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A License to Issue (Anywhere):
Patterns and Drivers of Corporate Bonds in Latin America

by Svetlana Vtyurina, Adrian Robles, and Bennett Sutton

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Patterns and Drivers of Corporate Bonds in Latin America

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Abstract

This paper overviews patterns in bond issuance in local and external markets by firms in six large Latin American countries. Data suggest that despite rising issuance, local markets remain small and shallow in several countries. Nevertheless, since greater funding is available to many firms in both markets, we investigate the factors that may explain the firm's choice on where to issue a bond. Using an unbalanced panel of firm and market-level indicators for years 1995-2015, we control for variables representing several theories of capital structure, and the results show that firm characteristics such as size and liquidity increase the likelihood of firms to issue externally. With respect to market characteristics, the market completeness hypothesis generates the most support, where market scale and depth are most important for the issuer's choice of the market, suggesting that local markets will have to become deeper to draw more firms and investment.

JEL Classification Numbers: E02, F3, G1

Keywords: capital structure, firm-level, Latin America, LA-6, corporate bond markets

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[1] We are grateful for the comments from our colleagues Ravi Balakrishnan, Carlos Caceres, Diego Cerdeiro and Francisco Roch.

Contents

I. MOTIVATION

Heeding lessons from crises in the 1990s, many emerging market governments have sought to create deeper and more liquid local bond markets to reduce the risk of the double mismatch of currencies and maturities, and to channel local savings into long-term domestic investment (Laeven, 2014, IMF (a)).

In Latin America, expanding the array of investment vehicles was seen necessary to expand the investor base domestically and abroad, to improve lending terms for corporate and sovereign borrowers, and to promote financial stability (Goldstein and Turner (2004), Borensztein et al (2008), Rodrigues Bastos et al (2015)). Policy makers have also eyed the accumulation of domestic savings to fund the region's large infrastructure investments needed to raise potential growth (Cuevas et al (2015)). Long-term ambitions envisioned easier access to capital through the development of regional financial centers featuring best practices in financial infrastructure, and in regulatory and tax regimes. Increasing the absorptive capacity of local markets could also improve domestic monetary policy transmission.[2]

Efforts to attract investment, coupled with the Latin America's rapid economic growth in the past decades, have brought a fresh wave of companies and investors into capital markets (*Financial Times*, 2014). Against this backdrop, this paper provides a granular look at the trends in corporate bond financing over the past two decades, especially after the Global Financial Crisis (GFC), in six of the most financially integrated economies in Latin America - Argentina, Brazil, Chile, Colombia, Mexico, and Peru ("LA-6" hereafter). In the context of the increased access to both local and external markets, and to contribute and expand on relevant research, this paper also examines the firm and market level factors influencing the choice of jurisdiction for bond placements. Guided by the outcomes, we offer some policy considerations on further development of local bond markets.

[2] IMF (2004) states that money and bond markets provide instruments needed for the implementation of monetary policy and improve the transmission mechanism of the monetary policy. More than a decade later, this has become challenging, as s Obstfeld (2015) puts it, "financial globalization has worsened the trade-offs monetary policy faces in navigating between multiple domestic objectives". Within the placed limitations, greater issuance in local markets (in local currency) could still help reduce the pressure to maintain stable exchange rates and give more prominence to the domestic interest rate policy. Liquid long-term local bond markets provide valuable information for the conduct of the monetary policy, including expectations and reactions to monetary policy changes (Laeven, 2014).

The rest of this paper is structured as follows. Section 2 overviews recent reforms, patterns in bond issuance and market structure in the LA-6. Section 3 presents a literature review, description of the selected empirical methodology, data and results. Section 4 concludes with some policy considerations.

II. Recent Reforms and the State of Latin American Bond Markets

Reform overview

Borensztein et al (2008) document that, in the early 1990s, Latin America had essentially no corporate bond markets (apart from Chile). The economic reforms of the 1990s, including privatizations and the introduction of private pension systems accelerated the demand for long-term debt instruments and deepening of the local markets (Jeanneau and Tovar (2006), de la Torre (2012), Tendulkar (2015)).[3] Adoption of international best practices, like International Financial Reporting Standards (IFRS) and Basel bank supervisory regimes, signaled a strengthening of corporate governance and regulatory capacity, which, in turn, generated externalities such as more favorable credit risk assessments.

Governments also spurred the evolution of debt markets by easing restrictions on foreign investment, simplifying investment regulations, allowing pension funds to invest in a wider array of assets, and developing derivatives and repurchase markets. Concurrently, modern asset management strategies utilized by fund managers have increased demand for a more diverse universe of financial vehicles.

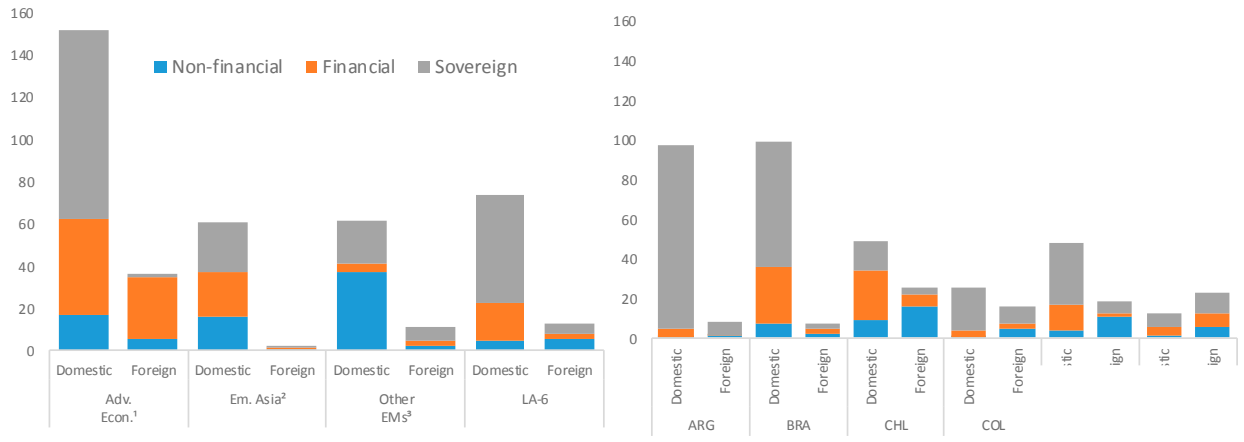
Governments also worked to make government debt instruments more attractive through greater financing of fiscal deficits on local markets, increased transparency with respect to the size, timing and participation in issuances, including by setting up the market makers groups, and the establishment of liquid local benchmarks.

[3] For an account of reforms and regulatory developments in several countries prior to 2008, see Borensztein et al (2008).

Stylized facts

These efforts supported the growth and development of local bond markets, though the prominence of sovereign paper may have been an unexpected outcome. Government bonds constitute almost 60 percent of total stock, compared to 40 percent in Asia. Conversely, the role of corporate bonds is much smaller in Latin America. As a share of GDP, corporate bonds outstanding are about half the size of bonds in other emerging regions and advanced economies, and the flow of new issuances significantly lags other emerging regions (Figures 1 and 2).[4] Among the LA-6, Brazilian firms have the most debt outstanding, with their liabilities accounting for nearly 60 percent of the regional corporate bond stock. Until 2016, quasi-sovereign firms (largely Brazilian and Mexican) represented about a third of corporate funds raised, with most of it occurring externally (Figures 2 and 3).[5]

Figure 1. Value of Bonds Outstanding in Local and External Markets, 2015
(In percent of GDP)



Sources: Bank for International Settlements, Securities Statistics; Dealogic; Ibero-American Federation of Exchanges; and IMF staff calculations. ¹ Includes AUS, AUT, BEL, CAN DEN, DEU, ESP, FIN, FRA, GBR, IRE, ITA, JPN, KOR, NLD, NOR, PRT, SWE, USA. ² Includes CHN, IDN, IND, MYS, PHL, THA. ³ Includes CZE, CRO, HUN, LEB, RUS, PAK, POL, SAU, TUR, ZAF.

[4] It is important to highlight that Emerging Asia does not include Hong Kong SAR, Singapore and Korea as we use the IMF's World Economic Outlook definition, which considers the three as advanced economies.

[5] Since 2009, quasi-sovereigns have played an important role in foreign bond issuance, and most foreign issuance associated with Brazilian firms has taken place through subsidiaries located outside the country. So, calculating total issuance based on a residency criterion misses a significant amount of bond issuance that can be linked back to Brazil on a nationality basis (Rodriguez Bastos et al (2015)). Easier access of quasi-sovereign to external markets may be underpinned by the explicit or implicit government guaranties.

Efforts to develop local markets, coupled with macroeconomic stability, spurred domestic issuance (Table 1). However, more dramatic was the speed and degree to which corporate debt finance has moved offshore. In the early 2000s, close to 60 percent of corporate bonds were issued locally, but by 2013-15, the share had fallen to below 40 percent. Total issuance more than doubled in both value and number of issuances as external issuance exploded from U.S. 38 billion dollars to over U.S. 200 billion dollars.[6] In additional to larger issuance amounts, Latin American firms were also attracted by longer maturities and lower interest rates in advanced economy markets where post-GFC quantitative easing programs exacerbated favorable financing terms. The trade-off has been a substantial increase in foreign currency liabilities, in contrast to the objective of reducing currency mismatches.[7] Through much of the boom in foreign issuance (2009-13), the currency risks appeared to be contained by financial and natural hedges as well as by domestic currencies that began appreciating soon after the crisis ended. Just before the GFC, there was a spike in demand for local currency denominated debt issued abroad, however, the demand has since returned to pre-crisis levels (Figure 2).

Table 1. LA-6: Summary of Corporate Bond Issuance

		2003-05		2013-15	
		Local	External	Local	External
Investment Grade	Number of issuances	418	60	1171	266
	Total amount issued (mil USD)	34,648	20,624	121,996	163,831
	Average amount issued (mil USD)	82.9	343.7	104.2	615.9
	Average term[1] (months)	106.0	127.5	92.8	158.8
	Average yield to maturity at issuance[1] (percent)	6.1	6.5	6.3	4.8
Other	Number of issuances	153	107	12	99
	Total amount issued (mil USD)	19,638	18,004	882	37,257
	Average amount issued (mil USD)	128.3	168.3	73.5	376.3
	Average term[1] (months)	114.1	96.3	88.6	93.8
	Average yield to maturity at issuance[1] (percent)	7.6	8.4	10.2	7.4
Total	Number of issuances	571	167	1183	365
	Total amount issued (mil USD)	54,285	38,628	122,878	201,087
	Average amount issued (mil USD)	95.1	231.3	103.9	550.9
	Average term[1] (months)	108.9	113.8	92.8	146.7
	Average yield to maturity at issuance[1] (percent)	6.2	7.4	6.4	5.3

Sources: Dealogic; and IMF staff calculations.
[1]Average weighted by amount issued.

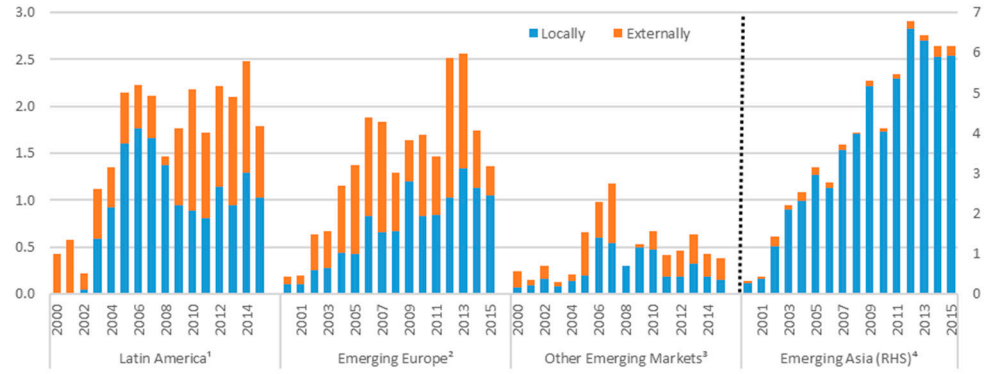
[6] External issuance is defined as bonds placed in a jurisdiction other than the country of residence; whereas local is defined as issuance in the country of residence.

[7] Using firm-level data for five large Latin American economies, Rodriguez Bastos et al (2015) provide evidence of a significant change in companies' external funding strategies and liability structures since 2010, as well as in the balance sheet risks that firms face.

Within local markets, the major change has been the curtailed access for non-investment grade firms, while their external issuance doubled (Table 1). The result is, however, is highly influenced by Brazil, where a contraction took place in both local and external issuances for non-investment grade firms as economic conditions deteriorated (Annex Table 1). Investment grade firms fared better despite the sovereign's downgrade.[8] However, in most countries, except Argentina, overall issuance declined after the 2013 Taper Tantrum episode, with non-financial companies suffering more than financials (Figure 3).

Figure 2. LA-6: Corporate Bond Issuance

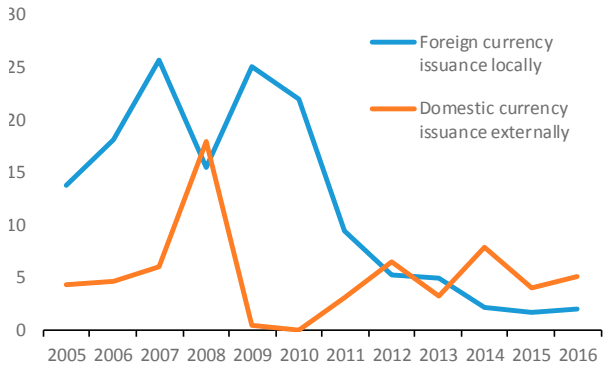
(In percent of GDP)



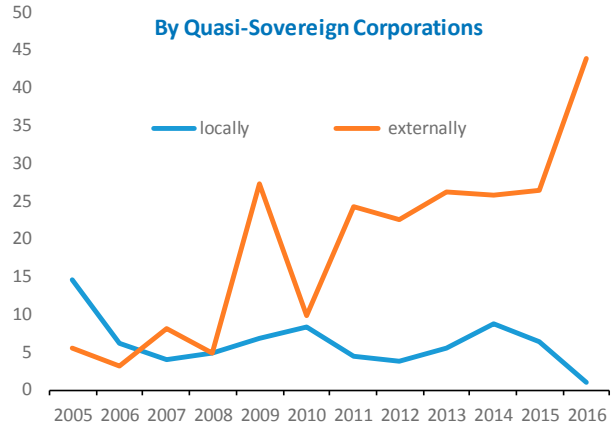
Sources: Dealogic; and IMF staff calcuations.
¹ Includes ARG, BRA, CHL, COL, MEX, and PER. ² Includes HUN, POL, ROM, RUS, and TUR. ³ Includes CHN, IDN, IND, LKA, MYS, PHL, THA, and VNM. ⁴ Includes BHR, DZA, JOR, LBN, PAK, NGA, SAU, and ZAF.

(Percent of total corporate bond issuance)

In Non-Native Currency by all Corporations



By Quasi-Sovereign Corporations

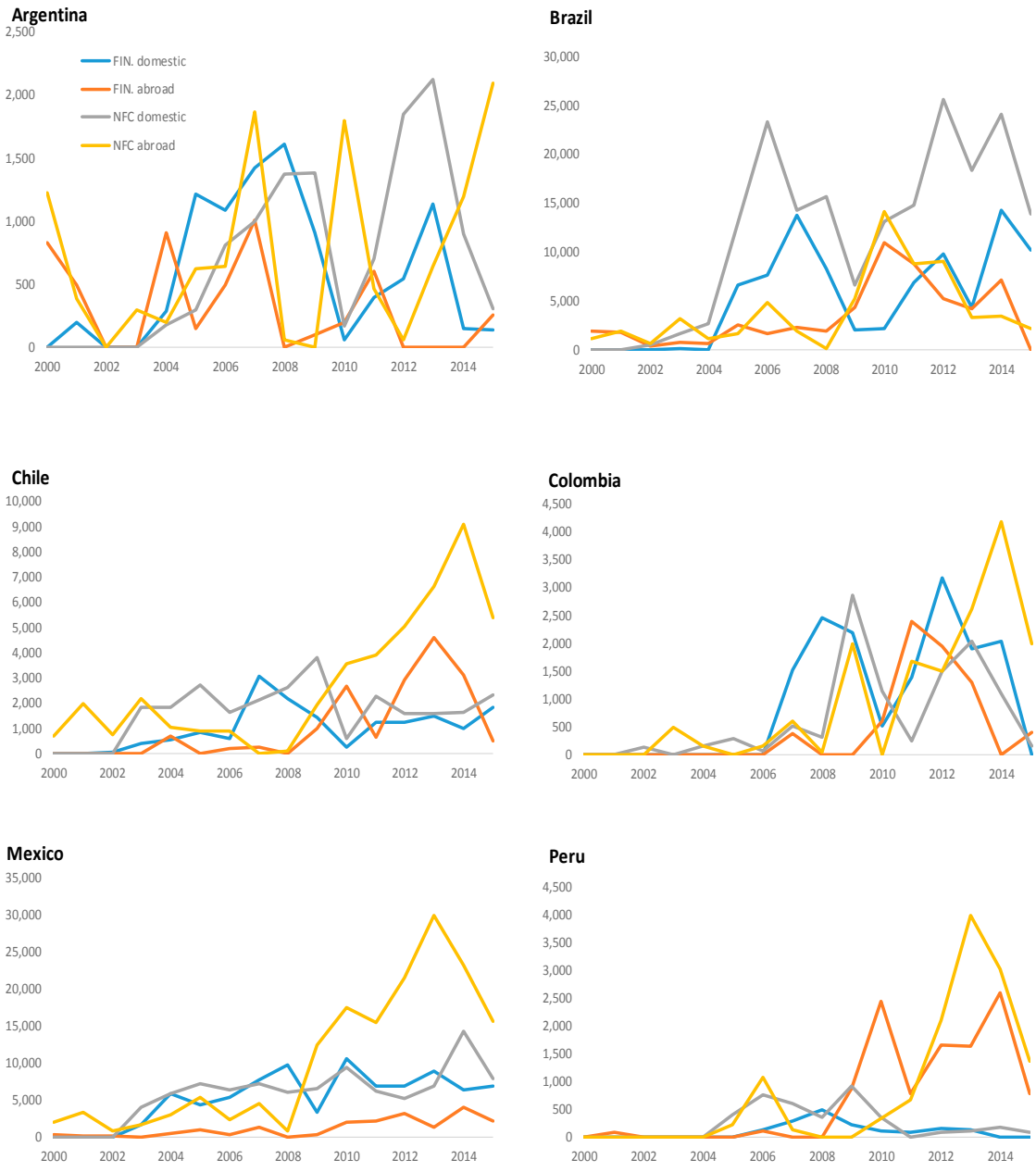


Source: Dealogic.

[8] The National Development Bank of Brazil (BNDES) provided substantial funding to Brazilian companies through loans and equity injections after the global crisis. This is likely to have contributed to lower bond issuance amongst Brazilians firms than it would otherwise have been the case (ibid).

Figure 3. LA-6: Corporate Issuance by Country[1]

(Millions of US dollars)



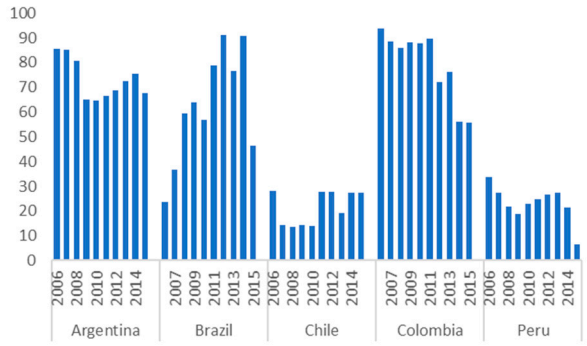
Sources: Dealogic; and IMF staff calculations.

[1] Currencies converted to US dollars at prevailing exchange rate on the day of issuance.

Relative liquidity conditions between local and external markets are also important indictors of market development. The level of market liquidity has many dimensions and cannot be captured by any single measure (IMF (2015)). Figures 4-6 provide some insights into general liquidity conditions in the LA-6 economies. Aside from in Chile (data for Mexico is not available), markets are characterized by low trading volumes. While data limitations hinder a more in-depth analysis of corporate versus sovereign trading conditions, the World Federation of Exchanges data on the value of bonds traded on exchanges point to stronger investor interest in sovereign paper than corporate, except in Brazil and Peru.[9] Low trading

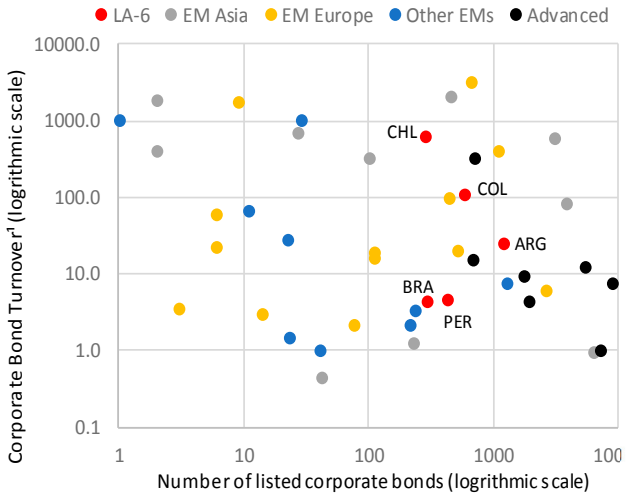
Figure 4. Share of Trading of the 10 Largest Fixed Income Instruments, 2006-15[1]

(Percent)



Source: Ibero-American Federation of Exchanges.
[1] Includes both sovereign and private instruments.

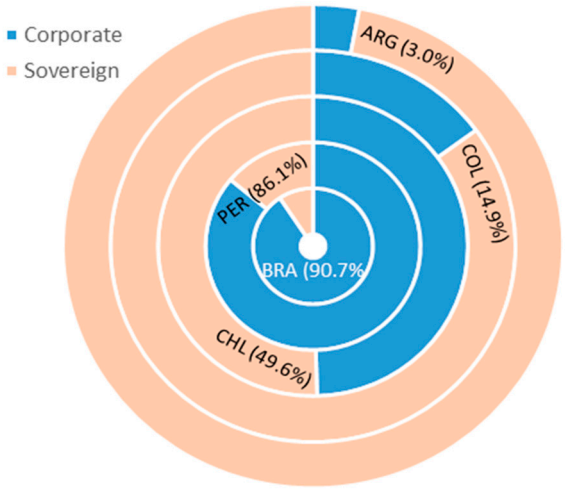
Figure 5. Corporate Bond Market Turnover, 2016



Sources: World Federation of Exchanges, Bolsa de Santiago; and IMF staff calculations.
[1] Ratio of the number of transactions to the number of bonds listed.

Figure 6. Corporate Share of Local Bond Trading, 2016

(percent of value traded)



Source: World Federation of Exchanges.

[9] The value of bonds traded may be affected by different lot sizes or face values of different instruments. The volume (or number) of trades is also helpful in assessing market liquidity for different instruments, however, such data to measure corporate and sovereign trading was not available.

volumes most likely encourage firms to cultivate demand from long-term institutional buyers and/or offer higher interest rates to compensate buyers for holding less liquid assets. These rigidities could push corporates to issue abroad where markets are more liquid.

Characteristics of local bond markets

The largest markets are Chile, Brazil and Mexico. Chile has a well-developed local market that generally meets the needs of local firms as it provides size, tenor (average at 13 years), and the funding tailored to the local needs.[10] The market's buyside, however, is dominated by large pension funds, which only hold top-rated paper, subjecting the lower-rated firms to fund through banks. Brazil's market is the largest (in nominal terms and by the number of issuances), and absorbs most local needs.[11] However, it struggles to support long-term instruments as few tenors exceed 5 years, and, like Chile, its slate of corporate issuers is heavily dominated by investment-grade companies. Mexico boasts many issuers, but the buyside is concentrated. Pension funds and the insurance sector buy the longer dated corporate paper (7 to 10 years), and mutual funds, while mutual funds tend to buy the shorter floating rate notes with tenors of between 3 and 5 years.[12] When buying local paper, pension funds are also limited to issuers rated AA- and above to guard against a forced sell-off if the debtor falls below investment grade.

[10] The local regulator has encouraged the entrance of international investors to the local corporate market by removing the withholding tax for corporate bonds bought by international investors if they access the Chilean markets via what are known as "Huaso" bonds but to date there have been limited transactions.

[11] In 2009, the Brazilian Securities Commission launched regulation 476 which was designed to speed up debt issuance in the local markets. Deals are to be marketed to a select number of investors and sold to a sub-set of them. Also, as opposed to the formal offering regulation (400), there is no need for prior notification or a deal prospectus given to the Stock Market Supervisor – although "400" deals can be marketed and sold to an unlimited number of qualified investors (those with more than R$1 million in liquid assets). Also, with "476" deals, the bank can distribute to an unlimited number of investors through secondary distribution after 90 days. Most bonds remain similar to loan arrangements where banks fully underwrite the deals and therefore should take risk on their books if there is a lack of appetite from investors. (Euromoney, 2015).

[12] Several large Mexican firms have considered issuing a series of transactions rather than just single placement to increase liquidity in peso securities. Also, "grossing-up" the Mexican withholding tax to compensate for the tax that international investors pay when they buy local debt (about 4.9 percent) is seen to improve foreign interest (ibid).

Colombia's local debt market is also dominated by high-grade issuers, which reflects conservative risk management among institutional investors that largely buy and hold. Tenors go up to 20 years, although the average is about 10 years. Peru's local market is small, with most issuance dominated by financial institutions and a few large energy companies. As in other countries, the main players are very large pension funds, which are limited by prudential limits on lower rated firms. However, the largest obstacle preventing market growth is the limited number of corporate issuers and the small issuance amounts. Argentina's market tends to feature shorter term issuances with tenors averaging 15-25 months given the country's persistently high inflation, although volumes are large.[12] Secondary trading is light, not least because investors tend to hold to maturity given short tenors.

In summary, patterns of issuance in local bond markets is not homogeneous in Latin America (Annex Table 1), but there are common features including the outsized role of pension funds and a strong preference for investment grade issuers.

III. Data, Methodology, and Results

Literature review

While the determinants of local market *development* are not explored in this paper, the topic underlies many of our priors and results. Studies by Burger and Warnock (2004), Eichengreen and Luengnaruemitchai (2004), Braun and Briones (2006), and Bae (2012), among others, examine the role of scale, institutional development, and macroeconomic policy in spurring growth of local bond markets across the globe. Chinn and Ito (2006) identify capital market openness, legal, institutional and accounting improvements when explaining the level of financial development.

We focus on the firm's capital structure and motivation theories that could explain the firm's decision regarding the jurisdiction of issuance. A comprehensive overview of those is

[12] Fernández et al (2007) found that the small size of firms in Argentina could help explain why the bond market was a lot less developed, given the minimum size required for bond issues to be an attractive source of financing. The fact that many corporations in Argentina were reluctant to go public, and remain as closely held family businesses, might help explain this pattern of size distributions, as well as other features of capital markets.

found in Black and Munro (2010) and Mizen et al (2012). Studies by Rajan and Zingales (1995), Booth et al (2001), Gozzi et al (2012) find the size and strength of the firm's balance sheet being the determining factors in financing choice decisions (local or external), across both developed and developing countries. Whereas, Myers and Majluf (1984) concluded that before issuing abroad the largest and strongest firms might first tap local savings akin to the pecking order theory.[13] Lower-rated/smaller firms may attempt to go abroad where risk taking is more prevalent and the pool of investors is more diverse (Black and Munro, 2010).[14]

Some firms might also seek external markets for its completeness/depth, which relates to the capacity to absorb larger issuances and innovatively structured or tailored products available in a larger and more diversified investor pool. Firms may also try to maintain market presence to ensure market continued access ((Berger (2002), Faulkender (2005), Siegfried et al (2007)). Based on a sample of Asian economies, Mizen et al (2012) reaffirm that the depth of the markets, their size and liquidity, can affect corporate financing decisions, and highlight the importance of a large non-resident investment base and the exemption from withholding taxes.

Issuance decisions can also be driven by risk management considerations where firms look for natural hedges, in which the exposure to a foreign currency debt service risk is offset by foreign currency revenues. Issuers in less developed markets may tap external markets to realize lower costs and other considerations, such as lengthening the tenor or locking in a rate (timing the market for yield). In more sophisticated and active markets, price arbitrage/static trade off considerations may drive decisions where deviations in cost incentives are actively arbitraged through variations in interest rates in different currencies and proceeds are frequently swapped back into local currency (Black and Munro 2010).

[13] In corporate finance, pecking order theory postulates that the cost of financing increases with asymmetric information. Companies prioritize their sources of financing, first preferring internal financing, and then debt, lastly raising equity as a "last resort".

[14] The cost of issuance has been perceived as one of the impediments for smaller firms to enter the market (Gozzi et al, 2012). The cost includes but is not limited to disclosure costs and accounting changes (when becoming a first-time issuer) and underwriting fees (related to each specific issuance). However, for firms in Brazil, Chile and Mexico, based on survey results, Zervos (2004) concludes that cost is not a factor behind a choice to issue externally.

The agency theory stipulates that while costs of disclosure and issuance fees rise when issuing aboard, this could be mitigated through collateral and the positive effects from greater transparency. Weak local indicators (namely, adverse macroeconomic conditions, inadequacy of local savings, tax regimes, underdeveloped local market infrastructure, information asymmetries, and barriers to non-resident investment) may also encourage firms in less developed local markets to issue externally (Burger and Warnock (2006), Chan et al (2011)).

Though these topics have been well covered in the literature, the strand of research looking together at the firm and market level factors influencing a choice of jurisdiction is not particularly large, with just a few studies examining the larger and more mature Asian markets. We contribute to the studies by examining these factors in the case of the LA-6 firms.

Data

We compile a dataset on issuances in local and global markets by LA-6 firms between 1995 and 2015, collecting both financial statements and issuance characteristics. The choice of variables for this analysis is guided by the findings in the previous literature but largely follows the approach of Mizen et al (2012), and adapted for data availability in our countries of interest. The data were sourced from Bloomberg for 2,163 companies and includes a total of 12,997 separate issuances (Annex Table 2).[15] Compared to the analyses of Asian markets, which include advanced economies, the sample size is relatively small (Black and Mizen used between 35,000-45,000 observations). The pool of companies in the dataset is further restricted by the availability of financial statement information for each of the firm level explanatory variables for at least three years (Table 2). We then segment firms into financial versus non-financial and seasoned versus non-seasoned issuers to look for patterns in the structure and placement.[16]

[15] As in other studies, we do not consider the breakdown between parent and daughter companies or affiliates/subsidiaries, with the presumption that every entity borrows independently (even if not for its own purpose).

[16] Non-seasoned firms are defined as entering the market for the first time.

Empirical methodology

We use a discrete choice (probit model), which is a natural empirical method to evaluate the probability of a firm to issue abroad, once a decision to seek financing has been made.

$$\Pr(EXTB_{ijt} = 1) = \Phi(\alpha_i + X_{ijt}\beta_i + Z_{jt}\gamma + \epsilon_{ijt}).$$

The variable $EXTB_{ijt}$ takes the value 1 if the bond is issued externally, in year t, and zero if issued locally. We also include firm-specific regressors, X_{ijt} for firm size, investment, years present on stock market, liquid assets, collateral, and total debt.[17] These variables have been evaluated with and without a lag to check for robustness and to mitigate potential endogeneity concerns. Finally, the model includes dummies and a time trend to account for debt markets becoming increasingly international over time. In Table 2, we present the regressors and the expected signs of the estimated coefficients.

Table 2: Variables and Expected Outcomes

Variable	Definition	Expected outcome/expected sign (for increasing the probability of external issuance)
Firm Level Indicators		
SIZE	Logarithm of the firm's total assets	Larger firms (+)
INV	Investment over total assets	Growing firms (+)
AGE	Years listed on the stock exchange	Older firms (+)
LIQ	Current assets over total liabilities	Highly liquid firms (+)
COL	Tangible assets over total assets	Highly collateralized firms (+)
Rating	Dummy	Rated firms (+)
Market Level Indicators		
TDSEC	Total bonds to GDP	Small total market (-)
ONSRT	Local issuance over total issuance	Small local market (-)
INTD	Difference between short-term local and external rates (3-12-month maturity, in percentage points)	Higher local rates (-)
EXGD	External Government debt over GDP	Lower public external presence (+)
CEMBI	Emerging Market Corporate Bond Index (spread)	Lower external spread (-)
FDI	Foreign direct investment over GDP	Lower FDI (-)
FC	Global financial crisis dummy (2008-09)	High liquidity abroad (-)

[17] *ijt* and *jt* indicate firm and market level indicators, respectively. α_i represents the constant, X_{ijt} represents firm level coefficients, and Z_{jt} represents the coefficients for market level indicators.

Data overview

In this section, we discuss summary statistics, including means and standard deviations for the individual factors in the choice of financing with respect to the jurisdiction. These are reported for all sample firms, then broken down into financial and non-financial, those that issue locally or externally, and for each country. Annex Table 3 shows that issuers in local markets are smaller and have lower capital expenditure needs, which suggests that their financing needs could be met in local markets. The results are similar to Mizen et al (2012) findings for the Asian economies.

At the same time, local firms are more leveraged (which maybe either a sign of vulnerability or a good rating since they could accumulate debt), less liquid (which could mean that they need funding) and possess more collateral (which could help improve borrowing terms). The fact that larger firms issue in external markets could be an indication of the lack of local market's depth. Financial firms are smaller in size, and have much lower investment to total assets ratio, which is also in line with findings by Mizen et al (2012). Also, their assets are more liquid, which could be associated with the region's substantial dependency on deposit funding or high levels of dollarization. Financial firms also maintain larger collateral. Seasoned firms are less leveraged than the non-seasoned ones, but non-seasoned entities are slightly larger in size.[18] The rating dummy indicates that a large share of our estimation sample is composed of entities that have received a rating by at least one main rating agency.[19]

Annex Table 4 shows differences by country at the firm level. Issuance in local and external markets depict quite sizable variations by country. Unsurprisingly, Brazil has a big impact on the aggregate averages for most indicators. Brazil's weight in the estimation sample increases after applying the selection criteria. Companies in Brazil, Colombia and Mexico are most indebted, but are also the most profitable and liquid. Aside from Argentine and Peruvian firms, the sizes of total assets are comparable, though investment ratios vary widely across

[18] The difference in the firms' characteristics by issuance type (local or external) is small but statistically significant.

[19] Rating agencies include Standard & Poor's, Fitch, or Moody's.

countries. The ratio of rating is similar among countries apart from Chile, perhaps highlighting the depth of the local market.

Annex Table 5 shows the market level indicators. The averages display significant variation between each of the LA-6, with Brazil's, Chile's and Mexico's markets having the biggest impact on regional averages. These have the deepest markets (TDSEC), while Peru's market is small. Mexican and Brazilian firms dominate large issuances abroad (FCY) and in local markets (LCY) where the size of issuances are larger than their external placements, also indicated by size of the local market (ONSRT). Foreign Direct Investment (FDI) is similar across countries, with Chile having a higher level than average, indicating favorable domestic conditions for foreign investment.

Empirical results

As discussed, we aim to identify the factors behind the decision to issue in foreign jurisdictions. The decision is partly determined by firm characteristics (size, years on the market, etc.) and partly dependent on the level of development of the market (depth, liquidity, etc.). Our dependent variable is EXTB, which takes a value of 1 if the bond is issued externally.[20]

Firm level indicators

At the firm level, the results show that SIZE is statistically significant in all specifications (Table 3). This suggests that smaller firms are more inclined to issue in domestic markets where the investor base is more familiar with the issuer. Furthermore, international underwriters may be empowered to exercise a strong preference for large deals and thus de-prioritize issuance by smaller firms. Transaction costs of issuing externally could be higher and larger firms might have more capacity to absorb these costs. The statistical significance of size could be an indicator that the funding needs of larger firms exceed the available liquidity in local markets. While

[20] Running the model with lags for the firm level indicators produced broadly similar results, except for INV (more significant with the expected sign), and ONSRT (not significant with an opposite sign), which could mean that local markets may not have been a determining factor as there were rapidly developing but were not well established yet.

highly liquid (LIQ) firms may need less borrowing, they tend to issue externally (statistical significance in all specifications), perhaps owing to a need to maintain access to more liquid markets. At the same time, and contrary to expectations, firms with higher collateral (COL) seem to issue less offshore, as they most likely get better terms domestically as foreign lenders may be leery of the recovery values of assets residing abroad in countries with weak legal frameworks for creditor rights (statistical significance in all three specifications). Finally, the years of presence in the market (AGE) seem to have little impact, as the coefficient is small and not statistically significant in any of the specifications. More important seems to be the validation associated with having been rated by a major agency, as this variable (RATING) shows high statistical significance in all specifications. This suggest that even, "young" firms could enter the external markets if they are rated.

Table 3. Choice of Market: Firm Level Data, with Time Trend

	1	2	3
SIZE*ijt*	0.249***	0.237***	0.238***
	(28.18)	(26.01)	(26.11)
LEVER*ijt*	0.077	0.019	0.004
	(0.98)	(0.23)	(0.05)
AGE*ijt*	0.002	0.002	0.001
	(0.86)	(0.65)	(0.46)
LIQ*ijt*	0.257***	0.214***	0.218***
	(9.89)	(7.85)	(7.99)
COL*ijt*	-0.559***	-0.528***	-0.531***
	(-7.70)	(-7.14)	(-7.17)
RATING*ijt*	0.151***	0.239***	0.235***
	(4.98)	(7.59)	(7.46)
FC_Dummy	-0.009	0.008	0.005
	(-1.24)	(0.79)	(0.49)
EXGD*jt*	0.018***	0.012***	0.015***
	(11.05)	(5.89)	(7.05)
CEMBI*jt*	-0.002***	-0.001	-0.001
	(-4.36)	(-1.67)	(-1.84)
TDSEC*jt*	-0.010***	-0.009***	-0.005***
	(-19.33)	(-10.00)	(-4.66)
ONSRT*jt*		-0.174	-0.436***
		(-1.58)	(-3.47)
INTD*jt*		-0.007	-0.012*
		(-1.46)	(-2.56)
FDI*jt*			-0.055***
			(-4.28)
_c	-0.981***	-1.090***	-0.936***
	(-8.04)	(-8.15)	(-6.75)
Pseudo R-sqr	0.123	0.122	0.123
BIC	15447.8	14687.9	14679
Z-Statistic in parenthesis			
	* p<0.05,	** p<0.01,	*** p<0.001

Market level indicators

With respect to *market characteristics*, both, the relative size of a local market (ONSRT), and the overall size of the market (TDSEC) influence (negative coefficient) the jurisdiction choice, indicating support for the pecking order theory as firms will access a market if there is sufficient scale and depth. An incentive to issue abroad is also reflected in the interest rate differential (INTD), and consistent with expectations, it plays some role in the decision on issuing externally in both specifications (lower local rates reduce the probability of going abroad). Similarly, higher CEMBI spread makes external financing less attractive (although the effect is small),

while a larger presence of sovereign external debt (EXGD) increases the probability of financing externally. Finally, higher net FDI inflows may be associated with supportive domestic conditions reducing the need of borrowing abroad. In sum, the results of the market indicators are consistent with the market depth theory.

Sectoral characteristics

When controlling for firm-*specific* characteristics, we find that factors affecting the choice of the jurisdiction vary depending on the firms' business segment (financial or non-financial) and the presence on the market (seasoned or un-seasoned). In Annex Table 6, which shows the detailed breakdown for the choice of a market, non-financial entities display more significant variables primarily due to the small sample size of financials. The absolute size of the market (TDSEC) has a positive influence on the jurisdiction choice suggesting that the overall market depth is more important for all non-financial firms, seasoned and non-seasoned (most significance), while seasoned financial firms may be indifferent given several funding options at their disposal, including through deposits. The result for the relative size of the local market (ONSRT) for both groups of non-financial entities in the sample is similar to the model with a lag and interacted with firm level variables, while financial firms' result may be once again explained by specificities of their funding structures. Interest rate differential (INTD) is most significant for non-financial seasoned firms. While CEMBI and external government debt have significant impacts, they either have very small coefficients or conflicting signs between specifications. Finally, non-seasoned, non-financial firms may be more likely to issue locally when there are strong FDI inflows.

In Annex Table 7, we provide full results, including both firm and market level indicators with seasoned dummy interactions, for all observations and non-financial firms. The financial corporations are not represented due to observation limitations in the sample. Most of the indicators behave as expected and consistent with previously reported model specifications, but we can clearly see the difference between seasoned and non-seasoned firms in both firm and market level variables.

We provide detailed results on goodness-of-fit tests, both intercept and full model, for all the specifications used in this exercise in Annex Table 8.

IV. Conclusions and Policy Considerations

The volume and the relative size of corporate bond issuances in both external and local markets increased significantly in the LA-6 over the past two decades. This was facilitated by greater macroeconomic stability and regulatory reforms. However, local markets remain relatively small compared to peers, not very liquid and dominated by government paper.

With the greater availability of funding in both foreign and domestic markets, we searched for evidence in support of several capital structure theories by examining the firm-level and market factors influencing the firm's choice where to issue. Our results support the market completeness theory, where the choice of the jurisdiction depends on the markets' scale and depth and their ability to accommodate the borrower's needs. The size of the overall market was a significant factor in selecting the jurisdiction of issuance. At the firm level, size and liquidity were indicators of higher probability of external issuance, most likely driven by large financial and liquidity needs not being accommodated by the local market. This supports firm structure/scale and agency cost theories. The importance of interest rate differential supports the static trade off theory.

The analysis confirms that local bonds markets in several countries studied here will need to continue growing and developing to attract more issuers and provide a wider array of investment opportunities. However, this could be construed as a chicken and egg dilemma, as firms look for larger markets for funding, but markets will not become larger unless more firms enter. This is where the recommendations from other studies on the prerequisites for local market development become relevant.

Strong macroeconomic policies play an important role in spurring growth of local bond markets (Berger and Warnock, 2006). For example, in our country sample, recent macroeconomic imbalances resulting in high inflationary environments, like in Argentina, led to bond maturities of a very short nature, which are not attractive for long-term investors.

Consistent with crowding out theory, a high level of government debt, as in Brazil, may have reduced the share of corporate bonds in the total stock.

Governments should continue to support local markets by establishing highly traded benchmark instruments against which private bond spreads can be valued. Domestic bond spreads provide traders and policy makers with market perceptions of credit risk, which can inform and improve the conduct of monetary policy. Also, the expansion of hedging instruments would help reduce currency risks and external funding dependence (Saxena and Villar, 2008). These are more available and diversified in the countries with larger capital markets (Mexico and Brazil) but are still scarce in countries like Peru. Ensuring continued participation of the country in emerging-market benchmarks and global portfolios is also an important factor for attracting global interest to the country.

Regulatory restrictions and reforms have also been found important in hindering or promoting local bond financing (Borensztein et al, 2008).[21] For example, while Peru has achieved and maintained impressive macroeconomic stability, its local markets remain small, not least due to regulatory hurdles and institutional weaknesses. Overall, to foster greater issuer participation and investor confidence, it is necessary to further strengthen the corporate governance frameworks, streamline issuance processes and procedures, not least by reducing cumbersome registration requirements (IMF (2005)). Improving data collection and dissemination, and enhancing competitiveness of the market infrastructure (safer, more efficient payment and settlement systems) will also help achieve greater market efficiency and transparency (IOSCO, 2007).

Finally, as both firm and market size continue to be important obstacles to the development of local markets, consideration should be given to policies that widen the attractiveness of pooling vehicles that generate subsequent trades like mutual funds, money

[21] While we did not test for the effect of the withholding tax on the decision of foreigners entering the local market and providing greater funding (as all countries have this tax, albeit with various provisions, exemptions and rate structure (The International Bureau of Fiscal Documentation' s Tax Research Platform (IBFD.org)), not surprisingly, this was a negative factor for the development of the local markets in the study of the Asian economies.

market accounts and index funds. (Borensztein et al, 2008). There is also room to consider greater cross-border integration to address the problem of small market size and liquidity, perhaps through the Integrated Latin America Market (MILA) initiative that aims to foster equity and bond market integration among Chile, Colombia, Mexico and Peru. Expanding pension and mutual funds not only creates demand for fixed income securities but also contributes to the increase in financial innovation, improved corporate governance, and enhances competition in the bond market (Silva, 2008).[22]

Building on the latter point, further research could consider the demand side factors, like the capacity of the domestic institutional investors to absorb the additional domestic bond issuance, although, as mentioned, the issue lies in part in the regulation and limits on investments guided by firms' ratings, but also in the expansion employee participation in pension schemes. Another angle could be looking in more detail into the pecking order theory to gauge what types of firms first issue domestically or abroad (e.g. better rated firms, more liquid firms). Similarly, it could be explored how reliance/availability of bank financing factors into the decision on the firms' financing choice.[23]

[22] IMF (2017) recommends a small exemption to the limits on foreign asset holdings by pension funds, specifically that up to 5 percent of assets under management can be regional instruments and would not count towards statutory foreign asset limits. Regulators could agree on a bilateral or multilateral basis as to which countries would qualify for the exemption. Prudential regulations applicable to domestic assets such as credit quality criteria should also apply to regional assets held under the 5 percent exemption.

[23] We thank our colleagues Anastasia Gusina, Peter Linder and Divya Kirti (all IMF) for these suggestions.

Annex Table 1. Summary of LA-6 Corporate Bond Issuance by Country

		2003-05		2013-15	
		Local	External	Local	External
Argentina					
Investment	Number of issuances	71	--	161	1
Grade	Total amount issued (mil USD)	729	--	4,789	375
	Average amount issued (mil USD)	10.3	--	29.7	375.0
	Average term[1] (months)	52.8	--	35.9	120.0
	Average yield to maturity at issuance[1] (percent)	5.7	--	10.9	6.5
Other	Number of issuances	3	13	2	10
	Total amount issued (mil USD)	68	1,950	21	4,208
	Average amount issued (mil USD)	22.5	150.0	10.5	420.8
	Average term[1] (months)	27.2	105.7	13.6	100.7
	Average yield to maturity at issuance[1] (percent)	--	--	--	--
Brazil					
Investment	Number of issuances	12	34	586	65
Grade	Total amount issued (mil USD)	899	4,948	55,824	54,763
	Average amount issued (mil USD)	75.0	145.5	95.3	842.5
	Average term[1] (months)	52.0	100.7	70.5	102.7
	Average yield to maturity at issuance[1] (percent)	--	7.1	19.0	5.0
Other	Number of issuances	108	85	7	21
	Total amount issued (mil USD)	17,491	14,060	708	6,456
	Average amount issued (mil USD)	162.0	165.4	101.2	307.4
	Average term[1] (months)	117.4	91.0	73.0	92.4
	Average yield to maturity at issuance[1] (percent)	10.1	8.7	7.5	8.2
Chile					
Investment	Number of issuances	178	3	99	70
Grade	Total amount issued (mil USD)	7,495	950	9,799	27,289
	Average amount issued (mil USD)	42.1	316.7	99.0	389.8
	Average term[1] (months)	200.0	120.0	178.9	139.3
	Average yield to maturity at issuance[1] (percent)	5.4	5.0	3.7	4.2
Other	Number of issuances	8	3	--	7
	Total amount issued (mil USD)	645	850	--	3,600
	Average amount issued (mil USD)	80.6	283.3	--	514.3
	Average term[1] (months)	135.3	116.6	--	101.0
	Average yield to maturity at issuance[1] (percent)	4.8	7.6	--	7.3
Colombia					
Investment	Number of issuances	--	--	98	14
Grade	Total amount issued (mil USD)	--	--	7,231	10,242
	Average amount issued (mil USD)	--	--	73.8	731.5
	Average term[1] (months)	--	--	114.2	184.3
	Average yield to maturity at issuance[1] (percent)	--	--	4.9	5.5
Other	Number of issuances	4	--	--	8
	Total amount issued (mil USD)	450	--	--	4,700
	Average amount issued (mil USD)	112.6	--	--	587.5
	Average term[1] (months)	104.6	--	--	91.5
	Average yield to maturity at issuance[1] (percent)	--	--	--	6.0
Mexico					
Investment	Number of issuances	169	21	213	93
Grade	Total amount issued (mil USD)	26,852	14,446	45,188	62,887
	Average amount issued (mil USD)	158.9	687.9	212.2	676.2
	Average term[1] (months)	81.4	139.6	104.3	203.7
	Average yield to maturity at issuance[1] (percent)	7.2	6.3	6.3	4.8
Other	Number of issuances	21	5	1	37
	Total amount issued (mil USD)	766	920	44	14,803
	Average amount issued (mil USD)	36.5	184.0	44.1	400.1
	Average term[1] (months)	51.2	112.3	24.0	91.7
	Average yield to maturity at issuance[1] (percent)	8.8	10.2	--	6.9
Peru					
Investment	Number of issuances	3	2	18	23
Grade	Total amount issued (mil USD)	150	280	416	8,275
	Average amount issued (mil USD)	50.0	140.0	23.1	359.8
	Average term[1] (months)	140.0	76.6	125.9	172.1
	Average yield to maturity at issuance[1] (percent)	7.2	--	6.5	5.2
Other	Number of issuances	9	1	2	16
	Total amount issued (mil USD)	217	225	108	3,490
	Average amount issued (mil USD)	24.1	225.0	54.0	218.1
	Average term[1] (months)	54.6	126.0	232.0	92.3
	Average yield to maturity at issuance[1] (percent)	6.0	8.0	8.1	8.0

Sources: Dealogic; and IMF staff calculations.

[1] Average weighted by amount issued.

Annex Table 2: Corporate Bond Issuance in Estimation Sample

	Pre-estimation (1)			Post-estimation (2)			
	No. of issues	No. of external bonds	External bonds as % of total		No. of issues	No. of external bonds	External bonds as % of total
All				**All**			
1995-2005	4580	1571	34.30	1995-2005	1940	1005	51.80
2006-2015	903	269	29.79	2006-2015	223	84	37.67
Peru				**Peru**			
1995-2005	433	98	22.63	1995-2005	125	63	50.40
2006-2015	174	54	31.03	2006-2015	38	28	73.68
Mexico				**Mexico**			
1995-2005	919	499	54.30	1995-2005	523	352	67.30
2006-2015	137	57	41.61	2006-2015	35	20	57.14
Chile				**Chile**			
1995-2005	544	166	30.51	1995-2005	214	90	42.06
2006-2015	74	9	12.16	2006-2015	22	0	0.00
Argentina				**Argentina**			
1995-2005	514	174	33.85	1995-2005	120	54	45.00
2006-2015	55	19	34.55	2006-2015	20	7	35.00
Colombia				**Colombia**			
1995-2005	377	95	25.20	1995-2005	46	23	50.00
2006-2015	114	33	28.95	2006-2015	17	1	5.88
Brazil				**Brazil**			
1995-2005	1793	539	30.06	1995-2005	912	423	46.38
2006-2015	349	97	27.79	2006-2015	91	28	30.77

Annex Table 3. Summary Statistics for Firm-Specific Variables

	All	Local	External	Diff.	Financial	Non-Financial	Diff.	Seasoned	Non-Seasoned	Diff.
SIZE*ijt*	8.591	7.946	9.042	0.000	8.164	8.597	0.002	8.117	8.828	0.000
	(1.88)	(1.97)	(1.68)		(1.68)	(1.89)		(1.39)	(2.05)	
INV*ijt*	0.456	0.444	0.465	0.000	0.245	0.460	0.000	0.472	0.449	0.000
	(0.21)	(0.23)	(0.20)		(0.27)	(0.21)		(0.24)	(0.20)	
AGE*ijt*	19.973	18.833	20.771	0.000	16.681	20.021	0.000	19.297	20.312	0.000
	(5.92)	(6.08)	(5.66)		(6.13)	(5.90)		(6.23)	(5.72)	
LEVER*ijt*	0.312	0.320	0.306	0.000	0.400	0.310	0.000	0.285	0.325	0.000
	(0.17)	(0.17)	(0.17)		(0.21)	(0.17)		(0.16)	(0.18)	
LIQ*ijt*	0.649	0.642	0.654	0.175	1.227	0.641	0.000	0.658	0.645	0.176
	(0.53)	(0.54)	(0.52)		(1.43)	(0.50)		(0.56)	(0.51)	
COL*ijt*	0.882	0.890	0.876	0.000	0.909	0.882	0.031	0.871	0.888	0.000
	(0.17)	(0.16)	(0.18)		(0.18)	(0.17)		(0.20)	(0.16)	
RATING*ijt*	0.640	0.517	0.725	0.000	0.670	0.639	0.380	0.520	0.700	0.000
	(0.48)	(0.50)	(0.45)		(0.47)	(0.48)		(0.50)	(0.46)	
N	12997	5349	7648		188	12809		4337	8660	

Notes: The table reports sample means with standard deviations in parenthesis. SIZE*ijt* : Logarithm of total assets. INV*ijt* : Investments over total assets. AGE*ijt* : Numbers of years listed on the stock exchange. LEVER*ijt* : Total debt to total assets. LIQ*ijt* : Current assets over total liabilities. COL*ijt* : Tangible assets to total assets. RATING*ijt* : Rating provided by at least one rating agency. Equality of mean p-value is reported under Diff. with Ho: diff = 0 and Ha: diff != 0.

Annex Table 4. Summary Statistics for Firm-Specific Variables, Country Level

	All	Peru	Mexico	Chile	Argentina	Colombia	Brazil
SIZE*ijt*	8.591	7.519	8.225	7.976	7.115	8.482	9.106
	(1.88)	(1.10)	(1.53)	(1.43)	(1.39)	(0.98)	(2.07)
INV*ijt*	0.456	0.563	0.408	0.531	0.552	0.516	0.446
	(0.21)	(0.19)	(0.20)	(0.18)	(0.17)	(0.19)	(0.22)
AGE*ijt*	19.973	16.697	20.008	22.233	17.291	17.506	20.095
	(5.92)	(4.95)	(5.40)	(6.14)	(5.55)	(4.91)	(6.03)
LEVER*ijt*	0.312	0.252	0.330	0.258	0.292	0.359	0.318
	(0.17)	(0.11)	(0.19)	(0.15)	(0.12)	(0.32)	(0.16)
LIQ*ijt*	0.649	0.692	0.651	0.979	0.574	0.403	0.595
	(0.53)	(0.34)	(0.56)	(0.72)	(0.38)	(0.19)	(0.47)
COL*ijt*	0.882	0.924	0.832	0.933	0.926	0.910	0.889
	(0.17)	(0.14)	(0.22)	(0.11)	(0.14)	(0.13)	(0.16)
RATING*ijt*	0.640	0.737	0.742	0.248	0.454	0.697	0.669
	(0.48)	(0.44)	(0.44)	(0.43)	(0.50)	(0.46)	(0.47)
N	12997	601	3433	1406	443	389	6725

Notes: The table reports sample means with standard deviations in parenthesis. SIZE*ijt* : Logarithm of total assets. INV*ijt* : Investments over total assets. AGE*ijt* : Numbers of years listed on the stock exchange. LEVER*ijt* : Total debt to total assets. LIQ*ijt* : Current assets over total liabilities. COL*ijt* : Tangible assets to total assets. RATING*ijt* : Rating provided by at least one rating agency. Equality of mean p-value is reported under Diff. with Ho: diff = o and Ha: diff != 0.

Annex Table 5. Market Summary Statistics

	All	Peru	Mexico	Chile	Argentina	Colombia	Brazil
FCY*jt*	20.925	4.909	44.993	15.820	10.876	4.930	44.020
	(27.48)	(7.94)	(41.35)	(14.38)	(3.55)	(6.71)	(29.05)
LCY*jt* 1/	106.463	10.024	157.260	86.256	12.999	1.178	421.507
	(188.96)	(3.41)	(51.82)	(15.30)	(6.99)	(0.70)	(273.01)
TDSEC*jt*	0.699	0.296	0.518	0.648	0.128	0.343	0.891
	(0.24)	(0.04)	(0.12)	(0.08)	(0.02)	(0.02)	(0.08)
ONSRT*jt*	0.826	0.503	0.783	0.757	0.277	0.713	0.930
	(0.16)	(0.12)	(0.03)	(0.06)	(0.06)	(0.05)	(0.02)
INTD*jt*	6.851	3.484	3.706	1.274	12.279	4.167	9.998
	(4.04)	(2.01)	(1.22)	(1.48)	(0.54)	(0.75)	(2.41)
CEMBI*jt*	236.402	186.098	203.501	213.235	374.173	159.256	257.286
	(60.95)	(37.79)	(40.98)	(44.31)	(44.82)	(21.63)	(51.93)
EXGD*jt*	28.08	31.49	26.93	48.30	27.91	26.32	24.25
	(10.00)	(8.36)	(6.33)	(10.10)	(3.90)	(5.97)	(6.34)
FDI*jt*	3.63	4.68	2.55	7.98	1.80	3.89	3.28
	(1.83)	(1.05)	(0.61)	(1.50)	(0.63)	(0.79)	(0.79)
N	12997	601	3433	1406	443	389	6725

1/: Local firm's liabilities are calculated using only non-financial firm data for Colombia and calculated using only financial firm data for Argentina.

Notes: The table reports sample means with standard deviations in parenthesis. FCY*jt* : Firm's external liabilities in millions of USD. LCY*jt* : Firm's local liabilities in millions of USD. TDSEC*jt* : Total bonds to GDP. ONSRT*jt* : Local bonds to total bonds. INTD*jt* : Short-interest differential between local and US nominal rates. CEMBI*jt* : Corporate EMBI sovereign spread. EXGD*jt* : External government debt. FDI*jt* : Foreign direct investment as percentage of GDP.

Annex Table 6. Detailed Breakdown of Choice of Market, with Time Trend

	4	5	6	7
	fin	fin	non-fin	non-fin
TDSEC*jt* *SEAS	0.000	0.000	-0.240	-0.436*
	(.)	(.)	(-1.29)	(-2.32)
TDSEC*jt* *(1-SEAS)	-4.481	-4.480	-1.023***	-1.139***
	(-1.70)	(-1.69)	(-7.62)	(-8.42)
ONSRT*jt* *SEAS	0.000	0.000	0.525*	0.752***
	(.)	(.)	(2.53)	(3.53)
ONSRT*jt* *(1-SEAS)	11.920	11.909	0.610**	0.946***
	(1.03)	(1.00)	(3.26)	(5.00)
INTD*jt* *SEAS	0.000	0.000	-0.056***	-0.055***
	(.)	(.)	(-5.73)	(-5.70)
INTD*jt* *(1-SEAS)	-0.166	-0.166	0.022***	0.010
	(-0.96)	(-0.92)	(4.20)	(1.91)
CEMBI*jt* *SEAS	0.000	0.000	-0.003***	-0.002**
	(.)	(.)	(-4.14)	(-2.71)
CEMBI*jt* *(1-SEAS)	(0.02)	(0.02)	-0.002***	(0.00)
	(-1.40)	(-1.28)	(-4.23)	(-1.48)
EXGD*jt* *SEAS	0.000	0.000	-0.006*	0.000
	(.)	(.)	(-2.12)	(-0.09)
EXGD*jt* *(1-SEAS)	-0.066	-0.066	-0.005*	0.012***
	(-1.11)	(-0.94)	(-2.49)	(4.68)
FC_Dummy	(-0.68)	(-0.68)	-0.830	-0.550
		0.00		(0.01)
FDI*jt* *SEAS		0.000		-0.014
		(.)		(-0.92)
FDI*jt* *(1-SEAS)		(0.00)		-0.162***
		(-0.00)		(-12.76)
_c	-12.644	-12.628	0.412**	0.391*
	(-1.14)	(-1.09)	(2.67)	(2.53)
Pseudo R-sqr	0.167	0.167	0.028	0.039
BIC	221.6	226.6	15954	15806.7
Z-Statistic in parenthesis				
	* p<0.05,	** p<0.01,	*** p<0.001	

Annex Table 7. Choice of Market: Full Results, with Seasoned Component

	8	9	10	11
	all	all	non-fin	non-fin
SIZE*ijt* *SEAS	0.328***	0.337***	0.330***	0.340***
	(17.92)	(18.34)	(17.99)	(18.42)
SIZE*ijt* *(1-SEAS)	0.182***	0.192***	0.182***	0.194***
	(16.79)	(17.43)	(16.51)	(17.33)
LEVER*ijt* *SEAS	0.01	0.056	0.014	0.062
	(0.06)	(0.34)	(0.09)	(0.38)
LEVER*ijt* *(1-SEAS)	-0.1	-0.226*	-0.053	-0.157
	(-1.04)	(-2.31)	(-0.53)	(-1.55)
AGE*ijt* *SEAS	0.016***	0.015***	0.014***	0.013**
	(3.86)	(3.72)	(3.35)	(3.19)
AGE*ijt* *(1-SEAS)	-0.008**	-0.015***	-0.009**	-0.016***
	(-2.63)	(-4.73)	(-2.73)	(-4.91)
LIQ*ijt* *SEAS	0.399***	0.406***	0.394***	0.401***
	(7.00)	(7.12)	(6.89)	(7.00)
LIQ*ijt* *(1-SEAS)	0.093**	0.087**	0.106**	0.115**
	(2.99)	(2.75)	(2.98)	(3.24)
COL*ijt* *SEAS	-0.611***	-0.576***	-0.581***	-0.543***
	(-5.75)	(-5.41)	(-5.46)	(-5.09)
COL*ijt* *(1-SEAS)	-0.652***	-0.557***	-0.665***	-0.571***
	(-6.72)	(-5.65)	(-6.72)	(-5.68)
RATING*ijt* *SEAS	0.135**	0.119*	0.124*	0.109*
	(2.69)	(2.35)	(2.46)	(2.13)
RATING*ijt* *(1-SEAS)	0.457***	0.465***	0.474***	0.482***
	(10.86)	(10.92)	(11.21)	(11.25)
TDSEC*jt* *SEAS	0.518*	0.32	0.520*	0.316
	(2.52)	(1.55)	(2.53)	(1.52)
TDSEC*jt* *(1-SEAS)	-1.462***	-1.637***	-1.484***	-1.656***
	(-10.27)	(-11.39)	(-10.30)	(-11.39)
ONSRT*jt* *SEAS	-1.343***	-1.120***	-1.369***	-1.128***
	(-5.02)	(-4.14)	(-5.08)	(-4.14)
ONSRT*jt* *(1-SEAS)	0.817***	1.289***	0.836***	1.306***
	(3.92)	(6.08)	(3.98)	(6.11)
INTD*jt* *SEAS	-0.038***	-0.038***	-0.039***	-0.039***
	(-3.72)	(-3.74)	(-3.79)	(-3.81)
INTD*jt* *(1-SEAS)	0.016**	0.004	0.016**	0.003
	(2.94)	(0.69)	(2.90)	(0.51)
CEMBI*jt* *SEAS	-0.005***	-0.004***	-0.005***	-0.004***
	(-6.56)	(-5.24)	(-6.44)	(-5.12)
CEMBI*jt* *(1-SEAS)	-0.002***	-0.001	-0.002***	-0.001
	(-3.92)	(-1.19)	(-3.88)	(-1.16)
EXGD*jt* *SEAS	-0.011***	-0.004	-0.010***	-0.004
	(-3.63)	(-1.03)	(-3.44)	(-0.90)
EXGD*jt* *(1-SEAS)	0.002	0.022***	0.002	0.022***
	(0.98)	(7.80)	(0.93)	(7.90)
FC_Dummy	0	-0.01	0.012	0.000
	(-0.01)	(-0.25)	(0.30)	0.00
FDI*jt* *SEAS		-0.025		-0.025
		(-1.52)		(-1.48)
FDI*jt* *(1-SEAS)		-0.177***		-0.182***
		(-13.21)		(-13.46)
_c	-0.954***	-1.058***	-0.963***	-1.087***
	(-5.10)	(-5.62)	(-5.10)	(-5.72)
Pseudo R-sqr	0.1284	0.1393	0.1292	0.1407
BIC	14678.5	14517.9	14422.6	14255.0
Z-Statistic in parenthesis				
	* p<0.05,	** p<0.01,	*** p<0.001	

Annex Table 8: Post-Estimation Measures of Fit

Intercept Only	Table7			Table 8				Table 9			
Model:	1	2	3	4	5	6	7	8	9	10	11
Log-Lik Intercept Only:	-8738.23	`-8285.763	-8285.76	-108.67	-108.67	-8146.68	-8146.68	-8285.76	-8285.76	-8146.68	-8146.68
McFadden's R2:	0.123	0.122	0.123	0.167	0.167	0.028	0.039	0.128	0.139	0.129	0.141
Maximum Likelihood R2:	0.153	0.153	0.154	0.206	0.206	0.038	0.051	0.160	0.173	0.161	0.174
McKelvey and Zavoina's R2:	0.235	0.234	0.236	0.463	0.463	0.060	0.080	0.245	0.264	0.246	0.266
Variance of y*:	1.307	1.305	1.309	1.864	1.863	1.064	1.088	1.325	1.359	1.327	1.363
Count R2:	0.698	0.696	0.698	0.675	0.675	0.606	0.608	0.692	0.699	0.693	0.700
AIC:	1.21	1.20	1.20	1.32	1.35	1.32	1.31	1.19	1.18	1.19	1.17
BIC:	-106441.14	-99896.10	-99905.01	-546.97	-536.86	-96674.78	-96822.15	-99905.48	-100066.05	-98206.22	-98373.81

Full Model	Table7			Table 8				Table 9			
Model:	1	2	3	4	5	6	7	8	9	10	11
Log-Lik Full Model:	-7667.14	-7278.08	-7268.92	-90.56	-90.56	-7915.97	-7832.89	-7221.65	-7131.96	-7093.89	-7000.70
McFadden's Adj R2:	0.121	0.120	0.121	0.047	0.029	0.027	0.037	0.125	0.136	0.126	0.137
Cragg & Uhler's R2:	0.206	0.205	0.207	0.275	0.275	0.051	0.069	0.216	0.232	0.217	0.234
Efron's R2:	0.162	0.160	0.162	0.188	0.188	0.038	0.051	0.167	0.180	0.168	0.182
Variance of error:	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Adj Count R2:	0.272	0.277	0.280	0.320	0.320	0.055	0.059	0.267	0.284	0.264	0.281
AIC*n:	15358.29	14584.16	14567.84	207.13	211.13	15857.93	15695.77	14493.30	14317.92	14237.78	14055.41
BIC':	-2038.08	-1893.07	-1901.98	-0.82	4.24	-348.72	-496.09	-1902.44	-2063.01	-1880.16	-2047.75

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