INTERNATIONAL MONETARY FUND

Capital Controls, Risk, and Firm Performance

Cross-country Evidence from Corporate Bond Issuance

Andrea Fabiani, Andrés Fernández and Nimisha Gupta

WP/25/193

2025
SEP

WORKING PAPER

 WP/25/193

IMF Working Paper
MCM

Capital Controls, Risk, and Firm Performance: Cross-country Evidence from Corporate Bond Issuance

Prepared by Andrea Fabiani (Bank of Italy), Andrés Fernández (IMF) and Nimisha Gupta (U. of Chicago)[*]

Authorized for distribution by Thordavur Olafsson
September 2025

ABSTRACT: We study how controls on capital inflows impact firms' financing and real outcomes in emerging markets using a novel dataset that merges firm-level bond issuance and balance sheet data with granular measures of capital controls. We uncover a bond channel whereby a tightening of controls on nonresident purchases of domestically issued corporate bonds reduces the likelihood of subsequent bond issuance by about one-third of the historical average. This effect operates through two distinct channels linked to the heterogeneous impact of these policies across firms' characteristics: a *prudential channel*, where riskier, more leveraged firms curtail issuance more sharply, and a *productivity channel*, in which more productive firms also reduce issuance. Crucially, however, only the prudential channel persists when analyzing firms' total liabilities and investment. Riskier firms reduce total liabilities and cut back on investment, while more productive firms maintain their investment plans by substituting away from bond markets, including via reduced dividend payouts. We further examine how these dynamics vary across domestic vs. global financial cycles and across alternative measures of firm risk and productivity, and by documenting substitution margins via dividend payouts. We end with a discussion of the policy implications of our findings.

JEL Classification Numbers: F32, F38, F41

Keywords: Capital flows; Capital Controls; Emerging Markets; Misallocation; Leverage

Author's E-Mail Address: afernandez3@imf.org; andrea.fabiani89@gmail.com; nimishag@uchicago.edu

[*]We thank comments by Roman Bouis, Mohamed Diaby, Chris Erceg, Wenjie Li, Tjoervi Olafsson, and participants in seminars held at the IMF and U. of Chicago. The views in this paper do not represent the views of the Bank of Italy, the IMF, its Executive Board, or IMF management.

WORKING PAPERS

Capital Controls, Risk, and Firm Performance

Cross-country Evidence from Corporate Bond Issuance

Prepared by Andrea Fabiani, Andrés Fernández and Nimisha Gupta

Contents

FIGURES

TABLES

Glossary

AREAER	Annual Report on Exchange Arrangements and Exchange Restrictions
ARPK	Average Revenue Product of Capital
CCIs	Controls on Capital Inflows
EMBI	Emerging Markets Bond Index
EMEs	Emerging Market Economies
FX	Foreign Exchange
GDP	Gross Domestic Product
GFC	Global Financial Crisis
iMaPP	Integrated Macroprudential Policy
IQR	Interquartile Range
LSEG	London Stock Exchange Group
NFC	Non-Financial Corporations
ROA	Return on Assets
ROE	Return on Equity
s.d.	Standard Deviation
SDC	Securities Data Company
p.p.	Percentage Points

Introduction

Capital inflows are central to emerging market economies (EMEs), fostering growth and facilitating the allocation of capital to productive uses (Levine, 1997; Henry, 2000a; Henry, 2000b; Larrain and Stumpner, 2017; Varela, 2018). Yet large capital inflows can also fuel credit booms and amplify the risk of financial crises (Reinhart and Rogoff, 2009; Jordà, Schularick, and Taylor, 2011; Mendoza and Terrones, 2012). As a result, managing capital flows poses a delicate trade-off between supporting growth and safeguarding financial stability (Bianchi and Mendoza, 2020; Ma, 2020). On one hand, capital flow management policies can, in principle, reduce the likelihood and severity of financial crises by curbing riskier borrowing and encouraging prudential deleveraging (Jeanne and Korinek, 2010; Bianchi and Lorenzoni, 2022; Zeev, 2017; Fabiani, López, and others, 2023). On the other hand, such policies may impose efficiency losses due to capital misallocation, particularly when they disrupt the optimal allocation of resources across firms by depriving productive firms from the funding they need to reach their efficient scale (Johnson and Mitton, 2003; Rajan and Zingales, 2003; Forbes, 2007b; Alfaro, Chari, and Kanczuk, 2017; Andreasen, Bauducco, Dardati, and Mendoza, 2023; Andreasen, Bauducco, and Dardati, 2024). While this trade-off has long featured in both academic and policy discussions (IMF, 2012 and 2022), systematic cross-country evidence on how it operates in practice remains limited.

Motivated by these observations, this paper asks three central questions about how controls on capital inflows (CCIs) shape firm in EMEs. First, we examine whether a specific form of CCIs –restrictions on nonresident purchases of domestically issued bonds–reduce firms' *local* issuance. Second, we investigate the mechanisms behind any observed reduction, focusing on two channels that capture heterogeneous effects of CCIs across firms. A *prudential channel* tests whether the impact is stronger for riskier (more leveraged) firms, while a *productivity channel* asks whether more productive (higher-(return on assets (ROA)) firms are disproportionately affected. Third, we assess the consequences by studying how CCIs alter firms' total debt and investment, thereby linking financing constraints to broader economic outcomes.

To address these questions, we put together a novel dataset that combines cross-country data on capital controls with detailed firm-level data. Specifically, we draw on granular bond-inflow capital control measures from Fernández and others (2016), which capture restrictions on nonresident purchases of domestically issued corporate bonds. We merge this with issuance data from Thomson Reuters Securities Data Company (SDC) Platinum, which provides firm-level information on bond deals across EMEs, and with balance sheet data from Worldscope, which covers firm characteristics and financing decisions. Our

panel includes 2,695 firms across various sectors, in 18 EMEs observed at a quarterly frequency over 1998–2019, yielding more than 72,000 firm–quarter observations. We harmonize the policy series using bond-inflow CCI that account for the existence of restrictions on nonresident purchases of *domestically issued* corporate bonds. We complement this with data on CCIs on other instruments (equity, derivatives, money-market instruments, financial credit, and direct investment), along with a measure of countries' macroprudential stance.

Bond deals from SDC include issue-level identifiers as well as several other bond characteristics (issuer name, ISIN/CUSIP, currency, market of issuance, etc.). We classify an issuance as *domestic* if it is placed in the firm's home market, and as offshore otherwise. We focus on domestic issuance because this segment has expanded most rapidly in EMEs during our sample period, consistent with trends documented elsewhere (C. Bertaut, Bruno, and Shin, 2025). Moreover, the bond-inflow CCI we study explicitly targets nonresident purchases of domestically issued bonds, aligning the treatment with the outcome studied, improving the identification of the policy effect. We link SDC to Worldscope at the ultimate-parent level using firm identifiers where available, supplemented by fuzzy string matching and manual checks. Worldscope provides balance-sheet variables (total assets/liabilities, leverage, ROA, capex), which we use to construct leverage and productivity quartiles, and to measure total-liability and investment responses.

This combination of datasets enables us to analyze both cross-sectional and time-series variation in capital controls and bond issuance. To quantify the impact of CCIs on firms' bond issuance, we estimate a firm-quarter linear probability model where the outcome is an indicator for domestic bond issuance. The key regressor is a lagged country-level indicator for bond-inflow CCIs. Following Becker and Ivashina (2014), we restrict the sample to firm-quarters in which total debt rises, ensuring that demand for external finance is positive and that changes in composition reflect credit-supply drivers rather than demand. We include firm characteristics and macro-financial controls, plus dummies for CCIs on other instruments and other macroprudential tools. Firm and sector*time fixed effects absorb time-invariant heterogeneity and net out time-invariant firm heterogeneity and sectoral shocks that are common across countries, respectively.

To measure heterogeneous impacts, we interact the CCI indicator with pre-determined firm characteristics that proxy risk and productivity: leverage quartiles and ROA quartiles. These interactions reveal whether tighter bond-inflow controls curb issuance more for highly leveraged firms—a prudential channel—,and whether more-productive (higher-ROA) firms also pull back—a productivity channel. Lastly, to assess real effects, we replace the issuance outcome with growth in total liabilities and investment, testing whether reduced bond issuance leads to deleveraging and lower capex, or is offset by substitution toward other

retained earnings or domestic credit. All specifications retain the same identification strategy ensuring that the heterogeneity and real-effects estimates are directly comparable to the baseline issuance results.

Our results highlight three key findings. First, we provide evidence of a bond channel of capital controls: CCIs significantly reduce the likelihood of firms' domestic bond issuance. On average, the probability of issuance falls by 1.9 percentage points, equivalent to 37 percent of the historical mean. Moreover, we find that controls on other instruments, such as equity issuance, are associated with higher bond issuance, suggesting substitution across sources of finance. Second, the reduction in bond issuance is consistent with both channels: the effect is stronger for more leveraged firms, but also present –though smaller–for high-ROA firms. Finally, we show that the prudential channel extends to total debt and investment decisions: among riskier firms, total liabilities decline by up to 2 percent, and quarterly investment by 0.2 percent. Crucially, by contrast, we do not find reductions in total liabilities or investment among more productive firms. They maintain investment by substituting away from bond finance—drawing on retained earnings, reducing dividends, and tapping alternative funding sources.

We extend the baseline along three dimensions. First, we study substitution margins and provide evidence that dividend-payout cuts act as an internal-finance valve for profitable firms. Second, we re-estimate heterogeneity using alternative profitability/efficiency measures such as return on equity (ROE), and average revenue product of capital (ARPK) and obtain robust results. Third, we examine state dependence by interacting the CCI with the financial cycle, separating domestic Emerging Markets Bond Index (EMBI) from global drivers (broad and AE dollar indices). The prudential channel is strongest when domestic conditions are loose; under globally loose conditions both prudential and productivity channels operate.

Our findings entail important policy implications for the management of capital flows in EMEs. The results highlight the trade-off policymakers face between financial stability and long-run efficiency. On the one hand, the prudential channel shows that CCIs can mitigate financial stability risks by curbing excessive bond issuance among riskier and more-leveraged firms. On the other hand, the productivity channel warns of potential longer-term costs if measures disproportionately constrain high-ROA firms, with implications for aggregate growth. Our evidence on real outcomes, however, shows that productive firms maintain investment by substituting away from bond finance. This suggests that the absence of a productivity penalty depends critically on the availability of substitutes. A key design lesson, therefore, is to pair CCIs with complementary policies that expand financing options for productive firms—such as deep local-currency markets, nonbank intermediation, and measures that incentivize internal funding of investment. Finally, because our analysis focuses on large, listed firms that regularly tap capital markets,

policymakers should recognize that smaller firms–more dependent on bank credit–may be affected through different channels. CCIs that impact bank intermediation should thus be calibrated with this credit in mind and coordinated with macroprudential tools, so prudential benefits are realized without suppressing high-productivity investment. The effectiveness of such measures may also depend on the state of the financial cycle, calling for a calibration that differs between periods of domestic compared with global loosening of financial conditions.

Literature Review. Our work contributes to two strands of the empirical literature on capital controls. The first documents the microeconomic costs these policies can impose on firms. In a seminal contribution, Forbes (2007a) shows that during the Chilean encaje in the 1990s, smaller traded firms faced significant financial constraints, which eased as firm size increased. In a companion survey, Forbes (2007b) summarizes early microeconomic studies, concluding that capital controls increase financial constraints, especially for smaller firms and those without international market access, and can distort investment decisions. Alfaro, Chari, and Kanczuk (2017) find that Brazilian firms experienced lower returns after capital control announcements, consistent with higher financing costs, with effects concentrated among firms more dependent on external finance. Building again on the Chilean experience, Andreasen, Bauducco, and Dardati (2024) document that controls had heterogeneous effects on firms as exporting (non-exporting) firms operating in more capital-intensive sectors were more negatively affected than exporting (non-exporting) firms operating in less capital-intensive sectors. Using a structural model, they relate their findings to the increase in financing costs, the depreciation of the real exchange rate, and compositional effects on the mass of exporters and non-exporters. Extending this analysis, Andreasen, Bauducco, Dardati, and Mendoza (2023) show that capital controls raise misallocation and welfare costs, particularly for exporters and highly productive firms with large optimal scale gaps. New cross-country evidence from Andreasen, De Gregorio, and others (2024) indicates that capital controls tighten firm-level financing constraints, while macroprudential policies tend to alleviate them.

The second strand of literature investigates the potential benefits of controls for financial stability. While the debate remains unsettled, Erten, Korinek, and Ocampo (2021) conclude in their comprehensive survey that empirical evidence generally supports a stabilizing role, particularly when controls are used countercyclically.[1] At the firm level, Gallego and Hernández (2003) find that Chilean firms reduced leverage and increased reliance on retained earnings in the 1990s, thereby lowering vulnerability to short-term speculative flows during the Asian and Russian crises. Using Colombian microdata, Fabiani,

[1]A theoretical rationale for the use of prudential capital controls has been developed in recent years through models that rely on pecuniary and aggregate demand externalities, where prudential inflow controls can sometimes help correct these distortions and improve welfare (see references in Erten, Korinek, and Ocampo (2021) and Bianchi and Lorenzoni (2021), among others).

Piñeros, and others (2022) show that capital controls taxing foreign exchange (FX) debt break the carry-trade, reducing risky credit supply from FX-indebted banks to riskier firms. In subsequent work, Fabiani, López, and others (2023) further show that controls slow firm debt growth during booms, improve firm performance during crises, and do not significantly distort credit allocation between productive and unproductive firms. The debate, however, is far from closed. Keller (2019), for instance, documents that Peru's limits on banks' FX forward positions shifted exchange rate exposure from foreigners onto domestic firms, while Andreasen and Nuguer (forthcoming) find that higher FX reserve requirements in Peru reduced overall credit supply.

Our work contributes to both strands of the literature. To some extent, the firm-level costs and the stability benefits are two sides of the same coin: deleveraging that strengthens balance sheets at the macro level may also mean firms cutting expenditures and facing tighter constraints. The relevant question is therefore whether controls disproportionately affect high-productivity firms, leaving scars that weigh on long-run growth. This is where our paper makes its main contribution: we jointly test the prudential and productivity channels in a large cross-country firm panel, linking financing outcomes to real investment responses. By assembling the largest cross-section of EME firms with detailed balance sheet information, we move beyond single-country case studies—where firm-level financial data are often missing—and provide systematic evidence on both the benefits and costs of CCIs across heterogeneous firms and economic conditions. To the best of our knowledge, ours is the first study to assess these firm-level trade-offs jointly across a broad EME sample.

Our work is also the first to shed light on the bond channel of capital controls, offering a cleaner identification of how these policies affect firms. We do this by expanding the dataset with bond-level information on domestic issuance, a dimension largely unexplored in prior work. Focusing on the bond channel allows us to directly align the policy measure—restrictions on nonresident purchases of domestic bonds—with the outcome of interest, firms' domestic bond issuance. This focus also helps us bypass a common concern in the literature: small firms are largely absent from bond markets. As we show, our sample is indeed tilted toward larger listed firms, which makes the bond channel especially relevant. [2]

The remainder of the paper is structured as follows. Section 2 introduces the dataset and provides descriptive statistics. Section 3 outlines the empirical model and identification strategy. Section 4 presents the baseline results. Section 5 extends the analysis and reports robustness checks. Section 6 discusses policy implications, and Section 7 concludes. Additional technical material is provided in the Appendix.

[2]The exclusion of small firms remains a caveat, which we address explicitly when discussing the policy implications of our work.

Dataset

This section describes the dataset constructed for our empirical analysis. We first report the main data sources and discuss the variables in our analysis and the related summary statistics. The last subsection describes trends in domestic and international bond issuance by non-financial EMEs firms in the dataset.

Data Sources

Our study focuses on bond issuance by non-financial companies in 18 EMEs.[3] We retrieve transaction-level information on bond issuance from London Stock Exchange Group's (LSEG's) SDC Platinum, including data on issuance volume, date, the market in which the bond was issued and firm-level identifiers. SDC Platinum is a standard database for analyzing bond issuance in a cross-country setting and especially by non-US firms (Boyarchenko and Elias, 2023). Importantly, SDC Platinum links each issuing firm to its ultimate parent company.[4] We assign firm-level attributes to the issuing firm according to the parent company's identifier. Hence, our sample includes all bond issues by firms with parent company headquartered in the 18 emerging economies in our sample. We then compare the nationality of the parent company with the market in which the bond was issued to define the transaction as "domestic" or "international". For concreteness, we considered a bond issued by a firm with Brazilian parent as domestic if it is issued in a Brazilian bond market, and as international if issued in any non-Brazilian bond market. We exclude issuance of commercial paper by retaining only transactions that SDC categorize as bond issuance, involving maturity equal to or above one year.[5]

Next, we gather quarterly balance sheets for publicly listed firms from Worldscope.[6] We retain information on leverage (total debt/assets), profitability (ROA, ROE),[7] size (log total assets) and the liquid assets ratio. We merge SDC and Worldscope data through a three-stage process. First, as already explained, we identify the parent company for each issuing firm in the SDC dataset. Second, for each parent company in

[3]We identify Emerging Economies as those countries with an active EMBI index, namely: Argentina, Brazil, Chile, China, Colombia, Hungary, India, Indonesia, Kazakhstan, Malaysia, Mexico, Peru, Philippines, Poland, Russian Federation, Thailand, Turkey, and Vietnam. Appendix Table A.1 reports the precise sample coverage for each country.

[4]Whenever the parent company is not reported, we assume the issuing firm is the parent company itself, which occurs in 16 percent of the cases.

[5]Formally, we retain transactions that are attributed the following security types in SDC: bonds, notes, and debentures. We exclude convertible bonds as they represent a hybrid between equity and debt securities.

[6]While similar information is also available in Compustat Global, we rely on Worldscope given its broader coverage of listed firms in Emerging Market Economies and its smoother integration with SDC identifiers (CUSIP, SEDOL, ISIN).

[7]For ROA and ROE, we use annual data both because of severe attrition in quarterly information and because quarterly fluctuation in such measures may reflect seasonal dynamics.

SDC, we look for the corresponding information in Worldscope through three common identifiers, namely the CUSIP, SEDOL, and ISIN codes. Finally, we employ a fuzzy name-matching algorithm for the remaining unmatched issuers, followed by manual verification to ensure exact matching. The initial dataset from SDC Platinum identifies approximately 4,256 non-financial corporate issuers of domestic bonds whose parent firms are located in EMEs. Following our matching procedure, we successfully merge 4,045 of these issuers.[8]

Our analysis also exploits a wide variety of country-level time-series variables. Most importantly, we obtain data on capital controls from Fernández and others (2016), building on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) and capturing the extensive margin of capital controls with annual frequency. This dataset is particularly suited for our study because of three distinguishing features in its granularity. First, it splits capital controls across different financial instruments including bonds, which is at the center of our analysis, as well as on other instruments such as equity, derivatives, money market, collective instruments and real estate. Second, capital controls on each instrument are further categorized based on the residency of the buyer and seller of each financial asset. Third, the dataset also distinguishes capital controls on inflows versus outflows. While we control for broad set of capital controls in our empirical methodology, the key control of interest remains the controls on purchasing bonds locally by non-residents, referred to as $Bonds(PLBN)$ hereafter. That is, our main interest lies on capital controls limiting inflows in the form of nonresidents' ability to buy locally-issued bonds. The dataset in Fernández and others (2016) provides categorical information on the presence (or absence) of any type of these restrictions by country and year.[9]

We also retrieve information on other macroprudential measures (different from capital controls), that could be simultaneously used to manage credit growth. In particular, we rely on the Integrated Macroprudential Policy (iMaPP) Database (Alam and others, 2019). Distinguishing across different macroprudential measures, the dataset defines categorical monthly variation indicating whether a measure has been loosened (assigned value -1), tightened (1) or kept constant (0). The data comes at monthly frequency, that we aggregate at the quarterly frequency. There are 17 indices to measure extensive margin of controls and following Alam and others (2019), we create iMaPP index as the sum of all 17 indices.

In addition to capital controls, we control for key measures of economic conditions including the real

[8]Attrition is due to two reasons. First, bonds may be issued by private firms, that are not covered in Worldscope. Second, a publicly listed firm may be covered in SDC but not in Worldscope. The very low attrition rate (close to 5 percent) associated with merging the two datasets implies that neither of the two issues is relevant in our context.

[9]Note that our analysis could not be carried with the other two well-known sources for capital controls, namely Chinn and Ito (2006) and Quinn and Toyoda (2008), as they do not distinguish across financial assets nor the direction of the capital flow.

Gross domestic Product (GDP) growth rate, the inflation rate, the exchange rate against the US Dollar, the IMF financial development index and the EMBI spread. The complete list of data sources is in the Appendix Table A.2.

Main Variables and Summary Statistics

We generally employ a firm-level quarterly panel. Table A.3 displays summary statistics for firm-level variables in our baseline regression sample, comprising approximately 2,700 firms and resulting from the merge of the different firm-level information with country-level time-series and from the application of controls and fixed effects in the empirical model described in the next section.

The baseline outcome variable of interest is $1(\text{Domestic Bond Iss})_{f,t}$, a dummy with value 1 if a firm f issues a bond domestically in a given quarter t, and with value 0 otherwise.[10] The average likelihood that a firm issues a bond is about 5 percent. We also report additional information on bond issuance; the average firm issues bonds around 6 times over our sample period, with average volume of more than 200 million USD and maturity above 3 years (see Appendix Table A.3).

We employ leverage as a proxy for firm risk, defined as total debt over total assets. On average, firms finance one third of their assets through debt. However, the data reflect notable dispersion in firm leverage, with a standard deviation (s.d.) of 16 percentage points (p.p.) and interquartile range (IQR) of 22 p.p. Our preferred measure for firm profitability is firm ROA, obtained by dividing net income by total assets. The average firm displays positive profitability of around 5 percent, with significant heterogeneity as accounted for by a s.d. and IQR of roughly 6 p.p.

Table 1 shows summary statistics for the country-level variables. Most importantly, $Bonds(PLBN)_{c,t}$ is a dummy variable with value 1 if country c in quarter t has implemented capital controls on foreign purchase of domestically issued bonds, and with value 0 otherwise. It has to be noted that, consistently with the original data frequency in Fernández and others (2016), this variable varies at the country-year level (i.e., it is constant across the quarters of a given year). In our sample of Emerging Economies, capital controls on foreigners' purchase of locally issued bonds are in place for approximately two thirds of the time, as signaled by the average of 0.67.[11] Our dataset overall captures 20 switches in capital controls on

[10] We include firms from the first to the last time we observe a bond issue in SDC. For instance, if we observe a firm in SDC issuing a bond in, say, 2000, and for the last time in 2015, we will include it in our observations within those date range.

[11] We also use other information on capital controls. In particular, $Bonds(SIAR)_{c,t}$ is a dummy variable for whether a country implements capital controls on sale or issue abroad by residents of foreign issued bonds. We also report several other capital controls dummies, related to the purchase by foreigners of locally issued collective investment, derivatives, equity (either direct investments or not) and money market instruments, and to the extension of other credits (Financial Credits) from abroad or the purchase of real estate assets.

purchase of locally issued bonds by non residents—that is, episodes in which governments either enforces or removes such measure—across 11 countries (see Appendix Table A.3).

Next, we collapse information on domestic macroprudential policy from Alam and others (2019) into a country-specific quarterly index, iMaPP. The original data provides a variable with value 0 if a macroprudential tool (e.g., countercyclical capital buffers) has not changed over a month, 1 if it has been tightened, and -1 if it has been loosened. We take the sum over a quarter. In an extension, we also consider an overall macroprudential stance index, which cumulates the iMaPP over time for each country.

Domestic and International Bond Issuance

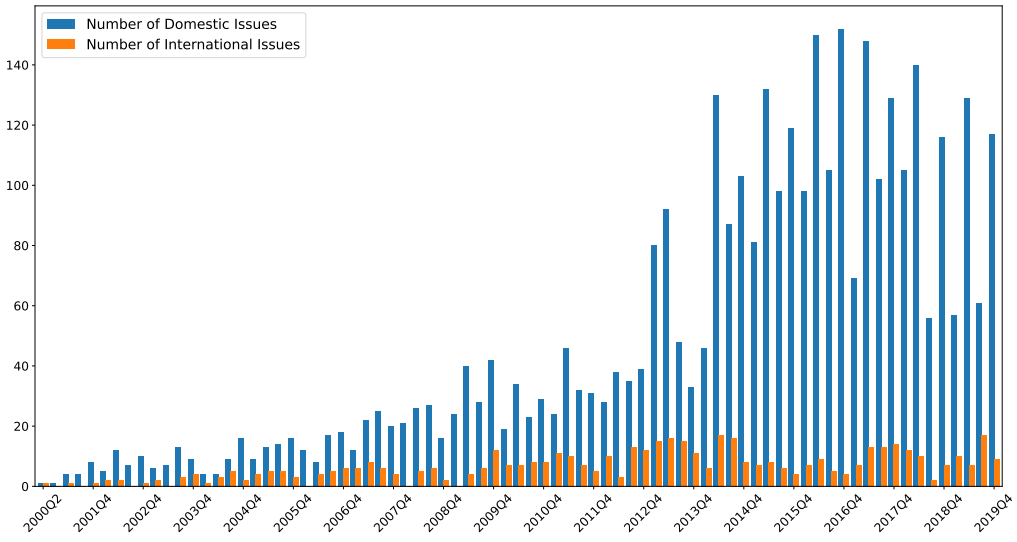
Our primary focus rests on domestic bond issuance by firms, as opposed to international issuance. For concreteness, considering the usual example of a Brazilian firm issuing bonds, we mostly concentrate on issues occurring in Brazilian bond markets, as opposed to bonds issued in international (i.e., non-Brazilian) bond markets.

This choice is due to the fact that, since the Global Financial Crisis (GFC) of 2008, firms in EMEs have increasingly relied on domestic bond markets to meet their financing needs (Avdjiev, Burger, and Hardy, 2024; C. C. Bertaut, Bruno, and Shin, 2021). This structural shift reflects both regulatory developments and evolving market dynamics that have favored local debt issuance, mostly in local currency. Consistent with this trend, our final sample exhibits a substantially higher volume of domestic bond issuances relative to international ones. Figure 1 illustrates the prevalence of domestic bond issuance (denoted by blue bars) versus international bond issuance (orange bars), both in terms of the of the number of bonds issued (panel A) and in terms of volume (panel B).

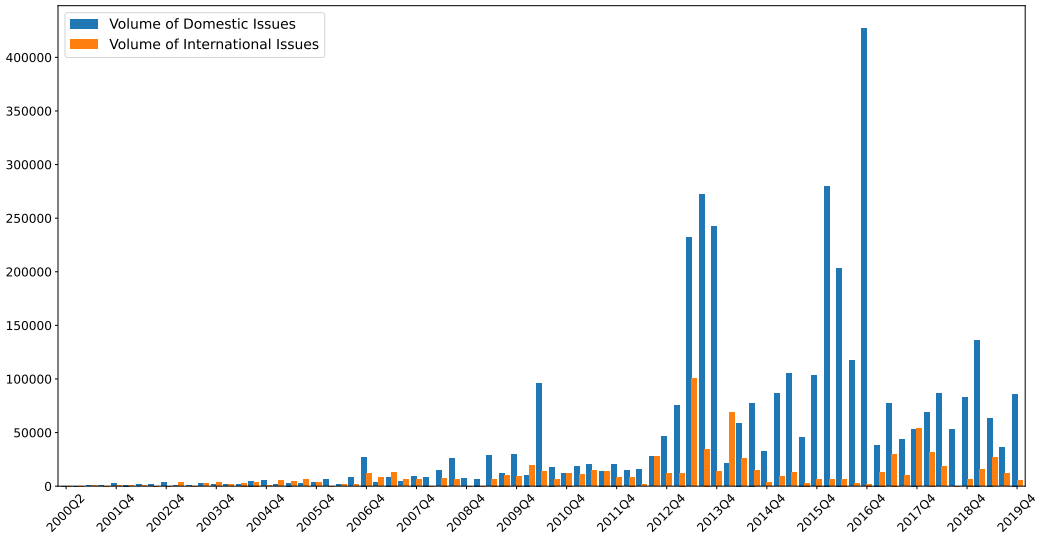
Appendix Table A.3 reports some additional information on bond issuance. The average firm in our sample issues bonds around 6 times, and the average issuance equals 227 millions of US dollar.

Observations: 72,332	Mean	Median	Std. Dev.	p25	p75
Dependent Variable					
bois: 1(Domestic Bond Iss)	0.051	0.00	0.22	0.00	0.00
Firm Controls					
Leverage (%)	32.58	31.87	16.56	20.91	43.37
ROA (%)	5.46	5.08	6.36	2.77	8.27
Size ($\equiv$ log(Total Assets))	20.88	20.86	1.69	19.75	22.01
(log) Liquidity	3.11	3.26	0.89	2.66	3.75
Capital Controls on bond inflows					
Bonds (PLBN)	0.67	1.00	0.47	0.00	1.00
Other Capital Controls					
Equity (PLBN)	0.75	1.00	0.44	0.00	1.00
Money Market (PLBN)	0.67	1.00	0.47	0.00	1.00
Bonds (SIAR)	0.79	1.00	0.41	1.00	1.00
Collective Inv. (PLBN)	0.61	1.00	0.49	0.00	1.00
Derivatives (PLBN)	0.76	1.00	0.43	1.00	1.00
Real Estate (PLBN)	0.90	1.00	0.31	1.00	1.00
Financial Credits (Inflows)	0.90	1.00	0.29	1.00	1.00
Direct Investment (Inflows)	0.92	1.00	0.27	1.00	1.00
Macroprudential policy					
iMaPP Index	0.65	0.00	1.48	0.00	1.00
Economy Controls					
Real GDP growth rate	6.01	6.50	3.67	4.13	7.89
CPI Inflation	3.60	2.80	3.52	1.75	4.83
(log) Exchange Rate	2.44	1.89	2.00	1.34	2.11
Overall Financial Development	0.54	0.56	0.11	0.47	0.63
EMBI spread (%)	1.87	1.62	1.43	1.10	2.14

Table 1: Summary Statistics of Capital Controls and Other Economy Controls



(a) Number of Issues



(b) Volume of Issues (in Millions USD)

Figure 1: Domestic vs International Bond Issuance

Empirical Model

Identification of the Effects of Capital Controls on Bond Issuance

Our baseline model aims at identifying the effects of capital controls on non-financial firms' propensity to issue bonds. We borrow the identification strategy from Becker and Ivashina (2014).[12] In practice, we retain firm-quarter pairs in which total firm-level debt displays a positive growth rate. Hence, we restrict our analysis on firm-quarter pairs in which, by a revealed preference argument, a firm exhibits positive demand for external funding. Hence, estimated adjustments on bond issuance along the extensive margin must be supply driven.

We estimate the following regression model:

$$1\left[Bond_{f,c,t}\right] = \beta_1 CC^{bond}_{c,t-1} + \Gamma X_{f,c,t-1} + \mu_f + \mu_{s,t} + e_{f,t} \quad (1)$$

The outcome variable, $1\left[Bond_{f,c,t}\right]$, is a dummy with value 1 if firm f from country c issues a bond in quarter t, and with value 0 otherwise. The key coefficient of interest, β_1, loads a (lagged) dummy variable for whether capital controls on bond inflows are in place in country c, $CC_{c,t-1}$. We focus on capital controls on purchases of bonds issued locally in country c from non-residents, that is from investors from country c', $c' \neq c$. Under our baseline hypothesis that capital controls are associated with a reduction in the supply of foreign funding for locally issued bonds, it should be the case that $\beta_1 < 0$.

We augment the model with a rich list of lagged firm-level and country-level controls, denoted by the vector $X_{f,c,t-1}$. In particular, we control for firm profitability and riskiness through ROA and leverage, respectively; moreover, we control for firm liquidity (via the liquid asset ratio) and size (through log total assets). Country-level controls include proxies of business cycle and financial cycle conditions such as GDP growth rate, inflation rate, exchange rates to US Dollar, overall financial development index and variations in the EMBI spread.

We also add other lagged capital controls dummies on other instruments, namely derivatives, equity, money market inflows from non-residents, financial credit and direct investment. Controlling for the

[12] Becker and Ivashina (2014) study the propensity to issue bonds versus bank debt by listed US firms in reaction to variations in US credit supply conditions. For an applications to Emerging Markets of such approach and in the context of capital controls, see Bacchetta, Cordonier, and Merrouche (2023).

enforcement of other capital controls measures is important to avoid omitted variable bias in our estimates. Indeed, capital controls on different classes of transactions may correlate[13] and investors may use the associated securities and financial flows as substitutes or complements to bonds. For analogous reasons, we also control for change in macroprudential stance as measured by lagged iMaPP index described in Section 2. Finally, μ_f is a vector of firm fixed effects, whereas $\mu_{s,t}$ denote a vector of sector*time FE. Finally, $e_{f,t}$ is an error term, which we cluster at the firm-level.

We conclude this section by discussing the main threat to our identification, related to the issue of capital controls endogeneity. Indeed, capital controls are not exogenous, but rather driven by current macro-financial local and global developments, including bond issuance by Non-Financial Corporations (NFCs). However, the empirical model outlined above takes care of such endogeneity to a large extent. First, we control for global
(sector-specific) shocks through sector*time fixed effects. Second, we exclude reverse causality by using lagged and therefore predetermined dummies for capital controls. Third, since we control for a long list of local macro-financial variables, we exploit residual variation in capital controls after controlling for local business and financial cycles. Last, but not least, the Becker and Ivashina (2014)'s identification strategy narrows down the endogeneity concern by focusing on the choice of issuing bonds vis-à-vis other forms of external finance (e.g., bank loans). Hence, for the potential bias to impact our results significantly, it has to be the case that unobserved macro-financial conditions prompting capital controls tilt firms' financing choice towards bond , as compared to other forms of external financing such as bank loans. In this respect, however, a relatively large literature shows that the global credit cycle influences credit supply by local banks in Emerging Markets as well (see, e.g., Bräuning and Ivashina, 2020; Di Giovanni and others 2022; Morais and others 2019).

Heterogeneous Effects Across Firms

We test whether capital controls influence firms' ability to issue bonds differently depending on their profitability and risk. We proxy firms' profitability through ROA, whereas we sort risk along with leverage. In particular, we categorize firms into quartiles of these two variables and run the following regression model:

$$1\left[Bond_{f,c,t}\right] = \sum_{q\neq 1,\ Z=ROA,Lev} \beta_q^Z \left(CC_{c,t-1}^{bond} * Z_{f,c,t-1}^q\right) + \Gamma X_{f,c,t-1} + \mu_f + \mu_{s,t} + \mu_{c,t} + e_{f,t} \qquad (2)$$

[13] See Table A.4 in the Appendix.

We are especially interested in the coefficients β_q^{ROA} and β_q^{Lev}, $q = 2, 3, 4$, loading the interaction between the capital controls dummy, $CC_{c,t-1}^{bond}$, and a further dummy for whether a firm is in the q-th quartile of the distribution of either ROA or leverage. Hence, β_q measures the relative impact of capital controls on bond issuance for firms in the q-th quartile of either leverage or ROA, as opposed to firms in the first quartile, $q = 2, 3, 4$. The rest of the model is otherwise identical to model 1, apart from a few elements. First, we augment our model with country*time fixed effects,$\mu_{c,t}$, which absorb any country-specific and time-varying shocks, controlling for any potential unobserved country-specific factors that influence both the likelihood of capital controls and firm-level bond issuance. Importantly, country*time fixed effects take care of the endogeneity of capital controls with respect to local economic conditions, as they imply that the coefficients of interest are identified via the within country and time variation across firms. Second, we also control for the interaction of other firm characteristics (liquidity and size) with capital controls, subsumed in vector of controls $X_{f,c,t-1}$.

Real Effects

To investigate whether capital controls have an ultimate effect on firms' performance, we check whether they impact investment. However, before that, we notice that even under a significant negative effect of capital controls on bond issuance, capital controls may not affect investment to the extent that firms can substitute the forgone bond funding with other sources of external finance, for example bank loans. Hence, checking for real effects through a "bond channel" requires a two-step test in which we first verify the effect of capital controls on total liabilities and, next, on investment.

The employed regression model follows. Since a reduction in debt could take time to materialize and to display its influence on investment, we estimate a dynamic model in the spirit of Jordà (2005)'s local projections:

$$\Delta_h y_{f,c,t+h} = \gamma_{1,h} CC_{c,t-1}^{bond} + \Psi_h X_{f,c,t-1} + \mu_{f,h} + \mu_{s,t,h} + e_{f,t,h}, \quad h = 0, 1, 2, \cdots, 8 \tag{3}$$

We estimate sequentially the models above by OLS. The dependent variable, $\Delta_h y_{f,c,t+h}$, measures the cumulative log-change of the variable of interest (either total liabilities or total investment) between period

$t-1$ and $t+h$, where $h = 0, 1, 2, ..., 8$. Hence, through the coefficients $\gamma_{1,h}$, we pin down the response of total liabilities and investment over a 2-year horizon following the enforcement of capital controls. The employed set of controls and fixed effects is identical to that explained for the baseline model 1. We eventually augment the model with interactions of the capital control dummy and firm-level indicators of profitability and risk to investigate heterogeneity in real effects.[14]

Results

Baseline Results: Domestic Bond Issuance

Table 2 displays results from the estimation of model 1. Column 1 reports estimates from a minimal model, where we just apply macroeconomic controls (including other capital controls measures). In column 2, we add firm and time (year-quarter) fixed effects. Column 3 further augments the model by employing sector*time fixed effects, but excludes time fixed effects. Finally, column 4 shows the most robust estimates, including firm controls, fully aligned with the model described in section equation 1. Across all specifications, and despite a notable increase in the adjusted R-squared from 2 percent to almost 13 percent, lagged capital controls are systematically associated with a subsequent fall in the likelihood of issuing bonds domestically. The coefficient is also very stable across the different models and, according to the most robust estimate in the last column, is close to -1.7 p.p. This effect is economically sizable, implying a cut by one third with respect to the unconditional average probability of issuing bonds (5.1 p.p.).

Having established that capital controls on bond inflows reduce domestic bond issuance, we next ask whether other types of controls influence issuance by redirecting firms across markets. To that end, Table 3 reports the same regression estimates as the just commented Table 2 but zooming into the estimated coefficients for the other policy tools. Irrespectively of the model we use, introducing capital controls on locally issued equity and money market debt flows raises the likelihood of issuing bonds domestically. These results point to substitution effects between equity and short-term money market financing, on one hand, and (long-term) bond financing, on the other hand. Likewise, introducing capital controls on international bond issuance raises the likelihood to issue bonds locally, as signaled by the positive and

[14] In such models, we will also augment the model with country*time fixed effects and with the interaction of firm level controls with capital controls, as explained in the previous subsection when discussing equation 2.

Table 2: Effect of Capital Controls on Bond Domestic Bond Issuance

bois: 1(Domestic Bond Iss)	(1)	(2)	(3)	(4)
L.Bonds (PLBN)	-0.0096**	-0.0160***	-0.0156***	-0.0169***
	(-2.01)	(-3.16)	(-2.99)	(-3.29)
Other Capital Controls, iMaPP	✓	✓	✓	✓
Economy Controls	✓	✓	✓	✓
Firm Controls	×	×	×	✓
Firm FE	×	✓	✓	✓
Time FE	×	✓	–	–
Sector*Time FE	×	×	✓	✓
Observations	72332	72332	72332	72332
Adj. R-sq	0.0209	0.115	0.125	0.127
Mean bois	0.0510	0.0510	0.0510	0.0510
Std. dev. bois	0.220	0.220	0.220	0.220
Obs. if L.Bonds (PLBN)=1	48113	48113	48113	48113
Number of countries	18	18	18	18

Notes: The dependent variable is a dummy variable equal to 1 if firm f issues a domestic bond in quarter t, and 0 otherwise. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Other Capital Control include (lagged) restrictions on capital inflows through equity, money market, collective investment, derivatives, real estates, financial credits, direct investment and on foreign issue of bonds by residents. The lagged iMaPP index captures country-level domestic macroprudential policy. Economy-level controls include lagged quarterly real GDP growth, CPI inflation, the log of the nominal bilateral exchange rate against the dollar, the overall financial development index, and the lagged change in the EMBI spread. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). The symbol "-" denotes cases where a group of controls and/or fixed effects spanned out by the introduction of other controls and/or fixed effects. Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

statistically significant coefficients on $L.Bonds(SIAR)$. Interestingly, capital controls on financial credits (mostly bank loans) from abroad as well as domestic macroprudential measures reduces the likelihood of issuing domestic bonds, possibly due to the fact that such measures, by targeting domestic credit growth, signal the government's intervention to eventually enforce capital controls on bonds.[15]

Heterogeneous Effects

We estimate model 2 and report the results in Table 4. In column 1, we test the hypothesis that capital controls reduce funding especially for risky (high leveraged) firms. Consistently with this conjecture, the likelihood of issuing bonds falls relatively more for firms with above-median leverage, as opposed to firms with low (first-quartile) leverage.

[15]Capital flow measures and macroprudential tools may also be jointly deployed. We do not report capital controls measures (e.g. on derivatives) displaying a statistically insignificant coefficient.

Table 3: The Effects of Capital Controls on Instruments Other than Bonds Inflows on Domestic Bond Issuance.

bois: 1(Domestic Bond Iss)	(1)	(2)	(3)	(4)
L.Bonds (PLBN)	-0.0096**	-0.0160***	-0.0156***	-0.0169***
	(-2.01)	(-3.16)	(-2.99)	(-3.29)
L. Equity (PLBN)	0.0188***	0.0218***	0.0208***	0.0185***
	(4.38)	(3.24)	(2.90)	(2.59)
L. Money Market (PLBN)	0.0087	0.0189***	0.0200***	0.0228***
	(1.44)	(2.71)	(2.80)	(3.21)
L.Bonds (SIAR)	0.0086*	0.0169*	0.0193**	0.0173*
	(1.89)	(1.96)	(2.10)	(1.88)
L.Financial credits	-0.033***	-0.0172***	-0.0197***	-0.0167***
	(-6.90)	(-3.28)	(-3.61)	(-3.16)
L.iMaPP Index	-0.0024***	-0.0018**	-0.0019**	-0.0015*
	(-3.97)	(-2.17)	(-2.30)	(-1.89)
Other Capital Controls	✓	✓	✓	✓
Economy Controls	✓	✓	✓	✓
Firm Controls	×	×	×	✓
Firm FE	×	✓	✓	✓
Time FE	×	✓	–	–
Sector*Time FE	×	×	✓	✓
Observations	72332	72332	72332	72332
Adj. R-sq	0.0209	0.115	0.125	0.127
Mean bois	0.0510	0.0510	0.0510	0.0510
Std. dev. bois	0.220	0.220	0.220	0.220

Notes: The dependent variable is a dummy variable equal to 1 if firm f issues a domestic bond in quarter t, and 0 otherwise. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Other Capital Control include (lagged) restrictions on capital inflows through equity, money market, collective investment, derivatives, real estates, financial credits, direct investment and on foreign issue of bonds by residents. SIAR stands for sold or issued abroad by residents. The lagged iMaPP index captures country-level domestic macroprudential policy. Economy-level controls include lagged quarterly real GDP growth, CPI inflation, the log of the nominal bilateral exchange rate against the dollar, the overall financial development index, and the lagged change in the EMBI spread. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). The symbol "-" denotes cases where a group of controls and/or fixed effects spanned out by the introduction of other controls and/or fixed effects. Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

In column 2, we ask whether firms with different degrees of profitability are heterogeneously affected by capital controls. Indeed, very profitable firms, as identified by those in the upper quartile of ROA, suffer a relatively stronger cut in the probability to issue bonds (as opposed to firms in the lower quartile of ROA).

One subtle aspect of this heterogeneity analysis is that ROA and leverage correlate substantially, in line

with evidence that leverage varies substantially across firms of different size and profitability.[16] Hence, in order to test whether the two channels operate independently of each other, columns 3 directly horse-race the two variables against each other in a model excluding country*time fixed effects. Lastly, column 4 is the richest specification by including country*time fixed effects.

The resulting estimates confirm both channels. This analysis points to significant trade-offs associated with the enforcement of capital controls. On one hand, capital controls reduce debt accumulation by risky firms, in line with a prudential function. On the other hand, capital controls also tend to reduce funding for highly profitable firms. Insofar as these relatively more profitable firms cannot substitute this issuance with alternative sources of finance, this could potentially contribute to a more inefficient allocation of capital across firms. We turn to this next.

Real Effects

We conclude our empirical analysis by asking whether capital controls are linked to real effects. So far, we have shown that capital controls on bond inflows are associated with a sizable reduction in the likelihood to issue bonds locally. However, firms may substitute the forgone bond funding (due to capital controls) with local bank credit or other forms of bank financing. Hence, in order to understand whether capital controls are binding for firms' overall funding capacity, we first check whether they have an ultimate bearing on firms' total liabilities.[17] To this end, Panel A of Table 5 shows the results from the estimation of model 3. Capital controls reduce total liabilities on impact by 1.2 percent and by 1.8 percent over the next quarter. Nonetheless, the effect is relatively short-lived and mean reverts to 0 already after 2 quarters. Panel B shows coefficients for an analogous regression model, though with investment (ratio between CAPEX and the lagged total assets ratio) growth as outcome variable. Consistent with a short-lived impact of the bond channel of capital controls on total firm liabilities, investments go down on impact, although the effect is marginally statistically insignificant. The reduction in investment peaks 6 quarters when it reaches -0.21 percent (about 13 percent of the unconditional average.[18])

In line with the the results for bond issuance described in the previous section, we conclude by asking whether real effects are heterogeneous across firms with different profitability and risk. In Panel A of Table 6, firms with higher leverage undergo a relatively stronger and more persistent cut in total liabilities. For

[16]See, for example, Dinlersoz and others (2019).

[17]Total liabilities include non-debt forms of external financing such as trade-credit that firms may exploit to substitute lower bond funding.

[18]See Table A.5 for summary statistics on investment and total liabilities at all horizons.

Table 4: Heterogeneous Effects of Capital Controls on Bond Issuance: Firm Profitability *vs* Risk

bois: 1(Domestic bond Iss)	(1)	(2)	(3)	(4)
L.Bonds (PLBN)*Lev Q2	-0.00241		-0.00496	-0.00368
	(-0.44)		(-0.91)	(-0.67)
L.Bonds (PLBN)*Lev Q3	-0.0111*		-0.0107*	-0.0122**
	(-1.86)		(-1.77)	(-2.05)
L.Bonds (PLBN)*Lev Q4	-0.0123*		-0.0116*	-0.0137**
	(-1.89)		(-1.80)	(-2.11)
L.Bonds (PLBN)*ROA Q2		0.00514	0.00378	0.00542
		(0.88)	(0.65)	(0.93)
L.Bonds (PLBN)*ROA Q3		0.00195	-0.00603	0.00221
		(0.32)	(-1.01)	(0.37)
L.Bonds (PLBN)*ROA Q4		-0.0110*	-0.0190***	-0.0107*
		(-1.75)	(-3.05)	(-1.71)
Other Capital Controls, iMaPP	–	–	✓	–
Economy Controls	–	–	✓	–
Firm Controls	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓
Sector*Time FE	✓	✓	✓	✓
Country*Time FE	✓	✓	×	✓
Observations	72233	72233	72332	72233
Adj. R-sq	0.136	0.137	0.127	0.137

Notes: The dependent variable is a dummy variable equal to 1 if firm f issues a domestic bond in quarter t, and 0 otherwise. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Lev Q and ROA Q are quartile indicators for leverage and return on assets, with Q1 the lowest and Q4 the highest. Reported rows are coefficients on L.Bonds (PLBN) interacted with each quartile indicator, the omitted group is Q1. We also interact L.Bonds (PLBN) with other firm controls, size and liquidity, but do not show them here for brevity. Other Capital Control include (lagged) restrictions on capital inflows through equity, money market, collective investment, derivatives, real estates, financial credits, direct investment and on foreign issue of bonds by residents. The lagged iMaPP index captures country-level domestic macroprudential policy. Economy-level controls include lagged quarterly real GDP growth, CPI inflation, the log of the nominal bilateral exchange rate against the dollar, the overall financial development index, and the lagged change in the EMBI spread. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). The symbol "-" denotes cases where a group of controls and/or fixed effects spanned out by the introduction of other controls and/or fixed effects. Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

instance, firms in the top quartile of total liabilities suffer a relative cut in total liabilities (compared to firms in the first quartile) of about 7 percent one year after the enforcement of capital controls and of 10 percent after two years. Differently, highly profitable firms manage to substitute the forgone bond funding and do not experience a significant reduction in total liabilities.

Consistently, only relatively riskier firms undergo a significant reduction in investment. At impact, top leverage-quartile firms reduce investment by -0.14 percent, as compared to firms in the first quartile. This is a sizable reduction in investment, corresponding to 8.14 percent of the unconditional mean. Moreover,

Table 5: Real Effects of Capital Controls

Δ_h log **Total Liabilities**	h=0	h=1	h=2	h=3	h=4	h=5	h=6	h=7	h=8
L.Bonds (PLBN)	-0.0119*	-0.0174*	-0.00710	-0.0188	0.00649	0.0138	0.0166	0.0245	0.0574**
	(-1.90)	(-1.89)	(-0.63)	(-1.35)	(0.43)	(0.77)	(0.84)	(1.16)	(2.51)
Observations	62834	60225	58195	57258	56879	55083	54046	52787	51910
Δ_h**Investment**	h=0	h=1	h=2	h=3	h=4	h=5	h=6	h=7	h=8
L.Bonds (PLBN)	-0.0010	-0.0007	-0.0016	-0.0018*	-0.0020*	-0.0015	-0.0021*	-0.0005	-0.0006
	(-1.51)	(-0.73)	(-1.54)	(-1.71)	(-1.79)	(-1.31)	(-1.68)	(-0.36)	(-0.46)
Observations	57593	54875	53232	52136	51775	50063	49237	48018	47149
Other Capital Controls, iMaPP	✓	✓	✓	✓	✓	✓	✓	✓	✓
Economy Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Each column reports horizon h regressions for $h = 1, 2, \cdots, 8$. As a dependent variable, Panel A uses Δ_h log Total Liabilities; Panel B uses Δ_h Investment, where Investment is CAPEX divided by lagged total assets and Δ_h is the change from quarter $t-1$ to $t+h$. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Other Capital Control include (lagged) restrictions on capital inflows through equity, money market, collective investment, derivatives, real estates, financial credits, direct investment and on foreign issue of bonds by residents. The lagged iMaPP index captures country-level domestic macroprudential policy. Economy-level controls include lagged quarterly real GDP growth, CPI inflation, the log of the nominal bilateral exchange rate against the dollar, the overall financial development index, and the lagged change in the EMBI spread. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

the adjustment is quite persistent, and peaks at -0.23 percent after 5 quarters (about 14 percent of the unconditional mean).

Taken together, these results suggest that while the average real effects of capital controls are limited, they bind strongly for riskier firms: highly leveraged firms face persistent reductions in both total liabilities and investment, whereas more profitable firms manage to substitute the forgone bond financing. This pattern is consistent with a bond channel that transmits financial frictions into real activity primarily through leveraged firms. In the next section, we explore this substitution margin more closely by examining which alternative sources of financing profitable firms rely on when bond markets are restricted, among other extensions.

Extensions

Substitution with Alternative Sources of Financing

Capital controls on bond inflows reduce firms' ability to issue bonds and, via this channel, induce a fall in investment for firms with relatively higher leverage (see Table 6). Interestingly, however, firms with relatively higher profitability withstand the significant cut in bond issuance and do not experience lower investment due to capital controls. This result suggests that such firms can rely on additional sources of

Table 6: Heterogeneous Real Effects Across Firms: Profitability vs Risk

Δ_h log **Total Liabilities**	h=0	h=1	h=2	h=3	h=4	h=5	h=6	h=7	h=8
L.Bonds (PLBN)*Lev Q2	-0.00866	-0.0214**	-0.0253	-0.0319*	-0.0368*	-0.0285	-0.0401*	-0.0246	-0.0471**
	(-1.18)	(-2.05)	(-1.58)	(-1.70)	(-1.68)	(-1.23)	(-1.87)	(-1.14)	(-2.00)
L.Bonds (PLBN)*Lev Q3	-0.0205**	-0.0353***	-0.0443***	-0.0430**	-0.0469**	-0.0490**	-0.0490**	-0.0494**	-0.0607**
	(-2.33)	(-3.10)	(-2.68)	(-2.32)	(-2.19)	(-2.05)	(-2.15)	(-1.99)	(-2.17)
L.Bonds (PLBN)*Lev Q4	-0.0138	-0.0335***	-0.0549***	-0.0661***	-0.0680***	-0.0715***	-0.0768***	-0.0825***	-0.0984***
	(-1.56)	(-2.72)	(-3.37)	(-3.38)	(-2.87)	(-2.69)	(-2.99)	(-2.90)	(-3.12)
L.Bonds (PLBN)*ROA Q2	-0.0013	0.0016	-0.0058	-0.0001	-0.0030	-0.0043	-0.0108	-0.0114	-0.0017
	(-0.23)	(0.17)	(-0.50)	(-0.01)	(-0.20)	(-0.27)	(-0.60)	(-0.59)	(-0.08)
L.Bonds (PLBN)*ROA Q3	0.0031	-0.0034	-0.0015	0.0034	0.0031	-0.0058	-0.0181	-0.0179	-0.0090
	(0.45)	(-0.32)	(-0.11)	(0.20)	(0.19)	(-0.31)	(-0.84)	(-0.79)	(-0.35)
L.Bonds (PLBN)*ROA Q4	0.0181**	0.0092	0.0164	0.0228	0.0146	0.0001	-0.0212	-0.0205	-0.0061
	(2.23)	(0.70)	(0.99)	(1.08)	(0.69)	(0.00)	(-0.84)	(-0.80)	(-0.22)
Observations	62733	60125	58098	57170	56788	54995	53957	52696	51819
Δ_h**Investment**	h=0	h=1	h=2	h=3	h=4	h=5	h=6	h=7	h=8
L.Bonds (PLBN)*Lev Q2	-0.0001	0.0000	-0.0004	-0.0003	-0.0007	-0.0018*	-0.0019*	-0.0018*	-0.0008
	(-0.12)	(0.03)	(-0.46)	(-0.39)	(-0.71)	(-1.66)	(-1.87)	(-1.65)	(-0.76)
L.Bonds (PLBN)*Lev Q3	-0.0011*	-0.0013	-0.0012	-0.0007	-0.0013	-0.0037***	-0.0026**	-0.0024*	-0.0004
	(-1.90)	(-1.41)	(-1.21)	(-0.71)	(-1.24)	(-3.06)	(-2.23)	(-1.84)	(-0.32)
L.Bonds (PLBN)*Lev Q4	-0.0014**	-0.0020**	-0.0008	-0.0009	-0.0007	-0.0023*	-0.0001	0.0009	0.0011
	(-2.12)	(-2.02)	(-0.72)	(-0.78)	(-0.59)	(-1.67)	(-0.04)	(0.56)	(0.74)
L.Bonds (PLBN)*ROA Q2	0.0010**	0.0006	0.0020***	0.0003	0.0010	-0.0004	-0.0006	0.0004	0.0006
	(2.22)	(0.90)	(2.70)	(0.40)	(1.06)	(-0.39)	(-0.58)	(0.38)	(0.62)
L.Bonds (PLBN)*ROA Q3	0.0005	0.0003	0.0003	-0.0015*	-0.0002	-0.0007	-0.0010	-0.0007	-0.0008
	(0.87)	(0.33)	(0.39)	(-1.72)	(-0.25)	(-0.72)	(-0.93)	(-0.64)	(-0.70)
L.Bonds (PLBN)*ROA Q4	0.0007	0.0011	0.0004	-0.0009	0.0010	-0.0017	-0.0011	-0.0018	-0.0013
	(1.16)	(1.22)	(0.43)	(-0.94)	(0.91)	(-1.54)	(-0.96)	(-1.31)	(-0.96)
Observations	57488	54773	53130	52043	51678	49970	49143	47920	47059
Firm Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Each column reports horizon h regressions for $h = 1, 2, \cdots, 8$. Panel A uses Δ_h log Total Liabilities; Panel B uses Δ_h Investment, where Investment is CAPEX divided by lagged total assets and Δ_h is the change from quarter $t-1$ to $t+h$. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Lev Q and ROA Q are quartile indicators for leverage and return on assets, with Q1 the lowest and Q4 the highest. Reported rows are coefficients on L.Bonds (PLBN) interacted with each quartile indicator, the omitted group is Q1. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

financing to sustain their investment.

We exploit the role of dividend payouts. Firms with high profitability generate relatively larger profits. Hence, one substitution channel they may exploit is reducing dividends payout, that can be especially attractive during periods characterized by high costs of external financing like those with capital controls in place. We test this conjecture in Table 7. We run annual regressions[19] with the dividend payout ratio—, that is, dividends over net income—as dependent variable. In column 1, the negative coefficient on $L.Bonds(PLBN)$ suggest that under capital controls, firms generally reduce the payout ratio; the

[19]Data on dividends at the quarterly frequency display a notable extent of attrition. Therefore we exploit annual data.

estimated coefficient is however statistically insignificant at conventional levels. In column 2, we condition the effects on firms' profitability. In line with our hypothesis, firms with relatively higher profitability undergo a significant cut in the payout ratio. Moreover, again in line with our conjecture, the fall in the payout ratio is increasing along firms' profitability, as indicated by the larger coefficient (in absolute terms) for firms in higher quartiles of the distribution of firm ROA.[20]

Table 7: Effect on Dividend Payout Ratio

	(1)	(2)
Dividends/Net income	Average effect	Heterogeneity
L.Bonds (PLBN)	-0.000820	
	(-0.44)	
L.Bonds (PLBN)*ROA Q2		-0.00393**
		(-2.10)
L.Bonds (PLBN)*ROA Q3		-0.00658***
		(-3.23)
L.Bonds (PLBN)*ROA Q4		-0.00957***
		(-3.36)
Other Capital Controls, iMaPP	✓	–
Economy Controls	✓	–
Firm Controls	✓	✓
Firm FE	✓	✓
Sector*Year FE	✓	✓
Country*Year FE	×	✓
Observations	21712	21685
Adj. R-sq	0.711	0.721
Mean Div./Net Inc.	0.0515	0.0515
Std. dev. Div./Net Inc.	0.0709	0.0709

Notes: Regressions are estimated on the firm-year panel at the annual frequency. The dependent variable is the dividend payout ratio, defined as dividends over net income. L.Bonds (PLBN) equals 1 when, in the previous year, purchases by nonresidents of locally issued bonds are restricted, and 0 otherwise. Column 1 reports the average effect. Column 2 conditions on profitability using ROA quartile indicators, with Q1 omitted. Other Capital Control include (lagged) restrictions on capital inflows through equity, money market, collective investment, derivatives, real estates, financial credits, direct investment and on foreign issue of bonds by residents. The lagged iMaPP index captures country-level domestic macroprudential policy. Economy-level controls include lagged quarterly real GDP growth, CPI inflation, the log of the nominal bilateral exchange rate against the dollar, the overall financial development index, and the lagged change in the EMBI spread. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, return on assets (ROA), and previous year's dividend payout ratio. The symbol "-" denotes cases where a group of controls and/or fixed effects spanned out by the introduction of other controls and/or fixed effects. Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Alternative Definitions of Profitability & Efficiency

So far, we have explored ROA as a measure of firm profitability. We additionally consider two alternative metrics for robustness. In particular, we exploit ROE and the a ARPK. ROE measures the return on shareholders' own funds, rather than on total assets, and

[20]We also test two additional channels for substitution, namely trade credit by other non-financial firms (proxied using accounts payable) and usage of cash stocks (proxied by current accounts). The related results are shown in Tables A.6, A.7, A.8, and A.9 in the Appendix. In general, we do not find statistically significant results.

is given by the ratio between net income and equity. ARPK is a measure of firm efficiency (Hsieh and Klenow, 2009; David and Venkateswaran, 2019), computed as total revenues over capital, where capital is given by the net book value of plant, property, and equipment. ARPK directly speaks to those models linking the enforcement of capital controls and other prudential policies to the misallocation of capital across firms (Benigno and Fornaro, 2014; Bianchi and Mendoza, 2020; Andreasen, Bauducco, Dardati, and Mendoza, 2023).

Table A.10 estimates the baseline regressions 1 and 2 for the average and heterogeneous effects of capital controls, though substituting ROA with ROE (columns 3 and 6) and ARPK (columns 2 and 5). Interestingly, the negative unconditional effect of capital controls on bond issuance is robust to such modifications in columns 2 and 3. Next, in columns 6, firms with very high levels (fourth quartile) of ROE experience a relatively stronger cut in bond issuance. Results in columns 5 suggest that firms with relatively higher productivity do not experience a statistically different ex-post reduction in bond issuance. Hence, while these findings are consistent with capital controls inhibiting profitable firms' bond issuance, they also display a certain degree of sensitivity to employing alternative (model-based) efficiency measures. Overall, these findings corroborate the relative stronger effects of the leverage channel, as opposed to the profitability/efficiency channel.

The Effects of Capital Controls Along the Financial Cycle

The effects of capital controls on capital allocation across firms may vary throughout the financial cycle. In this respect, the direction and composition of capital flows depend on both local and global financial conditions,[21] and the literature provides mixed evidence on whether looser financial conditions promote more or less capital inflows toward riskier and/or more efficient firms (Benigno, Converse, and Fornaro, 2015; Di Giovanni and others, 2022; Cingano and Hassan, 2022). Hence, whether the heterogeneous effects of capital controls—across firms with different profitability and risk—-vary along the financial cycle is ultimately an empirical question, which we tackle in Table 8.

Column 1 employs an indicator of the local financial cycle, namely the (log) EMBI spread. We multiply such variable by minus one so that an increase denotes a looser local financial cycle.[22]. Interestingly, to start with, when the local cycle is looser, highly leveraged firms tend to disproportionately issue bonds—as

[21]See Miranda-Agrippino and Rey (2022) for a review of the literature on global financial cycles. For evidence on how local cycles interact with capital inflows, see for example Di Giovanni and others (2022).

[22]We report summary statistics for the different index of financial cycle in the Appendix Table A.11

indicated by the positive and statistically significant interaction on the coefficient $LEVQ4 * X$—whereas relatively more profitable firms do not (check the double interactions between ROA quartiles and X). Consistently, capital controls disproportionately cut bond issuance by highly leveraged firms, as visible from the negative and statistically significant triple interaction $LEVQ4 * L.Bonds(PLBN) * X$.

Next, in columns 2 and 3, we exploit two indicators of global financial cycle. Column 2 exploits the broad US Dollar index, which correlates positively with the strength of the US Dollar and is a key driver of global credit conditions and asset prices (Avdjiev, Bruno, and others, 2019; Bruno, Shim, and Shin, 2022; Bruno and Shin, 2023). Column 3 exploits the US Dollar index against Advanced Economies currencies, a relatively more exogenous index with respect to the Emerging Markets local cycles (as compared to the broad Dollar index). In both cases, we express the variables in log and multiply by minus one. Note that from the Emerging Markets perspective, a weaker dollar (signaled by higher values of the rescaled variables) denotes a looser global financial cycle.

Interestingly, results in column 2 using the broad Dollar index—similarly to those on local cycles in column 1—show that a looser global financial cycle implies higher bond issuance by highly leveraged firms. However, also highly profitable firms benefit more from a looser financial cycle in terms of higher frequency of bond issuance. Symmetrically, capital controls have a negative and stronger effect on bond issuance by both riskier and more profitable firms. Results are similar in column 3 where we use the Dollar index in relation to Advanced Economies currencies.

Overall, the results in this section confirm that capital controls raise a trade-off between capital allocation and financial stability. Such trade-off is not altered significantly by global financial cycles, whereas it tends to be less acute in periods of increased investors' appetite for local debt instruments (i.e., conditional on loosening the local financial cycle), when capital controls are especially effective on risky firms.

Conclusion

This paper examines the impact of capital controls on firms' domestic bond issuance in emerging markets. In doing so, it addresses critical questions about the trade-off between financial stability and efficiency that the use of these policy tools entails. Specifically, we explore whether capital controls reduce bond issuance, how their effects vary across firms with different risk profiles, and whether they ultimately

constrain overall financing and investment. Our results reveal that capital controls significantly decrease the probability of domestic bond issuance, with effects concentrated among more leveraged firms, who face persistent reductions in liabilities and investment. By contrast, more profitable firms manage to substitute away from bond financing, cushioning the real effects.

These findings underscore the heterogeneous firm-level impacts of capital controls and highlight the importance of considering both their prudential benefits and their potential costs when evaluating capital flow management policies. From a policy perspective, it is crucial that productive firms retain access to alternative sources of funding when bond markets are restricted. Ensuring that such firms can substitute into other financing channels is key to mitigating the growth costs of capital controls and preserving their effectiveness as prudential tools.

Our study opens up several avenues for future research. One potential direction is to empirically explore the interaction between the types of capital controls we analyze and other policy tools, such as macroprudential instruments and foreign exchange interventions. While theoretical discussions of these interactions have been developed in the literature (see, e.g., Basu and others., 2020, Adrian and others., 2021), there is still limited empirical evidence on their combined effects, making this a fruitful area for further investigation. Another important extension is to consider the implications of our findings for structural models of the economy. By grounding our results in the empirical evidence of firms' financing and investment decisions, our work provides a foundation for a normative analysis of capital controls. Future research could build on this to develop sharper policy prescriptions regarding when and to what extent capital controls should be deployed, helping policymakers navigate the delicate balance between stability and growth in emerging markets.

Table 8: Heterogeneous Effects on Bond Issuance: Firm Profitability *vs* Risk Along Local and Global Financial Cycles.

Dep. Var. 1(Domestic Bond Iss.)	(1) Local Cycle	(2) Global Cycle	(3)
	X= (-1*)L.Log EMBI	X =(-1)*log BDI	X= (-1)*log UDI AE
Lev Q2 * L.Bonds (PLBN)	-0.0540	-0.793***	-0.399**
	(-1.22)	(-2.63)	(-2.00)
Lev Q3 * L.Bonds (PLBN)	-0.0306	-1.033***	-0.482**
	(-0.66)	(-3.23)	(-2.09)
Lev Q4 * L.Bonds (PLBN)	-0.111**	-0.849**	-0.509**
	(-2.36)	(-2.37)	(-2.27)
ROA Q2 * L.Bonds (PLBN)	-0.0468	-0.841***	-0.380*
	(-0.87)	(-2.83)	(-1.78)
ROA Q3 * L.Bonds (PLBN)	0.00152	-0.438	-0.0560
	(0.03)	(-1.36)	(-0.25)
ROA Q4 * L.Bonds (PLBN)	-0.0737	-1.096***	-0.469**
	(-1.43)	(-3.04)	(-2.12)
Lev Q2 * X	0.00631	0.0543	0.0306
	(0.82)	(1.11)	(0.82)
Lev Q3 * X	-0.00830	0.105**	0.0499
	(-1.03)	(2.13)	(1.16)
Lev Q4 * X	0.0152*	0.0335	0.0426
	(1.88)	(0.60)	(1.06)
ROA Q2 * X	-0.00450	0.0120	0.0176
	(-0.50)	(0.25)	(0.45)
ROA Q3 * X	-0.0182**	0.00764	-0.0250
	(-2.15)	(0.16)	(-0.62)
ROA Q4 * X	-0.000987	0.0953*	0.0534
	(-0.12)	(1.78)	(1.36)
Lev Q2 * L.Bonds (PLBN) * X	-0.00977	-0.173***	-0.0895**
	(-1.13)	(-2.63)	(-1.98)
Lev Q3 * L.Bonds (PLBN) * X	-0.00437	-0.223***	-0.106**
	(-0.49)	(-3.20)	(-2.03)
Lev Q4 * L.Bonds (PLBN) * X	-0.0185**	-0.183**	-0.112**
	(-2.06)	(-2.34)	(-2.21)
ROA Q2 * L.Bonds (PLBN) * X	-0.0110	-0.184***	-0.0873*
	(-1.05)	(-2.84)	(-1.80)
ROA Q3 * L.Bonds (PLBN) * X	-0.00142	-0.0963	-0.0131
	(-0.14)	(-1.37)	(-0.26)
ROA Q4 * L.Bonds (PLBN) * X	-0.0128	-0.237***	-0.104**
	(-1.31)	(-3.01)	(-2.06)
Firm Controls	✓	✓	✓
Firm FE	✓	✓	✓
Sector*Time FE	✓	✓	✓
Country*Time FE	✓	✓	✓
Observations	72233	60761	72233
Adj. R-sq	0.137	0.142	0.137

Notes: The dependent variable is a dummy variable equal to 1 if firm f issues a domestic bond in quarter t, and 0 otherwise. X is the financial cycle index named at the top of each column: in column 1 X is the negative of log EMBI, in column 2 the negative of log Broad Dollar Index, in column 3 the negative of log Dollar Index against advanced economies. Larger values of X indicate looser financial conditions. Lev Q and ROA Q are quartile indicators for leverage and return on assets, with Q1 the lowest and Q4 the highest; the omitted group is Q1. L.Bonds (PLBN) equals 1 when purchases by nonresidents of locally issued bonds are restricted in the previous quarter, 0 otherwise. Reported rows show coefficients on interactions of quartile indicators with L.Bonds (PLBN), X, and both. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

References

Adrian, T. and others (2021). “A Quantitative Microfounded Model for the Integrated Policy Framework”. In: *IMF Working Paper*(2021/292).

Alam, Zohair and others (2019). “Digging Deeper—Evidence on the Effects of Macroprudential Policies from a New Database”. In: *Journal of Money, Credit and Banking*.

Alfaro, Laura, Anusha Chari, and Fabio Kanczuk (2017). “The Real Effects of Capital Controls: Firm-level Evidence from a Policy Experiment”. In: *Journal of International Economics* 108, pp. 191–210.

Andreasen, Eugenia, Sofía Bauducco, and Evangelina Dardati (2024). “Capital Controls and Firm Performance”. In: *Journal of International Economics* 150(C). doi: 10.1016/j.jinteco.2024.10.

Andreasen, Eugenia, Sofía Bauducco, Evangelina Dardati, and Enrique G Mendoza (2023). *Beware the Side Effects: Capital Controls, Trade, Misallocation and Welfare*. Tech. rep. National Bureau of Economic Research.

Andreasen, Eugenia, José De Gregorio, and others (2024). “The Impact of Capital Controls and Macroprudential Policies: Firm Financial Constraints and Substitution Effects”. In: *Available at SSRN 4829981*.

Andreasen, Eugenia and Victoria Nuguer (forthcoming). “Managing Capital Inflows in a Partially Dollarized Economy: the Role of Reserve Requirements”. In: *Journal of International Money and Finance*.

Avdjiev, Stefan, Valentina Bruno, and others (2019). “The dollar exchange rate as a global risk factor: evidence from investment”. In: *IMF Economic Review* 67, pp. 151–173.

Avdjiev, Stefan, John Burger, and Bryan Hardy (2024). *New spare tires: local currency credit as a global shock absorber*. Tech. rep. CEPR Discussion Papers.

Bacchetta, Philippe, Rachel Cordonier, and Ouarda Merrouche (2023). “The rise in foreign currency bonds: The role of US monetary policy and capital controls”. In: *Journal of International Economics* 140, p. 103709.

Basu, S. and others (2020). “A Conceptual Model for the Integrated Policy Framework”. In: *IMF Working Paper*(2020/121).

Becker, Bo and Victoria Ivashina (2014). “Cyclicality of credit supply: Firm level evidence”. In: *Journal of Monetary Economics* 62, pp. 76–93.

Benigno, Gianluca, Nathan Converse, and Luca Fornaro (2015). “Large capital inflows, sectoral allocation, and economic performance”. In: *Journal of International Money and Finance* 55, pp. 60–87.

Benigno, Gianluca and Luca Fornaro (2014). “The financial resource curse”. In: *The Scandinavian Journal of Economics* 116(1), pp. 58–86.

Bertaut, Carol, Valentina Bruno, and Hyun Song Shin (May 2025). *Original Sin Redux: Role of Duration Risk*. NBER Working Paper 33816. National Bureau of Economic Research. doi: 10.3386/w33816. url: https://www.nber.org/papers/w33816.

Bertaut, Carol C, Valentina Bruno, and Hyun Song Shin (2021). “Original sin redux: role of duration risk”. In: *Available at SSRN 3820755*.

Bianchi, Javier and Guido Lorenzoni (Nov. 2021). *The Prudential Use of Capital Controls and Foreign Currency Reserves*. NBER Working Papers 29476. National Bureau of Economic Research, Inc. doi: None. url: https://ideas.repec.org/p/nbr/nberwo/29476.html.

Bianchi, Javier and Guido Lorenzoni (2022). “The prudential use of capital controls and foreign currency reserves”. In: *Handbook of International Economics*. Vol. 6. Elsevier, pp. 237–289.

Bianchi, Javier and Enrique G Mendoza (2020). “A fisherian approach to financial crises: Lessons from the sudden stops literature”. In: *Review of Economic Dynamics* 37, S254–S283.

Boyarchenko, Nina and Leonardo Elias (2023). *Corporate Credit Conditions Around the World: Novel Facts Through Holistic Data*. Tech. rep. Staff Report.

Bräuning, Falk and Victoria Ivashina (2020). “US monetary policy and emerging market credit cycles”. In: *Journal of Monetary Economics* 112, pp. 57–76.

Bruno, Valentina, Ilhyock Shim, and Hyun Song Shin (2022). “Dollar beta and stock returns”. In: *Oxford Open Economics* 1, odac003.

Bruno, Valentina and Hyun Song Shin (2023). “Dollar and exports”. In: *The Review of Financial Studies* 36(8), pp. 2963–2996.

Chinn, Menzie D and Hiro Ito (2006). “What Matters for Financial Development? Capital Controls, Institutions, and Interactions”. In: *Journal of Development Economics* Volume 81, Issue 1, pp. 163–192.

Cingano, Federico and Fadi Hassan (2022). “International financial flows and misallocation: Evidence from micro data”. In.

David, Joel M and Venky Venkateswaran (2019). “The sources of capital misallocation”. In: *American Economic Review* 109(7), pp. 2531–2567.

Di Giovanni, Julian and others (2022). “International spillovers and local credit cycles”. In: *The Review of Economic Studies* 89(2), pp. 733–773.

Dinlersoz, Emin M. and others (Nov. 2019). *Leverage over the Firm Life Cycle, Firm Growth, and Aggregate Fluctuations*. FRB Atlanta Working Paper 2019-18. Federal Reserve Bank of Atlanta. doi: 10.29338/wp2019-18. url: https://ideas.repec.org/p/fip/fedawp/2019-18.html.

Erten, Bilge, Anton Korinek, and José Antonio Ocampo (Mar. 2021). “Capital Controls: Theory and Evidence”. In: *Journal of Economic Literature* 59(1), pp. 45–89. doi: 10.1257/jel.20191457. url: https://ideas.repec.org/a/aea/jeclit/v59y2021i1p45-89.html.

Fabiani, Andrea, Martha López, and others (2023). “Capital Controls, Corporate Debt and Real Effects: Evidence from Boom and Crisis Times”. In: *Borradores de Economía; No. 1244*.

Fabiani, Andrea, Martha López Piñeros, and others (None 2022). “Capital controls, domestic macroprudential policy and the bank lending channel of monetary policy”. In: *Journal of International Economics* 139(C), None. doi: 10.1016/j.jinteco.2022.103677. url: https://ideas.repec.org/a/eee/inecon/v139y2022ics002219962200109x.html.

Fernández, Andrés and others (2016). “Capital Control Measures: A New Dataset.” In: *IMF Economic Review* 64(3).

Forbes, Kristin J (2007a). “One cost of the Chilean capital controls: increased financial constraints for smaller traded firms”. In: *Journal of International Economics* 71(2), pp. 294–323.

Forbes, Kristin J (2007b). “The microeconomic evidence on capital controls: no free lunch”. In: *Capital Controls and Capital Flows in Emerging Economies: Policies, Practices, and Consequences*. University of Chicago Press, pp. 171–202.

Gallego, Francisco A. and F. Leonardo Hernández (None 2003). “Microeconomic effects of capital controls: The chilean experience during the 1990s”. In: *International Journal of Finance & Economics* 8(3), pp. 225–253. doi: 10.1002/ijfe.207. url: https://ideas.repec.org/a/ijf/ijfiec/v8y2003i3p225-253.html.

Henry, Peter Blair (2000a). “Do stock market liberalizations cause investment booms?” In: *Journal of Financial Economics* 58(1-2), pp. 301–334.

Henry, Peter Blair (2000b). “Stock market liberalization, economic reform, and emerging market equity prices”. In: *The Journal of Finance* 55(2), pp. 529–564.

Hsieh, Chang-Tai and Peter J Klenow (2009). “Misallocation and manufacturing TFP in China and India”. In: *The Quarterly journal of economics* 124(4), pp. 1403–1448.

Jeanne, Olivier and Anton Korinek (2010). “Excessive volatility in capital flows: A pigouvian taxation approach”. In: *American Economic Review* 100(2), pp. 403–407.

Johnson, Simon and Todd Mitton (2003). “Cronyism and capital controls: evidence from Malaysia”. In: *Journal of Financial Economics* 67(2), pp. 351–382.

Jordà, Òscar (2005). “Estimation and inference of impulse responses by local projections”. In: *American economic review* 95(1), pp. 161–182.

Jordà, Òscar, Moritz Schularick, and Alan M Taylor (2011). “Financial Crises, Credit Booms, and External Imbalances: 140 Years of Lessons”. In: *IMF Economic Review* 59(2), pp. 340–378.

Keller, Lorena (2019). “Capital controls and risk misallocation: evidence from a natural experiment”. In: *Jacobs Levy Equity Management Center for Quantitative Financial Research Paper*.

Larrain, Mauricio and Sebastian Stumpner (2017). “Capital account liberalization and aggregate productivity: The role of firm capital allocation”. In: *The Journal of Finance* 72(4), pp. 1825–1858.

Levine, Ross (1997). “Financial development and economic growth: views and agenda”. In: *Journal of Economic Literature* 35(2), pp. 688–726.

Ma, Chang (2020). “Financial stability, growth and macroprudential policy”. In: *Journal of International Economics* 122, p. 103259.

Mendoza, Enrique G and Marco E Terrones (2012). *An anatomy of credit booms and their demise*. Tech. rep. National Bureau of Economic Research.

Miranda-Agrippino, Silvia and Hélène Rey (2022). “The global financial cycle”. In: *Handbook of international economics*. Vol. 6. Elsevier, pp. 1–43.

Morais, Bernardo and others (2019). “The international bank lending channel of monetary policy rates and QE: Credit supply, reach-for-yield, and real effects”. In: *The Journal of Finance* 74(1), pp. 55–90.

Quinn, David P. and Akihiro M. Toyoda (2008). “Does Capital Account Liberalization Lead to Growth?” In: *The Review of Financial Studies* 21(3), pp. 1403–1449.

Rajan, Raghuram G and Luigi Zingales (2003). “The great reversals: the politics of financial development in the twentieth century”. In: *Journal of Financial Economics* 69(1), pp. 5–50.

Reinhart, Carmen M and Kenneth Rogoff (2009). *This time is different: Eight centuries of financial folly*.

Varela, Liliana (2018). “Reallocation, competition, and productivity: Evidence from a financial liberalization episode”. In: *The Review of Economic Studies* 85(2), pp. 1279–1313.

Zeev, Nadav Ben (2017). “Capital controls as shock absorbers”. In: *Journal of International Economics* 109, pp. 43–67.

Appendix

Table A.1: List of Countries Along with Timeline in Our Final Sample

Country	Timeline
Argentina	2000Q2 - 2019Q4
Brazil	2000Q2 - 2019Q4
Chile	2001Q2 - 2019Q4
China	2001Q3 - 2019Q4
Colombia	2003Q2 - 2019Q4
Hungary	2001Q3 - 2019Q4
India	2013Q2 - 2019Q4
Indonesia	2007Q1 - 2019Q4
Kazakhstan	2015Q3 - 2018Q4
Malaysia	2000Q2 - 2019Q4
Mexico	1998Q2 - 2019Q4
Peru	2002Q1 - 2019Q4
Philippines	2001Q2 - 2019Q4
Poland	2005Q1 - 2019Q4
Russian Fed	2002Q1 - 2019Q4
Thailand	1999Q3 - 2019Q1
Turkey	2004Q4 - 2019Q4
Vietnam	2006Q2 - 2019Q4

Table A.2: Variable Definitions

Variable	Definition	Source
1(Domestic bond issuance)	Dummy equal to 1 if the firm issues a domestic bond in a given quarter.	SDC Platinum New Issues
Leverage (%)	Total debt as a percentage of total assets defined as: (Short-Term Debt + Long-Term Debt) / Total Assets $\times$ 100.	Worldscope Fundamentals Quarterly (FQ)
ROA	Return on assets: ((Net Income + Interest Expense $\times$ (1 - Tax Rate)) / Average Total Assets) $\times$ 100.	Worldscope Fundamentals Annual
Size	Log of total assets measured in USD.	Worldscope FQ
Liquidity	Log of the ratio of cash and equivalents to current assets.	Worldscope FQ
Bonds (PLBN)	Controls on nonresident bond purchases. =1 if control is imposed; 0 otherwise.	Fernández and others (2016)
Equity (PLBN)	Controls on nonresident equity purchases. =1 if control is imposed.	Fernández and others (2016)
Money Market (PLBN)	Controls on nonresident purchases of money market instruments.	Fernández and others (2016)
Bonds (SIAR)	Controls on residents issuing bonds abroad.	Fernández and others (2016)
Collective Inv. (PLBN)	Controls on nonresident collective investment purchases.	Fernández and others (2016)
Derivatives (PLBN)	Controls on nonresident derivatives purchases.	Fernández and others (2016)
Real Estate (PLBN)	Controls on nonresident real estate purchases.	Fernández and others (2016)
Financial Credits (Inflows)	Inflow restrictions on financial credit.	Fernández and others (2016)
Direct Investment (Inflows)	Inflow restrictions on FDI.	Fernández and others (2016)
iMaPP Index	Composite index of 17 macro-prudential policy indices by a country. Higher values = more restrictions.	Alam and others (2019)
Real GDP growth	Quarterly real GDP growth rate.	IMF WEO
Inflation (CPI)	Year-over-year change in consumer prices.	IMF WEO
Exchange Rate	Log of nominal USD exchange rate.	IMF IFS
Overall Financial Development	Composite index of financial institutions and markets.	IMF Financial Development Index database
EMBI spread	Quarterly Emerging Markets Bond Index (EMBI) spread. Regressions use change in this spread as a control.	J.P. Morgan

Notes: Pairwise tetrachoric correlations among binary capital control indicators, computed at the country quarter level on the sample used in the regressions. PLBN indicates restrictions on purchases by nonresidents of locally issued instruments. SIAR indicates restrictions on foreign issues of bonds by residents. FCI is financial credit inflows. DII is direct investment inflows. Other labels refer to the corresponding inflow categories. Only the lower triangle and the diagonal are shown.

[23]We define a capital control switch as a year-over-year change in the binary indicator capturing the presence of a specific capital flow restriction. Given the dummy nature of these variables, a switch reflects either a tightening of capital controls (a transition from 0 to 1) or a loosening (a transition from 1 to 0) relative to the previous year.

Table A.3: Descriptive Statistics of New Bond Issues in Our Final Sample

Observations: 72,332	Mean	Median	Std. Dev.	p25	p75
Issues					
# bonds per firm	6.21	5.00	5.20	2.00	9.00
# bonds per country	205	59	448.87	4.75	107
Principal amount (Millions USD)	227.74	114.77	485.36	58.19	235.12
Maturity (years)	3.60	3.00	3.29	1.00	5.00
Bonds (PLBN)					
Total switches[23](from 0 to 1 or 1 to 0)					19
Countries that switch					11
Average switches per country (excluding zero switches)					1.73
Average switches per country (including zero switches)					1.06
# of switches from 0 to 1 (tightening)					10
# of switches from 1 to 0 (loosening)					9

Table A.4: Correlations Between Capital Controls Measures

	Bonds	Bonds (SIAR)	Collective Inv.	Derivatives	Equity	Money Market	Real Estate	FCI	DII
Bonds (PLBN)	1.00								
Bonds (SIAR)	0.78	1.00							
Collective Inv. (PLBN)	0.90	0.61	1.00						
Derivatives (PLBN)	0.72	0.55	0.66	1.00					
Equity (PLBN)	0.75	0.12	0.70	0.82	1.00				
Money Market (PLBN)	0.99	0.77	0.93	0.73	0.82	1.00			
Real Estate (PLBN)	0.63	0.68	0.54	0.65	0.46	0.59	1.00		
Financial Credits (Inflows)	0.70	0.60	0.64	0.76	0.36	0.49	0.75	1.00	
Direct Investments (Inflows)	0.49	0.45	0.71	0.38	0.41	0.47	0.74	0.24	1.00

Table A.5: Summary Statistics of Real Variables at All Horizons

	Mean	Median	Std. Dev.	p25	p75	N
(log) Total Liabilities (h=0)	22.809	22.344	2.586	21.131	23.856	62834
(log) Total Liabilities (h=1)	22.853	22.383	2.566	21.188	23.880	60267
(log) Total Liabilities (h=2)	22.898	22.436	2.546	21.254	23.918	58237
(log) Total Liabilities (h=3)	22.920	22.454	2.541	21.272	23.927	57303
(log) Total Liabilities (h=4)	22.939	22.489	2.527	21.315	23.953	56921
(log) Total Liabilities (h=5)	22.961	22.503	2.518	21.336	23.963	55134
(log) Total Liabilities (h=6)	22.972	22.533	2.503	21.361	23.959	54092
(log) Total Liabilities (h=7)	22.991	22.552	2.492	21.398	23.969	52850
(log) Total Liabilities (h=8)	23.006	22.579	2.476	21.423	23.981	51960
Investment (h=0)	0.018	0.011	0.023	0.003	0.025	59087
Investment (h=1)	0.019	0.012	0.022	0.004	0.025	56197
Investment (h=2)	0.018	0.012	0.021	0.004	0.025	54845
Investment (h=3)	0.018	0.011	0.021	0.004	0.024	54056
Investment (h=4)	0.017	0.011	0.020	0.004	0.023	53931
Investment (h=5)	0.017	0.011	0.020	0.004	0.023	52349
Investment (h=6)	0.016	0.011	0.020	0.003	0.022	51584
Investment (h=7)	0.016	0.010	0.019	0.003	0.022	50514
Investment (h=8)	0.016	0.010	0.019	0.003	0.022	49735

Notes: This table shows the summary statistics for the levels of real variables: (log) Total Liabilities and Investment ($\equiv$ CAPEX/(lagged) Total Assets) at horizons, $h = 0, 1 \cdots, 8$. Missing quarterly observations are filled by linear interpolation within firm to align variables across horizons. The interpolated series have distributions that are essentially the same as in the raw data.

Exploring Substitution Channels

Table A.6: Current Accounts and Capital Controls on Bond PLBN

Δ_h log(Current Accounts)	h=0	h=1	h=2	h=3	h=4	h=5	h=6	h=7	h=8
L.Bonds (PLBN)	-0.0132**	-0.00864	-0.00861	-0.0111	0.0141	0.00849	0.0331**	0.0421**	0.0686***
	(-2.34)	(-1.08)	(-0.80)	(-0.94)	(1.06)	(0.55)	(2.00)	(2.30)	(3.50)
Other Capital Controls, iMaPP	✓	✓	✓	✓	✓	✓	✓	✓	✓
Economy Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	62801	60192	58152	57224	56842	55048	53997	52748	51866

Notes: Each column reports horizon h regressions for $h = 1, 2, \cdots, 8$. Dependent variables are Δ_h (log) Current Accounts and Δ_h is the change from quarter $t-1$ to $t+h$. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Other Capital Control include (lagged) restrictions on capital inflows through equity, money market, collective investment, derivatives, real estates, financial credits, direct investment and on foreign issue of bonds by residents. The lagged iMaPP index captures country-level domestic macroprudential policy. Economy-level controls include lagged quarterly real GDP growth, CPI inflation, the log of the nominal bilateral exchange rate against the dollar, the overall financial development index, and the lagged change in the EMBI spread. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A.7: Heterogeneity with Current Accounts and Capital Controls on Bond PLBN

Δ_h(log) Current Assets	h=0	h=1	h=2	h=3	h=4	h=5	h=6	h=7	h=8
L.Bonds (PLBN)*Lev Q2	0.00153	-0.0147	-0.0290*	-0.0244	-0.0268	-0.00593	-0.0114	0.00522	-0.00948
	(0.21)	(-1.35)	(-1.76)	(-1.31)	(-1.18)	(-0.24)	(-0.50)	(0.23)	(-0.38)
L.Bonds (PLBN)*Lev Q3	-0.0225**	-0.0383***	-0.0582***	-0.0574***	-0.0666***	-0.0647***	-0.0698***	-0.0594**	-0.0717***
	(-2.58)	(-3.00)	(-3.28)	(-3.03)	(-3.04)	(-2.68)	(-2.96)	(-2.38)	(-2.65)
L.Bonds (PLBN)*Lev Q4	-0.0215**	-0.0383***	-0.0734***	-0.0856***	-0.0943***	-0.0882***	-0.104***	-0.0940***	-0.115***
	(-2.36)	(-2.74)	(-4.05)	(-4.34)	(-3.97)	(-3.27)	(-3.85)	(-3.20)	(-3.47)
L.Bonds (PLBN)*ROA Q2	-0.00315	-0.0106	-0.00109	-0.00423	-0.0129	-0.00911	-0.0125	0.000635	0.00487
	(-0.49)	(-1.12)	(-0.09)	(-0.29)	(-0.83)	(-0.54)	(-0.69)	(0.03)	(0.22)
L.Bonds (PLBN)*ROA Q3	0.000939	-0.00395	0.00291	0.00262	0.00608	0.00450	0.00523	0.0238	0.0305
	(0.12)	(-0.35)	(0.21)	(0.15)	(0.36)	(0.24)	(0.26)	(1.10)	(1.28)
L.Bonds (PLBN)*ROA Q4	0.00773	-0.000880	0.0174	0.0190	0.00230	0.00541	0.000203	-0.000482	0.00866
	(0.86)	(-0.07)	(1.11)	(1.03)	(0.12)	(0.25)	(0.01)	(-0.02)	(0.32)
Firm Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	62700	60092	58055	57135	56750	54959	53907	52657	51774

Notes: Each column reports horizon h regressions for $h = 1, 2, \cdots, 8$. Dependent variables are Δ_h (log) Current Accounts and Δ_h is the change from quarter $t-1$ to $t+h$. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Lev Q and ROA Q are quartile indicators for leverage and return on assets, with Q1 the lowest and Q4 the highest. Reported rows are coefficients on L.Bonds (PLBN) interacted with each quartile indicator, the omitted group is Q1. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A.8: Accounts Payable and Capital Controls on Bond PLBN

Δ_h log(Accounts Payable)	(1) h=0	h=1	h=2	h=3	h=4	h=5	h=6	h=7	h=8
L.Bonds (PLBN)	0.0228	0.00826	-0.0103	-0.0499	-0.0426	-0.0701*	-0.0571	-0.0282	-0.0538
	(0.90)	(0.33)	(-0.39)	(-1.65)	(-1.32)	(-1.79)	(-1.39)	(-0.66)	(-1.14)
Other Capital Controls, iMaPP	✓	✓	✓	✓	✓	✓	✓	✓	✓
Economy Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	46389	43049	41768	40949	40216	38674	37982	36938	35969

t statistics in parentheses
Standard errors clustered at the firm level
$^{*}\ p < .1$, $^{**}\ p < .05$, $^{***}\ p < .01$

Notes: Each column reports horizon h regressions for $h = 1, 2, \cdots, 8$. Dependent variables are Δ_h (log) Accounts Payable and Δ_h is the change from quarter $t-1$ to $t+h$. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Other Capital Control include (lagged) restrictions on capital inflows through equity, money market, collective investment, derivatives, real estates, financial credits, direct investment and on foreign issue of bonds by residents. The lagged iMaPP index captures country-level domestic macroprudential policy. Economy-level controls include lagged quarterly real GDP growth, CPI inflation, the log of the nominal bilateral exchange rate against the dollar, the overall financial development index, and the lagged change in the EMBI spread. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A.9: Heterogeneity with Accounts Payable and Capital Controls on Bond PLBN

Δ_h log(Accounts Payable)	h=0	h=1	h=2	h=3	h=4	h=5	h=6	h=7	h=8
L.Bonds (PLBN)*Lev Q2	0.00490	0.0107	0.0430	0.0171	0.0490	0.0142	0.0492	0.0279	0.00358
	(0.28)	(0.38)	(1.37)	(0.58)	(1.35)	(0.33)	(1.15)	(0.60)	(0.07)
L.Bonds (PLBN)*Lev Q3	0.0123	0.0233	0.0493	0.0258	0.0119	-0.00915	0.0296	-0.0480	-0.0187
	(0.52)	(0.71)	(1.38)	(0.80)	(0.29)	(-0.19)	(0.61)	(-0.86)	(-0.30)
L.Bonds (PLBN)*Lev Q4	0.00424	-0.00789	0.0102	-0.00812	-0.00657	-0.0165	-0.0185	-0.0649	-0.0742
	(0.19)	(-0.26)	(0.27)	(-0.22)	(-0.14)	(-0.27)	(-0.27)	(-0.89)	(-0.87)
L.Bonds (PLBN)*ROA Q2	-0.0445***	-0.0795***	-0.0217	-0.0918***	-0.0356	-0.0261	0.0109	0.0202	0.0205
	(-3.05)	(-3.21)	(-0.80)	(-3.13)	(-1.06)	(-0.67)	(0.26)	(0.49)	(0.45)
L.Bonds (PLBN)*ROA Q3	-0.0174	-0.0233	0.00825	-0.0528*	-0.0186	0.00895	-0.00950	-0.0134	-0.0249
	(-1.11)	(-0.95)	(0.28)	(-1.71)	(-0.51)	(0.23)	(-0.23)	(-0.31)	(-0.50)
L.Bonds (PLBN)*ROA Q4	0.0143	-0.0174	0.0224	-0.0131	-0.0300	-0.00527	-0.00435	0.0257	0.0126
	(0.82)	(-0.69)	(0.76)	(-0.44)	(-0.87)	(-0.14)	(-0.11)	(0.59)	(0.25)
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country*Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	46284	42944	41673	40857	40123	38584	37897	36852	35886

Notes: Each column reports horizon h regressions for $h = 1, 2, \cdots, 8$. Dependent variables are Δ_h (log) Accounts Payable and Δ_h is the change from quarter $t-1$ to $t+h$. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. Lev Q and ROA Q are quartile indicators for leverage and return on assets, with Q1 the lowest and Q4 the highest. Reported rows are coefficients on L.Bonds (PLBN) interacted with each quartile indicator, the omitted group is Q1. Firm-level controls include lagged values of size (log of total assets), leverage, liquidity, and return on assets (ROA). Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A.10: Baseline and Heterogeneity Results with Alternative Measures of Productivity

bois: 1(Domestic bond Iss)	(1) Baseline (ROA)	(2) ARPK	(3) ROE	(4) Baseline (ROA)	(5) ARPK	(6) ROE
L.Bonds (PLBN)	-0.0169***	-0.0170***	-0.0180***			
	(-3.29)	(-3.31)	(-3.46)			
L.Bonds (PLBN)*Lev Q2				-0.00368	-0.00252	-0.00331
				(-0.67)	(-0.46)	(-0.60)
L.Bonds (PLBN)*Lev Q3				-0.0122**	-0.0111*	-0.0122**
				(-2.05)	(-1.88)	(-2.02)
L.Bonds (PLBN)*Lev Q4				-0.0137**	-0.0136**	-0.0144**
				(-2.11)	(-2.11)	(-2.10)
L.Bonds (PLBN)*__Efficiency__ Q2				0.00542	-0.00515	0.00411
				(0.93)	(-0.79)	(0.71)
L.Bonds (PLBN)*__Efficiency__ Q3				0.00221	-0.00450	-0.00496
				(0.37)	(-0.62)	(-0.83)
L.Bonds (PLBN)*__Efficiency__ Q4				-0.0107*	-0.00255	-0.0139**
				(-1.71)	(-0.32)	(-2.20)
Other Capital Controls, iMaPP	✓	✓	✓	–	–	–
Economy Controls	✓	✓	✓	–	–	–
Firm Controls	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓	✓
Sector*Time FE	✓	✓	✓	✓	✓	✓
Country*Time FE	×	×	×	✓	✓	✓
Observations	72332	71985	71240	72233	71886	71141
Adj. R-sq	0.127	0.127	0.127	0.137	0.137	0.137

Notes: The dependent variable is a dummy that equals one if the firm issues a domestic currency bond in the quarter. L.Bonds (PLBN) is a lagged dummy variable with value 1 if capital controls on purchases by nonresidents of locally-issued bond are imposed in a given country, and with value 0 otherwise. ARPK is average revenue product of capital, ROE is return on equity. Quartile indicators Q2 to Q4 are defined by the measure named in the column header, Q1 is omitted. Columns 1 to 3 report baseline regression specification with different efficiency measures in controls, columns 4 to 6 report interactions with leverage and efficiency quartiles. The sets of controls shown by check marks are included as indicated. Firm-level controls include lagged values of size (log of total assets) and liquidity. The symbol "-" denotes cases where a group of controls and/or fixed effects spanned out by the introduction of other controls and/or fixed effects. Standard errors are clustered at the firm level. t-statistics are reported in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A.11: Summary Statistics for Indexes of the Local and Global Financial Cycles

X	Obs	Mean	Std. Dev.	Median	p25	p75
(-1)*L.Log EMBI	72,332	-5.04	0.61	-5.09	-5.37	-4.70
(-1)*log BDI	60,847	-4.60	0.10	-4.58	-4.71	-4.53
(-1)*log UDI AE	72,332	-4.42	0.11	-4.41	-4.50	-4.32

PUBLICATIONS

Capital Controls, Risk, and Firm Performance: Cross-country Evidence from Corporate Bond Issuance

Working Paper No. WP/2025/193