



# The Effect of Global Liquidity on Corporate Financing in Mexico

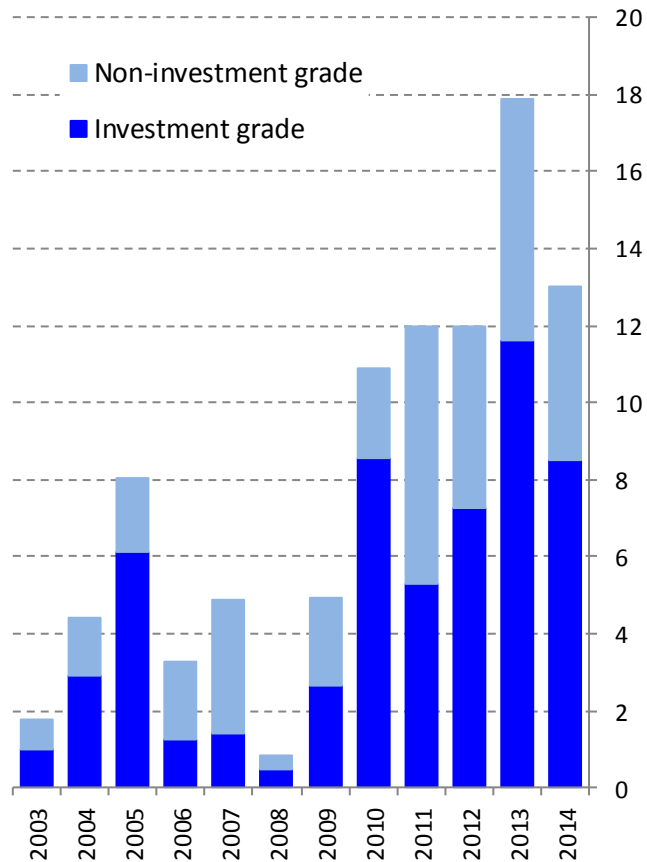
Carabarán, de la Garza and Moreno, April 2015



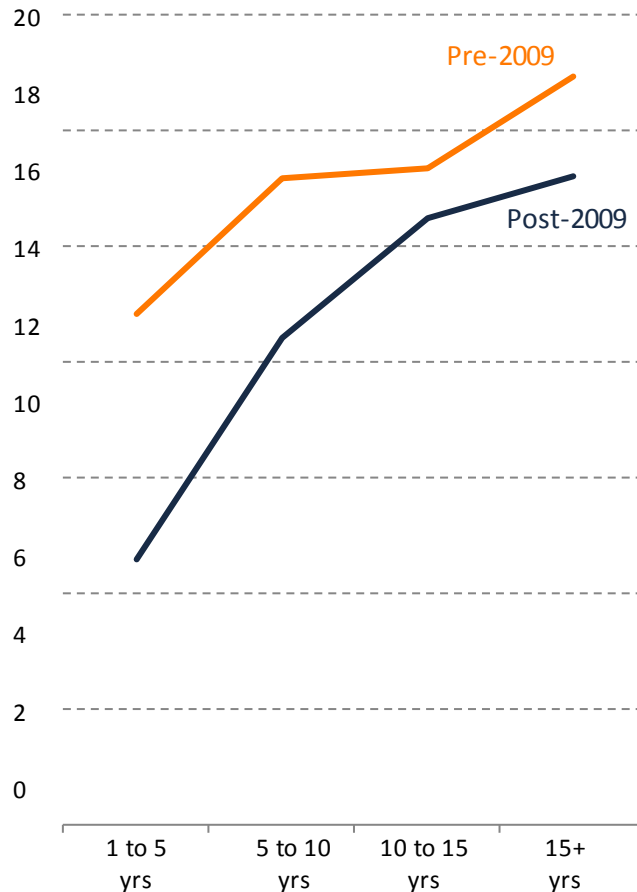
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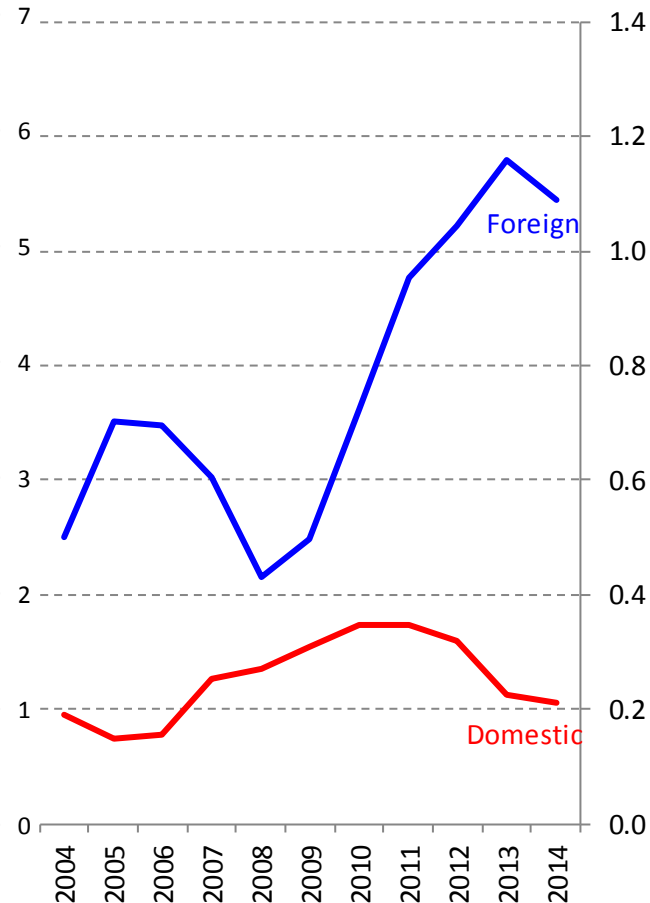
**Gross Bond Issuance by Mexican Corporations in International Bond Markets<sup>1/</sup>**  
USD billion



**Interest Rates of Bonds Issued Abroad by Mexican Corporations with Investment Grade<sup>2/</sup>**  
Percent



**Average Amount Issued by Mexican Corporations<sup>3/</sup>**  
USD billion, 3-year moving average



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

1/ Includes bonds with maturity greater than one year issued in foreign markets by non-financial private corporations.

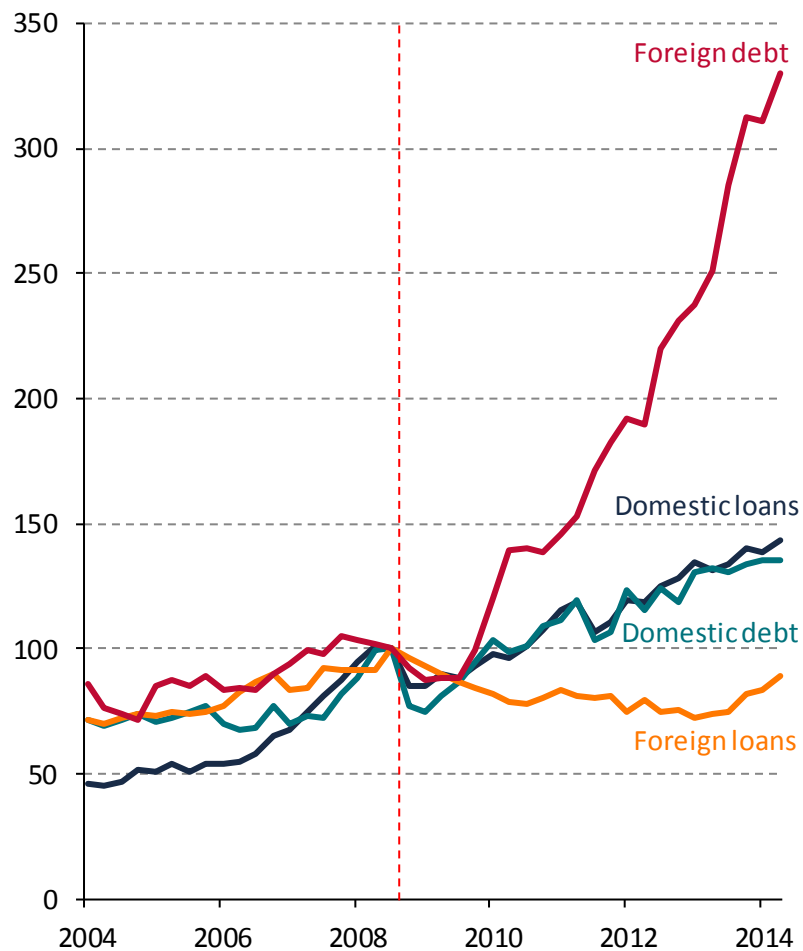
Source: Prepared by Banco de México based on information from Bloomberg and Indeval.

2/ Includes only bonds denominated in USD.

3/ Includes only corporations that issued both in the domestic and foreign market.

## Financing to Non Financial Corporations in Mexico

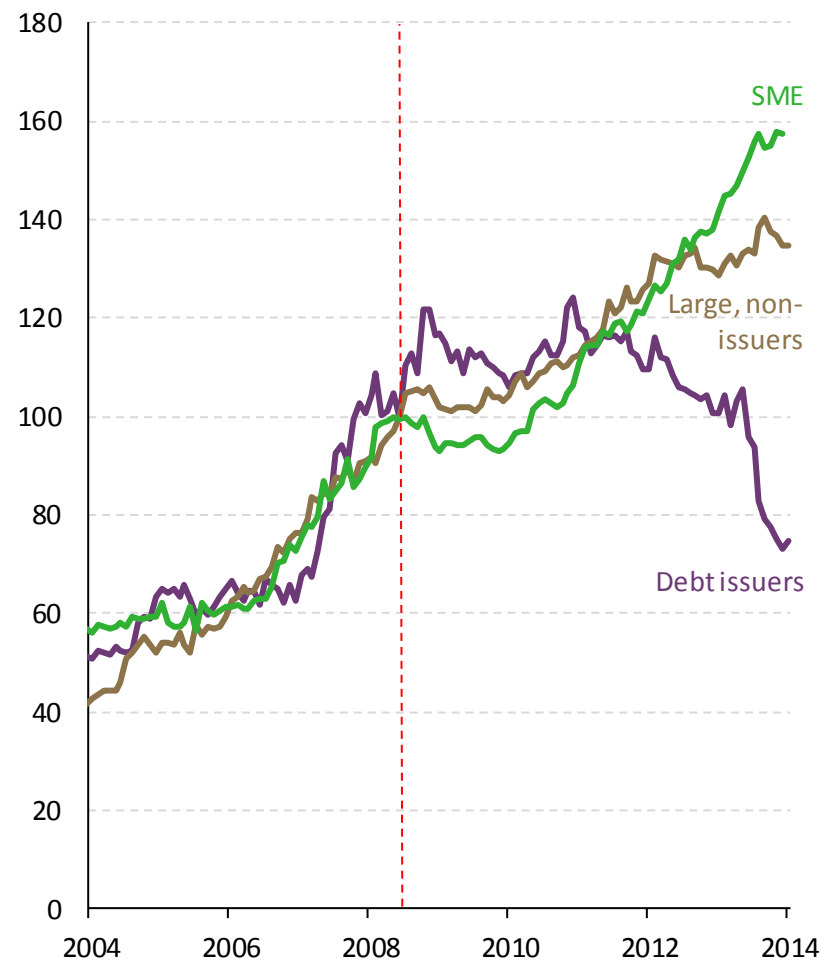
Index, 2008q3=100



Source: Banco de México.

## Commercial Bank Credit to Non Financial Corporations in Mexico by Firm Type

Index, 2008q3=100



# Introduction

- This paper aims to identify how recent changes in global financial conditions have affected corporate financing in Mexico. We attempt to answer two questions:
  - ① To what extent do bond issuing conditions that characterize the “second phase of global liquidity” –particularly lower financing costs– have driven corporate bond placements abroad?
    - ✓ We estimate that lower spreads have an important effect in the probability that a Mexican firm issues a bond in international markets.
  - ② As larger firms have freed up resources in the domestic credit market, has this translated into increased domestic financing for smaller firms?
    - ✓ Using an instrumental variable approach, we find that exogenous decreases in the volume of new loans granted to debt issuing firms significantly increase new loans to small and medium enterprises (SMEs).
- Results may have important policy implications in light of impending increases in global interest rates, particularly in advanced economies.

# Data

- We assemble a comprehensive dataset on the universe of bonds and loans of Mexican non-financial corporations (2003q4-2014q1).
- **Credit-level data**
  - ✓ Main features of all bonds issued in foreign markets (226 placements by 53 firms) and in the domestic market (316 placements by 82 firms).
  - ✓ Main features of the universe of loans granted by regulated financial intermediaries (around 550-600 thousand loans on a typical month).
- **Firm-level data**
  - ✓ Balance sheet data from financial reports of companies listed on the Mexican Stock Exchange (137 firms, out of which 32 were active in foreign debt markets and 55 were active in the domestic debt market).
- We collected the names of the subsidiaries of all listed companies in order to consolidate all information at the parent company level.

# 1 Global Liquidity and Foreign Bond Issuance

- We want to estimate how lower financing costs abroad relative to domestic borrowing costs impact the probability that a Mexican firm issues a bond in international markets:

$$Prob(Issue_{i,t}^* = 1) = f(Spread_{i,t}, \phi) + \varepsilon_{i,t} \quad (1)$$

- Construct counterfactual individual issuer-level spread:

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

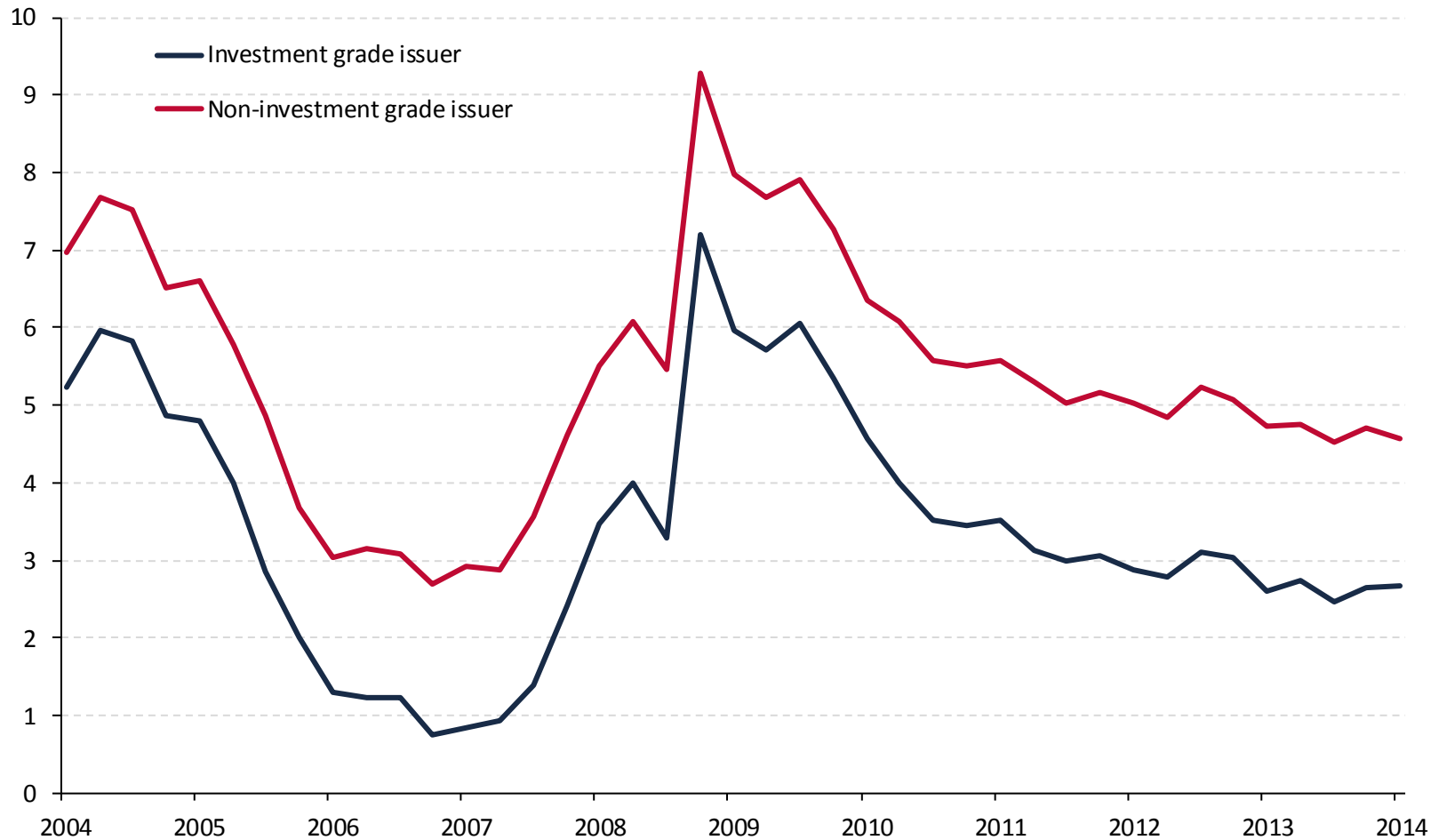
- We obtain fitted values from this estimation to compute the interest rate that a given firm would have paid at each point in time and in each market (D, \*) for a standard bond issuance (500 million USD and 1 year maturity)  $\rightarrow \{\hat{y}^*, \hat{y}_{MXN}^D\}_{i,t}$
- In order to compare prices across markets, **we transform the rates of bonds issued domestically by adjusting for the expected depreciation:**

$$\hat{y}_{USD}^D = \frac{S}{F} (1 + \hat{y}_{MXN}^D) - 1$$

- We calculate the spread for each firm as:  $Spread = \hat{y}^* - \hat{y}_{USD}^D$

# 1 Global Liquidity and Foreign Bond Issuance

Counterfactual Spread (International Minus Domestic Interest Rate)  
Percentage points



Source: Carabarín, M., A. de la Garza and O. Moreno (2015) *mimeo*



# 1 Global Liquidity and Foreign Bond Issuance

$$Prob(Issue_{i,t}^* = 1) = f(Spread_{i,t}, \phi) + \varepsilon_{i,t} \quad (1)$$

	(1)	(2)	(3)	(4)	(5)
Logit model	Probability of issuing abroad				
Issuance spread (fitted values)	-0.094* (0.056)	-0.111* (0.059)	-0.109* (0.059)	-0.116* (0.063)	-0.109* (0.064)
Has issued in external market		0.778*** (0.245)	0.699** (0.279)	0.700** (0.279)	0.688** (0.279)
Cross-border credit			0.046 (0.077)	-0.035 (0.268)	-0.033 (0.268)
Domestic conditions	NO	NO	NO	YES	YES
Firm characteristics	NO	NO	NO	NO	YES
Observations	1,130	1,130	1,130	1,130	1,130

Standard errors in parentheses (OIM)

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

- We estimate that a 100bp reduction in the foreign-domestic debt issuing spread increases the probability of issuing abroad by 10%.

## 2 Global Liquidity and Domestic Credit in Mexico

- As shown, together with the increase in corporate bond placements in the aftermath of the 2008-09 crisis, we saw a gradual drop in domestic bank lending to foreign debt issuing firms and an expansion of bank credit to SMEs.
  - ✓ To what extent has lower domestic bank lending to firms with access to international debt markets freed up resources to increase bank lending to SMEs?
- We estimate an instrumental variable model of the following form:

$$SME_t = \beta_1 Issuer_t + \beta_2 LendCap_t + X\gamma + u_t \quad (3a)$$

$$Issuer_t = \theta_1 GlobLiq_t + Z\mu + \epsilon_t \quad (3b)$$

where *Issuer* measures new bank loans granted to issuing firms in a given period; *SME* represents new loans granted to SMEs that period; *LendCap* and *GlobLiq* are measures of banks' lending capacity and global liquidity, proxied by the VIX index; and *X*, *Z* include additional controls.

- Global liquidity proxy is valid as IV if domestic credit to SME is not directly impacted by global liquidity after controlling for credit supply and real demand channels.

## 2 Global Liquidity and Domestic Credit in Mexico

	(1)	(2)	(3)	(4)
	New loans to SME			
	OLS		IV	
Issuer (new loan)	-0.004 (0.020)	-0.009 (0.027)	-0.088*** (0.034)	-0.200*** (0.065)
Bank lending capacity	46.868*** (2.161)	42.260*** (3.120)	47.413*** (2.200)	51.422*** (5.000)
Bank's avg. fund. cost		-0.631** (0.315)		0.712 (0.646)
IGAE (Mex growth)		-0.223* (0.130)		-0.641*** (0.194)
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

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

- We find that a decrease of 1 billion MXN in loans to foreign debt issuing firms increase loans to SMEs by about 200 million MXN.

## 2 Global Liquidity and Domestic Credit in Mexico

- As international credit conditions tighten and it becomes relatively expensive for large firms to issue debt abroad, it may be expected that they will turn back to domestic credit markets, potentially crowding out smaller firms.
- If we assume that:
  - ✓ Gross bond issuance decreases in the same proportion as the decrease in the probability of issuing abroad.
  - ✓ Large issuing firms that are unable/unwilling to place bonds in international markets substitute completely their financing needs for domestic bank loans.

Then, our combined results imply 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**, around 10% of the average amount of new loans to SMEs in 2014.

# Final Remarks

- Increase in global liquidity seems to have reduced borrowing costs of international debt-issuing firms in Mexico, which explains the recent rise in foreign debt placements.
- This seems to have increased banks' capacity to funnel domestic credit resources to SMEs, a situation that may potentially reverse once international credit conditions become more restrictive and large firms return to domestic lending markets.
  - ✓ It is possible however that this crowding-out effect be mitigated if large issuing firms seek alternative financing sources other than domestic bank loans.
  - ✓ Credit conditions may soon become more restrictive in domestic markets as well.
  - ✓ Banks may choose to continue granting credit to SMEs given their recent credit history.
- Future work:
  - ① Have firms with access to international credit markets and thus improved borrowing conditions performed better?
  - ② How has credit access to SMEs affected their performance?
  - ③ As SME loans constitute a larger proportion of banks' portfolios, have banks become inherently riskier?



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