

Sovereign Borrowing by Developing Countries: What Determines Market Access?

R. Gaston Gelos, Ratna Sahay, and Guido Sandleris¹

Abstract

What determines the ability of governments from developing countries to access international credit markets? We examine this question using detailed data on sovereign bond issuances and public syndicated bank loans between 1980 and 2000. A key finding of this paper is that the frequency of default does not reduce market access and there appears to be no lengthy exclusion from credit markets following a default. We also find that trade openness, a standard measure of a country's links with the rest of the world, and traditional liquidity and macroeconomic indicators do not help much in explaining market access. However, a country's vulnerability to shocks and the perceived quality of economic policies and institutions appear to influence the government's ability to tap the markets.

Cuáles son los factores que determinan el acceso de los gobiernos de países en desarrollo a los mercados de crédito internacionales? En este estudio, analizamos esta temática utilizando datos detallados sobre las emisiones de bonos soberanos y de préstamos de sindicatos de bancos en el período 1980-2000. Uno de los resultados más importantes es que la frecuencia de “defaults” no reduce el acceso al mercado y que los países no parecen ser excluidos por períodos largos del mercado de crédito después de un “default”. También encontramos que la apertura comercial, una medida estándar de los vínculos de un país con el resto del mundo, así como indicadores tradicionales de liquidez y la situación macroeconómica no ayudan significativamente en explicar los patrones de acceso al mercado. Sin embargo, la vulnerabilidad de un país a choques y la percepción de la calidad institucional y de las políticas económicas de los países parecen influenciar la capacidad de los gobiernos de obtener créditos.

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Authors' E-Mail Addresses: ggelos@imf.org, rsahay@imf.org, gsandleris@jhu.edu

¹ Gaston Gelos and Ratna Sahay are, respectively, Resident Representative and Senior Advisor at the International Monetary Fund, while Guido Sandleris is an Assistant Professor at Universidad Torcuato Di Tella and Johns Hopkins University. The views expressed in this paper do not necessarily represent the views of the IMF. The authors wish to thank Abdul Abiad, Roberto Benelli, Andrew Berg, Eduardo Borensztein, Fernando Broner, Daniel Cohen, Tito Cordella, Giovanni dell'Ariccia, David Grigorian, Olivier Jeanne, Catherine Pattillo, Alessandro Prati, Sergio Rebelo, Carmen Reinhart, Xavier Sala-i-Martin, Gabriel Sensenbrenner, Antonio Spilimbergo, Linda Tesar, Carlos Végh, Jeromin Zettelmeyer, and participants in the IMF Workshop on Macroeconomic Challenges in Developing Countries for helpful comments and suggestions. We are also grateful to two anonymous referees and the editor for their comments and suggestions. We thank Neşe Erbil, Chi Nguyen, and Hulya Ulku for excellent research assistance.

I. INTRODUCTION

A vast and still-growing literature on capital flows to developing countries has addressed several aspects of these flows, including their determinants, composition, and volatility.² It is not surprising that questions that have received the most attention are those that make the press headlines: why do some countries received such large inflows in short periods of time? Why are there sudden reversals, accompanied or not by crises? Do capital account restrictions matter for the volume of inflows or to prevent reversals? Should countries care whether inflows are portfolio or foreign direct investment? What has been less studied, however, is what put countries on the global map of international capital markets in the first place or, if they loose access, what factors helped reverse the event.

In this paper, we examine factors associated with the ability of governments from developing countries to access international credit markets. We cover the period 1980-2000 as it includes both a sub-period of market stagnation and one of expansion when borrowing was easier.

The value added of this paper to the literature is three-fold. First, this paper fills a gap by examining the factors that determine whether a sovereign is able to borrow or not in international credit markets. The empirical literature on sovereign borrowing has largely concentrated on explaining volumes and terms for those countries for which we observe access, often overlooking the problem that many countries might be cut off from credit markets completely, at least temporarily. We focus instead on this censoring problem induced by credit rationing.

Second, to our knowledge, it is the first attempt in the literature on sovereign debt to document the duration of the exclusion from credit markets triggered by a default. We also examine the effect of the frequency of sovereign defaults and their duration on market access.

Third, we assemble a disaggregated dataset on lending to sovereigns with detailed sovereign default data. For comprehensiveness, individual country data on bonds and bank loans are combined—most of the literature has focused on bonds or bank loans but not both. An additional innovation has been to include private sector loans that are guaranteed by the government. To identify the characteristics that differentiate countries that are able to borrow regularly from those that are only occasionally or never able to do so, we explore a large set of variables, including those typically not stressed in the literature, such as vulnerability to large terms of trade shocks on sovereign borrowing.³

Any study of the ability of countries to borrow based on observed flows faces the issue of identifying supply versus demand shifts, a notoriously difficult feat. We attempt to address this task by taking a series of sequential steps aimed at distinguishing between actual rationing by creditors and voluntary abstention of borrowers. We view this as a modest first step in overcoming this problem, and focus more on descriptive statistics and associations.

² See, for example, Calvo, Leiderman and Reinhart (1993), Fernandez-Arias (1996), Montiel and Reinhart (1999), and Mody and Taylor (2002).

³ Recently, Catão and Sutton (2002) have examined the impact of income volatility on sovereign default probability.

We find, as expected, that governments of larger and richer countries access the markets more frequently. Countries that do not access the markets usually suffer from worse economic policies and institutions, and are more vulnerable to external shocks. There is some indication that higher levels of foreign investment and liquidity tend to be associated with higher market access. However, there is little evidence that trade openness, a standard measure of a country's links with the rest of the world, and traditional macroeconomic indicators matter.

A rather striking finding of this study is that we are unable to detect lengthy exclusions from credit markets following sovereign defaults. While being in default, as captured by the number of years in default, prevents a country from accessing the markets during those years, the frequency of default events of a sovereign has no effect on its ability to borrow internationally. We also find that the period of exclusion had fallen in the second sub-period of our study: governments that had defaulted on their debt in the 1980s were unable to access the market for approximately five years on average, while during the 1990s the average declined to only one year.

The paper is organized as follows. Section II discusses the empirical predictions of the sovereign borrowing literature, the data, and the empirical strategy. Section III presents the results of the cross-sectional and panel data analysis. Section IV concludes.

II. SOVEREIGN BORROWING: THEORY, EMPIRICAL IMPLICATIONS, AND DATA

While we focus on whether sovereigns had market access or not, the current literature on sovereign borrowing overlooks the censoring problem induced by credit rationing, examining only the volume and the terms of observed access.⁴ Cantor and Packer (1996) study the determinants of spreads for sovereign bonds and bonds and syndicated loans, respectively, during the 1990s. Dooley, Fernández-Arias, and Kletzer (1996) explore the factors driving secondary debt market prices of middle-income countries. Özler (1993) examines the impact of sovereign borrowers' previous repayment history on bank loans spreads for 26 developing countries between 1968–1981. Edwards (1986) studies bond spreads in 1976–80, and Eichengreen and Portes (1989) examine bonds issued in the 1920s. Using a different approach, Lane (2000) studies the determinants of total debt stocks across countries. Eichengreen and Mody (1998) and Dell'Ariccia, Schnabel, and Zettelmeyer (2002) model the decision of the borrower to issue debt separately in a selection equation. However, in all these papers, the possibility that one does not observe issuance because of strict credit rationing is not taken into account.⁵

⁴ In the appendix we supplement our findings by looking at whether the factors that influenced credit rationing also affected the volume of the borrowings during the period of market access.

⁵ There is an analogy to the censoring problem in the literature on credit rationing for firms: see Gelos and Werner (2002).

A. The identification problem

A government's lack of access to international credit markets could arise from the creditors not wanting to lend (the supply side) or because the sovereign does not wish to borrow (the demand side). Since the data that point to no access could imply either of the two scenarios, there is an identification problem.

The ideal strategy would have been to try to estimate demand and supply curves separately.⁶ However, there are well-known methodological problems associated with such techniques. For example, credit rationing models as in Stiglitz and Weiss (1981) predict backward-looking supply curves, a phenomenon that cannot be captured in linear specifications commonly used in this literature. Therefore, in this paper, we do not pursue this avenue.

Instead, we take a series of sequential steps that aim at ruling out cases of voluntary abstention (that is, lack of demand for credit). As a first step, we focus exclusively on developing countries. According to standard neoclassical economic theory, capital-scarce countries should be borrowing large amounts to finance domestic investment.⁷ A *prima facie* case for continuous willingness to borrow, therefore, exists only for them, given their relative paucity of capital. We then exclude countries classified by the IMF's World Economic Outlook as "creditor countries." These are mainly oil producing countries.

Since many communist/socialist countries were ideologically opposed to borrowing internationally from private lenders, we include them only after they initiated market-oriented reforms and became more outward looking, unless we observe them borrowing earlier.⁸

We also exclude cases in which we do not observe market access by sovereigns but find that the private sector of that country has borrowed internationally. This follows from the argument that it is very unlikely that the private sector has access to international credit markets while the sovereign remains credit constrained.

We then aggregate all micro-level data on international borrowings by a given sovereign on an annual basis. We do not look at shorter frequencies than a year. It is very plausible that a developing country would not want to borrow in a particular month or quarter either because it has just borrowed substantially or because it hopes to obtain better borrowing terms in the near future. However, it is more difficult to explain why a country would not want to borrow at all, neither through bank loans or bond issuances during the course of a whole year. As a test of robustness, we also aggregate data over 2 years and do not find a substantive difference in our results.

We also examined the possibility of countries substituting between private and official flows. Poor countries may want to abstain from private capital markets if they can get sufficient official

⁶ See, for example, Hajvassiliou (1987), Mody and Taylor (2002), or Kahras and Shihido (1991)

⁷ See, for example, Lucas (1990).

⁸ A complete list of countries and starting dates of inclusion is given in the Appendix (Table A1).

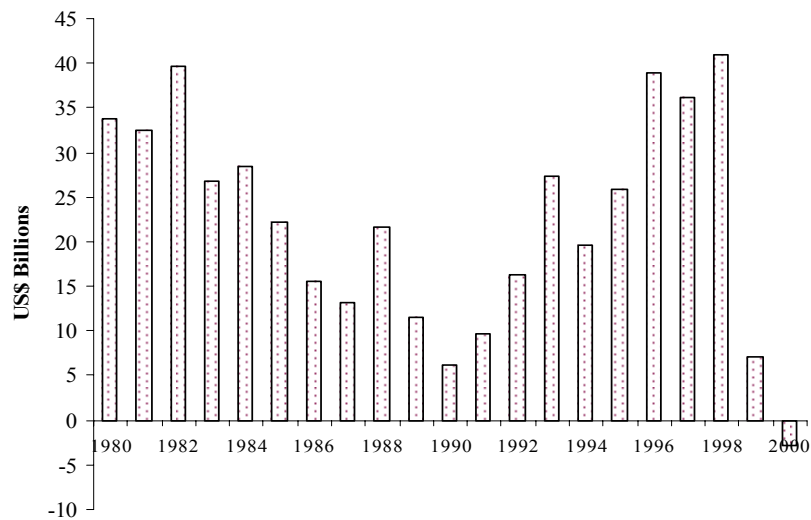
funds on concessional terms. However, simple correlation tests indicate that the two types of flows move together, indicating their complementarity, rather than their substitutability.

After the process of sequential elimination described above, the sample we work with has 139 countries. Countries excluded are Bahrain, Brunei, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Singapore, Hong Kong, Taiwan, and Democratic Republic of Korea.

B. Defining market access

We use data on public borrowings during 1980 to 2000. This is a period that includes both a sub-period of market stagnation and one of expansion when borrowing was easier (Figure 1).

Figure 1. Total Net Private Lending to Public Sector in Developing Countries



Source: Global Development Finance

We define market access as public or publicly guaranteed bond issuances or borrowing through a private syndicated bank loan that lead to an increase in the country's indebtedness.⁹ To measure the evolution of the stock of public debt with private creditors we use data from the Global Development Finance database of the World Bank. The literature has often focused exclusively on bonds. However, since syndicated bank loans were the prominent form of sovereign borrowing by developing countries in the 1970s and 1980s, it would be misleading to omit them in our study which includes the 1980s. Note that syndicated loans are relatively more complex instruments than standard loans or trade credit.¹⁰ Therefore, when a country uses these instruments we can interpret this borrowing as a qualitative jump in their ability to tap the markets.

⁹ This definition aims to exclude cases where a sovereign's borrowing capacity falls but the country is still able to roll over part of its debt, which implies that the government is, in net terms, repaying and not borrowing.

¹⁰ See Hale (2001) for an analysis of the determinants of the choice between international debt instruments by emerging market borrowers.

The data on public sector borrowing from international markets are provided by Capital Data Bondware and Loanware and contain information on 2053 individual bond issuances and 5065 commercial bank syndicated loans to national governments (or with government guarantee) from 150 developing countries between 1980 and 2000.¹¹

C. Factors affecting market access

The ability of a government to repay its external debts will affect its access to markets. However, the government's *willingness* to repay its debts is also relevant since sovereign debt contracts have very limited legal enforceability. Sovereigns are not subject to bankruptcy procedures and few of their assets can be seized in the event of a default. Hence, key questions raised in the sovereign borrowing literature are why governments have an incentive to repay their foreign debts, and, correspondingly, why foreign creditors lend to them.

A vast literature has attempted to address this puzzle. The overwhelming majority of suggested explanations for the *willingness* of governments to repay despite the weak international legal framework fall into two categories: sanctions and reputation. Sanctions-related explanations rely on the ability of creditors to impose sanctions (usually trade-related) to punish a defaulting government. The standard reputation argument, starting with Eaton and Gersovitz (1981), relies on the ability of creditors to exclude a defaulting government from credit markets.¹²

The literature that addresses the issue of a government's *ability* to repay is also extensive. It has studied both issues of long-term solvency and short-term liquidity. Some studies have taken the form of debt sustainability analysis while others have focused on a country's vulnerability to liquidity constraints. These vulnerabilities could be related to the structure of the external debt (such as contracts based on fixed or flexible interest rate, the currency denomination, and the term structure) or to the source of government revenues (how vulnerable government revenues are to shocks).¹³

In practice, there is no clear-cut distinction between a sovereign government's ability and willingness to repay. For example, there may be instances in which a government could, in principle, repay because its country's net worth is greater than its debt, but repayment may not be feasible because it may lead to strong political opposition or severe humanitarian consequences.¹⁴

We use both strands of the literature for guiding our empirical work. Both tend to predict credit rationing in the form of a *debt ceiling*. This maximum amount a country borrows depends on

¹¹ The database does not include borrowing by publicly owned companies and by municipal or state authorities unless this borrowing is explicitly guaranteed by the federal government.

¹² Comprehensive reviews of the early work on this literature can be found in Eaton and Fernandez (1995). Some more recent work has focused on by-passing Bulow and Rogoff's (1989) critique of the reputation argument (see for example Cole and Kehoe (1997), Kletzer and Wright (2000), Wright (2002), Amador (2003) or Sandleris (2004)).

¹³ See Cohen (1991), Goldfajn and Guardia (2003) or Garcia and Rigobon (2004) for some examples of analysis of government debt sustainability. See Detragiache and Spilimbergo (2001) for a model and a discussion of the liquidity crises literature.

¹⁴ See Lambertini (2003) for a model in which defaults may arise either due to lack of willingness to repay or as a result of a liquidity crisis.

the ability of the country to repay or, in the willingness literature, on the costs it faces in the event of a default:

- *The size of a country* affects its ability to borrow. The potential punishment that can be imposed through sanctions and collateral seizure is larger for larger countries, and, therefore, the larger the amount of debt that could be extended (see Lane (2000), for example). In addition, there might be fixed costs for borrowing through syndicated loans or bond issuances, which could force smaller countries to access the markets less frequently. We use population as a measure of size.
- *Income volatility and vulnerability to shocks* have opposite implications on market access for the willingness and ability-to-repay literature. Countries that are more prone to shocks would like to maintain access to credit markets to smooth consumption and are, therefore, less likely to default. On the other hand, according to the ability-to-pay literature, income variability should have a negative effect on creditworthiness because poor countries may not be in a position to service debt if a country's income falls below a certain, possibly subsistence, threshold level. We capture income volatility by the standard deviation of GDP growth over ten years and the standard deviation of terms of trade measured over twenty years. Vulnerability is proxied by the per capita income and the share of agriculture in GDP.¹⁵ Countries with lower per capita income are more vulnerable to falling below a critical subsistence threshold.
- *A country's economic links with the rest of the world* should affect the cost of default, per the reputation theory. This aspect is captured by the share of FDI in GDP and measures of trade openness.¹⁶
- *Political instability* should negatively affect a country's ability to borrow. The shorter a government expects to be in office, the higher are its incentives to take advantage of the immediate benefits of borrowing and to discount heavily future costs of defaulting.¹⁷ At the same time, political instability may adversely affect a government's revenues and, therefore, its ability to repay. We measure political risk by the International Country Risk Guide's (ICRG) Political Risk Index.
- *The quality of government policies and institutions* can affect the ability of governments to repay by affecting, among other things, economic growth. To capture this, we use an annual index of Country Policy and Institutional Assessment (CPIA) developed by the World Bank. The index summarizes twenty scores in the areas of economic management, structural policies, policies for social inclusion, and public sector management and institutions. As a substitute, we use the inflation rate and the

¹⁵ The share of agriculture in GDP was a statistically significant determinant of debt reschedulings in Berg and Sachs (1988). For papers examining the relationship between output volatility and default, see Atkeson (1991) and Lambertini (2003). Our results are robust to choosing the same number of years for measuring income and terms of trade volatility.

¹⁶ We use the ratio of exports plus imports to GDP to measure trade openness. We also check the robustness of our results using a qualitatively different type of measure, namely Frankel and Romer's (1999) measure of trade openness.

¹⁷ See Lane (2000) and Özler and Tabellini (1991).

level of the fiscal deficit as proxies for the quality of macroeconomic policies. We complement these variables by the annual average of the country ratings published biannually by Institutional Investor. These ratings are based on assessments of about 100 large commercial banks and range from 0 to 100, where 100 represents the smallest probability of default.

- *A country's liquidity* is of concern to lenders according to the ability-to-repay literature. We follow common practice of using the ratios of exports to debt service and the level of external reserves to months of imports or short-term debt as indicators of liquidity. We also include the ratio of government short-term debt to total debt from the World Bank's Global Development Finance database.
- *Multilateral assistance* can help countries overcome liquidity problems and act as a "seal of approval" of sound economic policies. For this reason, we expect IMF programs to have a positive impact on the ability of sovereigns to access credit markets. This has to be qualified, however, by the fact that many IMF programs, especially concessional ones, impose limits on sovereign borrowing from the private sector. We take this into account by differentiating between the non-concessional programs—Stand-By Arrangements (SBA) and Extended Fund Facility (EFFs)—, and the concessional program—Poverty Reduction and Growth Facility (PRGF).¹⁸ While the former should play a catalytic role for private financing, the latter is likely to have a negative effect on market access.¹⁹ We explore their effect with dummies that are set equal to one throughout the duration of the program as well those that equal one only at the beginning year of the program.
- *Sovereign defaults* should negatively impact the ability of a country to access the market. We use Standard & Poor's database on sovereign defaults on foreign-currency debt to construct two sovereign defaults variables—the frequency of default events and the number of years spent in default. The S&P database defines a default as any missed payment or renegotiation with a reduction in the net present value of the debt.
- *Control variables* are needed in panel estimations to abstract from global shocks that affect countries over time. For example, the world interest rate will affect the cost of debt servicing and the default rate. We control for global factors using time dummies or the 6-month LIBOR in real terms, the average GDP growth rate for the G-7 countries, and total flow of bonds and bank loans to the public sector.

Based on the above, we can write L_i^{\max} , the debt ceiling for country i at time t , as a function of:²⁰

¹⁸ SBA's are usually one or two-year programs aimed at overcoming balance of payments problems due to macroeconomic imbalances, while EFFs generally run for three years and also address structural problems. See Mody and Saravia (2003) for a further examination of the differentiation by types of programs.

¹⁹ See Appendix I for a more detailed analysis on this issue.

²⁰ See Lane (2000) for a similar equation.

$$L^{\max} = f(\text{Size}, \text{Links}, \text{Volatility}, \text{PoliticalRisk}, \text{PolicyQuality}, \text{Liquidity}, \text{Defaults}, \text{IMF}, \text{Controls})$$

This equation helps us make predictions about the ceiling for the stock of government debt for each country. However, we are interested in explaining the ability to access markets. In order to bridge this gap, our maintained assumption will be that countries always aim to move toward their debt ceiling, although adjustment may not be instantaneous. If the debt ceiling for country i is binding at time t ($L_{i,t} = L_{i,t}^{\max}$) we will observe no market access except for refinancing. If the ceiling increases $L_{i,t}^{\max} > L_{i,t-1}^{\max}$ (because of some positive country or world developments), we will observe the country tapping the market. If the debt ceiling drops during an observation period, we will not observe access of any form during that time.

Table 1. Variables Potentially Affecting Market Access²¹

Category	Variable	Expected Sign	
		Willingness to Repay	Ability to Repay
Size/Scale	Population	+	+
Volatility/Vulnerability	GDP per capita	+	+
	Std. dev. Terms of trade (20 yrs)	+	-
	Std. dev. GDP growth (10yrs)	+	-
	Agriculture/GDP (percent)	+	-
Links to world	Openness (Exp+ Imp/GDP)	+	+
	FDI/GDP	+	+
Political risk	ICRG Index of Political Risk	-	-
Quality of policies and market perceptions	World Bank Index of Quality of Policies (CPIA)	+	+
	Institutional Investor Index		
Liquidity	Exports/Debt Service	n.a.	+
	External Reserves (months of imports)	n.a.	+
	Government Short-Term Debt/Government Total Debt	n.a.	-
Default history	S&P Sovereign Default data on number of default events and years in default	-	-
IMF programs	SBA, EFF, PRGF	n.a.	n.a.

²¹ No a-priori hypothesis is indicated by n.a.

Table 1 summarizes the above discussion listing the set of variables that we will use to explain market access (see Appendix for further information on the variables). When signing the effect of the particular variable on market access, the table differentiates between the predictions of the repudiation literature of sovereign borrowing (“willingness to repay”) and the predictions of the literature on the debt-service capacity (“ability to repay”).

III. RESULTS

A. Cross-sectional analysis

Given that theoretical predictions with respect to several explanatory variables can go in either direction and that the functional relationship between capital market access and country characteristics is not clear cut, we start with characterizing the data by summary statistics. We complement this exercise through a graphical exploration that does not impose restrictions on the functional form. We also looked for differences that could arise from using different debt instruments (bonds or syndicated loans) in defining market access, but did not find one.²² Finally, we run multivariate Tobit regressions with the frequency of market access as the dependent variable. Frequency of access is defined as the ratio of the number of years in which the sovereign is observed accessing international credit markets to the number of years in which the country is in the sample.

In presenting the summary statistics, we divide the 139 developing countries from our sample into three different groups according to their success in accessing the international credit markets during 1980-2000:

- *No Access Group (G0)*: includes countries that were unable to access international credit markets during the period. Strikingly, this group is very large with 57 countries (41 percent of all countries in the sample).
- *Occasional Access Group (G1)*: includes countries that gain or regain access in the period but do not manage to access the market consistently. Specifically, we include countries that access the markets less than two-thirds of the time and find that 66 countries (47 percent of the sample) fall into this category.²³
- *Consistent Access Group (G2)*: includes countries that accessed the markets often (more than 2/3rds of the time). Only 16 countries (12 percent of the sample) belong to this group.

Next, we compare the characteristics of the countries in the three groups by taking the annual average of each variable for each country and then obtaining summary statistics for each group (Table 2). To test formally whether the explanatory variables are different across groups of countries, we carry out tests for the equality of means and medians (Appendix, Table A2).²⁴

²² We looked at the volumes borrowed as well as the frequency of borrowing by each instrument. The differences between the two groupings are not significant. Countries that borrow larger amounts in bonds tend to have higher income per capita, lower volatility, and borrow larger total amounts (see Appendix Table A3). This is consistent with the view that fixed costs associated with bond issuance are higher than those with bank loans.

²³ We also divided the group by those accessing markets 50 percent of the time, but did not find a difference in our results.

²⁴ A comparison of means only may be misleading in the presence of large outliers.

Table 2. Country Characteristics, by Access Frequency Groups

Category	Variable	Total Sample		No access (G0)		Occasional access (G1)		Consistent access (G2)	
		N	Median	N	Median	N	Median	N	Median
Borrowing	Freq. of Borrowing (market access)	139	0.1	57	0	66	0.26	16	0.81
	Total Borrowing (mill us\$)	139	10.5	57	0	66	49.3	16	1056.7
	Bond Borrowing (mill us\$)	139	0.0	57	0	66	1.0	16	339.2
	Loan Borrowing (mill us\$)	139	7.43	57	0	66	31.4	16	531.8
	Freq. bond borr./ Freq. loan borr.	80	0.29	0		64	0	16	0.78
Size	Population (millions)	138	6.69	57	3.92	66	10.34	15	35.14
Vulnerab. /Volatility	GDP per capita (US\$)	136	957.2	56	596.3	66	1314.5	14	2733.9
	Std dev. GDP growth (10y)	137	4.74	57	4.79	65	4.82	15	3.66
	Std. dev. Terms Of Trade (20y)	86	108.5	33	117.89	45	95.18	8	77.95
	Agriculture/GDP (%)	134	20.69	56	29.24	64	18.45	14	13.66
Links with the world	Opennes ((Exports + Imports)/GDP)	135	0.71	56	0.8	65	0.61	14	0.8
	FDI/GDP	131	0.01	54	0.01	63	0.01	14	0.02
Political Risk	ICRG Index	101	57.3	29	52.6	57	58.2	15	65.1
Quality of Policies	Institutional quality (CPIA)	134	2.98	57	2.85	63	3	14	3.76
Liquidity	Exports/Debt Service	127	10.8	52	17.58	63	7.21	12	9.7
	Intern. Reserves (months of imp.)	133	2.6	54	2.26	64	2.76	15	3.6
	Short Term Debt/Total Debt (%)	123	11.28	49	7.97	62	13.17	12	18.2
Default History	Sovereign Defaults (events)	139	0	57	0	66	1	16	0
	Years in Default	139	0	57	0	66	5	16	0
	Years in Default/ Years in Sample	139	0	57	0	66	0.24	16	0
Market Perception	Instit. Investors Ratings	98	25.9	28	15.2	55	27.2	15	45.5
IMF Programs	EFF (frequency)	139	0	57	0	66	0	16	0
	SBA (frequency)	139	0.14	57	0.1	66	0.24	16	0.12
	FPRG (frequency)	139	0	57	0.05	66	0	16	0

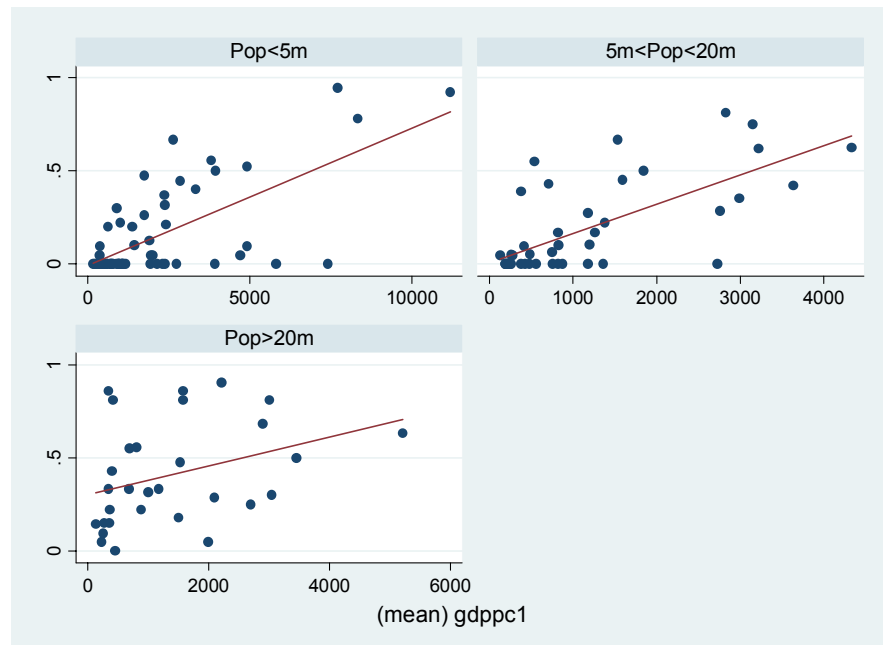
Note: All borrowing refers to international government borrowing from private creditors. All loans are syndicated loans. All variables are annual averages across countries over the whole sample within each group (unless otherwise noted).

Some clear patterns emerge in Table 2. Countries that access the markets more frequently tend to be *larger and richer*. An interesting feature is that access by countries with less than a million residents (22 countries) is almost non-existent. At the other end of the size spectrum, countries with population larger than 40 million (18 countries) are able to access the markets at least occasionally.

Countries that access more frequently also tend to have *significantly lower volatility of income and terms of trade, and smaller agricultural sectors*. Reflecting their need to tap the markets more frequently, those with a *higher ratio of short term debt to total debt* borrow more often. *The quality of policies, country ratings, and political stability* are significantly higher in those countries that access the market more frequently. Countries that access consistently *default* less often than others and spend fewer years in default. The links with the rest of the world such as *trade openness* or the *FDI/GDP* ratio do not seem significantly different across the three access groups. There also appears to be no difference in alternative measures of *liquidity* (exports/debt service or the level of international reserves in terms of months of imports).

Given the importance that size and per-capita income seem to have in determining market access, we go one step further in our graphical exploration.²⁵ First, we divide all countries in our sample into 3 groups according to their size: (i) small: those with less than 5 million habitants; (ii) medium: those with a population between 5 and 20 million; (iii) large: those with populations exceeding 20 million. Within each group, income per capita seems to be strongly correlated with the frequency of access.

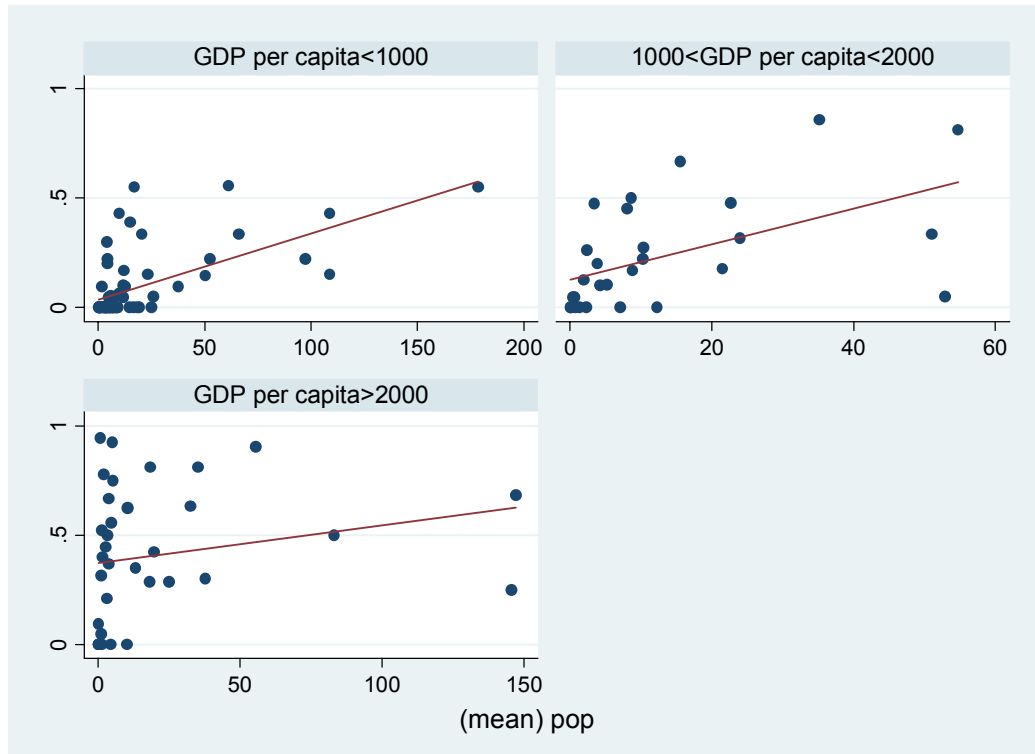
Figure 2. Frequency of Access and GDP per capita by Size Groups



²⁵ Size and income explain 38 percent of the cross-sectional variation in a simple tobit regression.

We now divide all countries in our sample into 3 groups according to their income per capita: (i) low: average GDP per capita less than \$1000; (ii) middle: average GDP per capita between \$1000 and \$2000; (iii) high: GDP per capita larger than \$2000²⁶. As Figure 3 illustrates, within each income group, size is positively correlated with market access.²⁷

Figure 3. Frequency of Access and Population by Income Groups



Note: For presentational purposes we exclude China and India

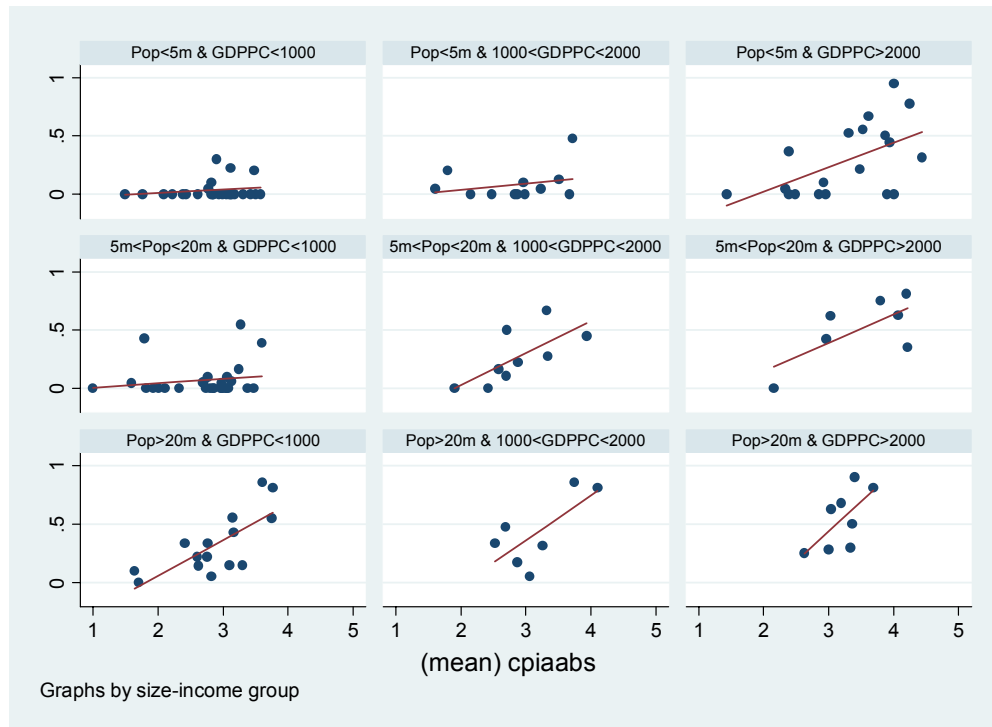
We now group countries of similar size and GDP per capita together and analyze how market access is affected by other factors. We combine our three size groups with the three income groups, so we will have 9 size-income groups. The graphs suggest that within each of these groups (with the exception of the small-low and small-medium groups), countries with better institutional quality as measured by the CPIA index access the markets more frequently (see Figure 4). The ratio of FDI to GDP is positively correlated with the frequency of access for those countries that are neither among the poorest nor among the smallest. Finally, market perceptions, as measured by the Institutional Investor Index, seem to be strongly related to the frequency of market access for all size-income groups.²⁸

²⁶ The adjectives in the classification are relative to our sample of developing countries. When we talk about a high income or rich country it means high relative to other developing countries in our sample and not when compared to developed countries.

²⁷ Alternative groupings (either with different number of groups or cutting points) for both population and GDP per capita confirm these findings.

²⁸ A more comprehensive set of graphs is available from the authors on request.

Figure 4. Frequency of Access and Quality of Policies (CPIA) by Size-Income Group



In the Appendix, results from Tobit estimations (Table A4) are presented, where we assume that the frequency of access can be explained by a linear function of the variables from Table 1. Confirming most of our findings above, the size of a country, the GDP per capita, the quality of policies and measures of output volatility enter significantly and with the expected sign. Although trade openness is not significant, the ratio of FDI to GDP is. Measures of liquidity are either insignificant or enter with the wrong sign confirming that liquidity does not seem to play a role in explaining market access. IMF programs do not have a positive effect on market access. Interestingly and to our surprise, the *number of sovereign default events* is not significant, but, as expected, being in default, as captured by the number of years in default, is.²⁹ Finally, the coefficient on market perceptions is significant and improves the fit of the regression.³⁰

²⁹We also add a control variable for the type of debt instrument, namely the ratio of the amount borrowed in international bond markets to the amount borrowed from international banks in the form of syndicated loans. The introduction of this variable further reduces the number of observations, with a strong bias towards those countries that have some access to international credit markets. However, the results of the regression remain essentially unchanged, and the coefficient of the relative use of bonds or loans is insignificant. As a robustness check we used the relative frequency of use of each instrument instead of the relative volumes; the results remain unchanged.

³⁰The number of countries for which we have data for all the above variables is 64 when we do not include market perceptions and 58 when we do. Statistical tests indicate that we cannot reject the hypothesis that these subsets come from the same population as the whole sample of 139 countries. As market perceptions could, in part, depend on some of the variables included in the regression, we follow Eichengreen and Mody (1998) and Garibaldi et al. (2001) by including only the residual of a regression of market perceptions on the other variables in our specification.

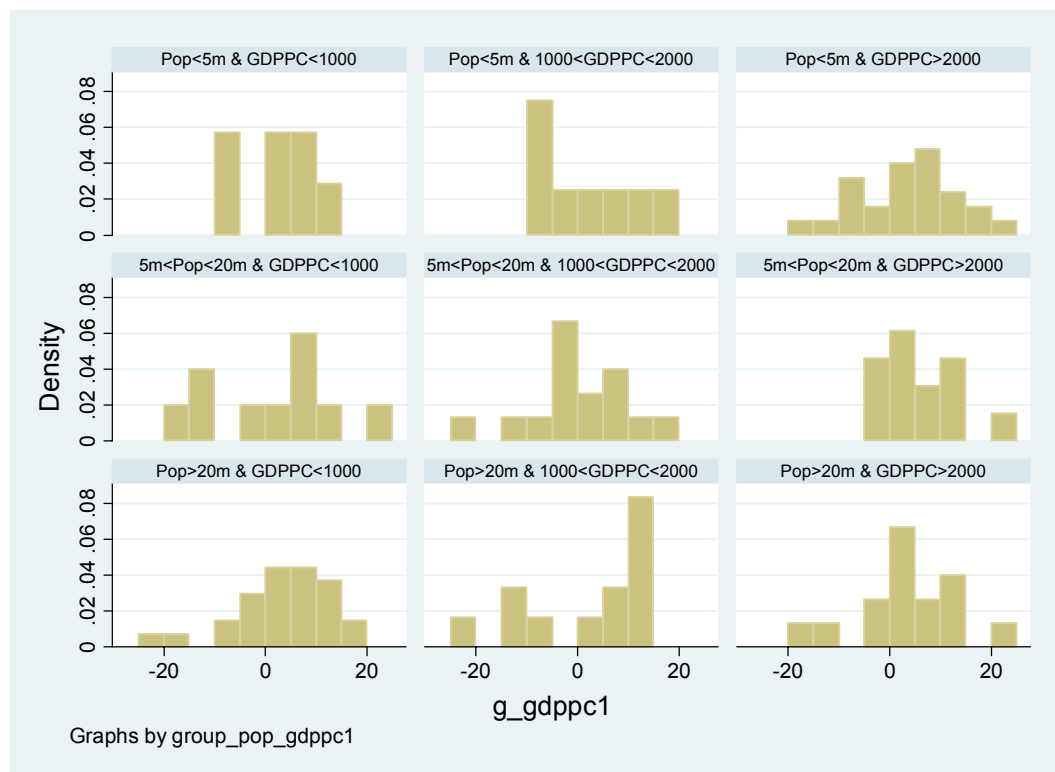
While not the focus of this paper, as a robustness check, Appendix Table A5 presents the results from the same specification, with the average amount borrowed per year as the dependent variable. The average amounts borrowed can broadly be explained by the same variables.

B. Panel Analysis

The previous sections highlighted the key country characteristics that determine the frequency of access to international credit markets. However, the cross-sectional exercise does not shed light on the dynamics of market access nor does it allow us to control for time-varying factors. Therefore, it does not give us much information about what changes within countries allow them to access the markets after periods of exclusion, or what triggers periods of exclusion following years of access. In this section we explore factors that determine “switches in” and “switches out” of the markets.

To give a flavor of factors that are associated with the “switch in”, Figure 4 illustrates how growth rates of GDP per capita evolves for various size/income categories.³¹ Growth rates tend to be positive in “switch in periods”. The evidence regarding changes other variables, such as changes in market perceptions and quality of policies is less clear cut and not presented here.

Figure 5. GDP per Capita growth rates in “switch in” events by Size-Income Group



³¹ For expositional reasons, in all figures we exclude cases in which the percentage change in GDP per capita is larger than 25% or smaller than -25% .

We now turn to a fixed-effect logit regression that allows us to focus on those countries that experience years of access and years of exclusion over our sample period, with market access as the binary dependent variable.³² Our maintained assumption is that access is the result of changes in the binding maximum credit ceiling for a country, with the country adjusting gradually to the new maximum. In an analogy to partial adjustment models for investment, this suggests including the lagged stock of debt as a regressor.

Given the presence of fixed effects, only variables that show some variation over time are included. In addition, we include time effects in some specifications to control for global conditions. We use two default variables, one that captures whether a country is in default in a given year, and another that equals one if the country defaulted in that specific year. The IMF programs variables are dummies which equal one when a country started a program—this is intended to capture the initial signaling effect. In an attempt to deal with potential endogeneity problems, we use lagged values of the explanatory variables, except for the variable measuring whether a country is currently in default. Table 4 presents two specifications: one with all the variables, and the other excluding market perceptions.³³

Consistent with our findings in the cross-section analysis, having defaulted in the previous year does not seem to matter, but as expected, being in default has a negative effect on market access. GDP per capita is significant only when market perceptions are not included. The quality of institutions as measured by the World Bank's CPIA and the market perceptions always enters significantly.³⁴ Openness variables are not significant but liquidity measures are. Only one type of IMF programs (the EFF) is significant. The population size of a country, which was found to be significant earlier is proxied by country dummies in this fixed effects model.

Regarding the economic significance of these results, a one percent increase in the mean quality of institutions (as measured by the World Bank CPIA index) would lead to a rise in the predicted probability of access by about 0.7 percent, while a 1% increase in mean GDP per capita would lead to 0.1 percent increase in the predicted probability of access.

³² The Hausman specification test rejects the random effects estimators when we restrict our analysis to those countries that switch in and out of the credit market.

³³ As market perceptions could, in part, depend on some of the variables included in the regression, we follow Eichengreen and Mody (1998) and Garibaldi et al. (2001) by including only the residual of a regression of market perceptions on the other variables in our specification.

³⁴ When we used narrower measures of the quality of policies such as inflation or fiscal deficit instead of the World Bank CPIA their coefficient is non-significant.

Table 4. Determinants of Access: Fixed-Effect Logit Model with Time Effects

Variable	(1)	(2)
Stock of Public Debt with private Creditors	-0.1160 (2.52)**	-0.0852 (1.82)*
GDP per capita (US\$)	0.0007 (2.66)***	0.0004 (1.50)
Growth Rate of . GDP per capita	-0.0226 (1.73)*	-0.0268 (1.96)**
Openness ((Exports + Imports)/GDP)	0.3568 (0.27)	1.0398 (0.72)
FDI/GDP	-2.2377 (0.28)	-4.2703 (0.52)
Institutional quality (World Bank CPIA)	1.1875 (3.69)***	1.5686 (4.14)***
International Reserves (months of imports)	-0.3003 (2.82)***	-0.2965 (2.72)***
Exports/Debt Service	-0.0025 (0.75)	-0.0022 (0.73)
Short Term Debt/Total Debt (%)	0.0594 (2.44)**	0.0679 (2.68)***
ICRG Index of Political Risk	0.0425 (1.67)*	0.0322 (1.22)
Default in previous year	-1.6903 (1.56)	-1.5622 (1.44)
Unsolved Default	-0.9204 (1.93)*	-1.6043 (2.91)***
EFF (beginning of the program)	-1.7962 (1.89)*	-1.9256 (2.02)**
SBA (beginning of the program)	-0.0027 (0.01)	-0.1236 (0.32)
FPRG (beginning of the program)	1.1235 (1.31)	0.6196 (0.69)
Institutional Investors Ratings†		0.0921 (2.29)**
Observations	514	511
Countries	44	43

Note: z-stats in parentheses. † residual of a first-stage regression of Institutional Investor Ratings on the other explanatory variables. ***, **, * Significant at 1%, 5% and 10% level respectively. Years of Brady deals excluded.

C. Official versus private flows

One concern regarding our approach is that there might be a substitution between official and private capital flows, particularly for poor countries, which could erroneously lead us to conclude that countries were cut off from the markets when in fact they were substituting away from private loans in favor of official loans. In order to investigate this possibility, we computed the mean of official finance flows as percentage of GDP over time. We then asked whether during (or immediately following) periods of higher-than-average official flows, our access variable is more likely to show a

zero. This is not the case. On the contrary, it is more likely to observe a zero, when official flows are below normal (Table 5). A different way of looking at this issue is regressing the volume of private capital flows on official flows (as shares of GDP). Such a regression with fixed country effects and time effects produces a *positive* and statistically significant coefficient on the official financing variable (t-statistic= 3.07), indicating that, if anything, there is complementarity between official and private flows.

Table 5. Relation between Official Flows and Probability of Observing No Access

	# of zeroes
Official flows > country average	677
Official flows < country average	862
Lagged official flows < country average	743
Lagged official flows < country average	796

D. State dependence and robustness of the dependent variable

A potential issue that we investigate is the presence of state dependence. There are two reasons why a country that has had market access yesterday may be more likely to gain market access today. First, countries might differ in certain characteristics that persist over time that matter for market access. Second, it is possible that gaining market access at some point per se fundamentally changes the likelihood of a country to tap the markets again. This is sometimes referred to as the difference between “spurious” and “true” state dependence.

Testing for the difference between spurious and true state dependence is not trivial in the presence of heterogeneity. Chamberlain (1978) suggested a simple test of the null of no state dependence by testing whether the inclusion of lagged independent variables without including lagged dependent variables significantly changes the probability of the event.³⁵ For this reason, we also carried out estimations that allow for state dependence by including a lagged dependent variable. In these estimations, the coefficient on the lagged dependent variable is usually not significant, and the other main results remain unchanged.

A final robustness check that we undertake is to aggregate the access data over two years. While it is unlikely that a developing country would want to voluntarily abstain from any form of sovereign borrowing over the course of a full year, such an abstention is even less likely over a two-year period. We therefore also run regressions aggregating the access data over two years (in order to consider that a country is excluded we now require two consecutive years of absence from the market). The results are qualitatively very similar (Appendix, Table A6).

³⁵ See also Hsiao (1986) and McKenzie (2002).

E. Sovereign defaults and typical periods of exclusion

Both our cross-section and panel analysis show that being in default has a negative effect on market access. Table 6 sheds more light on the relation between market access and defaults by answering the question of how long it takes countries to regain market access after defaults.

The mean number of years it took countries to tap the markets after default fell from five years in the 1980's to a year and a half in the 1990's. These numbers are based only on those countries that regain access during the sample period, so they might be biased downwards for the 1990s as there are a number of countries that did not regain access in that period (see Table A7 for more details). These statistics, together with the results from our previous analysis seem to contradict a common perception that defaults result in very prolonged loss of market access; they are, however, in line with the results of various studies examining the historical evidence on the costs of default.³⁶

Table 6. Default and Resumption of Access

Period		Years until Resumption
1980s	Mean	5.0
	Median	4.0
1990s	Mean	1.6
	Median	1.0
1980-2000	Mean	4.0
	Median	3.0

Note: Covers the period, 1980–2000, and includes only countries that regained access after the default during the sample period. Year of default is defined as year in which the sovereign defaulted on foreign-currency bond or bank debt according to Standard & Poor's (Source: Beers and Bhatia, 2003). Year of access is year of borrowing in the form of bond or syndicated loan according to Bondware and Loanware database. Number of Defaults in which countries regain access in sample period: 80s: 49, 90s: 20.

IV. CONCLUSIONS

We would like to conclude with summarizing six key findings of this study:

First, larger and wealthier countries borrow more and more often. In fact, population and GDP per capita alone explain a considerable fraction of the total variation of market access across countries.

Second, the perceived quality of policies and institutions matters substantially. In addition, the Institutional Investor Index captures well the additional element of “market perceptions” beyond standard measurable country characteristics and has a positive effect on market access.

³⁶ See, for example, Eichengreen (1989), Lindert and Morton (1989), or Jorgensen and Sachs (1989). For an examination of how a country's default history matters for its crisis vulnerability, see Reinhart, Rogoff, and Savastano (2003).

Third, countries that are more vulnerable to shocks are less likely to be able to tap international credit markets.

Fourth, higher shares of FDI investments in GDP are generally associated with higher access by sovereigns. However, contrary to a-priori expectations, a country's trade integration with the rest of the world is not.

Fifth, after the perceived quality of policies is controlled for, we do not find a clear catalytic effect of IMF programs. This, of course, has to be qualified by the fact that the perceptions of policies themselves are likely to be affected by the presence of an IMF program.

Finally, the probability of market access is not influenced by the frequency of default events, and a default in the previous year does not reduce the probability of tapping the markets significantly. The data confirm that in the 1990s, on average, countries that defaulted did not experience significant interruptions in their market access. However, being in default does have a negative impact on market access, as expected.

APPENDIX

I. Data

The source for all the macroeconomic variables used in the paper is the World Bank's World Development Indicators (WDI) database, which we complete, whenever possible with data from the IMF's World Economic Outlook (WEO) database and data from IMF country desks.³⁷ The debt data are from World Bank's Global Development Finance (GDF) database.

Transition Economies

The table below lists the dates of inclusion of communist/socialist countries in our sample.

Table A1. Date of Inclusion of (Formerly) Communist/Socialist Countries

Country	Date of Inclusion in Sample
Albania	1990
Armenia	1991
Azerbaijan	1991
Belarus	1991
Bosnia and Herzegovina	1992
Bulgaria	1985
Croatia	1991
Czech Republic	1993
Eritrea	1992
Estonia	1991
Georgia	1991
Kazakhstan	1991
Kyrgyz Republic	1991
Lao PDR	1992
Latvia	1991
Lithuania	1991
Macedonia, FYR	1992
Mali	1992
Moldova	1991
Mongolia	1990
Russian Federation	1991
Slovak Republic	1993
Slovenia	1991
Tajikistan	1991
Togo	1990
Turkmenistan	1991
Ukraine	1991
Uzbekistan	1991
Zambia	1990

Note: all other (formerly) communist/socialist countries included from the beginning of the sample period

³⁷ We checked the consistency of the series across different sources, combining the series only when they were consistent. Good terms-of-trade data are hard to come by. Here, we use a comprehensive, high-quality database compiled by Cashin and Pattillo (2000), which is largely based on World Bank data.

II. Additional Tables and Results

Means and Medians

Table A2. Tests of Equality of Means and Medians Across Access Groups

Category	Variable	Mean (Welch Test)			Median		
		G0-G1	G1-G2	G0-G2	G0-G1	G1-G2	G0-G2
Borrowing	Freq. of Borrowing (market access)	***	***	***	***	***	***
	Total Borrowing (mill us\$)	***	***	***	***	***	***
	Bond Borrowing (mill us\$)	**	**	***	***	**	***
	Loan Borrowing (mill us\$)	***	***	***	***	***	***
	Freq. bond borr./ Freq. loan borr.	n.a.		n.a.	n.a.	***	n.a.
Size	Population (millions)	***			***		**
Vulnerab. /Volatility	GDP per capita (US\$)	***	*	**	***	***	**
	Std dev. GDP growth (10y)		*	**		*	*
	Std. dev. Terms of Trade (20y)	*	*	**	*		***
	Agriculture/GDP (%)	***	***	***	**	**	***
Links with the world	Opennes ((Exports + Imports)/GDP) FDI/GDP	**			*		
Political Risk	ICRG Index	*	***	***	*	***	***
	States Failures						
Quality of Policies	Institutional quality (CPIA)	***	***	***	*	***	***
Liquidity	Exports/Debt Service				***		**
	Intern. Reserves (months of imp.) Short Term Debt/Total Debt (%)	***	**	***	***	**	***
Default History	Sovereign Defaults (events)	**	**		*		
	Years in Default		***		**	**	
	Years in Default/ Years in Sample		***		**	**	
Market Perception	Instit. Investors Ratings	***	***	***	***	***	***
IMF Programs	EFF (freq. in program)	***			***		
	SBA (freq. in program)	***	*		***		
	FPRG (freq. in program)	**	***	***	**	**	***

Table A3. Means and Medians across Debt Instrument Groups

Category	Variable	Loan Borrowing > Bond Borrowing [†]			Loan Borrowing < Bond Borrowing		
		N	Mean	Median	N	Mean	Median
Borrowing	Freq. of Borrowing (market access)	58	0.31	0.26	24	0.53***	0.54***
	Total Borrowing (mill us\$)	58	360.4	54.3	24	946.62**	301.39***
	Bond Borrowing (mill us\$)	58	99.6	0.0	24	666.77***	210.34***
	Loan Borrowing (mill us\$)	58	260.82	46.09	24	279.85	75.67
	Freq. bond borr./ Freq. loan borr.	58	0.21	0	22	1.36***	0.95***
Size	Population (millions)	57	60.03	11.91	24	25.24	7.77
Vulnerab. /Volatility	GDP per capita (US\$)	57	1511.45	1000.54	23	3227.47***	2852.32***
	Std dev. GDP growth (10y)	56	5.17	4.58	24	5.74	4.39
	Std. dev. Terms of Trade (20y)	39	97.66	109.17	14	51.1***	46.37***
	Agriculture/GDP (%)	55	22.66	19.99	23	12.3***	12.1**
Links with the world	Opennes ((Exports + Imports)/GDP)	56	0.7	0.6	23	0.72	0.77
	FDI/GDP	54	0.01	0.01	23	0.02	0.01
Political Risk	ICRG Index	48	55.26	56.66	24	64.15***	65.3***
Quality of Policies	Institutional quality (CPIA)	55	3.07	3.06	22	3.35*	3.31
Liquidity	Exports/Debt Service	53	53.42	7.72	22	184.1	6.79
	Intern. Reserves (months of imp.)	55	3.12	2.78	24	3.83	3.02
	Short Term Debt/Total Debt (%)	52	13.69	12.65	22	20.03**	17.38**
Default History	Sovereign Defaults (events)	58	0.79	1	24	1.08	1
	Years in Default	58	5.64	3.5	24	4.75	2.5
	Years in Default/ Years in Sample	58	0.27	0.17	24	0.23	0.12
Market Perception	Instit. Investors Ratings	48	31.18	28.45	22	33.35	34.7
IMF Programs	EFF (freq. in program)	58	0.06	0	24	0.1	0.02
	SBA (freq. in program)	58	0.21	0.19	24	0.34**	0.36
	FPRG (freq. in program)	58	0.1	0	24	0***	0**

Note: ***, **, * Significantly different at 1%, 5% and 10% respectively. † Countries where borrowing is larger than bond borrowing

Table A4. Determinants of Frequency of Access: Tobit Regressions

	(1)	(2)	(3)	(4)
Population (millions)	0.00045890 (2.71)***	0.00040346 (2.71)***	0.00038366 (2.61)**	0.00035724 (2.46)**
GDP per capita (US\$)	0.000061 (1.99)**	0.000047 (1.72)*	0.000042 (1.53)	0.000035 (1.28)
Std dev. GDP growth (10 years)	-0.02675138 (2.61)**	-0.01927783 (1.87)*	-0.02229847 (2.02)**	-0.02176131 (1.94)*
Opennes ((Exports + Imports)/GDP)	-0.07536089 (0.68)	-0.19048298 (1.61)	-0.03080002 (0.24)	-0.04118229 (0.33)
FDI/GDP	2.63093749 (1.95)*	6.78507556 (4.21)***	3.64552628 (2.00)*	3.42564492 (1.88)*
ICRG Index of Political Risk	-0.00252455 (0.64)	-0.00164011 (0.45)	-0.00072330 (0.21)	-0.00010208 (0.03)
Institutional quality (World Bank CPIA)	0.18016549 (2.99)***	0.20838232 (3.76)***	0.17197699 (3.18)***	0.18197864 (3.36)***
Exports/Debt Service	-0.000032 (0.48)	-0.000063 (1.08)	-0.000040 (0.72)	-0.000039 (0.70)
International Reserves (months of imports)	-0.020 (1.82)*	-0.034 (3.20)***	-0.013 (0.92)	-0.014 (0.98)
Short Term Debt/Total Debt (%)	0.00609 (2.31)**	0.003271 (1.30)	0.001870 (0.71)	0.001523 (0.58)
Sovereign Defaults (events)	0.00199644 (0.06)	0.00865967 (0.31)	0.00312488 (0.11)	0.00430572 (0.15)
Years in Default	-0.01045142 (2.24)**	-0.01193830 (2.73)***	-0.01105290 (2.54)**	-0.01000821 (2.20)**
EFF (frequency of years in IMF program)	0.32820563 (1.29)	0.33265830 (1.44)	0.25400147 (1.13)	0.21876574 (0.97)
SBA (frequency of years in IMF program)	0.11726501 (0.89)	0.06422241 (0.55)	-0.00056011 (0.00)	-0.05001420 (0.43)
PRGF (frequency of years in IMF program)	-0.57578768 (2.77)***	-0.63551618 (3.25)***	-0.34728686 (1.74)*	-0.47181989 (2.22)**
Institutional Investors Ratings†		0.01108653 (2.99)***		0.00762230 (2.10)**
Debt Instrument (Vol. Bonds/Vol. Loans)			0.00674192 (0.85)	0.00771279 (0.99)
Observations	87	77	68	64

Note: T-statistics in parentheses. † denotes the residual of a first-stage regression of the Institutional Investor Index on the other explanatory variables in the regression. ***, **, * Significant at 1%, 5% and 10% levels respectively.

Table A5. Total Average Amounts Borrowed: Tobit Regressions

	(1)	(2)	(3)	(4)
Population (millions)	2.899 (5.66)***	2.945 (5.94)***	2.839 (5.30)***	2.842 (5.61)***
GDP per capita (US\$)	0.338 (3.68)***	0.363 (3.91)***	0.359 (3.63)***	0.358 (3.74)***
Std dev. GDP growth (10 years)	-53.66 (1.68)*	-68.77 (2.00)**	-80.84 (2.04)**	-94.08 (2.44)**
Openness ((Exports + Imports)/GDP)	-8.612e+02 (2.48)**	-1.0539e+03 (2.75)***	-8.7088e+02 (1.90)*	-9.403e+02 (2.16)**
FDI/GDP	586.3 (1.39)	1363 (2.51)**	525.3 (0.79)	733.4 (1.15)
ICRG Index of Political Risk	1.038 (0.09)	1.088 (0.09)	-1.90 (0.15)	2.27 (0.18)
Institutional quality (World Bank CPIA)	50.23 (0.28)	64.88 (0.36)	68.24 (0.35)	56.52 (0.30)
Exports/Debt Service	-0.240 (1.19)	-0.285 (1.47)	-0.242 (1.18)	-0.221 (1.15)
International Reserves (months of imports)	-44.50 (1.23)	-64.47 (1.60)	-57.62 (1.13)	-57.39 (1.21)
Short Term Debt/Total Debt (%)	6.63 (0.81)	7.03 (0.82)	2.34 (0.24)	3.94 (0.43)
Sovereign Defaults (events)	-97.60 (1.04)	-100.04 (1.10)	-125.04 (1.22)	-116.52 (1.22)
Years in Default	6.32 (0.47)	4.64 (0.33)	7.48 (0.49)	8.15 (0.53)
EFF (frequency of years in program)	986.86 (1.28)	1246.12 (1.61)	881.58 (1.08)	1103.16 (1.40)
SBA (frequency of years in program)	473.53 (1.22)	537.47 (1.39)	164.62 (0.40)	127.30 (0.31)
FPRG (frequency of years in program)	-5.402e+02 (0.88)	-3.489e+02 (0.54)	-76.209 (0.11)	7.780 (0.01)
Institutional Investors Ratings†		44.99 (3.65)***		43.23 (3.44)***
Debt Instrument (Vol. Bonds/Vol. Loans)			40.651 (1.41)	43.097 (1.59)
Observations	87	77	68	64

Note: T-statistics in parentheses. † denotes the residual of a first-stage regression of the Institutional Investor Index on the other explanatory variables in the regression. ***, **, * Significant at 1%, 5% and 10% levels respectively.

Fixed-Effects Logit Regressions: Robustness Checks

Table A6. Determinants of Access: Fixed-Effects Logit Model with Time Dummies, Access Data Aggregated over Two Years

Variable	(1)	(2)
Stock of Public Debt with private Creditors	-0.1160 (2.52)**	-0.0852 (1.82)*
GDP per capita (US\$)	0.0007 (2.66)***	0.0004 -1.5000
Growth Rate of . GDP per capita	-0.0226 (1.73)*	-0.0268 (1.96)**
Opennes ((Exports + Imports)/GDP)	0.3568 (0.27)	1.0398 (0.72)
FDI/GDP	-2.2377 (0.28)	-4.2703 (0.52)
Institutional quality (World Bank CPIA)	1.1875 (3.69)***	1.5686 (4.14)***
International Reserves (months of imports)	-0.3003 (2.82)***	-0.2965 (2.72)***
Exports/Debt Service	-0.0025 (0.75)	-0.0022 (0.73)
Short Term Debt/Total Debt (%)	0.0594 (2.44)**	0.0679 (2.68)***
ICRG Index of Political Risk	0.0425 (1.67)*	0.0322 (1.22)
Default in previous year	-1.6903 (1.56)	-1.5622 (1.44)
Unsolved Default	-0.9204 (1.93)*	-1.6043 (2.91)***
EFF (beginning of the program)	-1.7962 (1.89)*	-1.9256 (2.02)**
SBA (beginning of the program)	-0.0027 (0.01)	-0.1236 (0.32)
FPRG (beginning of the program)	1.1235 (1.31)	0.6196 (0.69)
Institutional Investors Ratings†		0.0921 (2.29)**
Observations	514	511
Countries	44	43

Note: z-statistics in parentheses. † denotes the residual of a first-stage regression of the Institutional Investor Index on the other explanatory variables in the regression. ***, **, * Significant at 1%, 5% and 10% levels respectively.

Defaults and Resumption of Access

Table A7. Default and Resumption of Access, 1980s

Year of Default	Year of Resumption	Country	Years Until Resumption	Private Gross Capital Flows as Percent of GDP in Two Years Prior to Default	Private Gross Capital Flows as Percent of GDP in Two Years After Resumption
1980	1982	Peru	2		3.7
1981, 84	1994	Costa Rica	13	19.3	6.6
1981	1994	Honduras	13	9.7	5.8
1981	1983	Jamaica	2	8.0	9.6
1981	1983	Madagascar	2	0.2	1.8
1981	1982	Poland	1		
1981	1985	Romania	4		
1981	1996	Senegal	15	5.0	6.6
1982	1986	Argentina	4	19.9	2.6
1982	1987	Ecuador	5	6.4	7.4
1982	1985	Mexico	3	8.5	10.5
1982	1983	Turkey	1	2.0	3.4
1983	1984	Brazil	1	4.5	4.3
1983	1990	Chile	7	14.5	11.3
1983	1994	Congo, Rep.	11	31.8	26.9
1983	1992	Cote d'Ivoire	9	4.2	6.8
1983	1991	Guinea-Bissau	8		18.4
1983	1985	Morocco	2	3.6	3.7
1983	1993	Mozambique	10	11.5	1.8
1983	1993	Peru	10	3.7	10.0
1983	1988	Philippines	5	5.7	4.9
1983	1992	Uruguay	9	9.9	4.2
1983	1987	Venezuela, RB	4	8.7	10.9
1983	1989	Yugoslavia, Fed. Rep.	6		
1983	1991	Zambia	8	12.9	
1984	1988	Egypt, Arab Rep.	4	4.3	7.1
1984	1990	Tanzania	6		1.4
1985	1986	Angola	1		1.6
1985	1988	Cameroon	3	14.3	15.2
1985	1988	South Africa	3	2.1	2.7
1985	1990	Vietnam	5		
1985	1986	Yemen, Rep.	1		
1986	1988	Gabon	2	15.1	15.5
1986	1995	Guatemala	9	4.7	14.2
1986	1988	Madagascar	2	1.4	1.8
1986	1988	Morocco	2	3.2	4.4
1986	1989	Nigeria	3	17.1	11.7
1986	1995	Paraguay	9	7.3	8.7
1986	1990	Romania	4		3.7
1987	1990	Ghana	3	2.0	1.6
1987	1988	Iraq	1		
1987	1991	Jamaica	4	6.7	9.1
1988	1989	Trinidad and Tobago	1	5.7	9.3
1988	1992	Uruguay	4	8.5	4.2
1989	1990	Argentina	1	2.6	9.1
1989	1995	Guatemala	6	8.4	14.2
1989	1993	Jordan	4	5.3	8.3
1989	1990	South Africa	1	2.9	5.9
		Mean 80s	5.0	8.2	7.6
		Median 80s	4.0	6.4	6.6

Table A7. Default and Resumption of Access, 1990s (cont.)

Year of Default	Year of Resumption	Country	Years Until Resumption	Private Gross Capital Flows as Percent of GDP in Two Years Prior to Default	Private Gross Capital Flows as Percent of GDP in Two Years After Resumption
1990	1991	Bulgaria	1	6.9	6.8
1990	1996	Senegal	6	5.9	6.6
1990	1992	Uruguay	2	16.6	4.2
1990	1992	Venezuela, RB	2	10.9	14.4
1991	1992	Algeria	1	2.2	
1991	1992	Ethiopia	1	2.0	9.1
1991	1992	Russian Federation	1		
1992	1995	Croatia	3		21.8
1992	1996	Macedonia, FYR	4		12.4
1992	1992	Philippines	0	5.6	11.5
1992	1996	Senegal	4	4.3	6.6
1992	1993	Slovenia	1		7.3
1993	1994	South Africa	1	5.9	9.9
1994	1995	Kenya	1	9.0	8.1
1995	1996	Venezuela, RB	1	14.3	19.5
1998	1998	Indonesia	0	6.5	
1998	1998	Pakistan	0	5.1	
1998	2000	Russian Federation	2	11.1	
1998	1998	Ukraine	0	8.4	
1999	2000	Ecuador	1	14.1	
Mean 90s			1.6	8.0	10.6
Median 90s			1	6.7	9.1

Note: Covers 1980–2000, including only countries that regained access after the default during the sample period. The following countries never had access in the sample period, but defaulted during it: Bolivia (1980, 86), Cape Verde (1981), Uganda (1981), Central African Rep. (1981, 83), Guyana (1982), Haiti (1982), Malawi (1982, 88), Togo (1982, 88, 91), Burkina Faso (1983), Sierra Leone (1983, 86), Gambia (1986), Liberia (1987), Albania (1991), Bosnia Herzegovina (1992), Mauritania (1992), Antigua y Barbuda (1996), Myanmar (1997). The following countries had access at some point during the sample period and never regained it after a default: Dominican Republic (1982), Niger (1983), Guinea (1986, 91), Nigeria (1992), Moldova (1998), Pakistan (1999), Gabon (1999), Seychelles, Cote d'Ivoire (2000), Indonesia (2000). Access is defined as issuance of public or publicly guaranteed bond or syndicated loan. (Source: Bondware, Loanware). Year of default is defined as year in which the sovereign defaulted on foreign-currency bond or bank debt according to Standard & Poor's (Source: Beers and Bhatia, 2003). Source for gross private capital flows: WDI. For default years 1981, the data on capital flows is for 1980 instead of two-year averages.

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