GLOBAL LIQUIDITY AND CORPORATE FINANCING IN MEXICO

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This draft: May 7 2015

Abstract. In the aftermath of the 2008 crisis, corporations in emerging market economies increased their issuance of debt securities in international financial markets under significantly better conditions. The undergoing process of normalization of monetary conditions, particularly in the U.S., poses potentially significant risks for these firms, especially as U.S. interest rates increase and exchange rates in emerging economies depreciate. This paper has two main objectives: (1) to describe the recent evolution of corporate financing in Mexico and quantify the potential adverse effects on foreign corporate debt servicing to interest rate and exchange rate shocks; and (2) to assess how changes in global liquidity may affect both the ability of large Mexican corporates to tap international financial markets and the access of large and small and medium enterprises (SMEs) to domestic credit. The analysis uses a novel data set that combines credit-level data of the universe of all loans and lines of credit granted by banks and non-banks to non-financial private firms in the country, the universe of all bond placements by these same companies, and balance sheet information of bond issuing firms between 2003 and 2014. Our results suggest that the increase in global liquidity in the years following the Great Crisis significantly reduced international borrowing costs for large debt-issuing firms in Mexico, which in turn explains the rise in foreign debt placements in recent years. We illustrate that, as large firms have turned away from domestic financing sources, commercial banks in Mexico have been able to funnel more resources to SMEs–a situation that may potentially reverse once international credit conditions become more restrictive and large firms return to domestic lending markets.

JEL classification: F32, F34, E44, G32

The contents of this article are the authors' responsibility and do not necessarily reflect the views of Banco de México. The authors would like to thank seminar participants at the Second Federal Reserve Bank of New York-Banco de México Workshop and the 6th BIS CCA Research Conference for helpful comments and suggestions. We are grateful to Héctor Reyes and Ana Laura García for their outstanding research assistance. All remaining errors are ours.

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1. Introduction

The years after the global financial crisis of 2008-09 have been characterized by extremely low policy interest rates in advanced economies and abundant liquidity in international markets. Under these conditions, risk premia declined and international corporations, particularly from emerging economies (EMEs), expanded their placements of securities overseas, thereby satisfying asset managers' and global investors' appetite for higher returns. This "second phase of global liquidity,"as dubbed by Shin (2013), has been characterized by investors' search for yield (Turner 2014) and has been a cause of major concern for both policymakers and academics because of its potential implications for cross-border financial stability. In particular, overall portfolio flows in EMEs may have become more vulnerable to global financial conditions, especially since it has been shown that capital flows from institutional investors into EMEs tend to be relatively stable during normal times but pull back more strongly and persistently under stress (IMF 2014). In addition, since international debt placements by EMEs are typically in hard currencies, the rapid increase in EMEs corporate bond issuance may have led to currency mismatches, which could increase their vulnerability to external macroeconomic shocks (Shin 2013).

In broad terms, the Mexican case is no different from that of other EMEs. The ample liquidity in international financial markets after the 2008-09 crisis was associated with more favourable financing conditions abroad for Mexican corporations. Not only were Mexican firms able to secure foreign-currency financing at lower interest rates than before, but they also managed to obtain larger amounts at longer maturities. The average maturity of bonds issued by Mexican firms overseas increased from around 10 years in 2004 to about 16 years in 2014. The dollar amount per issue went from an average of about 0.5 billion to more than 1.0 billion in the same period. Perhaps more importantly, this improvement in financing conditions did not occur in domestic debt markets–at least not to the same extent–, which favoured the search for foreign financing my Mexican corporations. Between 2010 and 2014, the gross medium-term bond issuance abroad by Mexican non-financial corporations averaged 13 USD billion per year, which is roughly four times the annual average observed between 2006 and 2009.

Moreover, this surge in bond issuance overseas has implied a shift in the financing structure of Mexican corporations. In particular, given that only the country's largest firms have access to international debt markets, the rise in debt placements overseas seems to have freed up financial resources from domestic markets, which banks have been able to funnel towards firms without access to bond markets abroad, especially small and medium enterprises (SMEs). Indeed, while commercial bank credit to large issuing companies contracted after the 2008-09 crisis, domestic bank credit to SMEs has grown significantly and has been the most dynamic component of banks' commercial loan portfolios.

The main objective of this paper is to better understand how changes in global financial conditions have impacted firm financing in Mexico, particularly in terms of the volume and prices of

debt issues and bank loans. To this end, we break up the larger task at hand into three smaller ones. First, we describe how financing to non-financial corporations in Mexico has evolved in the last decade, focusing on the expansion of private bond issuance overseas and the terms at which these bonds have been offered. Second, we quantify how changing global conditions during this "second phase of global liquidity"may have affected the financing of Mexican firms in international debt markets, particularly with respect to costs—proxied by the primary spread between an international bond and a domestic one of similar characteristics—and market activity measured by the probability of observing a debt placement at any point in time. Third, we show that as Mexican corporates increased their activity in international debt markets, they reduced their liabilities with domestic banks, and estimate the extent to which this reduced bank lending to large companies may have resulted in more credit to SMEs. In light of the current volatility in financial markets and the expected changes in the monetary stance of advanced economies and global financial conditions in the near future, these calculations allow us to assess both how vulnerable large Mexican corporates may be to such changes and by how much bank lending to SMEs may decrease once international financial markets dry up and large bond-issuing companies return to the domestic credit market.

In order to investigate these questions, we use information from original regulatory reports, individual bond prospectuses, and private data vendors to carefully assemble a proprietary data set that combines credit-level data—including the universe of loans and lines of credit granted between 2003Q4 and 2014Q1 to non-financial private firms by banks and regulated non-banks domestically, as well as all private bonds issued either domestically or internationally during this period—with balance sheet information for issuing firms in Mexico. We classify firms as either large issuing firms, large non-issuing firms or SMEs using information contained in regulatory reports on sales, number of employees, and credit take-up. It is important to emphasize that issuing firms are examined at the parent-company level, which implies that, for each parent company, all individual company data were consolidated across subsidiaries.

Our results indicate that changes in global conditions in recent years have decreased the cost of issuing debt externally relative to that paid by the same firm in the domestic market. This in turn has increased the probability of a Mexican corporate issuing abroad. In particular, we estimate that a 100 bp reduction in the external-internal debt issuing spread increases the probability of issuing abroad by about 11%. In addition, our results suggest that, as Mexican corporates sought foreign financing and decreased their credit take-up in the domestic loan market, SMEs benefited from an increase in bank credit: a decrease of one MXN in new loans to large issuing firms increases new loans to SMEs by 0.20 MXN. Combining these results, we estimate that a 100bp external-internal debt issuing spread increase would reduce new bank loans to SMEs by about 4 billion MXN, about 11% for the last observation in our sample. Although we perceive this to be a sizable impact on bank credit to SMEs—with potential consequences to real sector activity—, it is possible that this crowding-out effect be mitigated, particularly if large issuing firms seek alternative financing sources other than domestic bank loans, such as global bank loans, domestic debt issues

or trade credit. In addition, even if large issuing firms take up large amounts from the domestic credit market, commercial banks may continue granting credit to SMEs given the significant push that the recently-approved Financial Reform gives to joint loan provision between commercial and development banks, and given low delinquency ratios and the relatively good credit history that SMEs have built these last few years.

The rest of the paper is organized as follows. In Section 2, we present a brief review of the literature. Section 3 describes the data collection process, provides some descriptive statistics and describes some recent trends in corporate financing in Mexico, presenting some stylized facts with regards to the recent surge of bond issuance in international markets by Mexican companies. Section 4 discusses our estimation strategy and describes our main results regarding the effect of global conditions on Mexican firms' financing in international bond markets, particularly with respect to costs and market activity. In Section 5, we present our findings about the substitution between credit to debt-issuing firms and loans to SMEs. Finally, Section 6 concludes.

2. Review of the Literature

The concept of global liquidity has become increasingly popular in economic debate while remaining notoriously difficult to define. Most recent literature relates global liquidity to the ease of financing conditions observed in global financial markets (BIS 2011). Empirical work produced before the global financial crisis usually defined global liquidity in terms of the growth rate of monetary aggregates from advanced economies, using either narrow or broad money measures (Baks and Kramer 1999; D'Agostino and Surico 2009). Nevertheless, as financial integration has increased in recent years–as evidenced by the presence of a highly integrated global financial cycle (Rey 2013) and a larger amount of funds flowing from G4 economies to the rest of the world (Cerutti et al 2014)–, the issue of finding measures of global liquidity that are more adequate for investigating its implications on cross-border real and financial linkages has garnered much attention.

In the aftermath of the 2008 crisis, the literature seemed to have shifted away from money-based global liquidity measures towards the use of different types of indicators that attempt to proxy liquidity conditions in international markets depending on the object of study. One such approach has relied on quantity or volume indicators akin to monetary aggregates, typically employed in studies that investigate potential financial sector vulnerabilities due to excess capital flows (Borio et al. 2013; Bruno and Shin 2014; Cesa-Bianchi et al 2015). Another approach has been to combine quantity and price variables, which helps in better gauging the ease of financing in global markets (Domanski et al 2011; Chen et al 2012). Indeed, some have argued that global liquidity conditions cannot be summarized by a single indicator (Eickmeier et al 2013) and that it is important to differentiate between official and private liquidity–the latter having the stronger complementarity with liquidity in domestic markets (Landau 2013). A large proportion of the recent empirical literature on global liquidity thus utilizes a quantity measure, such as cross—border credit, together with indicators that relate to the willingness of private investors to provide funding, such as yield

spreads or risk appetite proxies like the VIX index (Domanski et al 2011; Chen et al 2012; Cerutti 2014).

Irrespective of the way it is measured, there is much agreement in the literature that global liquidity has important effects on real and financial variables on both advanced and emerging economies, particularly serving as "a vehicle for the numerous interactions and spillovers between domestic monetary and financial policies"(Landau 2013). For example, Canova (2005) use a VAR model to show that U.S. monetary shocks produce significant fluctuations in Latin American macroeconomic variables, being the interest rate channel an important amplifier of these shocks on output, inflation and nominal exchange rates in the region. Rüffer and Stracca (2006) employ a similar approach to conclude that a global monetary policy shock has a positive effect on prices and output in the euro area and Japan. More recently, Bayoumi and Bui (2011) show by means of event studies that the U.S. monetary stimulus packages, particularly QE1, were associated with large reduction in emerging market yields and currency appreciations, and generally supported foreign activity. McCauley et al (2015) use panel estimation techniques to illustrate how accommodative U.S. monetary policy and cheap leverage have promoted credit growth globally. Finally, Azis and Shin (2013) studied the effect of more ample global liquidity conditions in the years following the great financial crisis on Asian economies. In particular, they find that rising non-core bank liabilities played an important role in the transmission of global liquidity shocks to emerging Asia, and that the growing share of foreign ownership of equity and securities in the region makes these markets more susceptible to volatility and capital outflows.

This paper makes three key contributions to the literature on global liquidity and its impact on domestic macrofinancial conditions. First, while most empirical and theoretical studies analyse the potential spillover effects of excess capital flows via the banking sector, this analysis emphasizes the role of international corporate debt markets. This is particularly relevant in the aftermath of the 2008 crisis given the generalized boom in bond issuance in global markets by non-financial firms in emerging economies. Second, our paper uses a comprehensive data set of the universe of bond placements and individual commercial loans provided by the domestic banking sector to study how global financial conditions changed the structure of credit and debt markets. To the best of our knowledge, this is the first paper that uses microdata to this end. Third, in contrast to most of the literature that relies on cross-country studies, panel regressions, and VAR models, our data set allow us to employ a microeconometric approach to study the impact of global liquidity in one particular case—that of the Mexican corporate sector. Although the Mexican case may differ from that of other emerging economies, we believe that the results derived from this analysis may provide some useful insights to academics and policymakers interested in understanding the potential spillover effects that lax financial conditions globally may have had on developing economies.

Finally, our research also contributes to the literature regarding the liability structure of firms

and the ownership composition of debt portfolios. On the topic of firms' liability structure, notable contributions include Colla et al (2012) and Morellec et al (2013), who present evidence of higher diversification across multiple debt types for large rated firms, as well as for firms with more growth options and higher bargaining power. These results are in line with Rauh and Sufi (2010) who document debt heterogeneity in firms' balance sheet debt, and important adjustments in the underlying composition of corporate debt, even though no significant one year changes in total debt are observed. Moreover, in what concerns what drives firms to issue bonds in foreign markets, as opposed to domestic markets, Gozzi et al (2012) explore the use of international debt market by firms using a database with information on new bond issues at a transactional level including bonds from several countries. In particular, they find that international bond markets complement the domestic markets, thus providing different financial services, other than issuing in foreign currencies, not fulfilled in domestic markets. As shown in the next section, these findings are corroborated by our description of the characteristics of domestic and foreign debt placements by Mexican corporates.

3. Data description and recent evolution of corporate financing in Mexico

3.1. Data description.

In order to investigate the effect of global conditions on firm financing decisions in Mexico, we gather a comprehensive dataset with credit-level and firm-level information on Mexican non-financial private corporations for the period of 2003 Q4 to 2014 Q1. We complement these data with a number of both global and domestic macroeconomic aggregates, including those aimed at measuring the availability of financial resources in international markets. The remainder of this section describes the sources and the main features of the data.

Credit-level data (individual bonds and loans)

We obtain data on the universe of corporate bonds issued either domestically or abroad by Mexican non-financial private corporations between 2003 Q4 to 2014 Q1. Information for bonds issued in international markets is retrieved from Bloomberg, which provides the main characteristics on each issuance (e.g. issuer, issue and maturity dates, amount issued, yield at issue, credit rating, currency, type of rate, periodicity of coupon payments). We fill in some missing data from firms individual bonds prospectuses, and add a few other indicators from this source, such as the use of proceeds from the debt placement. Tables A1 and A2 summarize the data. In total, there are 226 international bond issues by 53 non-financial Mexican firms during the sample period, most of which are denominated in USD (87.6% of the number of bond issuances) and of maturities greater than a year (99% of outstanding debt). The majority of these bonds were issued during the period associated to the "second phase of global liquidity"—about two-thirds of bonds were issued after the collapse of Lehmann in 2008 Q3. In terms of their characteristics, bonds issued internationally after the crisis observed lower yields, larger amounts, and slightly longer maturities on average. Although these are simple averages that do not necessarily reflect the greater heterogeneity of firms

participating in international bond markets, they are broadly consistent with what would be expected in an environment of ample liquidity and looser financial conditions.

For debt issued domestically, we collect individual bond-level data in a similar way. The main sources of information are Indeval and Valmer, which provide financial data services on debt issued by Mexican public and private entities. We fill in missing data using other sources, particularly Bloomberg and individual bond prospectuses. To make these bonds comparable with those issued abroad, we focus only on debt placements with maturities greater than a year. Tables A3 and A4 show some descriptive statistics. Our database consists of 316 bonds issued in domestic markets during the sample period by 82 different firms. As expected, most of these bonds (87.3%) are denominated in MXN, while 11% of these bonds are denominated in inflation-indexed units, UDIs. Only four bonds in our sample were denominated in USD. In contrast to the marked increase in international bond issuance after the 2008 crisis, domestic bond placements rose only slightly—about 53% of domestic private debt issues occurred after September 2008. In terms of their characteristics, yields on domestic bonds decreased after the crisis, and the average amount per bond was somewhat larger. However, the average maturity decreased slightly in the post-2008 period.

Finally, we also obtain information on the universe of loans provided by regulated financial intermediaries in Mexico to non-financial private corporations using Banco de México's credit registry. The data come from monthly regulatory reports (series R-04 C) administered by Banco de Mxico and the National Banking and Securities Commission (CNBV for its Spanish acronym), which provide transaction-level information on loans and lines of credit granted by regulated financial intermediaries (banks and non-banks) to firms and individuals with entrepreneurial activity (or personas físicas con actividad empresarial in Spanish). We restrict our sample to non-financial firms, which are identified by their RFC—a unique ID used for tax collection purposes. The sample period ranges from December 2003 to April 2014. For any given month, we observe individual loans and lines of credit for each firm, as well as the main characteristics of the credit, including interest rate, maturity, original amount, remaining balance, among others. As expected, bank credit is much more widespread among Mexican firms than domestic or international bonds, at least in terms of the sheer number of loans and lines of credit granted nationwide. In January 2014, for example, there were 584,135 individual loans and lines of credit granted to 120,459 unique RFCs.

Using the above data, we classify firms as large companies or SMEs. Large companies are either debt issuers (with participation in debt markets, either domestic or foreign) or non-debt-issuing companies that meet at least one of the following conditions: (i) received a loan larger than 100 MXN million at any time during our sample period; reported having more than 250 employees; or reported annual sales of more than 250 MXN million. In order to identify loans granted to large issuing firms, it is important to acknowledge that many of these firms obtain financing through their subsidiaries, which have their own RFCs. Thus, we collect information on the names of the subsidiaries of all listed companies in Mexico, which they are required to disclose on their quarterly

financial reports. We used these names to find the RFC of each subsidiary and consolidate all data across subsidiaries at the parent-company level.

Firm-level data

Balance sheet and general financial data on non-financial private corporations in Mexico come mainly from financial reports of listed companies on the Mexican Stock Exchange (Bolsa Mexicana de Valores, or BMV). These reports are published quarterly and their financial information is electronically available in Banco de México's data system from 2007 onwards. We complement this information to expand the sample period to begin in 2003 Q4 by manually collecting financial data contained in individual reports retrieved directly from the BMV, as well as by using Economatica, a private data provider. These efforts allow us to put together financial information on 139 different firms, whose dollar-volume of debt placements represents close to 90% of the total dollar amount issued during the sample period. Individual firm characteristics include total assets, which we employ as a measure of the size of the company. We use assets and sales denominated in foreign currency to measure the "natural hedges"of these companies' foreign liabilities. We also collect information on firms' profitability, liquidity, and short-term financing needs, such as ROA and short-term assets and liabilities. We summarize these data in Table A5.

Figure 1 summarizes some of the information described above. During our sample period, 182 non-financial private firms in Mexico obtained financing through either international or domestic debt placements, or through the stock exchange. Out of these, 53 firms issued bonds in international markets and 82 were active in domestic debt markets. We have balance sheet information on all firms listed on the stock exchange. For non-listed firms the only data available is that related to their activity in domestic credit markets, and their individual bond placements if they issued at all.

3.2. Recent trends in corporate financing in Mexico.

The financing structure of firms in Mexico has undergone substantial changes after the global financial crisis, highlighted by a significant increase in financing through external bond issuance (Figure 2). In September 2008, external bond issuance represented 14% of total firm financing to non-financial corporations in Mexico; by 2014 this figure has roughly doubled, which implies that financing through external bond issuance has increased threefold in real terms during the period. The growth rates of domestic financial sources have been positive but relatively much lower, while external credit to these firms has decreased, congruent with the process of deleveraging by banks in advanced economies following the crisis.

During the period that this shift in the liability structure of Mexican firms occurred, domestic commercial bank credit to large firms with debt issuance – either abroad or domestically – began to display a downward trend (Figure 3). It is important to note that this is only observed for issuing firms: credit to large non-issuing firms has continued to grow in recent years, albeit at a slower pace

than credit to SMEs. From September 2008 to July 2009, the period when international financial markets were most disrupted by the crisis, the trends described above were strikingly different: during these months the amount of outstanding loans to large non-issuing firms stalled, loans to SMEs decreased and loans to issuing firms surged.

Private bond placements in international markets by Mexican corporations increased significantly in recent years. Annual gross bond issuance by private non-financial corporations in international markets averaged 13 USD billion in 2010-2014, which contrasts with the average of 4 USD billion recorded in 2002-2009. Net issuance averaged 10.1 USD billion in 2010-2014, up from 0.3 USD billion in 2002-2009 (Figure 4). This surge in bond issuance has been mirrored by an increase in the number of firms issuing in international markets. For example, in 2013 there were 21 private non-financial corporations that issued bonds abroad, seven of them for the first time. In 2003, this figure was much smaller, with only five firms issuing bonds abroad.

Greater access to international financial markets has implied greater diversification along several characteristics for the set of Mexican firms issuing abroad. Firms from a wider variety of sectors have been able to tap into these markets (Figure 5a). In 2003, around 70% of gross bond issuance in international markets was from firms in telecommunication services. In contrast, this figure was close to 30% in 2014, as sectors that previously had a very limited participation in these markets have increased their issuance, such as materials and consumer discretionary and services sectors. In addition, bonds with a wider variety of grades have been issued recently, congruent with the entrance of new firms in the market and a greater appetite for risk and search for yield by international investors (Figure 5b). Issuing terms for Mexican firms in international bond markets became more favourable in the years following the 2008-09 crisis. Interest rates have become lower (Figure 6), while the average size and maturity of the issuances have increased. As Figure 6 shows, this trend is true even when limiting the set of issuances to those made by firms with activity in both domestic and international markets.

4. The effect of global liquidity on external bond issuance

The aim of this section is to quantify the potential impact of the "second phase of global liquidity"on corporate bond issuance by Mexican firms in international markets. In particular, we are interested in identifying how changes in financing conditions abroad associated with the ample liquidity in financial markets may have affected the probability that a firm in Mexico issue an international bond:

$$Prob(Issue_{i,t}^{*} = 1) = f(Spread_{i,t}, \theta) + \epsilon_{i,t} \tag{1}$$

The dependent variable is the probability that firm i issues a bond in international markets in period t. This probability is a function of, among other things, the cost of placing this bond abroad

relative to what it would cost the firm to place a bond with similar characteristics (particularly amount and maturity) in the domestic market. This cost is referred to as a spread or yield differential between the yield of an international bond and that of a domestic issue, as faced by firm i at any given point in time. Defined this way, an increase in this spread would imply rising relative costs of issuing debt abroad, which should in principle have a negative effect on a firm's decision to issue an international bond.

There are both theoretical and empirical challenges in estimating a model of the form we described. First, there is no clear consensus in the literature as to what exactly drives corporate debt financing in international markets (Gozzi et al 2012). The presence of frictions in financial markets (at home or abroad) may affect firms' financing decisions, particularly since debt securities and loans may be characterized by different price and non-price attributes (Black and Munro 2010). Non-price attributes could be related to several factors such as: (i) depth of market, as firms are more likely to match their financing needs with lenders' preferences in deeper markets, thus making it easier to cumulatively raise more funds with a single or fewer issuances (Modigliani and Sutch 1966; Vayanos and Vila 2007); (ii) currency hedging, as issuances abroad may provide a useful natural hedge to their assets and cash flows denominated in foreign currency (Munro and Wooldridge, 2009); and (iii) funding diversification. Price attributes could be relevant because firms may also issue abroad simply because the coupon rate of an international debt placement may become less costly relative to that of a domestic bond.[1]

Besides these more theoretical issues, analyzing the particular case of Mexican firms presents additional empirical challenges because bond market participation (either domestically or internationally) is relatively low, as shown in Section 3. The rather small number of individual bond issues, as well as the fact that companies do not typically issue bonds in both markets around the same time, hampers our ability to compare international and domestic debt financing costs for a given firm. For example, during the period from 2003 Q4 to 2014 Q1, there were only 25 times when a single firm issued bonds in both domestic and external markets in the same quarter. These 25 observations correspond to only eight different corporations. The interest rate differential for a given period across markets may only be calculated in a straightforward manner for these few observations. This problem is particularly relevant since the global liquidity effect may operate mainly through the price channel (Shin 2013). Also, the price component is observed only when a firm issues a bond, which immediately raises a well-known selection bias problem that should be addressed.

To mitigate these concerns, we construct a counterfactual individual issuer-level spread time series as a function of global financial conditions, domestic macroeconomic conditions, as well as individual firm and bond characteristics. To do this, we first estimate the primary market coupon

[1]More generally, this question is related to a literature that links capital flows in EMEs to the effect of both push and pull factors (Calvo, Leiderman and Reinhart 1993, 1996; Schularick and Taylor 2012).

rate that each firm would pay both internationally and abroad for a bond of a given amount and maturity. We then take the difference of these yield rates to construct the spread.

To be more precise, we first estimate two separate equations of the following form:

$$y_{i,t}^{\{D,*\}} = f(Global/DomesticVars_t, BondChars_{i,t}^{\{D,*\}}, FirmChars_{i,t}) + \epsilon_{i,t}^{\{D,*\}} \tag{2}$$

where the dependent variable is the observed primary market coupon rate for a bond issuance of firm i in period t, either in domestic or international markets (D, *). We restrict our data to bond issues in MXN and UDIs for the domestic market (99% of domestic issues) and in USD for international markets (88% of international issues) in order to facilitate the comparison of interest rates across currencies—as explained in more detail below. In terms of the particular controls use in this estimation, we include global financial conditions, domestic macroeconomic indicators, and individual firm and bond characteristics.

In terms of the proxies that reflect global financial conditions, we aim to capture the effect of global liquidity on primary market coupon rates through price and quantity indicators as discussed in Section 2. In particular, we consider as volume measure the total credit to non-residents in USD and euros [2], obtained from the BIS Global Liquidity selected indicators. We also include the VIX index as a price-based indicator of global liquidity reflecting investor's risk appetite, and thus proxying investors' willingness to provide funding (Eickmeier et al 2013). In addition, we incorporate the U.S. corporate BBB/BAA-Treasury 10-year spread in order to capture financing conditions particular to debt markets, especially since flucutations in this particular spread should closely mimic financing conditions faced by emerging economies' corporates in international markets as they approximately belong in the same asset class.

Regarding domestic conditions, we control for domestic activity using the year-on-year real GDP growth rate in Mexico, and include the 28-day interbank interest rate (TIIE 28) as a proxy for domestic financing conditions. Individual firm characteristics include a binary variable that indicates whether the firm has ever issued an investment grade bond in external financial markets, as well as lagged values of the firm's total assets and return over assets (ROA). The latter two attempt to measure firm size and profitability, which should have an impact on financing costs. Finally, we control for maturity-at-issue and original amount of the bond.

The results presented in Table 1 correspond to the model where the international bond interest rate is the dependent variable. Estimation (1) includes only bond characteristics. Estimation (2) incorporates our global liquidity measures. Estimation (3) adds domestic conditions, and finally estimation (4) includes firm characteristics. We find that the amount issued has a negative effect

[2]McCauley et al (2015), for example, use the same measure, but restricted to USD.

on the interest rate of international bond issuances, while maturity is not statistically significant in any of our estimations. We find that cross-border credit is associated with a negative sign and is always significant, which suggests that the abundance of liquidity in financial markets has reduced the cost of issuing abroad to Mexican firms. In contrast, the U.S. corporate BBB/BAA-Treasury 10 year spread is associated positively to the yield, which suggests that, as risk appetite in debt markets decreases, financing costs for Mexican firms increase. The VIX index is not statistically significant in any of the estimations, although this is likely due to the high correlation with the U.S. corporate spread (94% correlation). Finally, we also find that our variables concerning firm characteristics all have the expected signs: firm profitability in the previous period seems to have a negative effect on the interest rate paid in external bond issuances, while being a firm that has issued bonds with investment grade in international markets also has a negative and significant effect.

The results from the model where the domestic bond interest rate is the dependent variable are reported in Table 2. These results are ordered in a similar fashion to the previous table, as we add different sets of variables to the model. Global conditions are found to have qualitatively similar effects than in the model for external bond issuances, although neither the U.S. corporate spread nor the VIX are significant in estimations (3) and (4). The TIIE 28 is positive and statistically significant, which, unsurprisingly, implies that as domestic financing conditions become tighter, the interest rates paid by firms in domestic debt issuances also rises.

With these results in hand, we obtain fitted values from the models that incorporate bond and firm characteristics, as well as global and domestic conditions. We use these fitted values to compute the interest rate that a given firm would have paid at each point in time and in each market $(D, *)$ for a bond with standard characteristics (500 million USD and 1 year maturity):

$$\{\hat{y}^*, \hat{y}^D_{MXN}\}_{i,t} \tag{3}$$

Then, in order to compare prices across markets, we transform the rates of bonds issued domestically by adjusting for expected depreciation:

$$\hat{y}^D_{USD} = \frac{S}{F}(1 + \hat{y}^D_{MXN}) - 1 \tag{4}$$

Where $\hat{y}^D_{MXN}$ is the primary market coupon rate of domestic bonds, $\hat{y}^D_{USD}$ is the primary market coupon rate of bonds issued abroad, S is the spot exchange rate and F is a 1 year forward exchange rate.

Finally, we calculate the spread at each point in time and for each firm as:

$$Spread = \hat{y}^* - \hat{y}^D_{USD} \tag{5}$$

We plot the counterfactual spread we calculated in Figure 7, while Figure 8 and 9 present the individual external and internal coupon rates for selected firms, respectively. The obtained spread displayed a substantial increase at the height of the global financial crisis, when conditions in international financial markets were most severely disrupted. Afterwards, there is a clear downward trend in the spread, which implies that the relative cost of issuing abroad for Mexican firms has been decreasing during the aftermath of the global financial crisis. This is congruent with the increase of bond issuances in international markets by Mexican firms and the search for yield by global investors during the period.

Having estimated this (counterfactual) spread for each individual firm, we then estimate how cheaper financing conditions abroad may affect international bond issuance through a reduced-form binary choice model as in equation (1) above. Our results are summarized in Table 3. Estimation (1) controls only for whether a firm has issued in external markets before. Estimation (2) adds our measure of global cross-border credit in hard currencies. Estimation (3) adds additional domestic controls, such as domestic bank lending capacity.[3] Estimation (4) adds other firm characteristics, such as the ratio of short-term assets to short-term liabilities in order to control for firms' financing needs. Using this last estimation, evaluating at means, we find that a 100bp reduction in the foreign-domestic debt issuing spread increases the probability of issuing abroad by 10.5%. We also find that having past experience in international debt markets is significant and has a positive impact on the probability of issuing abroad across all estimations. Finally, our measure of cross-border credit is not significant in any estimation, which suggests that most of its effect arises through prices.

5. The effect of global liquidity on domestic credit

In this section, we investigate how changes in global financial conditions have affected the domestic credit market in Mexico. In particular, we are interested in examining whether the increase in bond issuance in international debt markets by large debt issuing firms has reduced their participation in domestic banks loan portfolio, thus freeing up resources that could then be allocated for financing SMEs. Our motivation for estimating whether changes in global financial conditions have made an impact on loans to SMEs stems from the stylized facts presented in Section 3 and

[3] We use total obligations net of repo and derivatives operations since the banks' balance sheets in Mexico include transactional accounts used to record these types of operations that could overestimate the available loanable funds. In particular, we use the following definition for *lending capacity:*:

$$LendCap_n = TO_g + max\{0, der_l - der_a\} + max\{0, repo_l - repo_a\};$$

where $LendCap_n$ is lending capacity, TO_g is gross total obligations excluding derivatives and repo operations, der_l and $repo_l$ are the derivatives and repo operations on the liability side of the balance sheet, and similarly for the asset side.

our regression results in Section 4. First, we showed evidence of a change in the liability structure of debt issuing firms—some of the largest in the country—consisting of a rapid increase in external debt issuance coupled with a downward trend in outstanding volume of loans granted to these firms. In Figure 10 we plot the share of external debt on total financing of non-financial corporations in Mexico that are either listed on the stock exchange or have participated in debt markets throughout our sample period. This share has exhibited an increasing trend since September 2009, growing from representing 39.6% of total financing to 64.3%. At the same time, loans to other firms without participation in debt markets have displayed positive growth rates, particularly loans to SMEs. Finally, our estimations in Section 4 showed that the increase in global liquidity has implied a decrease in the relative price of issuing abroad that a given firm faces, which in turn has increased the probability of issuing international markets.

Finding evidence of this crowding-in effect of loans to SMEs in Mexico is relevant for several reasons. SMEs represent a large share of economic activity in Mexico: they are estimated to account for 72% of total employment in the formal sector and their economic activity is estimated to represent 34% of GDP as of 2013 (Plan Nacional de Desarrollo, 2013). These figures are largely consistent with the findings of Ayyagari, Beck and Demirgüç-Kunt (2007), who report that SMEs account for around 60% of manufacturing employment in a large sample of developed and developing countries. However, SMEs typically experience greater difficulty in obtaining resources from the financial sector (Beck, Demirgüç-Kunt, Laeven, and Maksimovic, 2006). The main theoretical argument for explaining this phenomenon is that SMEs are often more informationally opaque than larger firms, which in turn aggravates the agency problem inherent in corporate lending relationships, and even more so for larger banks that tend to rely more on "hard"quantitative information in their lending screening process (Berger and Udell 1998, Berger and Black 2011). Also, SMEs are more likely to face financing constraints, since they usually have a smaller variety of financing sources available for them.

Both of these mechanisms seem to be at work in Mexico, since SMEs tend to face higher interest rates in the domestic commercial credit market than larger firms and also display slightly higher delinquency rates. Additionally, SMEs in Mexico do not currently have access to debt markets. According to the Credit Market Survey conducted by Banco de México, around 23% of firms with less than 100 employees received credit from commercial banks in December 2014, and none issued debt. Most of these firms received financing through trade credit (around 65%). Finally, it is also important to investigate the determinants of the volume of commercial bank credit to SMEs in Mexico because of the relative scarcity of research devoted to the subject.[4]

In order to investigate whether there is indeed a crowding in effect of loans granted by commercial banks to large debt-issuing companies on loans provided to SMEs, we estimate an equation of the

[4] Lecuona (2009) and Fenton and Padilla (2012) provide general overviews of the topic.

following form:

$$SME_t = f(Issuer_t, \gamma) + u_t \tag{6}$$

where $Issuer$ is a measure of loans granted by commercial banks in Mexico to debt issuing firms and SME represents loans granted to SMEs. However, the main challenge in estimating the model described above consists in overcoming a potential endogeneity problem. Since this is a reduced form model, it is not difficult to argue that there may be other variables not included in the model that are relevant in determining the amount of loans granted to both SMEs and debt issuing firms.

We attempt to address this issue by using an instrumental variable approach, informed by the results in the previous section. In particular, we attempt to use variables that reflect the conditions in international financial markets as instruments for the credit granted to issuing firms. In particular, we use again the VIX index as a measure of risk appetite in financial markets, since it reflects the availability of funding in international markets.[5] This is potentially a valid instrument since domestic credit to SMEs should not be directly affected by this variable since they themselves do not have access to financing in international debt markets, and because we are also controling for credit supply channels, like net bank obligations, and real demand channels, such as economic growth in the country. At the same time, we have already showed how global variables affect the participation in international markets of debt issuing firms, which in turn affects their demand for loans in the domestic market. Furthermore, our estimations only use new loans granted in a given period, which ameliorates concerns that the persistence inherent in using outstanding credit could drive our results. Descriptive statistics on new loans for each type of firm is summarized in Table A6. Finally, we control for the availability of resources in the domestic credit market by controlling for our measure net bank obligations.

Thus, we estimate the following model:

$$SME_t = \beta_1 Issuer_t + \beta_2 LendCap_t + X\gamma + u_t \tag{7a}$$

$$Issuer_t = \theta_1 VIX_t + Z\mu + \epsilon_t \tag{7b}$$

where $Issuer$ are new bank loans granted to debt issuing firms in a given period; SME are new loans granted to SMEs in that same period; $LendCap$ is our measure of domestic banks' lending capacity; X are additional variables meant to control for other macroeconomic aggregates that may affect domestic credit market conditions, such as bank's average funding costs and the economy's growth rate (measured by the IGAE index); and VIX represents the VIX index. The data for this estimation has a monthly frequency and our sample ranges from December 2013 to April 2014.

[5]We run the same estimations using the US corporate spread as an additional instrument that captures the availability of funding in international financial markets. The results remain qualitatively unchanged.

Our results are summarized in Table 4. The first two regressions were estimated by OLS and the coefficients associated with new loans to issuing firms are not significant. Once we implement our instrumental variable strategy—in regressions (3) and (4)—, we find that this coefficient is negative and statistically significant across all models. We interpret this result as evidence of a crowding-in effect of loans to SMEs when debt issuing firms turn away from the domestic credit market. Our measure of net bank obligations is positive and also statistically significant across all models, which themselves differ as we use more macroeconomic variables as controls. The instrument we use is the monthly average of the VIX index, a standard measure of the market's expectation of stock market volatility. While perhaps the more natural variable to use as an instrument would have been the firm-level interest rate spread we calculated before, we did not do it for two reasons. First, we would have lost information for firms for which we were unable to build a spread (e.g. firms with missing balance sheet data). Most importantly, the interest rate spread we built had a quarterly frequency. As expected, the VIX has a significant and positive effect on new loans granted to debt issuing firms in the first stage of our IV regressions, which suggests that, as conditions tighten in international debt markets, large firms turn to the domestic credit market for financing. Our preferred estimation is regression (4) in Table 4, which has additional controls for macroeconomic aggregates. Using the coefficients associated with new loans to debt issuing firms, we find that a decrease of 1 billion MXN in new loans to large issuing firms increases new loans to SMEs by around 200 million MXN.

Finally, we are interested in using our results for estimating the potential impact of a tightening of conditions in international financial markets on the volume of loans to SMEs. This is particularly relevant in light of the expectation that there will be an increase in the policity interest rates of some advanced economies–mainly the United States—in the coming months. If this increase in the policy rates occurs and markets tighten, then our results suggest that Mexican debt-issuing firms would face higher interest rates in debt markets abroad relative to the domestic market, which would generate incentives for them to find financing in the domestic credit market. This increase in the demand for loans by debt issuing firms could then crowd-out SMEs from the domestic credit market, which could potentially hamper their productive activity as they have fewer financial sources at their disposal.

In order to perform this calculation, we need to make some additional assumptions. We first assume that gross bond issuance in external markets decreases in the same proportion as a decrease in the probability of issuing abroad by any firm, as estimated in Section 5. Furthermore, we assume that these debt issuing firms that are unable or unwilling to place bonds in international substitute completely their financing needs for domestic bank loans. That is, the decrease in debt issuance abroad is symetricall to their increase in loans obtained through the domestic credit market. This would mean that their position in other debt markets –such as the external credit market, domestic debt market or trade credit—remains unchanged. Under these assumptions, combining

our results from our preferred estimations in Table 4, we find that an increase in 100bp in the interest rate spread would translate into a crowding-out of new loans to SMEs of approximately 4 MXN billion, approximately 11% of the last observation in our sample. In turn, an increase of 1 standard deviation in the interest rate spread—equivalent to a surge of 159 basis points—would lead to a crowding-out of new loans to SMEs of 6.4 MXN billion (17% of the last observation in the sample).

6. Conclusions

In this paper, we studied how the abundance of global liquidity in the aftermath of the global financial crisis affected firm financing in Mexico. We gathered both firm-level and credit-level information in order to study how this change in global conditions had an effect across several markets by changing Mexican firms' financing structure. We found that the increase in global liquidity seems to have reduced the cost of international borrowing for large debt-issuing firms in Mexico relative to the cost of issuing bonds domestically, which in turn may explain the significant rise in international debt placements in recent years. We also found evidence that shows that firms with access to international bond markets—which are Mexico's largest firms—changed their financing structure during the period, substituting domestic financial sources for external sources. Among domestic sources, we found that the amount of credit channeled through domestic financial intermediaries displayed a downward trend during the period. Our estimations suggest that, as large firms have turned away from the domestic credit market, banks' capacity to funnel domestic credit resources to SMEs has increased, generating a crowding-in effect on these firms. This is a particularly relevant finding given that this situation may be reversed once international credit conditions become more restrictive and large firms return to domestic lending markets.

It is important to bear in mind that this crowding-out effect may be mitigated if large issuing firms seek alternative financing sources other than domestic bank loans (e.g., international bank credit, domestic debt issues, trade credit). Additionally, credit conditions may soon become more restrictive in domestic markets as well. Finally, it is possible that banks continue granting credit to SMEs even if large firms return to the market, particularly if SMEs have displayed good credit records since their entrance.

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Tables and Figures

Table 1. *Dependent variable: International bond interest rate*

	(1)	(2)	(3)	(4)
Bond characteristics				
Maturity	-0.033	-0.041	-0.039	0.012
	(0.052)	(0.060)	(0.058)	(0.038)
Amount (ext)	-1.405***	-1.347***	-1.355***	-0.229
	(0.227)	(0.276)	(0.271)	(0.195)
Global conditions				
Cross-border credit		-0.346**	-0.397*	-0.499***
		(0.134)	(0.228)	(0.122)
US corporate spread		0.470	0.717	1.108*
		(0.514)	(0.590)	(0.649)
VIX		0.027	0.008	-0.016
		(0.051)	(0.057)	(0.050)
Domestic conditions				
GDP Mex (yoy)			0.047	0.052
			(0.082)	(0.090)
TIIE 28			-0.056	-0.059
			(0.192)	(0.128)
Firm characteristics				
Investment grade (ext)				-2.146***
				(0.557)
Total assets (lag)				-0.236
				(0.158)
Profitability (lag)				-0.073**
				(0.033)
Observations	157	157	157	97
Adj. R-squared	0.490	0.534	0.529	0.658

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2. *Dependent variable: Domestic bond interest rate*

	(1)	(2)	(3)	(4)
Bond characteristics				
Maturity	0.124***	0.142***	0.125***	0.112***
	(0.020)	(0.028)	(0.028)	(0.029)
Amount (int)	-0.564***	-0.472***	-0.470***	-0.250*
	(0.161)	(0.115)	(0.105)	(0.138)
Global conditions				
Cross-border credit		-0.790***	-0.227***	-0.241**
		(0.088)	(0.073)	(0.092)
US corporate spread		1.542***	0.571	0.504
		(0.336)	(0.356)	(0.483)
VIX		-0.123***	-0.031	0.000
		(0.040)	(0.033)	(0.040)
Domestic conditions				
GDP Mex (yoy)			0.011	0.041
			(0.050)	(0.055)
TIIE 28			0.612***	0.564***
			(0.091)	(0.135)
Firm characteristics				
Investment grade (ext)				-0.645*
				(0.347)
Total assets (lag)				0.019
				(0.131)
Profitability (lag)				-0.037
				(0.023)
Observations	233	233	233	146
Adjusted R-squared	0.138	0.463	0.548	0.525

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3. *Regression results: Probability of issuing abroad*

Logit model	(1)	(2)	(3)	(4)
Issuance spread (fitted values)	-0.107*	-0.108*	-0.118*	-0.113*
	(0.058)	(0.059)	(0.064)	(0.065)
Has issued in external market	0.788***	0.698**	0.700**	0.688**
	(0.246)	(0.278)	(0.279)	(0.279)
Cross-border credit		0.053	-0.055	-0.055
		(0.077)	(0.271)	(0.272)
Domestic conditions	NO	NO	YES	YES
Firm characteristics	NO	NO	NO	YES
Observations	1,130	1,130	1,130	1,130
Pseudo R-squared	0.0208	0.0215	0.0218	0.0233

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

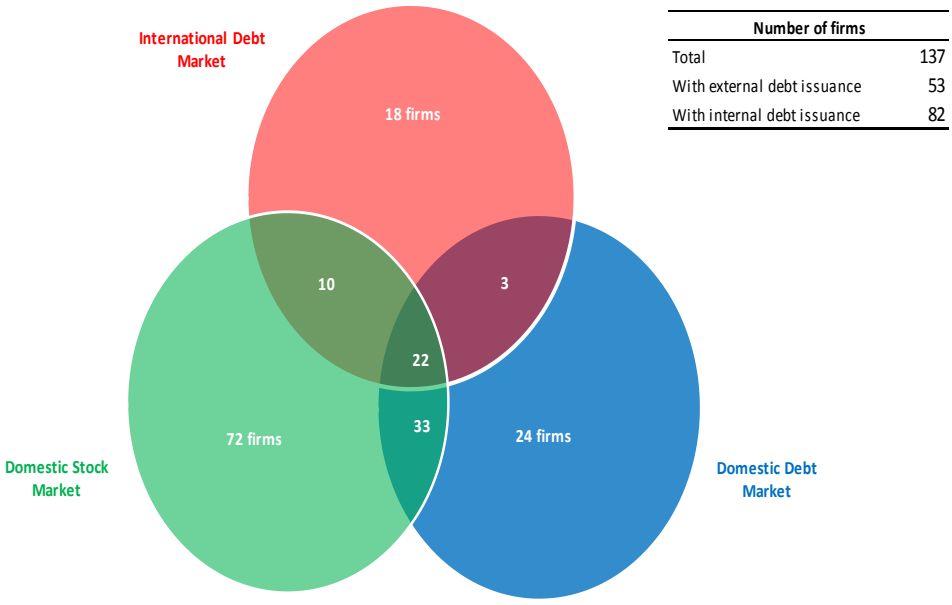
Table 4. *Regression results: Effect of Global Liquidity on Domestic Credit*

	(1)	(2)	(3)	(4)
	New loans to SME			
	OLS		IV	
Issuer (new loan)	-0.004	-0.009	-0.088***	-0.200***
	(0.020)	(0.027)	(0.034)	(0.065)
Net lending capacity	46.868***	42.260***	47.413***	51.422***
	(2.161)	(3.120)	(2.200)	(5.000)
Bank's avg. funding cost		-0.631**		0.712
		(0.315)		(0.646)
IGAE (Mex growth rate)		-0.223*		-0.641***
		(0.130)		(0.194)
Large (new loan)				
Constant	Yes	Yes	Yes	Yes
Observations	124	124	124	124
F-Stat (first stage)			90.82	35.51
Adj-R2	0.804	0.809	0.778	0.727

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

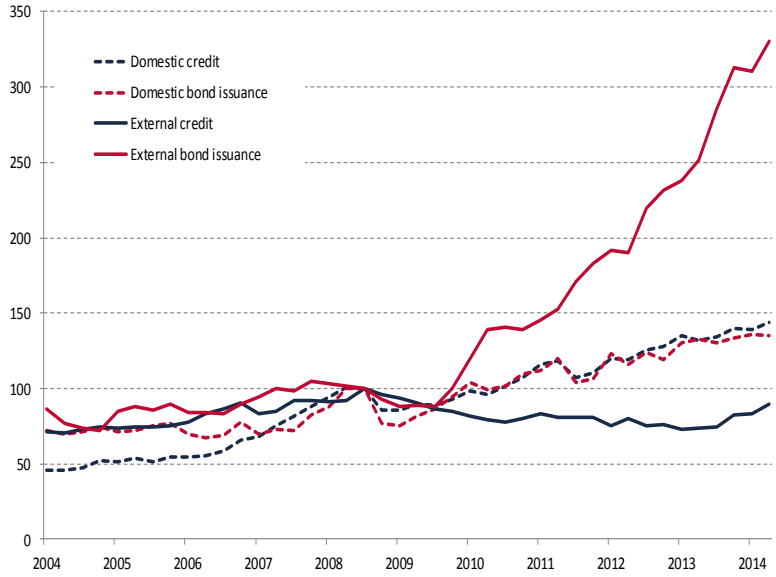
We instrument Issuer (new loan) with the VIX index. VIX index is possitive and significant at p<0.01 in the first stage regressions of estimations (3) and (4). F-stat in these estimations are 90.8 and 35.5, respectively.

Figure 1. ***Participation in (International/Domestic) Debt and Stock Markets by Firms in Mexico***



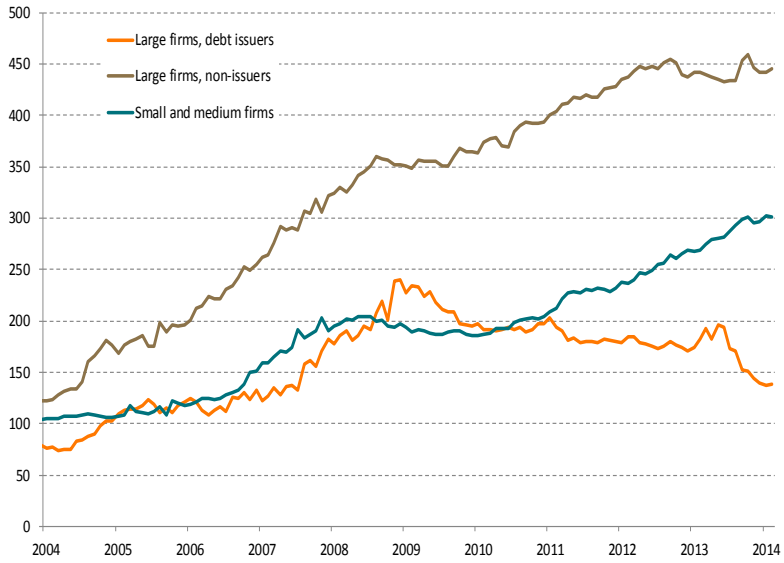
Source: Banco de México with information from BMV, Bloomberg and Indeval.

Figure 2. ***Financing to Non-Financial Corporations in Mexico.***
Index, 2008q3=100



Source: Banco de México.

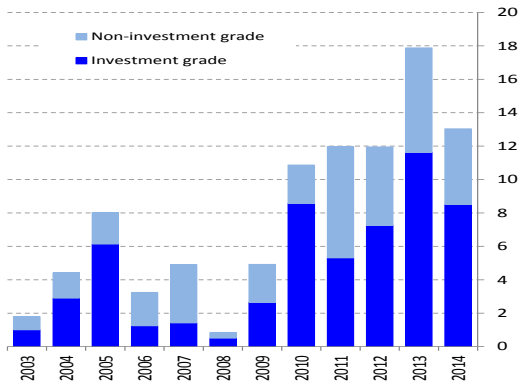
Figure 3. ***Commercial Bank Credit to Non-Financial Corporations in Mexico by Firm Type***[1/]***.***
MXN billion



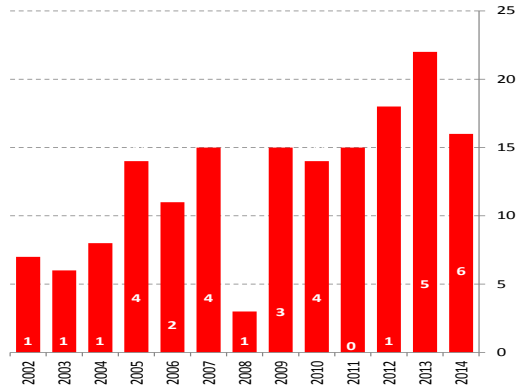
Source: Banco de México.
1/ Only includes loans denominated in MXN.

Figure 4

(a) ***Gross Bond Issuance by Mexican Corporations in International Bond Markets***[1/]***.***
USD billion



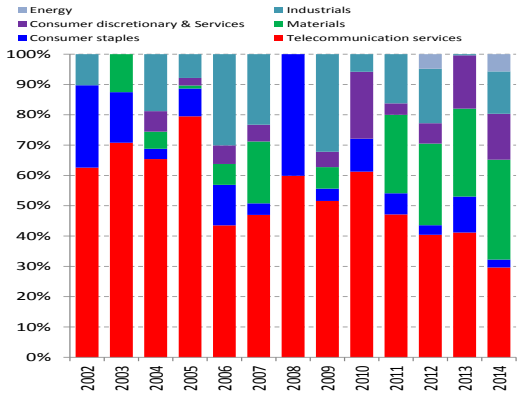
(b) ***Number of Mexican Corporations Issuing Bonds in International Markets***[1/2/]



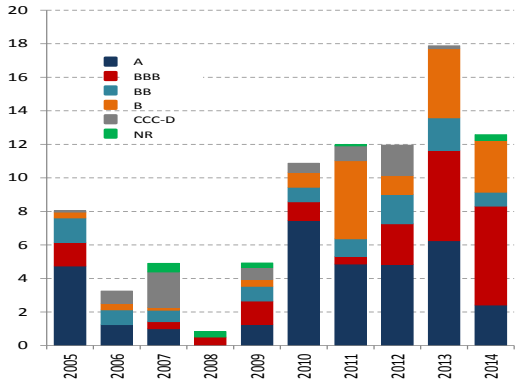
Source: Prepared by Banco de México based on information from Bloomberg.
1/ Includes bonds with maturity greater than one year issued in the external market by non-financial private corporations.
2/ The database has information since 1992, which means that new entrants for each year are those that issued bonds in international markets in the corresponding period but had not done so since 1992.The number of firms that match this criterion is represented by the white figure inside each column.

Figure 5

(a) ***Gross Bond Issuance by Mexican Corporations in International Markets by Sector.***
Percent



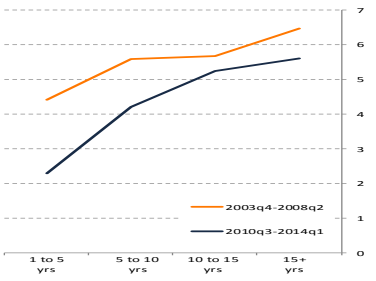
(b) ***Gross Bond Issuance by Mexican Corporations in International Markets by Grade[1/].***
USD billion



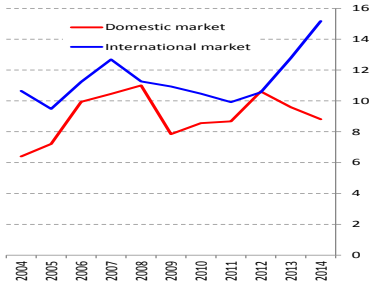
Source: Prepared by Banco de México based on information from Bloomberg.
1/ Corresponds to the grade awarded to the issuer in the corresponding foreign market based on Bloomberg Composite.

Figure 6

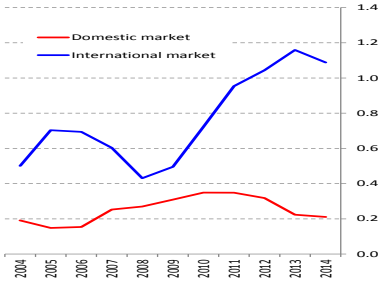
(a) ***Interest Rates of Bonds Issued Abroad by Mexican Corporations with Investment Grade[1/].***
Percent



(b) ***Average Maturity of Bonds Issued by Mexican Corporations[2/].***
Years, 3-year moving average

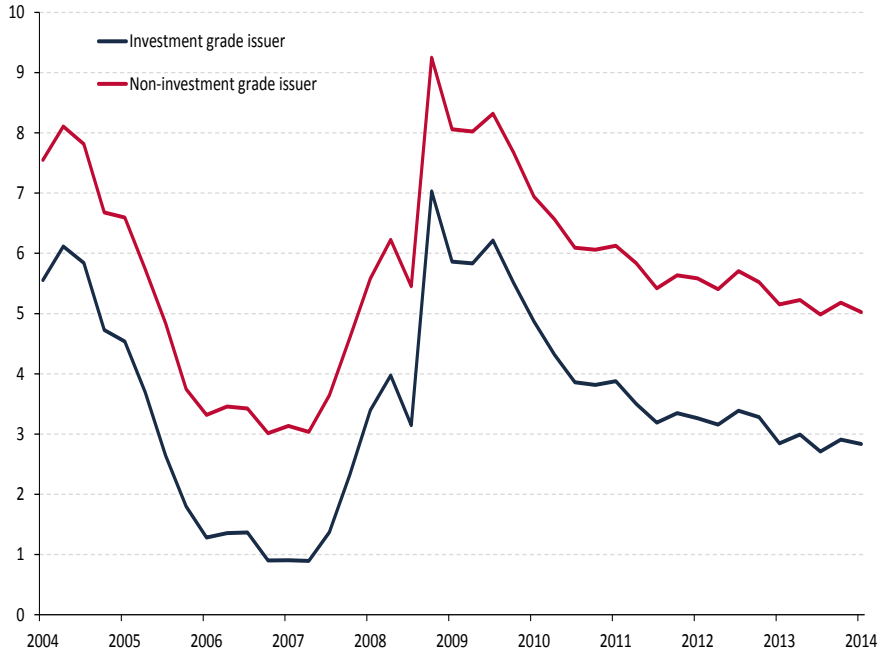


(c) ***Average Maturity of Bonds Issued by Mexican Corporations[2/].***
Years, 3-year moving average



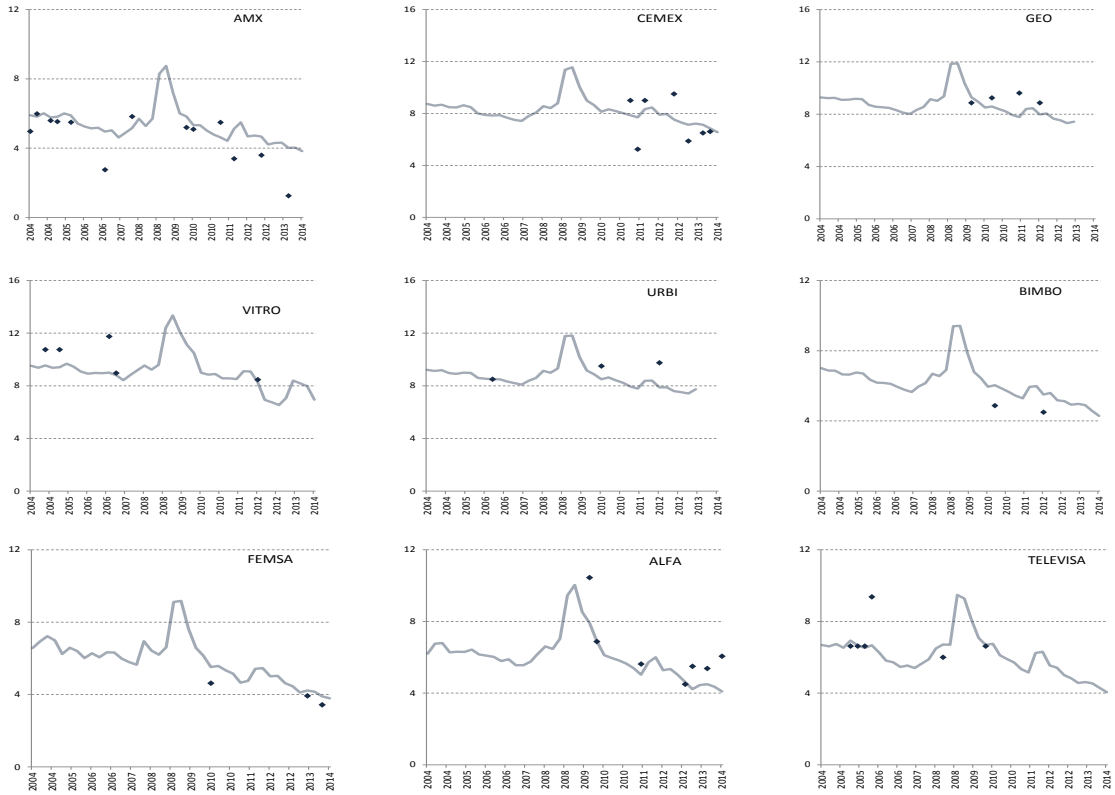
Source: Prepared by Banco de México based on information from Bloomberg and Indeval.
1/ Includes only bonds denominated in USD.
2/ Includes only corporations that issued both in the domestic and foreign market.

Figure 7. ***Counterfactual Spread (International Minus Domestic Interest Rate).***
Percentage points



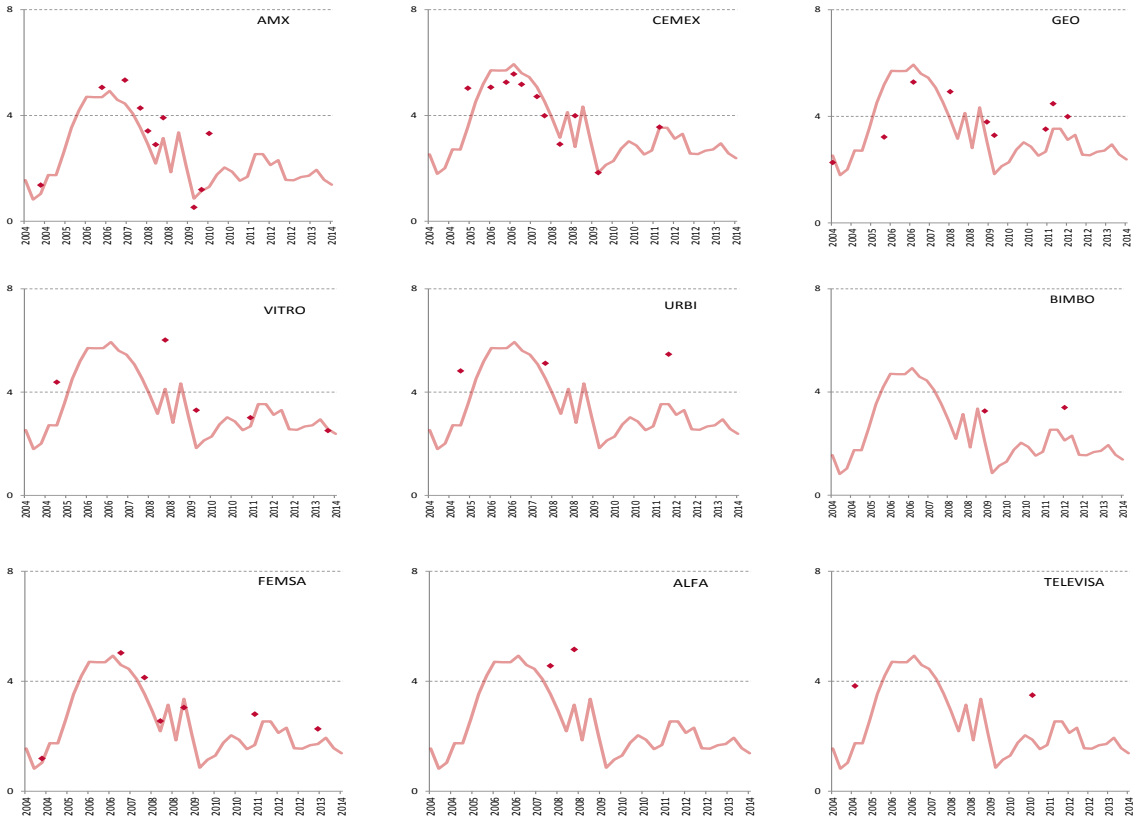
Source: Prepared by Banco de México based on information from Bloomberg.

Figure 8. ***Fitted and observed external coupons.***
Percent



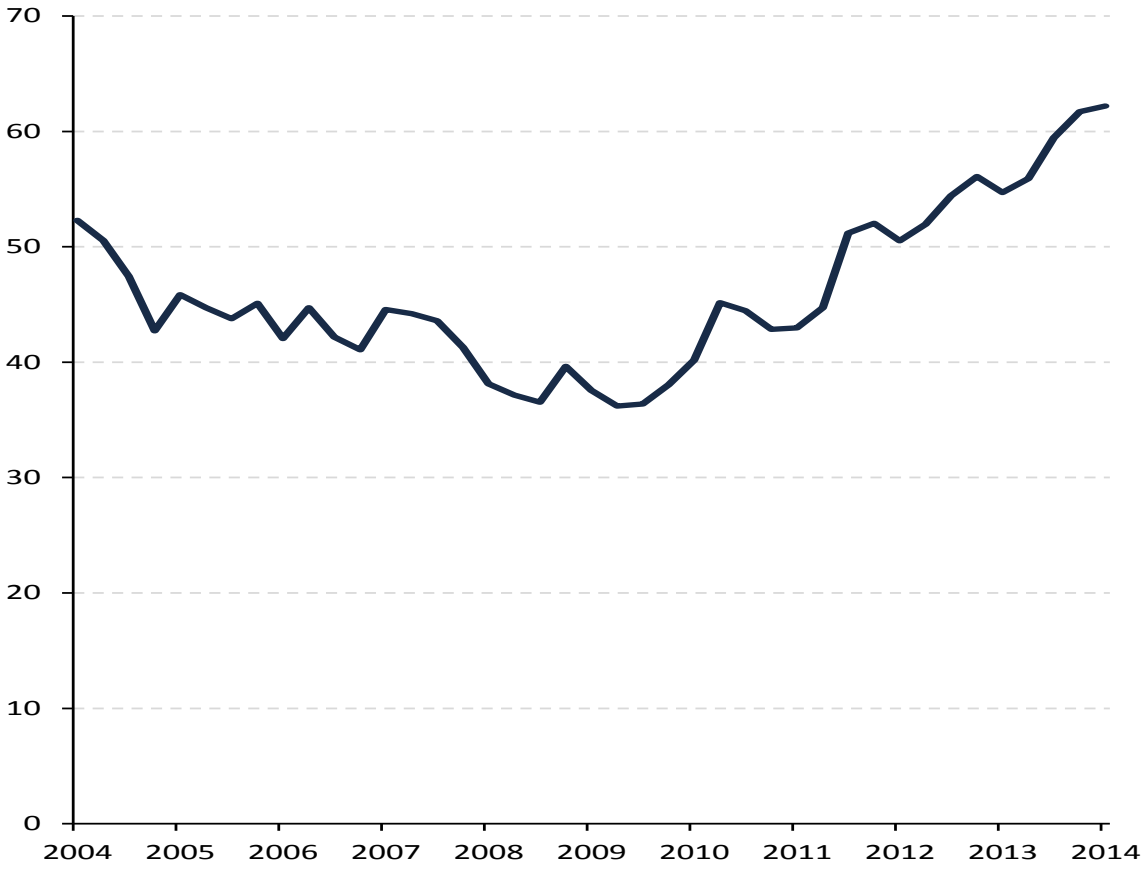
Source: Prepared by Banco de México based on information from Bloomberg.

Figure 9. ***Fitted and observed internal coupons.***
Percent



Source: Prepared by Banco de México based on information from Bloomberg.

Figure 10. ***Share of external bond issuance in total financing for firms in our main sample.***
Percent



Appendix

Table A1 ***Foreign bond issuances.*** Includes bonds issued in foreign markets by non-financial firms residing in Mexico. Issuances are considered investment grade when rated BBB or higher under BBG composite rating.

	Full sample	Pre 2008Q3	Post 2008Q3
Number of firms	53	32	40
All currencies			
Number of bond placements	226	77	149
Investment grade	84	22	62
Non-investment grade	142	55	87
USD only			
Number of bond placements	198	73	125
Investment grade	58	20	38
Non-investment grade	140	53	87

Table A2 ***Foreign bond issuances: Main features.*** Includes bonds issued in foreign markets by non-financial firms residing in Mexico. Yield is the annualized primary market coupon rate. Amount is measured in millions of US dollars. Maturity represents maturity at issuance expressed in years.

	Full sample		Pre 2008Q3		Post 2008Q3	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
All currencies						
Yield	7.6	3.2	8.2	2.9	7.3	3.3
Amount (millions)	376.6	348.9	308.6	257.4	411.8	383.9
Maturity (years)	9.7	9.1	9.2	6.6	10.0	10.1
USD only						
Yield	8.0	3.1	8.1	3.0	7.9	3.2
Amount (millions)	340.4	323.2	302.0	258.9	362.8	354.5
Maturity (years)	8.5	6.5	8.5	5.6	8.5	6.9

Table A3 ***Domestic bond issuances.*** Includes bonds issued in the domestic market by non-financial firms residing in Mexico. Issuances are considered investment grade when rated BBB or higher under BBG composite rating.

	Full sample	Pre 2008Q3	Post 2008Q3
Number of firms	82	43	61
All currencies			
Number of bond placements	316	146	170
Investment grade	294	140	154
Non-investment grade	22	6	16
MXN and UDI only			
Number of bond placements	312	146	166
Investment grade	291	140	151
Non-investment grade	21	6	15

Table A4 ***Domestic bond issuances: Main features.*** Includes bonds issued in the domestic market by non-financial firms residing in Mexico. Yield is the annualized primary market coupon rate. Amount is measured in millions of US dollars.
Maturity represents maturity at issuance expressed in years

	Full sample		Pre 2008Q3		Post 2008Q3	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
All currencies						
Yield	8.2	2.3	9.4	2.1	7.1	1.9
Amount (millions)	129.0	129.7	115.0	108.3	141.0	144.8
Maturity (years)	7.5	6.4	7.9	6.9	7.1	5.9
MXN and UDI only						
Yield	8.2	2.3	9.4	2.1	7.2	1.9
Amount (millions)	126.7	125.5	115.0	108.3	137.0	138.3
Maturity (years)	7.5	6.4	7.9	6.9	7.1	6.0

Table A5 ***Firm characteristics.*** All variables measured in millions of MXN pesos, except ROA (Return over assets) which is the ratio of net income over total assets.

	Mean	Std. Dev.	Min	Max	N
Total assets	42,750.8	116,775	5.48	1,383,459.0	3,955
Short-term assets	13,546.5	30,197	0.29	400,008.3	3,955
Short-term liabilities	9,622.3	27,654	7.27	376,741.9	3,955
ROA	0.2	0	-2.34	1.1	3,902
Assets in foreign currency	6,556.3	3,6610	0.00	573,925.4	2,128
Outstanding foreign debt (bond issuance only)	2,295.4	15,989	0.00	425,877.9	6,552
Outstanding domestic debt (bond issuance only)	1,274.0	4,143	0.00	64,344.0	6,552

Table A6 ***Domestic credit by type of firm.*** Debt issuer are non-financial firms residing in Mexico that have issued bonds in either the domestic or international debt markets throughout the sample period. Large non-issuer are non-financial firms residing in Mexico that have been granted a loan of over 100 million MXN pesos at any point in time during our sample period, have 250 or more employees, or have reported sales of over 250 million MXN pesos, while remaining inactive in debt markets. SMEs are non financial firms residing in Mexico that do not fulfill any of the previous criteria. The volumen of new loans represents loans granted by regulated financial intermediaries residing in Mexico to private non-financial firms with residence in Mexico, expressed in billions of MXN pesos.

	Volume of new loans			
	Mean	Std. Dev.	Min	Max
Total				
Debt issuer	39.3	15.2	18.5	9 .3
Large, non-issuer	52.7	17.3	26.3	99.8
SME	22.7	8.0	10.3	43.1
Pre 2008				
Debt issuer	37.2	15.3	18.5	75.8
Large, non-issuer	38.5	8.1	26.3	63.0
SME	16.5	4.4	10.3	30.7
Post 2008				
Debt issuer	41.0	15.0	19.0	97.3
Large, non-issuer	64.2	14.0	38.2	99.8
SME	27.8	6.7	15.8	43.1