52.8	58.2	60.8	56.9	56.3
Market cap. out. of top 10	45.6	45.4	45.9	45.3	44.6	45.7	45.4	43.9	44.3	46.8	45.8

## 5. EMPIRICAL RESULTS

Table 4 shows the results of the Mann-Whitney-Wilcoxon tests for the period just before the crisis started (i.e. “Run-up to the crisis”). As shown in the table, there were improvements in all three “access to finance” measures just before the crisis (although none of the changes was statistically significant). The median value of “Bank branches per 100,000 adults” was 12.05 in 2006. It went up to 12.87 in 2007 (p-value of the difference is 0.2404). This result shows that there were slightly more bank branches in these countries in 2007 compared to 2006. “More bank branches” means that “access to finance” slightly improved during this period (although it is not statistically significant).

The median value of “Value traded of top 10 traded companies to total value traded (%)” was 53.63 in 2006. It went down to 47.72 in 2007 (p-value of the difference is 0.3544). Again, a drop in the value of top 10 traded companies indicates that “access to finance” slightly improved during this period (although it is not statistically significant). The stock market trading activities were less concentrated in the top 10 firms in 2007 when compared to 2006.

Table 4 also shows that the median value of “Market cap. outside of top 10 largest companies to total market cap. (%)” was 46.55 in 2006. It went up to 49.29 in 2007 (p-value of the difference is 0.4519). An increase in the market

capitalization outside of top 10 largest companies indicates that “access to finance” slightly improved during this period (although it is not statistically significant). The market value was less concentrated in the top 10 firms in 2007 when compared to 2006.

**Table 4. The Run-Up to the Crisis**

Variable	2006		2007		Mann-W.
	Mean	Med.	Mean	Med.	p-value
Bank branches	16.30	12.05	17.69	12.87	0.2404
Value traded of top 10	54.47	53.63	52.81	47.72	0.3544
Market cap. outside of top 10	45.75	46.55	45.45	49.29	0.4519

Table 5 shows the results of the tests for the crisis period (2007 to 2008). As shown in the table, although number of bank branches slightly improved (not statistically significant), the other two measures deteriorated during this period (one of them is marginally significant). First, we are seeing that the median value of “Bank branches per 100,000 adults” was 12.87 in 2007. It went up to 13.52 in 2008 (p-value of the difference is 0.3561). This result shows that there were slightly more bank branches in these countries in 2008 compared to 2007.

The median value of “Value traded of top 10 traded companies to total value traded (%)” was 47.72 in 2007. It went up to 56.56 in 2008 (p-value of the difference is 0.1015). An increase in the value of top 10 traded companies indicates that “access to finance” deteriorated during this period (it is marginally significant). The stock market trading activities were more concentrated in the top 10 firms in 2008 when compared to 2007.

Table 5 also shows that the median value of “Market cap. outside of top 10 largest companies to total market cap. (%)” was 49.29 in 2007. It went down to 44.04 in 2008 (p-value of the difference is 0.2952). A decrease in the market capitalization outside of top 10 largest companies indicates that “access to finance” slightly deteriorated during this period (although it is not statistically significant). The market value was more concentrated in the top 10 firms in 2008 when compared to 2007.

**Table 5. The Impact of the Global Crisis on Access to Finance**

Variable	2007		2008		Mann-W.
	Mean	Med.	Mean	Med.	p-value
Bank branches	17.69	12.87	18.23	13.52	0.3561
Value traded of top 10	52.81	47.72	58.22	56.56	0.1015
Market cap. outside of top 10	45.45	49.29	43.86	44.04	0.2952

Table 6 shows the results of the tests for the “after the crisis” period (2008 to 2009). As shown in the table, the number of bank branches slightly improved (not statistically significant). We are seeing that the median value of “Bank branches per 100,000 adults” was 13.52 in 2008. It went up to 14.07 in 2009 (p-value of the difference is 0.4181). This result shows that there were slightly more bank branches in these countries in 2009 compared to 2008.

The median value of “Value traded of top 10 traded companies to total value traded (%)” was 56.56 in 2008. It went up to 60.46 in 2009 (p-value of the difference is 0.3027). An increase in the value of top 10 traded companies indicates that “access to finance” slightly deteriorated during this period (although it is not statistically significant). The stock market trading activities were more concentrated in the top 10 firms in 2009 when compared to 2008.

Table 6 also shows that the median value of “Market cap. outside of top 10 largest companies to total market cap. (%)” was 44.04 in 2008. It went down to 45.01 in 2009 (p-value of the difference is 0.4152). This is a reversal from the previous year. An increase in the market capitalization outside of top 10 largest companies indicates that “access to finance” slightly improved during this period (although it is not statistically significant). The market value was more concentrated in the top 10 firms in 2009 when compared to 2008.

**Table 6. The Reaction after the Crisis**

Variable	2008		2009		Mann-W.
	Mean	Med.	Mean	Med.	p-value
Bank branches	18.23	13.52	18.25	14.07	0.4181
Value traded of top 10	58.22	56.56	60.85	60.46	0.3027
Market cap. outside of top 10	43.86	44.04	44.30	45.01	0.4152

## 6. CONCLUSION

In this study, we examine the impact of the 2008-2009 Global Crisis on “access to finance”. Our three “access to finance” measures are: “Number of bank branches per 100,000 adults”, “Value traded of top 10 traded companies to total value traded (%)”, and “Market capitalization outside of top 10 largest companies to total market capitalization (%)”. The data are collected from World Bank’s Global Financial Development Dataset.

We find that in the run-up to the crisis (i.e. from 2006 to 2007 and immediately after the crisis (i.e. 2008 to 2009), there was no significant change in any of these three measures. However, during the crisis period (i.e. 2007 to 2008), we find that “Value traded of top 10 traded companies to total value traded (%)” has gone up and this change is marginally significant. We do not find any impact on the other two measures during the crisis. We conclude that the global crisis only had a marginally significant impact on access to finance.

Future studies may extend this work by examining different regions of the world rather than doing tests for all of the countries in the world. Also, doing tests for different income groups like high-income, OECD, non-OECD, middle income, and low income country groups would help us determine how financial or economic crises affect certain countries more than others. This would help policymakers in these certain countries to plan for coming crises in advance.

## 7. BIBLIOGRAPHY

1. Alfaro, Laura, et al. "FDI and economic growth: the role of local financial markets." *Journal of International Economics* 64.1 (2004): 89-112.
2. Asiedu, Elizabeth. "Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions and political instability." *The World Economy* 29.1 (2006): 63-77.
3. Barth, James R., Gerard Caprio Jr, and Ross Levine. "Banking systems around the globe: Do regulation and ownership affect performance and stability?" *Prudential supervision: What works and what doesn't*. University of Chicago Press, 2001. 31-96.
4. Barth, James R., et al. "Corruption in bank lending to firms: Cross-country micro evidence on the beneficial role of competition and information sharing." *Journal of Financial Economics* 91.3 (2009): 361-388.
5. Beck, T., Demirgüç- Kunt, A., & Levine, R. (2001). *Legal theories of financial development*. *Oxford Review of Economic Policy*, 17(4), 483-501.
6. Booth, L., Aivazian, V., Demirguc- Kunt, A., & Maksimovic, V. (2001). *Capital structures in developing countries*. *The journal of finance*, 56(1), 87-130.
7. Clarke, George RG, Robert Cull, and Maria Soledad Martinez Peria. "Does foreign bank penetration reduce access to credit in developing countries? Evidence from asking borrowers." *Evidence from Asking Borrowers* (September 2001). *World Bank Policy Research Working Paper* 2716 (2001).
8. Demirgüç-Kunt, T. B. A., & Levine, R. (2005). *Law and firms’ access to finance*. *American Law and Economics Review*, 7(1), 211-252.
9. Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer. Forthcoming. “Private Credit in 129 Countries.” *Journal of Financial Economics* 33.3 (2005): 341-368.
10. Djankov, Simeon, et al. *Debt enforcement around the world*. No. w12807. National Bureau of Economic Research, 2006.
11. Gelos, R. Gaston, Ratna Sahay, and Guido Sandleris. "Sovereign borrowing by developing countries: What determines market access?" *Journal of International Economics* 83.2 (2011): 243-254.
12. Graham, David, and Ngair Woods. "Making corporate self-regulation effective in developing countries." *World Development* 34.5 (2006): 868-883.
13. Jalilian, Hossein, Colin Kirkpatrick, and David Parker. "The impact of regulation on economic growth in developing countries: A cross-country analysis." *World Development* 35.1 (2007): 87-103.
14. Levine, Ross. *Law, endowments, and property rights*. No. w11502. National Bureau of Economic Research, 2005.
15. Stiglitz, Joseph E. "Peer monitoring and credit markets." *The World Bank Economic Review* 4.3 (1990): 351-366.
16. Stulz, Rene M., and Rohan Williamson. "Culture, openness, and finance." *Journal of Financial Economics* 70.3 (2003): 313-349.
17. World Bank Global Financial Development Database. “<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTGLOBALFINREPORT/0,,contentMDK:23269602~pagePK:64168182~piPK:64168060~theSitePK:8816097,00.html>”
18. Zeller, Manfred. "Determinants of repayment performance in credit groups: The role of program design, intragroup risk pooling, and social cohesion." *Economic Development and Cultural Change* 46.3 (1998): 599-620.