FINANCIANDO EL DESARROLLO • AMÉRICA LATINA

CAF

DOCUMENTOS DE TRABAJO

CAF
WORKING PAPERS

INFORMATION SHARING AND ACCESS TO FINANCE OF SMEs: CROSS COUNTRY EVIDENCE FROM SURVEY DATA

N° 2010/06

August, 2010

Galindo, Arturo
Micco, Alejandro

CAF - Ave. Luis Roche, Torre CAF, Altamira. Caracas, Venezuela 01060

© CAF, 2010 por Galindo, Arturo y Micco, Alejandro. Todos los derechos reservados. Pequeñas secciones del texto, menores a dos párrafos, pueden ser citadas sin autorización explícita siempre que se cite el presente documento.
Los resultados, interpretaciones y conclusiones expresados en esta publicación son de exclusiva responsabilidad de su(s) autor(es), y de ninguna manera pueden ser atribuidos a CAF, a los miembros de su Directorio Ejecutivo o a los países que ellos representan.
CAF no garantiza la exactitud de los datos incluidos en esta publicación y no se hace responsable en ningún aspecto de las consecuencias que resulten de su utilización.

INSTITUCIONES PARA LA DIVULGACIÓN DE LA INFORMACIÓN Y EL ACCESO AL FINANCIAMIENTO DE PYMES: EVIDENCIA ENTRE PAÍSES DE INFORMACIÓN PROVENIENTE DE ENCUESTAS

Galindo, Arturo y Micco, Alejandro
CAF Documento de trabajo N° 2010/06
Agosto, 2010

RESUMEN

Usando una encuesta a nivel de firmas de 61 países alrededor del mundo (WBES) y técnicas econométricas que nos permiten lidiar con componentes específicos observables y no observables para cada país y endogeneidad parcial; exploramos el rol del desarrollo de mecanismos de información de crédito, tales como, bureaus de crédito privados o registros de crédito públicos, sobre el acceso de pequeñas y medianas empresas a créditos bancarios. Conseguimos que el desarrollo de mecanismos de información reduce significativamente la brecha de financiamiento entre pequeñas y grandes firmas.

Palabras clave: pequeñas y medianas empresas, bureaus de crédito, registros de crédito, acceso al financiamiento

INFORMATION SHARING AND ACCESS TO FINANCE OF SMEs: CROSS COUNTRY EVIDENCE FROM SURVEY DATA

Galindo, Arturo y Micco, Alejandro
CAF Working paper N° 2010/06
August, 2010

ABSTRACT

Using a survey of firms in 61 countries around the world (WBES) and econometric techniques that allow us to deal with observed and unobserved country specific components as well as with partial endogeneity, we explore the role of the development of credit information mechanisms such as private credit bureaus or public credit registries on small and medium-size enterprises' access to bank credit. We find that the development of information sharing mechanisms reduces significantly the financing gap between small and large firms.

Alejandro Micco
Universidad de Chile
amicco@fen.uchile.cl

Alejandro Galindo
Inter-American Development Bank

Keywords: small and medium enterprises, credit bureaus, credit registries, access to finance

Information Sharing and Access to Finance of SMEs: Cross Country Evidence from Survey Data

Arturo J. Galindo
Inter-American Development Bank

Alejandro Micco[1]
Universidad de Chile

August 2010

Abstract

Using a survey of firms in 61 countries around the world (WBES) and econometric techniques that allow us to deal with observed and unobserved country specific components as well as with partial endogeneity, we explore the role of the development of credit information mechanisms such as private credit bureaus or public credit registries on small and medium-size enterprises' access to bank credit. We find that the development of information sharing mechanisms reduces significantly the financing gap between small and large firms.

Keywords: Law and Finance, Credit, Small and Medium Size Enterprises
JEL Classification: G2, G3, G10, K4

[1] The authors thank Patricio Toro for superb research assistance. Micco thanks CAF and the IDB for financial support. The views in this paper are the author's exclusively and do not represent those of the Inter-American Development Bank or its Board of Directors.

1. Motivation

The absence of information about creditors is a major barrier for the development of credit markets. The forward looking nature of credit which involves a commitment to pay back sometime in the future the resources lent in the present makes knowledge about the identity and intentions of the debtor a crucial element for creditors. The expected behavior of the debtor regarding his probability of paying back his debts will determine the profit made by the creditor. Information on the potential borrowers and their investment projects is only partially revealed to the credit, leading to problems of moral hazard and adverse selection[2].

A large body of literature on credits markets shows how the existence of asymmetric information between lenders and borrowers can lead to inefficient allocation of resources or credit rationing[3]. Since a borrower may be tempted to avoid the repayment of the loan or relax his effort during the execution of the financed project, increasing the riskiness of the loan, lenders charge higher interest rates, which leads to credit rationing.

The literature on credit markets has indentified different ways in which a lender can overcome the problems derived from asymmetric information; the most notable of them is the use of collateral[4]. However, not all loans are easily backed up with collateral. The collateralization of loans is often problematic for firms of certain characteristics such as new firms, micro-entrepreneurs, and small and medium sized enterprises –SMEs, which often lack significant fixed assets that could be presented as collateral. Collateralization is also problematic in countries with poor protection of creditor rights where the costs of seizing collateral are high, and the process takes a long time. In this context, the institutional framework regarding the legal protection of creditors is particularly relevant to access credit, especially for SMEs, which as shown by Galindo and Micco (2007) most of the time rely on banking credit to finance their investments.

---

[2] Lenders often only observe partial information on borrowers, including the riskiness of their projects, which induces adverse selection in credit markets. Once the loan is made, lenders face moral hazard because they are unable to control the actions of the borrower.

[3] See Stiglitz and Weiss (1981).

[4] For a review on the importance of collateral in credit contracts and on the institutions that support the use of collateral see: La Porta et al (1997, 1998) and Schiantarelli (1996). There are two main results emerging from this literature: external finance is more costly than internal finance unless loans are fully collateralized, and the premium on external finance is an inverse function of a borrower's net worth (liquid assets plus the collateral value of illiquid assets).

A complementary response to the problem of asymmetric information is through mechanisms that allow lenders to discover the repayment potential of lenders. This is done through credit bureaus or credit registries where the borrowing and payment history of lenders is recorded. This mechanism creates a different form of collateral -reputation collateral- that can be used to screen potential borrowers when granting loans. Based on credit histories or on other type of reputation collateral a borrower can gain access to credit. It is a common policy among banks to grant credit to new individuals only after they can observe their cash flows. The same principle applies to the clients of other banks. Accumulated information on credit histories, collateral or current debt exposure can be shared among lenders, reducing asymmetries and improving efficiency in the allocation of resources. The role of credit bureaus is to collect, to distribute, and often to analyze information on a borrower's behavior from a variety of sources, for creditors to screen potential clients[5].

The analytical work on which the use of information sharing mechanisms is based, stems from Pagano and Jappelli (1993) who develop a model of pure adverse selection in which information sharing arises among lenders with monopolistic power. Sharing information allows lenders to improve knowledge about new borrowers is expected to reduce the default rate and the interest rate. In their model the impact of information sharing on the volume of credit is ambiguous. The effect on lending volumes depends on the equilibrium prior the implementation of an information sharing mechanism. If only risky borrowers participated in credit markets, with information sharing the volume of credit increases because the bank can discriminate between borrowers – charging different rates- so the safe types are included in the market. In the equilibrium where safe and risky borrowers participated, the volume decreases with information sharing on new borrowers because the new entrants – safe types – may not compensate the decrease in risky borrowers[6].In short the impact of increasing information sharing on the amount of credit can be, theoretically, ambiguous.

[5] Credit registries can be private or public and they vary in the information collected, whether it is on positive credit behavior, negative or both.

[6] A second effect on credit markets is that credit bureaus tend to reduce the informational rents of banks, strengthening competition and forcing lenders to price loans more competitively. In Pagano and Jappelli (1993) the positive effect on default and interest rates of information sharing improves with bank competition. Lenders face a tradeoff between better information about their borrowers and more competition from other banks. Information sharing and credits bureaus are based on the principle of reciprocity and therefore a conflict of interest may arise since each lender would like to exploit the information provided by other lenders without disclosing his own. A possible solution is public intervention. Although there is no much theoretical work on the organizational structure of the credit bureau market, the fact is that in many countries credit bureaus are regulated and in many countries there are public credit registries. The main difference with private credit bureaus is that participation is compulsory and its rules are imposed by regulation and not by contracts. Powell et al (2004) discuss the role of

Information sharing can also have effects on the incentive of borrowers to perform better. Padilla and Pagano (1997) show that moral hazard can also be reduced through information sharing, by imposing discipline on debtors[7]. The power of incentives depends on the information on past behavior shared by credit bureaus. There is a difference in reporting only negative information about debtors and reporting the full credit and payments history including the positive one. Some models show that the incentive to repay can be stronger when only negative information about past behavior is shared by lenders. However, information sharing irrespective of the type, can contribute to preventing over-indebtedness of borrowers. Bennardo, Pagano and Piccolo (2009) show that when information is shared over-indebtedness is reduced, the ability of borrowers to repay is reduced, and by cutting this form of uncertainty about the ability of borrowers to repay, a positive effect on the size of credit markets is obtained.

Padilla and Pagano (2000) show in a model with adverse selection and moral hazard that default is a signal of bad quality and therefore carry the penalty of higher future interest rate or no access to credit. Sharing information only on defaults allows for equilibrium with lower interest rates than when full information is disclosed. The same disciplinary effect is present in Diamond (1989) and Vercammen (1995). They find that sharing default information can improve social welfare but a full disclosure on credit history can worsen welfare and credit, by reducing reputational effects and therefore effort in borrowers. On the other hand, reporting positive information can also open up avenues for new debtors to enter the market as suggested in Miller (2003). The assumption underlying this analysis is that positive repayment information on non credit obligations or on small loans (e.g. a student credit card with a 100 dollar limit) can be valuable for creditors to assess if someone is eligible for true credit products or for larger loans. As above, the impact of including more or less information on credit volumes is ambiguous and a matter of empirical exploration.

---

public credit registries and show empirical evidence on their positive impact on credit access. The information collected by public credit registries often serves for prudential supervision purposes. As discussed by Falkenheim and Powell (2003), credit registries can play an important role in assessing whether capital and provisioning regulations match up to actual lending risks. See Miller (2003) for a longer exposition.

[7] They develop a model where information sharing among lenders arises as a way of ensuring no opportunistic behavior in setting interests rates in the future. Borrowers have no incentives to increase their efforts when higher returns can be appropriated by lenders via high future interest rates. Banks face a trade off: to earn higher returns in the future when they can increase interest rates at the cost of having less effort in the present, or to commit with others lenders about sharing information on its clients, getting a better performance by their borrowers and high returns in the first period at the cost of more competition and therefore lower returns in the future. They conclude that information sharing lowers interest rates and default rates on average, while increasing social welfare by strengthening borrower's incentive to perform.

Theoretical literature suggests that developing credit information systems should have a positive impact in reducing interest rates and default rates, but the impact on the volume of extending credit to the economy may be either positive or negative. The purpose of this paper is to contribute to the literature that has explored the impact of the development of credit bureaus on the volumes of credit granted to the economy. We use the World Bank's Business enterprise surveys to explore how the pattern of investment financed by firms changes with different development of credit bureaus. In particular we focus on searching for a differential impact across firm with different characteristics.

To our knowledge there is virtually no theoretical research that sheds light on how information sharing affects access to credit and interest rates depending on specific characteristics of a borrower firm, like firm size or transparency. However, it is possible to make some predictions based on models that relate characteristics of the firms to asymmetries of information. If asymmetries are bigger in firms with less wealth[8] or more opaque, then the impact of information sharing in access to credit for these firms should be greater[9].

We find that the development of credit information mechanisms -measured among others by the population coverage of credit bureaus or public credit registries- is important to reduce the gaps in access to bank finance between small and large firms. A one standard deviation increase in the coverage of population in a credit reporting institution can reduce the gap of financing of small firms in nearly half.

The rest of the paper is organized as follows. In section 2 we briefly describe the empirical literature available on the impact of credit bureaus on credit markets. Section 3 describes the dataset used in this paper to assess the impact of credit information on access to finance. Section 4 describes the methodology and reports baseline results that are extended in section 5. Section 6 concludes.

2. A review of the empirical evidence

Empirical evidence at the aggregate country level supports the idea that enforcing legal creditor rights and information sharing via credit bureaus or public credit registries has a positive impact in credit markets – access to credit, interest rates and defaults-.

[8] See Galindo and Micco (2007).
[9] Empirical evidence presented by Brown, Jappelli and Pagano (2007) supports this argument.

Using country level data on 129 different jurisdictions for the period 1978-2003 Djankov et al. (2008) find that both creditor protection and information sharing have a positive correlation with credit relative to GDP. Although both types of institutions have a complementary role in fostering private credit, they find that the effectiveness of each varies across countries, depending on the legal system's origin. While legal protection of creditors is associated with common law traditions, credit bureaus and public credit registries are more effective in French law tradition countries.

Japelli and Pagano (2002) provide similar evidence to Djankov et al (2008) but for a much smaller sample of countries. Similarly in a cross country study, Warnock and Warnock (2008) show that the development of mortgage credit markets is positively correlated with the development of credit bureaus[10].

Empirical evidence at firm level is scarcer but is necessary to assess the impact of information sharing on access to credit conditional on firm's characteristics. Galindo and Miller (2001) use cross sectional balance sheet data from mostly large listed firms to find that information sharing reduces credit constraints, particularly for small and young firms. They estimate investment equations and find that the sensitivity of investment to the firm's cash flow, a measure traditionally used to assess credit constraints, is lower in countries with more developed information sharing institutions.

Love and Mylenko (2003) use the World Business Environment Survey data to test the impact of having or not having a credit bureau has on the perception of firms of facing credit constraints or on increasing the probability of a firm on relying on bank lending. They find that the existence of a private credit bureau is associated with a lower probability of a firm reporting if they are financially constraint and a higher one of relying on credit. This last result is stronger in small and medium sized firms.

There is little evidence at firm level on the impact and interaction of credit bureau and legal creditor protection policies. Brown, Jappelli and Pagano (2007) use cross sectional estimates and a panel of information on transition countries in Eastern Europe to assess the question about the role of information sharing in countries with weak corporate laws and creditor rights. They find that on aggregate information sharing is associated with more abundant and cheaper credit. At the firm level with cross sectional data, they find that information sharing and transparency are substitutes in improving credit access. Although this is the first study to include panel data in an assessment of the

[10] Other authors emphasize the impact of credit bureaus in private credit and find that credit reporting helps lenders to reduce default rates. Examples are in IDB(2005), Powell et al (2004), Barron and Staten (2003) and Kallberg and Udell (2003).

impact of information sharing, estimates drowned from such data are not conclusive about the relationship between credit bureaus and access to credit of different types of firms (size and transparency) due to the lack of data.

Our paper follows closely the strategy of Galindo and Micco (2007) and extends it to analyze the impact of information sharing on the share of investment financed with external funds. Using cross sectional data from the Business Environment Surveys of the World Bank, Galindo and Micco (2007) show that weak legal protections have a greater negative impact on small and medium sized firms. In line with Djankov et al (2008) they find that the gap in credit access between SMEs and large firms is bigger in non-common law countries.

3. Data

This section describes the data sources and the variables used in the empirical analysis. Our main source of data is the World Business Environment Survey (WBES)[11], and several research pieces that have gathered valuable information on the state of regulations and institutions supporting credit markets such as the development of credit bureaus and creditor protection regulations around the world[12]. For the purposes of this paper the dependent variable is the leverage of firms of different sizes. Our purpose is to test if access to credit, defined as the share of investment financed with banking credit, depends on the development of information sharing, the size of firms, and the interaction of these two.

The WBES is a firm-level data set that consists of responses by more than 10,000 firms across the world to different questions related to a country's business environment. The survey includes questions that describe the financing structure of firms. Enterprise managers were asked to report how much of their investment was financed over the last year, from the following sources: i) retained earnings, ii) funds from family and friends, iii) equity, iv) supplier credit, v) leasing arrangements, vi) money lenders, vii) other public sector support, viii) local commercial banks, ix) foreign banks, x) development banks, xi) and others. For our purposes we define the dependent variable as the sum of the fraction of investment financed using credit provided by local commercial banks and foreign banks and label it as "access to bank credit".

[11] This dataset has been recently used in various cross country studies. See Beck, Demirgüç-Kunt and Maksimovic (2004) or Beck, Demirgüç-Kunt, Laeven and Maksimovic (2004) for an example.
[12] See for example La Porta et al (1997, 1998) and Djankov et al (2007).

When constructing the access to bank credit variable we are very careful in dropping erroneous data. We drop all firms that report that the sum of their funding sources is less than 90% and also drop those that report that their funding sources exceed 110%. We allow the possibility of small mistakes in the respondent's addition, but eliminate excessively erroneous data.

Another crucial firm level variable in our analysis is the size of firms. Once again this is obtained from the WBES. The WBES classifies firms into three different size groups: small firms are defined as those with more than 5 and less than 50 workers, medium are those with more than 50 but less than 500, and large as those with more than 500. Other firm level variables included in our empirical analysis that can affect access to finance are the ownership structure of the firm (foreign or state owned), the export orientation, the economic sector in which the firm operates.

Table 1 reports some basic descriptive statistics of the dependent variable in our study for the 61 countries in which the credit bureau data can be matched to the WBES data. The average firm in our sample finances 15.8% of its investment with bank credit. As expected, large firms finance a larger share of investment with credit compared to medium and small ones. Large firms face lower information asymmetries, have more collateral, and hence find it easier to access credit markets than others. Exporting firms have greater access to credit than non exporting ones. This can be due to the fact that exporting signals high productivity, and high repayment probabilities to creditors and hence eases financial constraints. This is true for firms of all sizes. In the sample there are no relevant unconditional differences between the share of investment financed by small and medium sized foreign owned firms. The same applies for government owned firms.

Table 1: Share of Investment Financed with Bank Credit: Descriptive Statistics

		Share of Investment Financed with Credit			
		Total	Exporting Firms	Foreign Owned Firms	State Owned Firms
		%	%	%	%
All Firms	Mean	15.8	33.0	16.1	13.6
N=6348	Standard Deviation	26.7	47.0	36.7	34.3
Small Firms	Mean	10.9	18.7	7.4	2.4
N=2700	Standard Deviation	22.4	39.0	26.2	15.2
Medium Sized Firms	Mean	17.2	37.5	17.5	21.4
N=2679	Standard Deviation	27.5	48.4	38.0	41.0
Large Firmes	Mean	25.6	60.7	36.0	23.6
N=969	Standard Deviation	31.8	48.9	48.0	42.5

Source: Author's calculations based on WBES

To measure the development of credit registries we use the data from the Doing Business project of the World Bank. Our main variable is the coverage of private credit bureaus and public credit registries per thousands of adult population. We use an aggregation of both and take the maximum of the two as the relevant variable for the economy, and we also explore the role of each type of coverage individually. For example if a country has a private credit bureau that covers 550 per thousand of the population and a public credit registry that covers 200 per thousand of the population only, we use the maximum of both (550) in one specification, and each of the coverage measures separately in others. We also use dummy variables to test the robustness of the results[13]. We the dummy variable as 1 if there is either a private credit bureau or a public credit registry. Appendix table 1, reports the countrywide data used in the study.

To control for the state of creditor protection we use a set of variables frequently cited in related literature[14]. The variables are measures of certain institutions and rules and regulation that directly affect the extent to which creditors can seize collateral effectively and efficiently. Following Galindo and Micco (2007) we use a measure of effective creditor rights that combines a legal variable measuring creditor protections based on La Porta et al (1997) and a measure of the rule of law. This variable captures not only the regulatory framework surrounding the rights of creditors in bankruptcy procedures but also the extent of law enforcement on what is effectively written in bankruptcy laws. We also proxy the protection of creditor rights using the legal origin or the country[15].

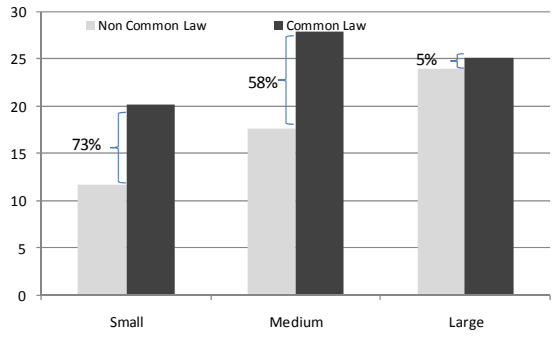
Figure 1 and Table 2 reports some basic statistics that motivate the econometric study that follows. Figure 1a and 1b show the average share of investment financed with bank credit in the firms of our sample, for firms of different sizes in countries with common law and other legal regimes (Figure 1a), and with different level of development of credit bureaus (Figure1b). The development of credit bureaus is measured as the fraction of population covered either by a private credit bureau or a public credit registry. As expected larger firms have more credit available to finance their investment. However, in countries with stronger credit registries firms of all sizes have more credit available than where credit bureaus are weaker. The difference in access to credit is proportionally larger for small firms.

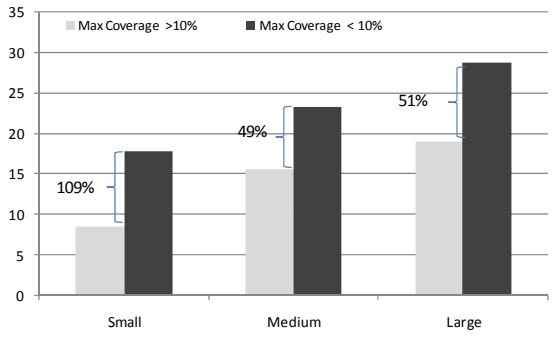
[13] For estimation purposes and given the high variability of this measure we use the natural logarithm of 1 plus the coverage figure.
[14] See La Porta el al (1997 and 1998), and Galindo and Micco (2007).
[15] Several authors have linked a common law legal origin with better protection of creditors. See for example La Porta et al (1997 and 1998).

In addition, table 2 divides the sample in countries with high and low coverage of credit registries or credit bureaus using as threshold a coverage level of 10% of total population, and also separates them according to the protection of creditor rights. We borrow here the notion from La Porta et al, that countries with Common Law legal origin are characterized by better creditor protections. As expected en each quadrant the share of bank credit financed with bank credit increases in firm sizes. Also as expected, the share of finance is larger in countries with stronger creditor protections for any segment of firm size. What is particularly interesting to note is how the share of credit to small firms reaches a similar figure in countries with strong creditor protection and no credit registry and countries with weak creditor protection and a credit registry. In a way, for small firms, the presence of a credit bureau or a credit registry seems to compensate for deficiencies in the creditor rights regulations. This issue is explored further in the paper, but should be stressed as a major policy component for developing countries where creditor protections tend to be poor, and are in search of strategies to deal with poverty including the development of mechanisms to enhance credit for the smallest segments of firms.

Figure 1: Share of Investment Financed with Bank Credit According to Firm Size

Figure 1a: Common law and non common law countries	Figure 1b: Countries with high and low development of Credit Reporting Institutions.





Source: Author's calculations based on WBES

Table 2: Average Share of Investment Financed with Bank Credit According to Firm Size, Information Sharing and Legal Origin

	Non Common Law			Common Law		
	Small	Medium	Large	Small	Medium	Large
No Credit Bureau	5.91	11.34	16.65	18.71	32.47	28.67
Number of Countries	*24*	*24*	*21*	*6*	*6*	*5*
Credit Bureau	16.95	23.34	29.95	21.77	22.17	20.42
Number of Countries	*26*	*26*	*25*	*5*	*5*	*4*

Source: Author's calculations based on WBES

The following section proposes an empirical strategy to explore the main issues of our paper using the data set described above and then reports the results.

4. Econometric Methods and Baseline Results

Our implicit framework suggests that relative to large firms, small firms should have more access to credit in countries where information sharing is better developed. In order to test this formally we estimate empirical models designed to test if the financing gap between small and large firms and medium-sized and large firms is smaller in countries where information sharing is developed. As proxies of information sharing we use the whole range of variables described in the previous section. The dependent variable in our study is the share of financing coming from banks described in the previous section. In order to fully exploit the data set and control for relevant firm level characteristics that may affect access to bank finance we estimate empirical models at the firm level. For such purpose we control for variables commonly used in this literature, such as whether the firm has an export orientation, the firm's ownership structure (whether it is government owned or foreign owned), and sector dummies indicating the area in which the firm operates. We include size dummies (Small and Medium) and interactions between these and both the measures of information sharing and measures of creditor rights, to capture the difference in the financing gap associated with different levels of information sharing and creditor protection.

We control for country level fixed effects to capture any institutional or macroeconomic variable that can also affect access to banking credit. Given that the size dummies are interacted with variables that do not vary at the country level we use clustered standard errors to adjust them.[16] This is extremely important since the variables that interact with the size variables do not vary at the firm level but only at

[16] In particular we cluster at the country-sector level. See Multon (1990) and Judson and Owen (1996).

the country level. Moulton (1990) demonstrated the serious downward biases in the estimated standard errors that can result in estimating the effects of aggregate explanatory variables on individual-specific (firm specific in this case) response variables. Clustered standard errors contribute to reduce such bias. We weight observations by the inverse of the number of firms in each country-size cell to control for the different number of firms across countries.[17] We also control for sector specific effects.

The choice of our empirical methodology is closely related to recent research by Greene on fixed effects in limited dependent variable models. Many firm level studies have opted to use random effects Tobit models to estimate the impact of country wide variables on firm specific truncated indicators, such as the share of investment financed by credit, in which accounting for individual effects appears relevant[18]. However, Greene (2002 and 2003) show that if the explanatory variables are not uncorrelated with the individual effects (a usually unpalatable assumption), the random effects model can lead to biased estimates of the slope parameters of the model. In such a case, the fixed effect Tobit is a preferable methodology, given that the bias in the slope parameters attributed to the incidental parameter problem tends to be negligible.

Country level fixed effects allow us to deal with observed and unobserved country specific components as well as with partial endogeneity and inverse causality. Any increase in total credit that induce a development of credit bureaus and of creditor protections is controlled for by the fixed effect. Only pathological changes in the relative amount of credit to SMEs that imply changes in credit registries and creditor rights at the country level will not be taken into account by the country fixed effect, and therefore some scope for reverse causality will remain.

Our baseline results are reported in table 3. With respect to firm level controls we find that exporters finance around 11 percent more of their investment with bank loans than firms oriented to the domestic market. We do not find significant differences on the share of financing of state owned or foreign owned firms. Finally, although not reported in the tables, firms in the manufacturing sector, perhaps due to the tangibility of their assets, have greater access to bank loans. In a country with an average coverage of credit information, small firms finance about 20 percentage points less of investment with credit compared to large firms, and medium sized ones about 11 percentage points less.

[17] Without weights, countries with more observations will drive results although our interest variables only varies across countries.
[18] See Beck et al (2001) as an example.

Focusing on the variables of interest to this study, we find that in fact the development of credit sharing mechanisms affect the financing gap between large and small firms. Column (1) shows that the population coverage of credit sharing institutions is important in explaining the financing gap between large and small firms. Our estimates suggest that a one standard deviation increase in the coverage of credit information sharing institutions (228 per thousand inhabitants) above the average (152) reduces the financing gap between large and small firms to nearly 12 percentage points and that of large and medium sized firms to 8 percentage points. This suggests that developing information sharing mechanisms has not only a statistical significant effect, but is also relatively large given the gaps of financing prevailing between large and small firms. According to these estimations if a country with average coverage increases coverage in one standard deviation, the gaps would shrink in nearly 40% for small firms and 27% for medium sized ones.[19].

Column (2) includes additional interactions that separate the coverage of public credit registries and private credit bureaus. The results suggest that the impact on small and medium sized firms is not significantly different when discriminating between the two types of institutions, though the impact on medium sized firms appears to be driven mostly by information coming private credit bureaus.

In column (3) we replace the coverage variable for a dummy indicating or not the existence of a credit reporting institution (either public or public). The results are qualitatively similar to those in Column (1). Having credit information institutions set up significantly increases access to credit by firms, with a differential impact on smaller ones.

Column (4) explores potential marginal impacts of including positive information as opposed to only negative information in credit reports. We do not find any statistically significant effect of including positive and negative information in credit reports.

In summary, our baseline results suggest that the development of credit reporting institutions, either private or public ones, is strongly correlated with access to credit markets, particularly for small firms. In further exercises we control for additional variables and explore different subsamples to explore the robustness of these findings.

[19] It is important to note that these results are subject to a caveat associated with potential endogeneity. It is likely that a countrywide shock that increases credit availability can also lead to the development of credit registries. While controlling for country specific effects and given that our data is firm level data, this problem is partially but not totally controlled for,

Table 3: Baseline Econometric Results

Dependent Variable: Share of Bank Finance (Firm Level)				
	(1)	(2)	(3)	(4)
Exporter	10.524	10.347	10.454	10.394
	[2.414]***	[2.417]***	[2.408]***	[2.419]***
Public Ownership	-7.773	-7.097	-6.554	-6.470
	[4.372]*	[4.336]	[4.290]	[4.288]
Foreign Ownership	-0.606	-0.409	-0.755	-0.654
	[3.091]	[3.117]	[3.098]	[3.105]
Small	-56.145	-50.084	-58.594	-58.567
	[7.699]***	[6.770]***	[9.207]***	[9.202]***
Medium	-25.383	-23.060	-28.315	-28.308
	[5.660]***	[5.075]***	[6.781]***	[6.779]***
Max Cov. Small	7.366			
	[1.510]***			
Max Cov. Medium	2.865			
	[1.165]**			
Cov. Pub. Reg. Small		3.167		
		[1.506]**		
Cov. Pub.Reg. Medium		0.080		
		[1.252]		
Cov. Priv.Reg. Small		4.902		
		[1.319]***		
Cov. Priv.Reg. Medium		2.712		
		[1.029]***		
Priv or Pub Reg. Small			36.934	47.822
			[9.250]***	[14.505]***
Priv or Pub Reg. Medium			16.819	6.534
			[7.106]**	[12.518]
Pos.Reg. Small				-12.034
				[12.255]
Pos.Reg. Medium				11.206
				[11.112]
Observations	6604	6604	6604	6604
Country Fixed Effects	Yes	Yes	Yes	Yes
Sector Fixed Effects	Yes	Yes	Yes	Yes
Number of Countries	61	61	61	61

Robust standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

5. Robustness and Extensions

This section presents some robustness exercises in order to confirm that the results presented in the previous section remain when controlling for relevant determinants of bank financing such as the protection of creditor rights and explores possible substitution effects between creditor rights protections and information sharing.

In table 4 we report regressions similar to those in table 3, but including the interaction of the firm size dummies with measures of credit rights protections. In columns (1)-(3) we use the maximum coverage of public credit registries and private credit bureaus as the measure of credit information institutions development, and in columns (4)-(6) we use a dummy variable indicating if the country has or doesn't have a credit information institution. In columns (1) and (4) we interact firm size with a dummy indicating if a country has a common law regime. In columns (2) and (5) we use the logarithm of the number of days that the justice system takes to enforce a contract as a measure of creditor protection, and in columns (3) and (6) we interact size with an indicator of effective creditor's rights protections. In most columns and in line with Galindo and Micco (2007) we find very strong results regarding the impact of creditor rights regulations in reducing the financing gap between small and large and medium and large firms. As noted in our previous research this result is particularly important for small firms.

What matters for this particular study is that the results concerning the impact of information sharing institutions remain. The point estimates are similar to those in 2, but the total marginal impact of being small of medium should now be measured taking into account both interactions.

Table 4: Econometric Results Controlling for Creditor Rights Protections

Dependent Variable: Share of Bank Finance (Firm Level)						
	(1)	(2)	(3)	(4)	(5)	(6)
Exporter	10.242	10.185	9.991	10.195	10.092	9.689
	[2.368]***	[2.470]***	[2.342]***	[2.366]***	[2.457]***	[2.320]***
Public Ownership	-8.755	-8.890	-7.120	-7.740	-7.604	-6.555
	[4.282]**	[4.597]*	[4.276]*	[4.216]*	[4.523]*	[4.176]
Foreign Ownership	-0.113	-0.207	-0.400	-0.250	-0.418	-0.267
	[3.052]	[3.244]	[3.075]	[3.075]	[3.249]	[3.066]
Small	-62.318	8.581	-52.741	-66.341	9.808	-57.896
	[7.429]***	[35.167]	[7.038]***	[9.290]***	[33.681]	[8.260]***
Medium	-29.680	18.771	-22.622	-32.804	21.461	-27.408
	[5.630]***	[31.301]	[5.146]***	[6.859]***	[30.798]	[6.077]***
Max Cov. Small	7.513	7.740	5.966			
	[1.408]***	[1.552]***	[1.380]***			
Max Cov. Medium	2.966	3.035	1.851			
	[1.077]***	[1.185]**	[1.062]*			
Priv or Pub Reg. Small				39.089	39.795	33.624
				[8.962]***	[9.836]***	[8.311]***
Priv or Pub Reg. Medium				17.511	18.129	14.934
				[6.817]**	[7.403]**	[6.461]**
Common Law Small	30.096			32.019		
	[7.522]***			[9.042]***		
Common Law Medium	22.279			22.334		
	[5.409]***			[5.588]***		
Days Enforce Contract (ln).Small		-11.299			-12.094	
		[5.881]*			[5.809]**	
Days Enforce Contract (ln).Medium		-7.531			-8.559	
		[5.193]			[5.251]	
Eff.Cred.Right Small			20.474			27.053
			[4.533]***			[4.520]***
Eff.Cred.Right Medium			15.631			17.481
			[4.322]***			[4.417]***
Observations	6604	6470	6604	6604	6470	6604
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Sector Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Countries	61.00	59.00	61.00	61.00	59.00	61.00

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

In table 5 we control for different levels of economic development. A possible driver of our previous results is that the measures used to capture the development of credit information institutions is not really signaling that, but is proxying for economic development. Most likely more developed countries have credit reporting institutions. In order to control for this possible bias we control for economic development in two possible ways: using dummy variables indicating if a country is a low or a medium income country according to World Bank classification and we use GDP per capita. As above we include both measures of credit information development: the maximum coverage variable and the dummy variable. In order to avoid potential biases coming from transition economies we also run some specifications dropping these out.

Columns (1)-(4) report the results for the whole sample and columns (5)-(8) for the sample excluding transition economies. The odd columns use the income level dummies as controls for economic development, and the even ones use the log of GDP per capita. The results are virtually unchanged.

While there is a reduction in the point estimates of the maximum coverage variable and the credit registry dummy, the results still point in the same direction as before. Credit registries play a significant role in reducing the financing gap between small and large firms. The results are weaker for medium sized firms, but in most specifications they remain significant.

Table 5: Econometric Results Controlling for Economic Development

Dependent Variable: Share of Bank Finance (Firm Level)								
	All Countries				Excluding transition countries			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Exporter	10.196	10.197	9.988	9.945	9.417	9.391	9.251	9.192
	[2.372]***	[2.372]***	[2.354]***	[2.356]***	[2.234]***	[2.244]***	[2.216]***	[2.224]***
Public Ownership	-6.761	-6.233	-6.253	-5.367	-6.546	-5.614	-5.637	-4.267
	[4.350]	[4.404]	[4.311]	[4.312]	[4.582]	[4.702]	[4.549]	[4.583]
Foreign Ownership	-0.171	-0.717	-0.110	-0.703	-1,244	-1,733	-1,220	-1,755
	[3.142]	[3.111]	[3.147]	[3.108]	[3.127]	[3.088]	[3.146]	[3.102]
Small	-23.910	-142.963	-22.803	-177.192	-23.164	-138.339	-18.982	-176.432
	[11.079]**	[32.817]***	[10.799]**	[32.450]***	[10.687]**	[32.391]***	[10.697]*	[33.263]***
Medium	-14.086	-67.046	-15.659	-78.169	-5.103	-49.514	-5.289	-52.542
	[9.716]	[31.068]**	[9.185]*	[28.873]***	[8.644]	[29.736]*	[8.202]	[28.916]*
Max Cov. Small	4.957	5.396			4.605	5.063		
	[1.507]***	[1.593]***			[1.498]***	[1.588]***		
Max Cov. Medium	2.184	1.908			0.356	0.361		
	[1.238]*	[1.235]			[1.104]	[1.133]		
Priv or Pub Reg. Small			27.802	28.975			22.409	25.156
			[8.777]***	[8.900]***			[9.381]**	[9.548]***
Priv or Pub Reg. Medium			14.340	13.757			2.024	2.935
			[6.953]**	[6.959]**			[6.590]	[6.809]
Low Inc. Small	-42.234		-51.276		-37.699		-48.662	
	[12.144]***		[11.465]***		[11.695]***		[11.213]***	
Low Inc. Medium	-13.512		-16.693		-13.530		-14.004	
	[10.811]		[9.581]*		[10.009]		[9.110]	
Medium Inc. Small	-25.943		-31.064		-25.651		-30.719	
	[8.087]***		[7.818]***		[7.650]***		[7.317]***	
Medium Inc. Medium	-9.365		-11.030		-8.936		-8.848	
	[7.466]		[7.265]		[6.904]		[6.600]	
ln GDPpc Small		10.523		14.023		10.145		14.250
		[3.904]***		[3.612]***		[3.776]***		[3.497]***
ln GDPpc Medium		5.091		5.933		4.042		4.279
		[3.655]		[3.295]*		[3.374]		[3.117]
Observations	6604	6604	6604	6604	4941	4941	4941	4941
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Countries	61.00	61.00	61.00	61.00	51.00	51.00	51.00	51.00

Robust standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Finally in table 6 we report results for the subset of Latin American countries in our sample. Since in Latin America all countries except Belize have either a public credit registry or a private credit bureau we discard the specifications with the dummy variable and focus on results with the coverage measure. Column (1) reports our baseline specification. It is interesting to note that we do not find evidence of a differential effect of access to finance on small and medium sized firms. To explore this issue further, in column (2) we separate coverage between that of the private and the public credit reporting institutions. When doing so, the differential effect reappears but is significant only for the public

institutions regarding small firms and private ones regarding medium sized ones. A possible explanation on the effects concentrating on public credit bureaus may be linked to the fact that in many Latin American countries public credit registries are older, have wider ranges of information, and may have better quality information, at least for this segment of the population, since they are used for supervisory purposes

Table 6: Econometric Results – Latin American Sample

Dependent Variable: Share of Bank Finance (Firm Level)				
	(1)	(2)	(3)	(4)
Exporter	0.000	0.000	0.000	0.000
	[3.231]**	[3.239]**	[3.234]**	[3.226]**
Public Ownership	0.000	0.000	0.000	0.000
	[9.993]	[10.089]	[9.877]	[10.269]
Foreign Ownership	0.000	0.000	0.000	0.000
	[3.712]*	[3.807]*	[3.722]*	[3.802]*
Small	0.000	0.000	0.000	0.000
	[8.913]***	[5.556]***	[11.841]**	[7.854]***
Medium	0.000	0.000	0.000	0.000
	[7.589]***	[4.774]***	[10.460]	[6.936]***
Max Cov. Small	0.000		0.337	
	[1.905]		[2.372]	
Max Cov. Medium	0.000		-0.558	
	[1.597]		[2.156]	
Cov. Pub. Reg. Small		0.000		0.000
		[1.346]*		[1.403]
Cov. Pub.Reg. Medium		0.000		0.000
		[1.133]		[1.245]
Cov. Priv.Reg. Small		0.829		-0.686
		[0.949]		[1.236]
Cov. Priv.Reg. Medium		0.000		0.925
		[0.845]**		[1.145]
Eff.Cred.Right Small			0.000	0.000
			[6.434]**	[7.219]**
Eff.Cred.Right Medium			0.000	0.000
			[6.951]**	[7.261]
Observations	1719	1719	1719	1719
Country Fixed Effects	Yes	Yes	Yes	Yes
Sector Fixed Effects	Yes	Yes	Yes	Yes
Number of Countries	20.00	20.00	20.00	20.00

Robust standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Columns (3) and (4) replicate the results controlling for effective creditor rights protections. Results regarding credit reporting institutions lose their significance.[20]. A possible explanation for this finding is

[20] It is worth noting that the fact that the interactive terms are not significant does not mean that credit reporting is not correlated with credit access. It means that there is no differential impact on the smaller or medium sized firms compared to large ones.

also that the variability of the coverage variable is significantly reduced when focusing on Latin America and the Caribbean. In fact the Latin American and Caribbean mean is 60% higher than that of the rest of the World excluding Latin America, and the standard deviation is 34% lower. The average coverage of credit information institutions in Latin America and the Caribbean is 202.2 per thousand inhabitants while that of the rest of the World is only 127.1 The standard deviations of both groups are 166 and 251 respectively. Our results suggest, that in a sense, Latin America and the Caribbean have more to gain from improving their creditor rights regulations than of adjusting their fairly well developed credit reporting mechanisms.

6. Final remarks

We test the importance of the development of information sharing mechanisms in explaining differences in access to credit for firms of different sizes using a firm level data set for an ample coverage of the world. We use limited dependent variable techniques to test if the development of information sharing institutions, such as private credit bureaus or public credit registries, contributes to reducing the financing gap between large and small and medium sized enterprises. Our results suggests that improving the coverage of private credit registries has a statistically significant effect in reducing the gap between the share of investment financed with bank credit of large firms and small firms. The results obtained are not only statistically significant, but are also economically meaningful. A one standard deviation increase in the coverage of credit bureaus reduces the financing gap of small firms gap in about 40%.

Our results stress what has already been noted in previous research. The main policy driver in the reduction of the financing gap is an improvement in the protection of creditor rights. Nonetheless, and especially for small firms, the initiative of strengthening creditor rights, a titanic reform task, can be complemented with efforts oriented to develop information sharing mechanisms.

References:

Barron, John and Michael Staten (2003) “The Value of Comprehensive Credit Reports: Lessons from the US Experience” In Miller (ed) Credit Reporting Systems and the International Economy. Cambridge, MA: MIT Press.

Beck, T., Demirguc-Kunt, A. and V. Maksimovic (2004)"Financial and Legal Constraints to Firm Growth: Does Firm Size Matter?" Journal of Finance. Forthcoming

Beck, T., Demirguc-Kunt, A., Laeven, L. and V. Maksimovic (2004) "The Determinants of Financing Obstacles". Journal of International Money and Finance.

Beck, T., Demirguc-Kunt, A. and V. Maksimovic (2001) "Financing Patterns Across the World: the Role of Institutions " World Bank Policy Research Working Paper 2905

Bennardo, Alberto, Pagano, Marco, and Piccolo, Salvatore (2009). "Multiple-Bank Lending, Creditor Rights and Information Sharing," CEPR Discussion Papers 7186

Brown, Martin, Tullio Jappelli, and Marco Pagano (2007) "Information Sharing and Credit: Firm-Level Evidence from Transition Countries," CSEF Working Papers 178, Centre for Studies in Economics and Finance (CSEF), University of Naples, Italy

Diamond, D.W. (1989) “Reputation Acquisition in Debt Markets”. Journal of Political Economy. 97:828-62.

Djankov, Simeon & McLiesh, Caralee & Shleifer, Andrei, 2007. "Private credit in 129 countries," Journal of Financial Economics, 84(2): 299-329

Falkenheim, M. and Andrew Powell (2003) “The Use of Credit Bureau Information in the Estimation of Appropriate Capital and Provisioning Requirements” In Miller (ed) Credit Reporting Systems and the International Economy. Cambridge, MA: MIT Press.

Galindo, Arturo and Alejandro Micco (2007) "Bank Credit to Small and Medium-Sized Enterprises: The Role of Creditor Protection” IDB. Mimeo

Galindo, Arturo and Margaret Miller (2001) “Can Credit Registries Reduce Credit Constraints?: Empirical Evidence on the Role of Credit Registries in Firm’s Investment Decisions” IDB. Mimeo.

Greene, W. (2003). "Fixed effects and bias due to the incidental parameters problem in the Tobit model". Working Paper. Department of Economics, Stern School of Business, New York University.

Greene, W. (2002). "The bias of the fixed effects estimator in Nonlinear Models". Working Paper. Department of Economics, Stern School of Business, New York University.

IDB (2005) Unlocking Credit: The Quest for Deep and Stable Bank Lending. Washington DC: Inter-American Development Bank.

Judson, R., and A. Owen (1996) "Estimating Dynamic Panel Data Models: A Practical Guide for Macroeconomists," Federal Reserve Board

Kallberg, J. and G. Udell (2003) “Private Business Information Exchange in the United States ” In Miller (ed) Credit Reporting Systems and the International Economy. Cambridge, MA: MIT Press.

La Porta, Rafael, Florencio López- de- Silanes, Andrei Shleifer and Robert W. Vishny (1997) “Legal Determinants of External Finance” Journal of Finance. 5293):1131-50.

La Porta, Rafael, Florencio López- de- Silanes, Andrei Shleifer and Robert W. Vishny (1998) “Law and Finance” Journal of Political Economy 106(6):1113-55

Love, Inessa and Nataliya Mylenko (2003) “ Credit Reporting and Financial Constraints” World Bank Policy Research Working Paper No. 3142.

Miller, Margaret (2003) Credit Reporting Systems and the International Economy. Cambrige, MA: MIT Press.

Moulton, B. (1990) "An estimation of a pitfall of estimating the effects of aggregate variables on micro units" The Review of Economics and Statistics. 72(2):334-338.

Padilla, Atilano Jorge and Marco Pagano (1997) “Endogenous Communication among Lenders and Entrepreneural Incentives” The Review of Financial Studies. 10(10):205-36.

Padilla, Atilano Jorge and Marco Pagano (2000) “Sharing Default information as a Borrower Discipline Device” European Economic Review 44 (10): 1951-1980

Pagano, Marco and Tullio Jappelli (1993) “Information Sharing in Credit Markets” The Journal of Finance. 48(5):1693-1718

Powell, Andrew , Mylenko, Nataliya, Miller, Margaret and Majnoni, Giovanni (2004) "Improving credit information, bank regulation, and supervision : on the role and design of public credit registries," Policy Research Working Paper Series 3443, The World Bank.

Schiantarelli, Fabio (1996) “Financial Constraints and investment: Methodological Issues and International Evidence” Oxford Review of Economic policy. 12(2):70-89

Stiglitz, Joseph and Andrew Weiss (1981) “Credit Rationing in Markets with imperfect information” American Economic Review. 71(3):393-410.

Vercammen, J.A. (1995) “Credit Bureau policy and Sustainable Reputation Effect in Credit Markets” Economica, 62:461-78.

Warnock, Veronica Cacdac, and Francis E. Warnock, (2008) “Markets and Housing Finance”, Journal of Housing Economics 17: 239-251

Appendix Table 1: Country Level Data

	Average share of investment financed with bank credit	Public or Private Credit Information Institution Dummy	Public Credit Registry Coverage (per thousand)	Private Credit Bureau Coverage (per thousand)	Common Law Regime	Effective Creditor Rights Index	Time to enforce a contract (days in logs)	GDP Per capita PPP adjusted (in logs)
Albania	3	0	0	0	0	-0.62	5.97	8.39
Argentina	30	1	149	475	0	-0.01	6.25	9.25
Armenia	3	0	0	0	0	-0.25	5.27	7.69
Azerbaijan	2	0	0	0	0	-0.73	5.59	7.74
Bangladesh	13	1	1	0	1	-0.39	5.9	6.76
Belarus	5	1	0	0	0	-0.59	5.52	8.61
Belize	32	0	0	0	1	0.16	NA	8.56
Bolivia	24	1	55	134	0	-0.3	6.38	8.13
Bosnia	16	0	0	0	0	-0.61	5.8	8.47
Brazil	26	1	44	439	0	-0.06	6.34	8.97
Bulgaria	6	0	0	0	0	-0.03	6.09	8.78
Cambodia	7	0	0	0	0	-0.46	5.99	6.85
Canada	21	1	0	806	1	0.53	5.85	10.34
Chile	38	1	209	227	0	0.71	5.72	9.25
China	9	0	0	0	0	-0.18	5.48	7.82
Colombia	29	1	0	187	0	0	5.89	8.79
Costa Rica	18	1	7	55	0	0.21	6.31	8.97
Croatia	19	0	0	0	0	-0.07	6.03	9.39
Czech Rep	10	0	0	0	0	0.53	5.7	9.71
Dominican R	26	1	0	423	0	-0.17	6.36	8.6
Ecuador	15	1	82	0	0	0	5.96	8.64
El Salvador	28	1	130	128	0	-0.32	5.62	8.53
France	11	1	12	0	0	0	4.32	10.25
Georgia	7	0	0	0	0	-0.47	5.93	7.73
Germany	17	1	5	693	0	1.55	5.21	10.3
Guatemala	27	1	0	35	0	-0.21	7.29	8.27
Haiti	11	1	1	0	0	-0.77	5.91	7.08
Honduras	20	1	45	0	0	-0.43	6.3	7.97
Hungary	15	1	0	15	0	0.22	5.9	9.47
India	33	0	0	0	1	0.06	6.05	7.41
Indonesia	15	1	3	0	0	-0.44	6.35	7.92
Italy	42	1	55	416	0	0.51	7.24	10.2
Kazakhstan	7	0	0	0	0	-0.67	5.99	8.55
Kyrgizstan	1	0	0	0	0	-0.63	6.2	7.29
Lithuania	8	1	7	0	0	0.1	5.04	9.14
Malaysia	17.15	1	105	461	1	0.57	5.7	9.2
Mexico	11	1	0	382	0	0	6.04	9.35
Moldova	7	0	0	0	0	-0.2	5.63	7.31
Nicaragua	17	1	50	0	0	-0.86	5.04	7.62
Pakistan	27	1	1	0	1	-0.17	5.98	7.55
Panama	44.23	1	0	302	0	0.04	5.87	8.98
Peru	25	1	92	185	0	0	6.09	8.61
Philippines	19	1	0	22	0	-0.08	5.94	7.84
Poland	13.28	0	0	0	0	0.16	6.91	9.32
Portugal	13	1	496	24	0	0.35	5.77	9.89
Romania	10	0	0	0	0	-0.13	5.81	8.85
Russia	5.51	0	0	0	0	-0.23	5.8	9
Singapore	23	0	0	0	1	1.71	4.23	10.46
Slovakia	11	1	2	0	0	0.13	6.34	9.44
Slovenia	16.7	1	14	0	0	0.7	6.91	9.84
Spain	20	1	305	48	0	0.71	5.13	10.09
Sweden	19	1	0	489	0	0.55	5.34	10.23
Thailand	34	0	0	0	1	0.21	5.97	8.56
Trinidad&To	37	1	315	0	1	0.11	NA	9.42
Turkey	20	1	7	0	0	0.03	5.8	9.12
UK	11	1	0	652	1	2.14	5.66	10.25
US	18	1	0	810	1	0.49	5.52	10.54
Ukraine	6	0	0	0	0	-0.42	5.59	8.2
Uruguay	32	1	49	479	0	0.32	6.43	9.14
Uzbekistan	5	0	0	0	0	-0.59	5.91	7.37
Venezuela	15.22	1	97	0	0	-0.67	6.1	9.19