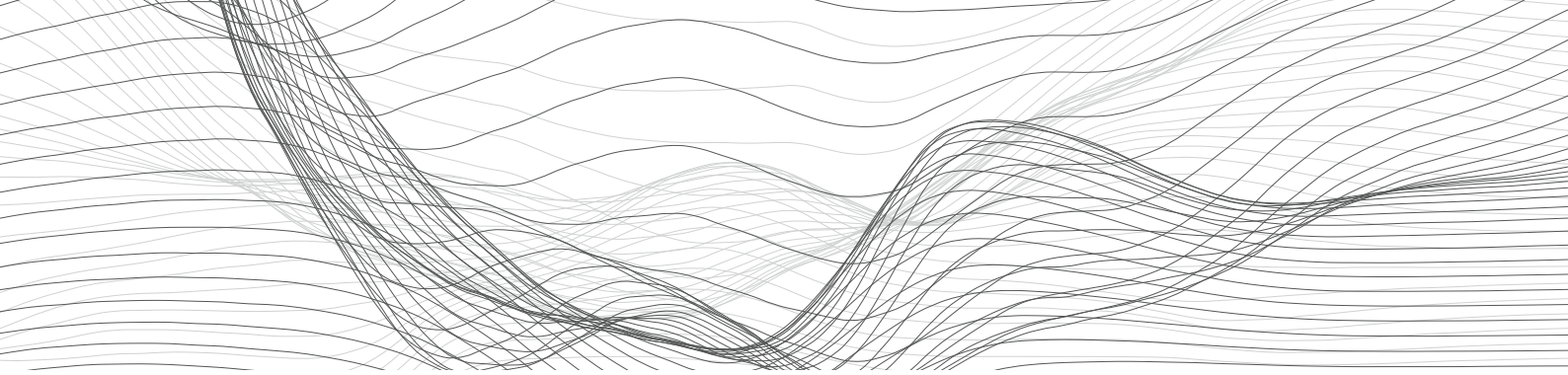

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The Rise in Foreign Currency Bonds: The Role of US Monetary Policy and Capital Controls[†,*]

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Abstract

An unintended consequence of loose US monetary policy is the increase in currency risk exposure abroad. Using firm-level data on corporate bond issuances in 17 emerging market economies (EME) between 2003 and 2015, we find that EME companies are more likely to issue bonds in foreign currency when US interest rates are low. This increase occurs across the board, including for firms more vulnerable to foreign exchange exposure, and is particularly strong for bonds issued in local markets. Interestingly, capital controls on bond inflows significantly decrease the likelihood of issuing in foreign currency and can even eliminate the adverse impact of low US interest rates. In contrast, macroprudential foreign exchange regulations tend to increase foreign currency issuances of non-financial corporates, although this effect can be significantly reduced using capital controls.

JEL classification numbers: G21, G30, E44

Keywords: foreign currency, corporate bonds, emerging markets, capital controls, currency risk.

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1. Introduction

A striking feature for Emerging Market Economies (EME) in the last decade has been the substantial growth in bond issuances by non-financial corporations, both in local and foreign currency.[1] A potential concern is that firms increase their foreign currency exposure, which contributes to financial instability.[2] This concern has been fueled by the growing demand for corporate bonds issued in dollars. First, there is a "search-for-yield" due to low short-term interest rates in the US (e.g., see McCauley et al., 2015). Second, there has been a growing demand for dollar assets (e.g., Maggiori et al., 2018), which has led to cheaper borrowing in dollars.[3] Lower borrowing costs increase the incentive to issue bonds in dollar despite the exchange rate risk.[4] Are there policies that can limit this increase in systemic risk? Standard macroprudential policies may not be appropriate as they typically focus on financial intermediaries. In contrast, there might be a role for capital controls.

This paper sheds light on these issues by using firm-level data on corporate bond issuances for EME companies and by analyzing the determinants of foreign currency borrowing. The results show that companies are more likely to issue in foreign currency with more expansionary US monetary policy. This increase occurs across the board, including firms that are more vulnerable in terms of leverage, growth opportunities, foreign exchange exposure or size. Importantly, local bond markets are more affected, while bonds issued in international markets are predominantly in foreign currency irrespective of the stance of US monetary policy. We examine the role of policies in this context. We find that capital controls on bond inflows

[1] E.g., see Gozzi et al. (2015) and Ayala et al. (2017) for a description.
[2] Krugman (1999), Aghion et al. (2004), and the subsequent theoretical literature show how foreign currency corporate debt can lead to financial crises.
[3] Liao (2019) documents deviations from covered interest rate Parity on corporate bonds since 2008. In this context, Jiang et al. (2019) develop a theoretical model where the dollar provides a convenience yield, which implies increased dollar borrowing outside of the US. Another reason issuing in dollars might be cheaper is that bonds may be included in international indexes. See Calomiris et al. (2019).
[4] For systematic analyses of these developments, see Shin (2014), Chui et al. (2014), Feyen et al. (2015), Acharya et al. (2015), International Monetary Fund (2015), Chow (2015), Chui et al. (2016), Chang et al. (2017) or Cerutti and Hong (2018).

significantly decrease the likelihood to issue in foreign currency and can even eliminate the adverse effect of low US interest rates. In contrast, macroprudential FX regulations increase the probability of issuance in foreign currency, in line with Anhert et al. (2018), and capital controls partly alleviate these adverse effects. These results indicate that capital controls may complement other prudential tools when leverage increases through market borrowing.[5]

The empirical analysis is conducted on 17 EME[6] over the period 2003-2015. The data on publicly issued corporate bonds come from the SDC Platinum database (Thomson Reuters). We focus on the private non-financial sector and exclude all government-related companies. The sample keeps only companies that have a positive demand for debt, resulting in a baseline dataset of 1378 companies and 3841 bond issuances. To assess variations in companies' foreign currency exposure, we look at the proportion of corporate bond issuances denominated in foreign currency given that the company is issuing. By looking at the share of foreign currency denominated bonds, given an issuance is taking place, we focus on the decision to issue in a particular currency, and not on the decision to issue or on the size of issuance.

To obtain firm characteristics and in particular balance-sheet data, we use two databases: Worldscope (Datastream - Thomson Reuters), which contains data only on (large) publicly listed companies and Orbis (Bureau van Dijk) with data available for the last decade. Data on capital controls is taken from Fernandez et al. (2016), which allows to distinguish across various types of capital flows and to focus on controls on bond flows. For macroprudential policies, we use the databases of Ahnert et al. (2018) and Cerutti et al. (2017).

For the empirical methodology, we apply fractional logistic methods as suggested by Papke and Wooldridge (2008) and reviewed by Ramalho et al. (2011). The reason is that our dependent variable is a fractional variable. An interesting feature of our empirical specification

[5] See Ostry et al. (2011) for a policy discussion of the role of capital controls as prudential measures in presence of corporate bonds.
[6] Argentina, Brazil, Chile, China, Colombia, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russian Federation, Saudi Arabia, South Africa, Thailand and Turkey.

is the neat identification and thus the clear causal analysis. Indeed, global variables such as the US interest rates or VIX are exogenously given to individual companies in EME. Moreover, a company's decision to issue in domestic or foreign currency can hardly be thought to influence domestic macro variables. To further ensure this, we lag by one period (one year or quarter) all our macro variables.[7] Lagging by one year our capital controls variables also solves the issue of the exact timing of their introduction within a year.

Controlling for relevant variables used in the literature, we start by analyzing the determinants of foreign currency borrowing using firm-level, country-level and global variables. Regarding global variables, evidence based on measures of global uncertainty such as VIX is not robust. On the other hand, we find that loose US monetary policy, measured by a shadow Fed funds rate, significantly increases the likelihood of issuing in foreign currency, which is consistent with the fact that foreign bond buying is predominantly in US dollars.[8] In our baseline regression, we find that a decrease in the shadow rate (from its sample mean of -0.46) by one percentage point increases the share of bonds issued in foreign currency by 1.6 percentage points. And this effect is stronger if the sample is restricted to bonds issued in the local market rather than in the international market and at lower values of the shadow Fed funds rate. Further, these findings are robust to the use of alternative measures of US interest rates and yields. Interestingly, the impact of the FED funds rate does not discriminate across companies: lower US interest rates trigger a higher share of issuances in foreign currency independently of companies' characteristics. These latter include leverage level, whether firms are trade-intensive, size and growth opportunities.

[7] One could argue that if companies decide simultaneously to issue in foreign currency, this could influence some macro variables, for instance the activation of capital controls. By lagging by one year, we overcome this potential issue.

[8] Brauning and Ivashina (2020) find similar results when looking at lending by global banks to EME. On the other hand, Avdjiev and Hale (2018) find more ambiguous results.

Turning to the role of policies, we find that capital controls significantly reduce the likelihood of foreign currency issuance and curb the impact of US monetary policy: having capital controls reduces the share of issuances in foreign currency by 5.8 pp. This impact arises mostly from the activation of controls on bond issued locally and acquired by foreign investors. Interestingly, marginal effects of capital controls are particularly strong at low values of the shadow FED funds rate. Furthermore, capital controls can fully eliminate the effect of the shadow FED funds rate on the probability of foreign currency issuances. Looking at the role of macroprudential policies, we find that more FX regulations on financial intermediaries lead to a higher likelihood of issuing bonds in foreign currency, in line with previous findings by Ahnert et al. (2018). This adverse impact is independent of the shadow FED funds rate values and capital controls can significantly alleviate it.

Having documented that capital controls can curb firms' reliance on foreign currency debt we address the question whether they have been used effectively by policymakers to reduce firms' vulnerability to exchange rate fluctuations. In the spirit of Adler and Dumas (1984) and similarly to Ahnert et al. (2018), we analyze how stock returns react to exchange rate fluctuations while including capital controls. We find that capital controls can significantly mitigate the vulnerability of firms to exchange rate fluctuations.

Finally, to balance costs and benefits, we provide an analysis of the real effects of capital controls. We find a strong negative effect of capital controls on employment growth, especially for large firms. In contrast, other variables like capital expenditure, sales growth or net debt are not significantly affected. Interestingly, the decline in employment is larger for firms presumably more exposed to the negative effects of capital controls: larger firms and firms more dependent on external finance.

The contribution of this paper is the focus on the choice of currency composition of corporate debt and the role of capital controls. While there is a large literature on the determinants

of foreign currency borrowing, only a small number of studies analyze corporate bonds in EME.[9] Bruno and Shin (2017) examine the determinants of US dollar denominated bonds by non-financial corporates outside the United States at the firm-level. Their findings show that companies issue more in US dollars when they have large cash holdings and especially in period of advantageous carry-trade opportunities. In a similar vein, Caballero et al. (2015) emphasize that non-financial firms act like financial intermediaries: issuing abroad when carry-trade opportunities are favorable, especially when capital controls are high. Contrarily to this study, both papers do not consider any global factors that could influence firms' decisions. Moreover, they focus on the likelihood to issue US dollar-denominated bonds versus not issuing or issuing in local currency, while we analyze the determinants of currency denomination, conditionally on the firm issuing.[10]

The literature on capital controls and macroprudential policies is vast, but only a few studies distinguish across types of capital flows, especially between bank lending and corporate bonds.[11] The recent literature, however, considers more disaggregated capital controls and some studies focus on bonds flows. For example, using country-level data Ostry et al. (2012) find that controls on bonds inflows reduce market borrowing in favor of bank lending. However, we are not aware of studies that examine the impact of capital controls on the currency composition of corporate bond issuances. Macroprudential policies are found to have an impact on bank lending or on total credit, but these policies do not affect directly bonds inflows. On the contrary, Ahnert et al. (2018) find that macroprudential FX regulations applied to the banking sector stimulates non-financial firms to use more foreign currency bonds.

[9] In a recent study, Gambacorta et al. (2010) examine the determinants of dollar corporate borrowing in advanced countries.

[10] Allayannis et al. (2003) examine the currency denomination of debt for 327 of the largest companies in East Asia between 1996 and 1998. They examine empirically companies' decisions to issue debt in local, foreign or synthetic currency, i.e. hedged foreign currency and find that factors vary. They emphasize that natural and synthetic domestic debt are substitutes, while domestic and foreign currency debt are closer to complements.

[11] See Erten et al. (2019) and Rebucci and Ma (2019) for recent surveys of the literature.

The remainder of the paper is organized as follows. Section 2 develops the empirical approach and describes the data. Section 3 presents the main results on the determinants of foreign currency borrowing and the role of capital control. Section 4 assesses the broader policy questions of the cost of capital controls and their impact on the resilience of firms to exchange rate movements. Section 5 concludes.

2. Methodology and Data

This section starts by describing the econometric method. Then it defines and motivates the key explanatory variables and the set of controls variables. Our dependent variable is the share of bonds issued denominated in foreign currency, given an issuance is taking place in a given quarter. Hence, our focus is on firms with a positive demand for debt: we do not explain the decision to issue debt but the choice of the issuance currency.

2.1 Methodology

The dependent variable is a fractional variable: the share of bonds issued in foreign currency in a given quarter. Hence, we use a fractional logistic model. Formally, we estimate the following equation:

$$E\left(\{FX_{fijt}|F_{fijt}, I_{jt}, L_{it}, G_t\}\right) = \Lambda\left[\alpha_{ji} + \beta_F F_{fit} + \beta_I I_{jt} + \beta_L L_{it} + \beta_G G_t\right] \quad (1)$$

where FX_{fijt} is the dependent variable representing the share of issuance in foreign currency for a given firm *f*, in country *i*, a given industry *j* and at quarter *t*. $\Lambda(z) == exp(z)/[1 + exp(z)]$ is the logistic function and $F_{fit}, I_{jt}, L_{it}, G_t$ are vectors of firm characteristics, industry controls, local macro controls, and global variables, e.g. VIX or shadow FED funds rate. The estimation is based on a Quasi-Maximum Likelihood method based on the Bernoulli log-likelihood function.

We also control for country-industry time-invariant characteristics by adding country-industry fixed effects. The choice of using industry rather than firm fixed effects is due to the small number of issuances per firm over the sample period: many firms enter the sample only once. As we compare firms belonging to the same industry and control for a wide range of firm characteristics our estimates are unlikely to be materially affected by a change in the population of firms tapping the market over time. Standard errors are clustered at the country level. All explanatory variables are lagged by one period and marginal effects are reported. Using a graphical analysis, we also investigate marginal effects atvarious values of some key variables. This shades light on potential nonlinear effects.

Importantly, we extend equation (1) to explore the effect of capital controls and macroprudential policies. We are interested in both the direct effect of policies and their effects as potential mitigators of the influence of global factors. Interaction effects are not straightforward to derive in nonlinear models. Ai and Norton (2003) have shown that using the partial effect of the estimated interaction term is not a meaningful way to estimate the magnitude of an interaction effect in nonlinear models. Building on their work, Greene (2010) proposed graphical representations of interaction effects. We follow his approach.

2.2 Data Sources and Variables Definitions

Descriptive statistics of our data are reported in Table 2. In this section we describe our sources and define and motivate each variable.

Bond issuance

We collect bond issuances data from the database SDC Platinum (Thomson Reuters). The data collection is based on the ultimate parent's nationality instead of the issuer's nationality, meaning that bonds issued by foreign subsidiaries are included in our sample. For instance, a Malaysian company's branch located abroad and issuing bonds is considered in our analysis. However, it

ensures that a foreign firm's subsidiary located in Malaysia issuing bonds is not part of our sample of EME.

We observe the currency denomination of the bond, whether the bond is issued locally, the nationality of the issuer, the sector of activity of the issuer, the issuer's name, the amount issued, and the issuance date. Foreign currency bonds include mostly dollar bonds, but also bonds denominated in yen, euro, and Swiss franc. Our final baseline sample contains 3841 bond issuances for 1378 firms between 2003 Q1 and 2015 Q4 and covers 17 EME countries. The countries' repartition in the final sample is shown in Table 1.

The share of foreign currency debt issued is constructed as follows: when a company issues more than once in a given quarter and in two different currencies, we use principal amounts as weights. If a company issues only once and fully in foreign (domestic) currency, its share of issuance in foreign currency is equal to 100% (0%). Table 2 reports descriptive statistics of the foreign currency share. On average about 26 percent of the bonds issued are in foreign currency. This is much larger if we focus on bonds issued in the international market. Figure 1 depicts the percentage of bonds issued in foreign currency by country distinguishing between the first and second half of the sample period. As can be seen for a number of countries, there is a shift over time from local to foreign currency debt.

Firm characteristics

To obtain firm characteristics and in particular balance-sheet data, we use two databases: Worldscope (Datastream - Thomson Reuters), which contains data only on (large) publicly listed companies and the Orbis (Bureau van Dijk) database with data available for the last decade. Hence our baseline sample is at the intersection of SDC platinum, Worldscope and Orbis. Unfortunately, there is no unique identifier to match firms across the two data providers. Hence, we match companies manually, based on their names and industrial sectors. Balance-sheet

information becomes public every year in reference to the previous year. We take that into account and use yearly values at every quarter to match the frequency of other variables. Based on a thorough review of the literature as well as on data availability, we select a range of firm characteristics to include as controls. We include firm size and book-to-market value as in Gozzi et al. (2015). Firm size is used to control for transparency and profitability and is measured as the log of total assets. The book-to-market value is defined as the difference in total assets and liabilities over market value and is used as a proxy for growth opportunities.

Following Demirguc-Kunt et al. (2015), we control for profitability using ROA, i.e. the ratio of profits before taxes and interest expenses over total assets and collaterals measured by the share of tangible assets (PPE) over total assets. We also add cash measured by cash holdings and equivalent, as suggested in Bruno and Shin (2017). We expect healthier firms to have greater access to foreign investors who prefer to lend in foreign currency.

Another relevant characteristic is firm riskiness. We measure this with leverage computed as the ratio of debt over total assets as in Becker and Ivashina (2014) or in Norden and van Kampen (2013). We also include a dummy indicating whether a firm is classified as High-Yield in SDC-platinum. Jeanne (2000) shows that fragile entrepreneurs can borrow in foreign currency to signal that they are not fragile and obtain lower financing costs. In Aghion et al. (2004), riskier firms prefer borrowing in foreign currency due to moral hazard.[12]

Global variables and country characteristics

To measure global liquidity we use VIX from the Fred platform (FED of St-Louis) and the shadow FED funds rate (FFR) measured by Wu and Xia (2016) available on their website.[13] Both variables are at daily frequency and averaged quarterly. The average of the shadow FFR is below

[12] Foreign currency debt implies a lower interest rate in good times, but a much larger repayment in bad times; however, in bad times firms default and only partially repay their debt.
[13] https://sites.google.com/site/jingcynthiawu/home/wu-xia-shadow-rates

zero at -0.46%. This is not surprising as our sample contains more quarters with relatively loose monetary policy conditions. In fact, the samples averages of the shadow FFR are 2.5 and -1.57, respectively before and after 2010. The average VIX is at 19.7 percent. In the analysis, alternative measures of global financial conditions are used as well and various additional or alternative macro variables are included as robustness checks. All variables are described in Appendix B.

We also control for various country-level time-varying characteristics. Multiple data sources are used to collect these variables. Three-month countries' money market rates are obtained from Datastream to measure the stance of domestic monetary policies and therefore the cost of domestic currency debt. We control for the interest rates differential computed as the difference between the local money market rate and the cost of issuing in foreign currency, proxied by the 3-month US dollar LIBOR rate.[14] We also include real GDP growth, computed as the growth rate of real GDP relative to the same period the previous year: higher growth may be associated with less demand for foreign currency debt as firm quality improves and the domestic banking system becomes more dynamic. In our sample, GDP growth values are quite heterogeneous across but also within countries. Overall, GDP growth is on average of 5.8% but ranges between -11.15% and 26.5%.

We control for the exchange rate regime index which varies from 1 to 5 obtained from Ilzetzki et al. (2017), where a higher value stands for more freely floating exchange rate. In our sample, the maximum value of the index is 4 (managed float). We also control for inflation volatility calculated as the standard deviation of CPI inflation over a 16-quarter rolling window. Greater volatility of exchange rates and prices hurts investments, trade, and firm profitability. It also exposes firms borrowing in foreign currency to unexpected rises in their debt burden.

To measure the extent to which firms in a country hedge currency risk, following Mizen et al. (2012), we use the BIS Triennal Survey to get a country's total amounts of foreign exchange

[14] Results are unchanged when using the local money market rate minus the FED funds rate, but make the findings harder to interpret as the FFR would appear twice.

derivatives that include currency swaps, FX swaps, options, outright forwards and other derivatives. Missing quarters are interpolated using the BIS Semi-annual Survey and the amounts of foreign exchange derivatives in other currency (all except the five biggest) as weights. Semi-annual data are then linearly interpolated to get a measure of the depth of the derivatives market at quarterly frequency. Firms should be more willing to borrow in foreign currency if they can hedge the currency risk at a low cost.

We obtain real GDP per capita adjusted for purchasing power parity, scaled by 1000 for readability, and the regulatory quality index (ranging between -2.5 and 2.5) at annual frequency from the World Bank database. Less developed countries with less stringent financial regulation are expected to borrow more in foreign currency as they have less developed financial markets.

Policy variables

Information on capital controls (CC) on bond inflows is obtained from Fernandez et al. (2016). The index of controls on bond inflows can take three values: 0, 0.5 or 1. These three values are based on two sub-category dummy variables: one for the existence of controls on bonds purchased locally by non-residents and one for controls on bonds sold or issued abroad by residents. Hence, the index takes a value of 0 when no controls whatsoever are in place, 0.5 when one of them is in place and 1 when both controls (locally and abroad) are in place. Figure 2 presents the proportion of countries over the period 2003-2015 having bond controls on inflows, with the various sub-categories. It also shows CC on bond outflows and CC on total bond flows (accounted for when CC on either inflows or outflows are in place). First, we see that there are more often CC on bond outflows than inflows. Then, controls on bonds sold or issued abroad by residents are more frequent than controls on bonds purchased locally by non-residents. Finally, CC on bond inflows abroad and locally are not necessarily implemented simultaneously.

We also obtain from Ahnert et al. (2018) indices of macroprudential FX regulations, i.e., prudential regulations targeting the financial sector. Two types of FX regulations are considered, depending on which sides of banks' balance-sheets, asset or liability side, these measures are aiming at. Changes in FX regulations are coded as a +1 in case of additional or tightened restrictions, -1, when they are loosened or removed and 0 when no change occurs in a given quarter. Macroprudential FX regulations on the asset-side can be broadly defined as restricting FX lending to local firms and households. FX regulations focusing on the liability side mostly aim at regulating the funding decisions of banks (FX reserve requirements and FX liquidity requirements). For robustness, we also consider indices from Cerutti et al. (2017). In line with Anhert et al. (2018), we also make a distinction between asset and liability sides. We use a dummy variable taking a value of 1 if limits on FX currency loans are in place in a given year and another dummy taking the value 1 if FX or/and countercyclical reserve requirements are in place in a given year as a regulation on the liability-side of domestic banks.[15]

3. Determinants of Foreign Currency Bond Issuance and the Role of Capital Controls

This section describes the determinants of foreign currency borrowing, based on the methodology described above. We start by analyzing the impact of global, national, industry and firm level variables. We document that the rise of foreign currency indebtedness is chiefly driven by the stance of US monetary policy among the standard measures of global liquidity. Capital controls on bond inflows also play a key role. In subsection 3.2. we examine in more details the role of capital controls. We show that local controls on foreign currency issuance have the strongest impact and that capital controls can fully offset the impact of expansionary US monetary policy.

[15]A notable difference between Ahnert et al. (2018) and Cerutti et al. (2017) variables, is that the former consider changes in FX regulations, while the latter assess whether FX regulations are in place.

Finally, we show that FX macroprudential policies increase foreign currency bond issuance and that this effect can be dampened by capital controls.

3.1 Benchmark Specification

We start by estimating equation (1) using all controls described earlier. Table 3 reports our estimates. All country and firm-specific controls are included in each column but not reported for sake of concision. The full table is shown in Appendix A, Table A.1. Each column (1) to (8) considers an alternative indicator of the US monetary policy stance or of global volatility.

The stance of US monetary policy is found to be the most relevant and robust factor affecting the decision to issue debt in foreign currency. The statistically significant coefficient of -0.016 in column (1) indicates that a decrease in the shadow FFR by one percentage point (from its mean of -0.46%) raises the issuances in foreign currency by 1.6 percentage points. Figure 3 shows that the marginal effects of a decrease in the shadow FFR by one percentage points get higher at lower values of the shadow FFR, although the differences are not statistically significant.[16] Importantly, the effect of the dollar rate on the currency denomination is over three times larger if we restrict the sample to bonds issued in the local market. Figure 4 shows the marginal effects of shadow FFR interacted with a dummy variable for issuances taking place abroad or locally; while the marginal effect is nil for issuances taking place abroad, it is significant statistically and economically for issuances taking place locally.[17]

Regarding the VIX, measuring global volatility, the marginal effects are significant at the 10% confidence level. An increase in the VIX by one unit from its mean decreases the share of issuances in FX by 0.2 percentage points. However, this result is mostly driven by very low

[16] Hence, we can treat the relationship between FFR and FX issuance as linear and correctly interpret the marginal effect as the effect of a 1 pp rise in FFR.

[17] Changes in other global currency (notably the euro and the swiss franc) rates have a similar effects, see Table A.2 in Appendix A. This is not surprising given that monetary policies in these regions are highly correlated with the US monetary policy. For the yen and the pound the results are less stable.

values of the VIX. Figure 5 shows that the marginal effects of the VIX are not significant for most values.

Country characteristics included in the regressions that show up significant and with the expected sign are the exchange rate regime and inflation volatility: having a more flexible exchange rate regime and higher inflation volatility is associated with a lower probability of issuing in foreign currency. The full table shown in Table A.1. in Appendix A, further shows that the firm-specific explanatory variables have the expected signs, and some are statistically significant.

In Figure 6 we plot the marginal effect of the shadow FFR for different types of exchange rate regimes. Consistent with the fact that a peg is interpreted as an implicit exchange rate guarantee, under such fixed regime a more restrictive US monetary policy does not significantly discourage borrowing in foreign currency. This is particularly true if reserves are high, i.e., above 35 per cent of GDP, contributing to make the fixed regime more credible (see Figure A.1 in Appendix A). In contrast, the decline in foreign currency debt associated with a tighter US monetary policy stance is higher under a floating exchange rate regime.

Our findings hold for the average company. We refine our analysis by distinguishing across firms based on four indicators of vulnerability to sudden stops: leverage, growth opportunities, size, and trade intensity.[18] Financial stability risks associated with foreign currency exposure[19] will be less acute if borrowing in foreign currency is concentrated at financially stronger firms and firms with a natural hedge. Indeed, these categories of firms should have more financial resources to withstand a sudden increase in the cost of borrowing in foreign currency. To check whether this is the case, we assess whether the marginal effects of the shadow FFR

[18]Trade-intensity is captured by a dummy variable taking the value of 1, when the SIC code is above 399 i.e. categorized as belonging to a trade-intensive sector. We used alternative a dummy indicating whether a firm has a positive correlation between its revenues and the nominal exchange rate. The results were unchanged (available upon request).

[19] Essentially the risk of bankruptcy if US rates go up or if the dollar appreciates.

changes across these firm characteristics. Figures A.2 to A.5. in Appendix A present our results. In all cases, changes in the marginal effects of shadow FFR are not statistically different from zero at all considered values of these four variables. Therefore, a lower FED funds rate triggers a higher probability of issuing in foreign currency almost independently of companies' characteristics.

Capital controls on bond inflows are highly significant. This suggests that capital controls are effective in curbing foreign currency indebtedness. The activation of capital controls decreases the propensity to issue in foreign currency by 5.8 % (column 1), which is a large effect given the mean is at 26%.

The findings remain unchanged in columns (2) to (8) where the shadow FFR is replaced by the 10-Year treasury constant maturity rate (2), the Treasury inflation-indexed long-term average yield (3) and the FED funds rate (4). In column (5), the shadow FFR and VIX are replaced by a dummy taking the value of 1 from 2010 Q1 onwards. In columns (6) to (8), VIX is replaced by, respectively, MOVE,[20] a global uncertainty index (taken from Baker et al., 2016), and VIX for emerging markets. MOVE is statistically significant, but the effect is economically small, while the indices of global policy uncertainty and VIX for emerging economies are statistically insignificant.

All in all, the increase in foreign currency exposure seems to be mostly driven by a "search for yields" phenomenon, rather than a decrease in investors risk aversion or overall economic uncertainty. This is line with McCauley et al. (2015), who, using a different approach, argue that investors seeking higher-yields assets are buying bonds in US dollars from non-US issuers. This can also be interpreted as evidence in favor of the "filling-gap" hypothesis proposed by Greenwood et al. (2010). This hypothesis has been empirically tested in Lo Duca et al. (2016), who analyze the relationship between corporate bond issuances in EME and the FED Quantitative

[20] The 3-month MOVE index is based on implied volatility for US Treasuries rather than US firms stocks.

Easing policies. They find that as the FED removes assets from the markets, investors turn to EME companies to fill the gap.

3.2 Different Forms of Capital Controls and Interaction Effects

The aim of this section is to dig deeper into the direct and mitigating effects of capital control. First, we investigate the link between different forms of capital controls and the probability for companies to issue in foreign currency. Then, we analyze further whether the introduction of such controls is helpful in preventing the rise in foreign currency borrowing triggered by low US interest rates.

The estimated effects of various forms of controls are reported in Table 4. We start with the dummy variable for any type of CC on bond inflows used in the baseline. Then, the index on bond inflows is used both as a continuous variable (column 2) and as a factor variable distinguishing between having one type of CC (locally or abroad) (columns 3 to 5). Overall, the estimated marginal effects are clearly statistically and economically significant and negative. The activation of CC on bond inflows decreases the share of bond issued in foreign currency of a company by around 5.6 to 5.8 percentage points. Moreover, the negative impact of CC seems to mostly come from local controls. The effect of CC on bonds issued abroad is actually *positive*. One possible interpretation is that firms seeking to borrow in foreign currency migrate to the local market as a consequence of controls on internationally issued bonds. This in turn causes an increase in the issuance of foreign currency bonds in the local market. In unreported results we find indeed that the activation of CC on bonds issued abroad increases the share of foreign currency bonds issued in the local market.

Another, maybe more intuitive way to present these results is by plotting marginal effects of the various types of CC on the predicted probability of issuing in foreign currency. Figure 7 shows theses marginal effects distinguishing between having CC locally, abroad or both relative

to no CC. Having CC abroad has no impact on the share of issuances in foreign currency. On the other hand, having CC locally decreases the share of issuances by over 5 percentage points .[21]

Columns (6) to (9) in Table 4 repeat part of the analysis including quarter fixed effects (dropping global variables). The results are robust and the estimated marginal effects for CC become even quantitatively larger. An important policy question is whether the impact of capital controls is driven by countries with permanent controls or whether temporary controls are also effective. To examine this issue we use the distinction between "wall" and "gate" countries defined in Klein (2012). In column (10) of Table 4 we show the baseline regression focusing on non-wall countries only, i.e., countries with intermittent capital controls. The marginal effect of having CC on the share of issuances in FX is much larger: having CC decreases the share of issuances in FX by 20.9 percentage points. Again, given that the average share of FX issuances is 26%, this impact is quantitatively large. In columns (11) and (12), we use CC on total bond flows and add CC on bond outflows. Only the effect of CC on bond inflows is significant.

In sum, capital controls on bond inflows seem effective in reducing the probability of borrowing in foreign currency. This result stems mostly from having local capital controls, while capital controls abroad appear to simply divert the supply of foreign currency capital to the local market. A follow-up and important question is whether beyond their direct effect, capital controls are effective at dampening the impact of lower US interest rate. To address this question, we estimate the interaction effect between capital controls and the shadow FFR. Figure 8 plots the marginal effects of shadow FFR with and without CC on bond inflows. Clearly, the introduction of capital controls neutralizes the effect of a US monetary policy easing.

One corollary question is whether CC can be actively used as a prudential tool. If so, CC ought to be activated at times when US policy is softened and therefore their effect should be

[21] Note that the difference in the predicted probability between CC abroad and CC local is -0.19 with a p-value of 0.047. Having both CC reduces significantly the probability of issuing in foreign currency by 5 percentage point (p-value of 0.048).

concentrated at low levels of the Fed Funds rate. This is what we observe in Figure 9 which reports the marginal effects of having CC on bond inflows (dummy) on the predicted probability of issuing in foreign currency for various levels of shadow FED funds rate.

3.3 Macroprudential Policies and Capital Controls

Next we examine the impact of macroprudential policies targeting the financial sector as such policies may be implemented simultaneously and therefore confound the effect of capital controls. The results are reported in Table 5 considering liability and asset side policies separately. As in Ahnert et al. (2018), we include the FX regulation variables for each quarter up to three quarters in the past (i.e. current and with up to three lags). We then compute the p-value of the joint significance F-test of the four estimates. Results are however similar when we pool the macroprudential variable over a year directly. The positive marginal effects confirm the findings of Anhert et al. (2018) on the effect of macroprudential FX policies for the corporate sector. Controlling for these policies does not weaken the estimated effect of capital controls; on the contrary, the marginal effects associated with CC are even larger. As a robustness, we present in Table A.4 (Appendix A) the results using Cerutti et al. (2017) database on macroprudential policies described earlier. Here as well, the marginal effects for the considered macroprudential policies are positive.

We take the analysis one step further to evaluate whether capital controls can alleviate the unintended consequences of FX regulations. The answer is yes, but only partly. Having capital controls does indeed significantly tames the impact of tighter FX regulations on the likelihood of foreign currency issuances, but it remains positive, albeit small in magnitude. We estimate a fall of the marginal effects of FX regulations (liability-side) by -0.1 with a p-value of 0.029. This result is shown in Figure 10.

4. Capital Controls and Firms' Performance

While controls on capital inflows reduce foreign currency bond issuances, there are two broader policy questions. First, do capital controls strengthen the resilience of firms to currency movements? Their impact could be limited if they are not sufficiently intense and broad based or if borrowers substitute bond finance with bank finance. The second issue is to weigh the costs and benefits of capital controls. Theory suggests that capital controls can drive up the cost of capital and curb investment through rising uncertainty and a reduction in the availability of external finance.

In this section we examine these two questions from two different perspectives. First, we analyze the impact of CC on stock market returns, in the spirit of Adler and Dumas (1984). Second, we analyze the impact of CC on real outcomes including employment, capital expenditure, and sales.

4.1 Capital Controls and Firms' Stock Market Performance

Having documented the role of capital controls in shielding EM firms from excessive foreign currency borrowing in bond markets, we next assess their impact on firms' stock market valuation. In particular, does the reduction in foreign currency borrowing translate into a significantly lower vulnerability to exchange rate fluctuations? To measure the exchange rate vulnerability of firms we use a two-step approach. We start by regressing the exchange rate on policy variables, as well as other relevant country-specific controls and use the residual from this regression in the second step regression. This two-step approach helps to isolate the impact of the exchange rate from that of policy variables on stock returns.[22] The estimates of the first-step OLS

[22] Indeed, as documented in Ouyang and Guo (2019), capital controls and macroprudential policies can also affect the exchange-rate itself.

regression are presented in Table A.6 of Appendix A. We denote by $\widetilde{\Delta E}$ the residual variation of the exchange rate (an appreciation of the domestic currency relative to a trade-weighted basket of currencies gives a positive sign) cleansed from potential effects of country-specific and policy variables In a second-step, we estimate the following equation:

$$r_{fit} = \alpha + \gamma_f + \beta_1 \widetilde{\Delta E}_{it} + \beta_2 cumCC_{it} + \beta_3 \widetilde{\Delta E}_{it} * cumCC_{it} + X_{fit}\beta_4 + \varepsilon_{fit} \quad (2)$$

where r_{fit} is the stock return and $cumCC_{it}$ is the cumulated capital controls over the current and past 3 years ($\sum_{k=0}^{3} CC_{it-k}$) or over the last 3 years ($\sum_{k=1}^{3} CC_{it-k}$). The vector of control variables *X* includes relevant firm characteristics and macro factors, liquidity factors, and global volatility measures that affect firm value through other channels than the exchange rate. Finally, γ_f are firm fixed effects.

Our prior is that β_1 is positive (e.g., see Anhert et al., 2018): an appreciation of the domestic currency has a positive effect on the stock return of a domestic firm indebted in foreign currency through a reduction in its debt burden. This debt reduction implies a rise in ex-post profits and net worth.[23] The coefficient of interest is β_3. It should be negative if capital controls curb the currency risk exposure of firms.

The results are reported in Table 6. The first two columns consider aggregate stock market valuations as measured by MSCI country indexes, using the two alternative measures of cumulative CC. Columns (3) to (8) replicate the analysis using firm-level stock returns and distinguishing by firm size. Because stock returns are not available for all firms, we end up with a firm-level sample of 846 companies and a total of 24'479 observations.

[23] A depreciation of the domestic currency can also reduce the dollar values of companies' collateral. Indeed, Bruno and Shin (2015) show that most of the assets of EME companies are prices in local currency.

The results are broadly similar in all columns and the variables of interest enter with the expected sign. First, a currency depreciation causes a fall of stock returns. Second, $\hat{\beta}_3$ is negative and statistically significant: the presence of capital controls clearly dampens the vulnerability of firms to exchange rate fluctuations. In contrast, we find that macroprudential FX policies do not make non-financial firms more resilient to exchange rate fluctuations.[24] Interestingly, smaller firms suffer more than larger firms from a depreciation suggesting that they are less hedged against currency risk. consistent with the fact that decision to hedge using derivatives is positively related to size.[25]

4.2 Real Effects of Capital Controls

The recent literature has provided evidence of adverse effects of capital controls. Andreasen (2017) finds that controls on bond inflows increase corporate bonds spreads. Alfaro et al. (2017) document falling stock returns and investment expenditures of firms following capital controls events in Brazil. Interestingly, they find that capital controls disproportionately affect small, non-exporting firms, especially those more dependent on external finance. We revisit this question with a larger sample of firms and countries. And in addition to CAPX, we consider also the impact of capital controls on net debt, the variation in cash holdings, the variation in the interest coverage ratio, employment growth, and sales growth. Appendix B details the construction of all the variables used. Formally, we estimate the impact of cumulated capital controls over the past 3 years on these outcomes using the following regression:

$$FV_{fit} = \alpha + \gamma_f + \delta_t + \beta_1 cumCC_{it-1} + X_{fit}\beta_2 + \varepsilon_{fit} \quad (3)$$

[24] This result contrasts with Anhert et al. (2018). However, their results are not significant either when they consider a proxy for corporate stock returns as dependent variable, the focus of our paper.
[25] There is strong empirical evidence that bigger firms are more prone to engage in hedging strategies than the small ones due to the fixed costs of hedging and scale economies. There is also evidence that firms pass through part of the currency changes to customers and use both operational and financial hedges. According to Batram et al (2010) financial hedging and FX derivatives decrease firm exposure by 40 percent.

FV_{fit} is one of six outcome variables considered, and the vector X_{fit} contains relevant country and firm time-varying characteristics based on our reading of the literature. The specification is estimated at annual frequency and we include both firm and time fixed effects (γ_f and δ_t). Then, we re-estimate this equation by distinguishing between small and large firms, and firms with high and low dependence on external finance.[26]

Table 7 reports $\hat{\beta}_1$ for all specifications.[27] In the full sample we find no economically or statistically significant effect of capital controls on net debt, cash growth or the interest coverage ratio. In contrast, employment growth and sales growth decline on average in the full sample. The effect on employment growth is economically large with a decline of about 2.5 percentage point in employment if one form of capital controls has been activated in the past 3 years. This effect on employment is chiefly driven by firms with a high dependence on external finance and large firms. Large firms also experience a decline in cash growth and debt suggesting that they tap their cash reserves to compensate for the decline in the supply of external debt, but this is not enough to preserve employment.

5. Conclusion

The destabilizing role of foreign currency borrowing in EME has stimulated a large literature, with most of the empirical literature analyzing bank loans. Given the growing role of market financing in EME, this paper focuses on corporate bonds borrowing. This is of interest because the incentives to borrow in foreign currency from the bonds markets may differ from those with bank loans. Moreover, foreign bond flows appear more sensitive to changes in global risk appetite

[26] We define low-leverage companies as those being in the first two quantiles of the distribution, while high-leverage firms belong to the last two quantiles. For size and dependence on external finance, we use the same approach based on the amount of total assets. We measure external dependence by the measure proposed in Rajan and Zingales (1998): capital expenditures minus cash flow from operations divided by capital expenditures.
[27] In the Appendix Tables A.8 to A.10 we also report the full specifications including the control variables.

and financial conditions than foreign banks' lending.[28] Policies may also differ with different types of borrowing. This paper has put the emphasis on the latter policy dimension.

In this paper we provide first evidence that the currency composition of bond flows to EME is sensitive to changes in global interest rates. This result implies that if a US monetary tightening decreases capital flows to EME, this is amplified by a larger foreign currency exposure for firms. However, this effect can be dampened or eliminated by capital controls. We find that controls on bonds issued locally and purchased by non-residents are particularly effective in reducing foreign currency issuance. We also show that controls on bond inflows are effective in reducing the vulnerability of firms to exchange rate fluctuations.

With the growing popularity of EME corporate bonds, capital controls may also be used in combination with macroprudential policies. The results in this paper and in Anhert et al. (2018) show that tighter FX regulations for financial intermediaries may be circumvented by issuing more bonds. Our results show that controls on bond inflows can partly neutralize this effect.

Our results show that capital controls have more impact when US monetary policy is expansionary. But is it desirable to actively use capital controls as prudential tools? This is not a conclusion that can be drawn from our analysis and a welfare analysis of capital controls goes beyond the objectives of this paper. While capital controls can contribute to financial stability by reducing foreign currency exposure, they also have costs. In our sample we show that they limit firm-level employment growth. Notice also that the available evidence is that capital controls are not countercyclical (Fernandez et al., 2016) and do not appear to influence financial variables or GDP growth (Klein, 2012), which suggests that policymakers have not systematically used capital controls on prudential grounds. This is an important issue for further research.

[28] See Carney (2019) for a recent discussion.

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Table 1: Final sample: Number of bond issuances and firms per country

Country	Issuances	Firms	Period
Argentina	29	14	2006Q4-2015Q4
Brazil	441	136	2008Q1-2015Q4
Chile	118	35	2003Q1-2015Q2
China	1104	525	2004Q2-2015Q1
Colombia	6	2	2008Q1-2010Q2
India	591	209	2003Q1-2015Q4
Indonesia	110	60	2003Q2-2015Q4
Malaysia	354	106	2003Q1 -2015Q4
Mexico	262	66	2003Q1-2015Q4
Peru	32	13	2003Q1-2014Q4
Philippines	130	24	2003Q1-2015Q4
Poland	19	11	2005Q3-2015Q2
Russia	132	47	2003Q4-2015Q1
Saudi Arabia	5	3	2011Q3-2014Q4
South Africa	44	27	2004Q1-2015Q1
Thailand	450	91	2003Q1-2015Q4
Turkey	14	9	2004Q3-2014Q4
Total	3841	1378	2003Q1-2015Q4

Table 2: Descriptive statistics of key variables

Variable	Mean	SD	Median	Min	Max
Dependent variable					
Foreign currency issuances (%)	0.2569	0.4333	0	0	1
Firm-specific variables					
Size: log of total assets	3.0591	2.4146	2.9552	-8.9872	11.147
Book-to-market value	0.8010	1.8176	0.6128	-77.746	32.668
Profitability: ROA	6.6178	10.766	5.9830	-448.18	71.200
Collateral: Tangible assets/total assets (%)	55.982	1062.0	36.171	0	65245.5
Cash: log of cash or equivalent	0.4613	2.5390	0.4900	-11.870	9.2714
Leverage: debt over total assets (%)	22.750	14.863	21.880	0	108.54
High-yield flag	0.1135	0.3173	0	0	1
Global variables					
Shadow FED funds rate	-0.4671	2.0976	-1.1095	-2.9220	5.2567
VIX	19.742	8.0294	16.750	11.030	58.600
Country-specific & policy variables					
Interest rates differential	4.2830	3.4209	4.0284	-4.9498	27.115
Real GDP growth (%)	5.7952	4.3418	6.2136	-11.151	26.509
ER regime index	2.5780	0.5156	3	1	4
Derivatives market depth (bios US$)	24.396	19.177	18.260	0.1962	65.381
Inflation volatility	1.7530	0.9944	1.4846	0.3373	20.140
Real GDP per capita PPP (1000 US$)	12.456	5.5940	12.757	2.6233	49.659
Regulatory quality index	0.01974	0.4235	-0.1281	-1.0790	1.5465
Capital controls (CC) on bond inflows	0.8480	0.3591	1	0	1
Reserves/GDP (%)	29.121	13.779	31.436	4.5474	97.198

Table 3: The impact of global financial conditions

Share of FX bond issuances (%)	Baseline	10Y gov. yield	LT gov. average yield	FED funds rate	Post-crisis dummy	MOVE	Global uncertainty	VIX EME
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ShadowFFR/Alt variable	-0.016**	-0.026**	-0.078**	-0.018*	0.257***	-0.012**	-0.014**	-0.004
	(0.007)	(0.011)	(0.031)	(0.010)	(0.050)	(0.005)	(0.006)	(0.003)
VIX/Alt variable	-0.002*	-0.002*	-0.004	-0.003**		-0.001**	-0.000	0.000
	(0.001)	(0.001)	(0.003)	(0.001)		(0.000)	(0.000)	(0.000)
CC on bond inflows (dummy)	-0.058***	-0.049***	-0.116***	-0.060**	-0.207***	-0.050***	-0.050***	0.002
	(0.019)	(0.017)	(0.031)	(0.024)	(0.032)	(0.015)	(0.018)	(0.005)
ER Regime index	-0.034**	-0.035***	-0.131***	-0.036**	-0.139***	-0.030**	-0.033**	-0.008
	(0.014)	(0.011)	(0.035)	(0.016)	(0.042)	(0.012)	(0.014)	(0.010)
Inflation volatility	-0.016*	-0.017*	-0.040	-0.017*	-0.056**	-0.012*	-0.014*	0.001
	(0.009)	(0.009)	(0.029)	(0.010)	(0.022)	(0.007)	(0.007)	(0.004)
Country-industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country/Firms controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3841	3841	3820	3841	3841	3841	3841	2244
Pseudo R^2	0.654	0.652	0.652	0.653	0.654	0.655	0.653	0.641

Notes: The table shows the marginal effects (all variables evaluated at their means) obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses. All variables are lagged. The stars indicate the statistical significance as follow: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is the share of issuances denominated in foreign currency (%). The shadow FED funds rate is from Wu and Xia (2016). VIX is an index of implied volatility of the U.S. S&P500. In columns (2) to (4), shadow FFR is replaced by, the 10-Year treasury constant maturity rate (2), the treasury inflation-indexed long-term average yield (3) and the FED funds rate (4). In (5), both shadow FFR and VIX are replaced by a dummy taking the value of 1 for 2010Q1 onwards. In columns (6) to (8), VIX is replaced by, respectively, the MOVE, a global uncertainty index and the VIX for emerging markets. Capital controls (CC) on bond inflows is a dummy variable taking the value 1 when any type of restrictions on bond inflows is in place. We also control for various country- and firm-specific variables described in the text. The full table with all controls is available in appendix A, Table A.1.

Table 4: The impact of capital controls

Share of FX bond issuances (%)	CC on bond inflows										Other CC	
	Dummy	Index as continuous	Local CC dummy	CC abroad dummy	Local & abroad	Dummy	Local CC dummy	CC abroad dummy	Local & abroad	Non-wall countries	Total bond flows CC	Adding bond outflows CC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Shadow FED funds rate	-0.016**	-0.017**	-0.002*	-0.012**	-0.045***					-0.066***	-0.000***	-0.014**
	(0.007)	(0.007)	(0.001)	(0.006)	(0.016)					(0.019)	(0.000)	(0.006)
VIX	-0.002*	-0.002*	-0.000	-0.002*	-0.004					-0.007	-0.000*	-0.002*
	(0.001)	(0.001)	(0.000)	(0.001)	(0.003)					(0.006)	(0.000)	(0.001)
CC	-0.058***	-0.056*				-0.116***				-0.209***		-0.045**
	(0.019)	(0.030)				(0.035)				(0.030)		(0.023)
CC local			-0.006*		-0.158***		-0.053**		-0.078***			
			(0.003)		(0.051)		(0.022)		(0.023)			
CC abroad				0.053***	0.212***			0.078***	0.072***			
				(0.010)	(0.034)			(0.016)	(0.012)			
CC total bond flows											-0.000**	
											(0.000)	
CC bond outflows												-0.024
												(0.032)
Country-industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No
Country/Firms controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3841	3841	3787	3735	3717	3841	3787	3735	3717	1633	3841	3826
Pseudo R^2	0.654	0.654	0.653	0.661	0.662	0.670	0.669	0.658	0.660	0.687	0.654	0.653

Notes: The table shows the marginal effects (all variables evaluated at their means) obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses. All variables are lagged. The stars indicate the statistical significance as follow: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is the share of issuances denominated in foreign currency (%). The shadow FED funds rate is from Wu and Xia (2016). VIX is an index of implied volatility of the U.S. S&P500. Capital controls (CC) variables are from Fernandez et al. (2016). The dummy CC on bond inflows take the value 1 when there are CC on bond inflows. The continuous CC on bond inflows can take three values, 0 for no controls, 0.5 with controls either abroad or locally and 1 for both abroad and locally. It is entered as a continuous variable. Local CC is a dummy variable for having controls on local issuances and CC abroad is a dummy variable for having controls on issuances by residents abroad. Total bond flows CC is a variable taking 5 different values depending on the existence of CC on both bond inflows and outflows. The definitions of wall and gates countries come from Klein (2012). A wall country has long-lasting CC, while there are intermittent in a gates country. The bond outflows CC is similar to the one for bond inflows and can take three values. All baseline controls are included as well in the regressions. The full table with all controls is available in appendix A, Table A.3.

Table 5: The impact of macroprudential policies

Share of FX bond issuances (%)	Macroprudential policies only			With capital controls					
	Both sides	Liability side	Asset side	Liability side			Asset side		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Shadow FED funds rate	-0.025***	-0.015**	-0.046**	-0.017***		-0.046***	-0.046***		-0.046***
	(0.009)	(0.006)	(0.019)	(0.006)		(0.015)	(0.017)		(0.018)
VIX	-0.004**	-0.002**	-0.007*	-0.002**		-0.006*	-0.006*		-0.006*
	(0.002)	(0.001)	(0.004)	(0.001)		(0.003)	(0.003)		(0.003)
CC on bond inflows (dummy)				-0.113***	-0.184***	-0.214***	-0.150***	-0.000	-0.166***
				(0.028)	(0.055)	(0.039)	(0.035)	(0.000)	(0.047)
FX regulations (t to t-3)	4.228***	4.152***	3.419	4.190***	4.181**		4.258	4.000***	
p-value	0.000	0.000	0.197	0.000	0.011		0.711	0.000	
FXregulations pooled						0.159***			0.021
						(0.028)			(0.138)
Country-industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	No	No	No	No	Yes	No	No	Yes	No
Country/Firms controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3339	3339	3339	3339	3339	3339	3339	3339	3339
Pseudo R^2	0.661	0.661	0.660	0.663	0.680	0.662	0.661	0.678	0.661

Notes: The table shows the marginal effects (all variables evaluated at their means) obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses. All variables are lagged. The stars indicate the statistical significance as follow: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is the share of issuances denominated in foreign currency (%). The shadow FED funds rate is from Wu and Xia (2016). VIX is an index of implied volatility of the U.S. S&P500. The dummy for capital controls (CC) on bond inflows is from Fernandez et al. (2016) and takes the value 1 when there are any type of CC on bond inflows. FX regulation are macroprudential policy variables from Ahnert et al. (2018), taking the value of 1 in every quarter macroprudential policies increase, -1 when they decrease and 0 when they do not change. In columns (1)-(5) and (7)-(8), FX regulations variables are included at current quarter and with up to 3 lags. The p-value of the F-test is then computed. Columns (6) and (9) include the cumulated FX regulations, i.e. the variable is computed as the sum of the variables over a year. All baseline controls are included as well in the regressions. The full table with all controls is available in appendix A, Table A.4.

Table 6: Stock returns, exchange rate fluctuations and capital controls - Two-step OLS approach

Stock returns	Country level		Firm level					
			All	Large firms	Small firms	All	Large firms	Small firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δ trade-weighted ER	0.829**	0.876**	1.104***	0.874***	1.327***	1.085***	0.865***	1.331***
	(0.296)	(0.299)	(0.295)	(0.264)	(0.410)	(0.290)	(0.266)	(0.392)
CC (y-1 to y-3)	-1.303		0.924	1.158	0.336			
	(1.080)		(0.796)	(0.877)	(1.358)			
CC (y to y-3)		-1.158				1.321	0.421	1.512
		(0.900)				(0.893)	(1.141)	(1.492)
CCxΔ ER	-0.572**	-0.449**	-0.603***	-0.426**	-0.771***	-0.446***	-0.320**	-0.573***
	(0.205)	(0.163)	(0.125)	(0.153)	(0.135)	(0.094)	(0.118)	(0.094)
Cum. FX regulations (q to q-3)	2.159	2.148	-1.528	0.047	-2.468	-1.572	0.049	-2.494
	(1.469)	(1.456)	(1.885)	(1.844)	(2.022)	(1.876)	(1.838)	(2.006)
Cum. FX reg x Δ ER	0.347	0.349	-0.075	0.037	-0.208	-0.034	0.039	-0.151
	(0.552)	(0.537)	(0.280)	(0.401)	(0.237)	(0.265)	(0.390)	(0.209)
Constant	42.559***	42.785***	54.561***	71.557***	65.008***	52.743***	73.461***	60.554***
	(6.666)	(6.616)	(12.251)	(22.835)	(13.885)	(12.107)	(22.431)	(13.621)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	696	696	24479	12920	11559	24479	12920	11559
Number of firms	16	16	846	517	545	846	517	545
R-squared	0.148	0.150	0.098	0.083	0.133	0.098	0.083	0.132

Notes: The table shows the estimates OLS regression with robust standard errors clustered at the country level in parentheses and all variables are lagged. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is either stock returns at country-level based on the MSCI index or stock returns at the firm level directly. Small and large firms are firms below and above the median size, where the size is measured with total assets. Δ ER is instrumented using the residuals from the first-step regression (Table A.6), where change in trade-weighted exchange rate is regressed on macroprudential policy and country variables. An increase in the ER is an appreciation of the local currency. Capital controls (CC) on bond inflows are from Fernandez et al. (2016), taking the value of 1 in case of controls both abroad and locally, 0.5 if one type of controls is in place, 0 otherwise. They are included as the sum of CC over the current and last three years or over the last three years. FX regulation are macroprudential policy variables from Ahnert et al. (2018), taking the value of 1 every quarter macroprudential policies increase, -1 when they decrease and 0 when they do not change. They are included as the sum of the variable over four quarters. Further controls are included as well in the regressions.The full table with all controls is available in appendix A, Table A.7.

Table 7: $\hat{\beta}_1$ of OLS regressions of various firm-level variables on cumulated capital controls

	Net debt	Cash growth	Δ Int. cov.	Emp. growth	CAPX	Sales growth
	(1)	(2)	(3)	(4)	(5)	(6)
Full sample	0.007*	-1.641	0.210	-2.393***	0.003	-0.014*
	(0.004)	(1.669)	(1.554)	(0.909)	(0.006)	(0.007)
High FinancialDep	0.009	0.337	0.835	-4.489***	0.001	-0.013
	(0.006)	(2.838)	(1.562)	(1.493)	(0.008)	(0.011)
Low FinancialDep	0.008	-3.013	0.258	-0.439	0.011	-0.008
	(0.006)	(2.363)	(3.212)	(1.188)	(0.008)	(0.010)
Large firms	-0.009**	-5.248**	-0.323	-3.759***	0.003	-0.014
	(0.004)	(2.085)	(2.357)	(1.190)	(0.008)	(0.009)
Small firms	0.018**	1.517	2.552	0.176	0.009	-0.008
	(0.007)	(3.109)	(2.598)	(1.712)	(0.009)	(0.012)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5647	5055	5546	2747	5726	5675
Number of firms	1078	1013	1060	706	1087	1073
R-squared	0.227	0.083	0.006	0.065	0.178	0.081

Notes: The table shows the estimates obtained from a linear regression with robust standard errors clustered at the firm level in parentheses and $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.11$. The dependent variables are net debt ($= (Current + Noncurrentliabilities - cash)/totalassets$), growth in cash holdings, change in interest rate coverage ($= EBIT/InterestExpenses$), the growth rate of the number of employees, CAPX ($= (FixedAssets_t - FixedAssets_{t-1} + Depreciation_t)/FixedAssets_t$) and sales growth. Other controls at the country and firm level are also included and full tables can be found in the Appendix (Tables A.8-A.10).

Figure 1: Percentage of bonds issued in foreign currency by country and period

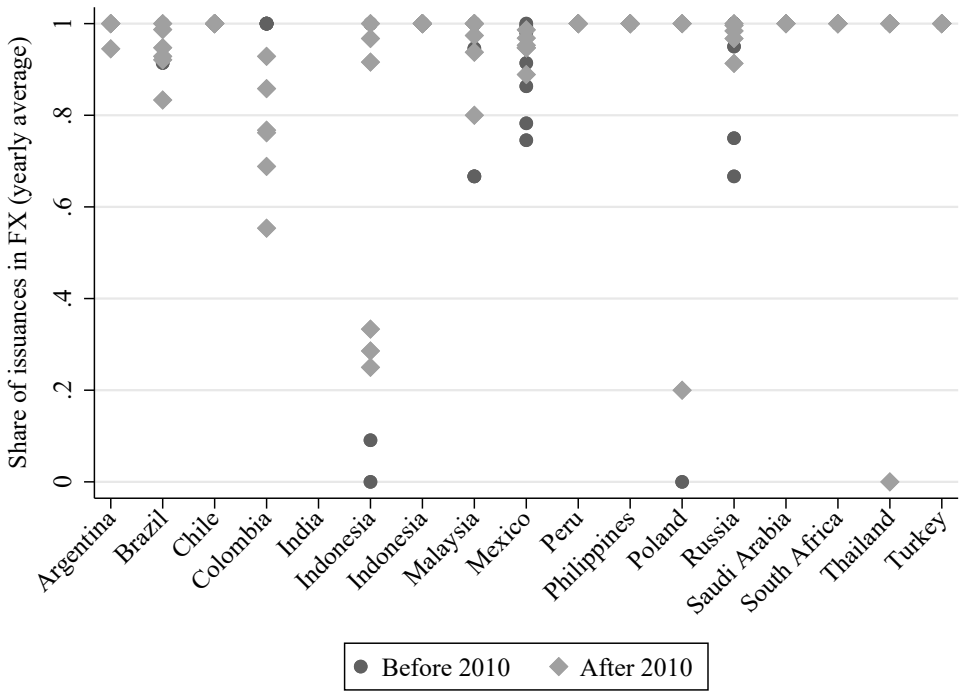
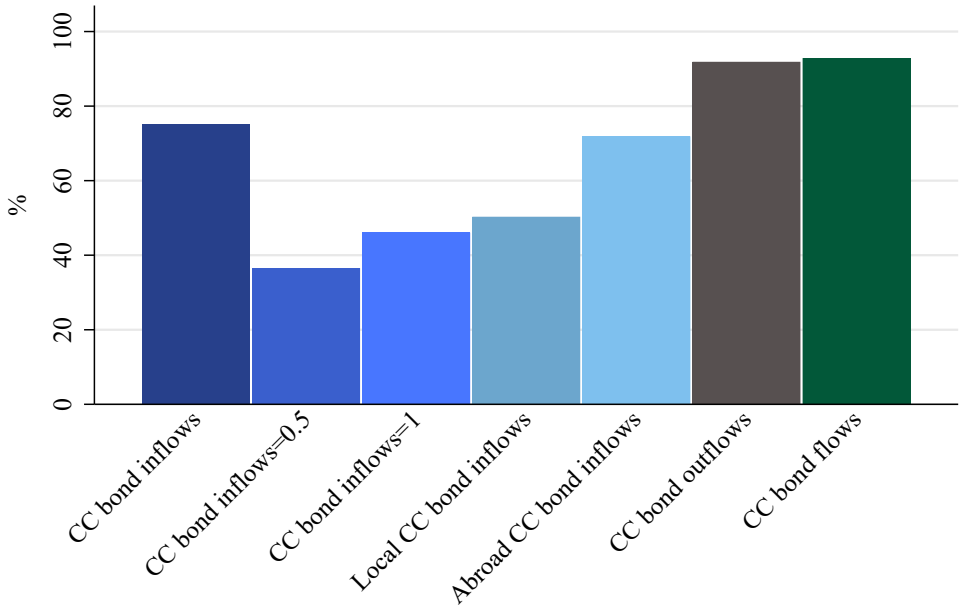
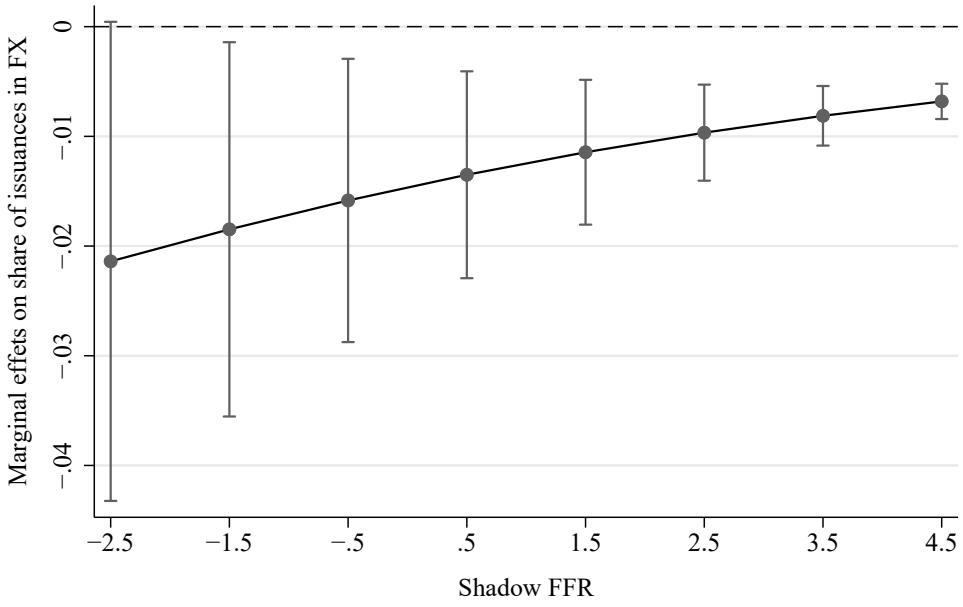


Figure 2: Proportion of countries with bond controls in our sample



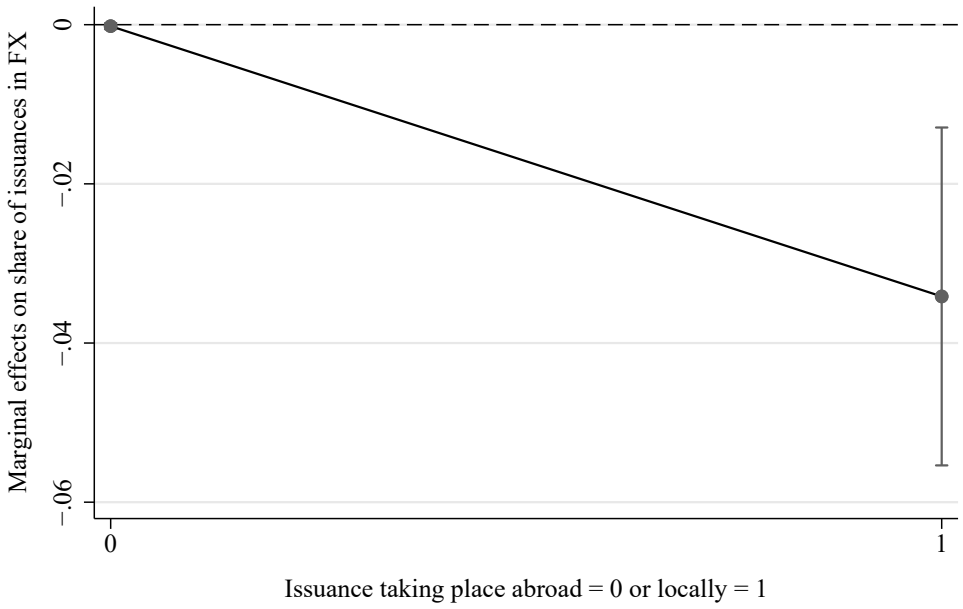
Period: 2003−2015, Source: Fernandez et al. (2016)

Figure 3: Marginal effects of shadow FFR for different values of shadow FFR



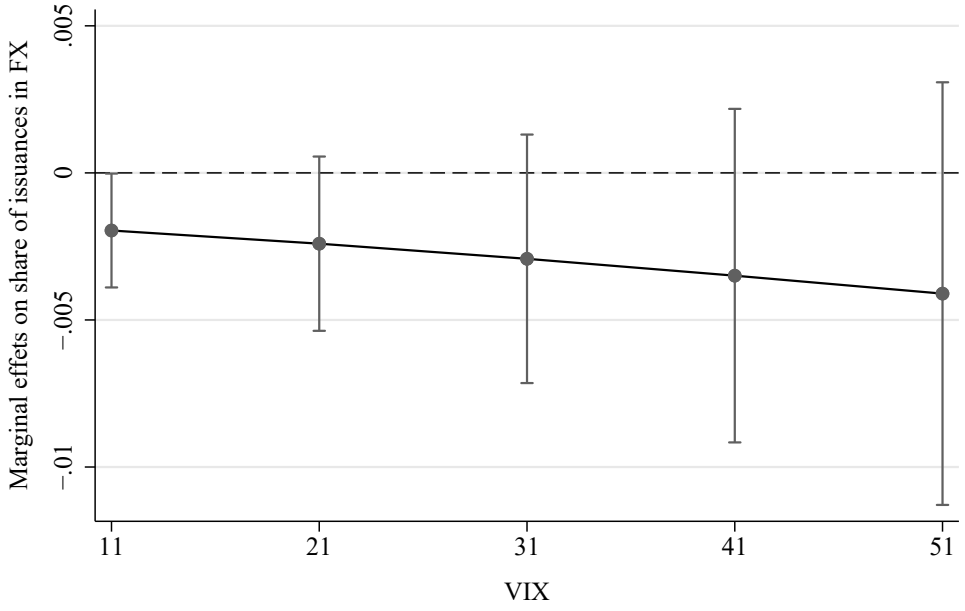
Note: 95% confidence intervals, other control variables evaluated at their means

Figure 4: Marginal effects of shadow FFR for bond issuances taking place abroad or locally



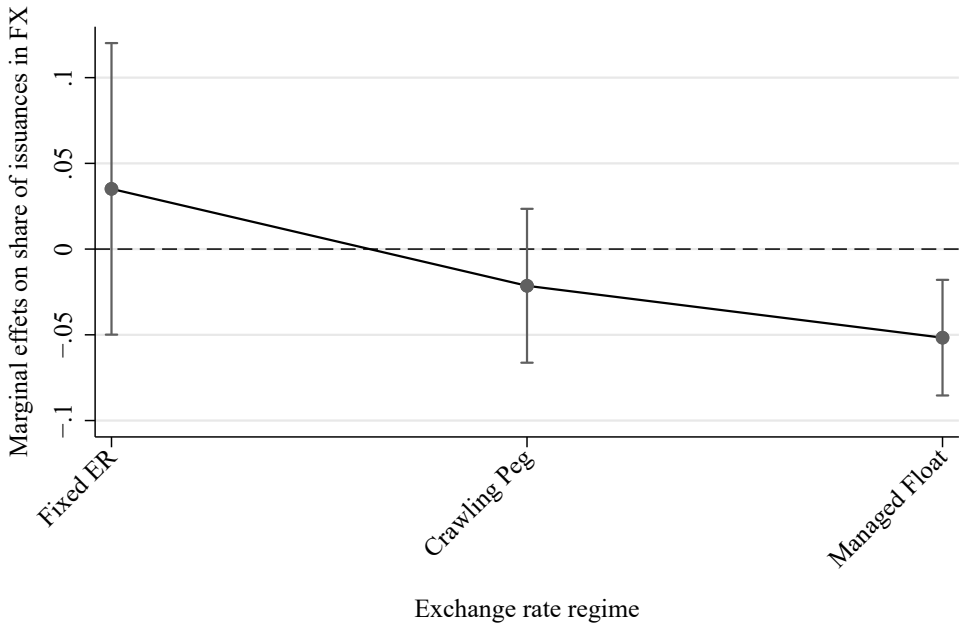
Note: 95% confidence intervals, other control variables evaluated at their means

Figure 5: Marginal effects of VIX for different values of the VIX



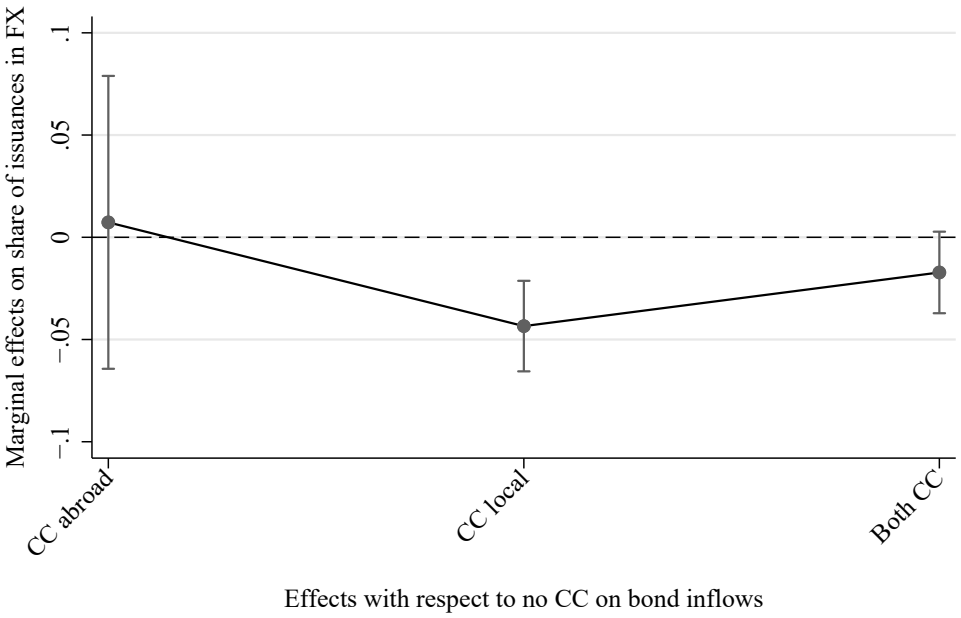
Note: 95% confidence intervals, other control variables evaluated at their means

Figure 6: Marginal effects of shadow FFR for different types of ER regime



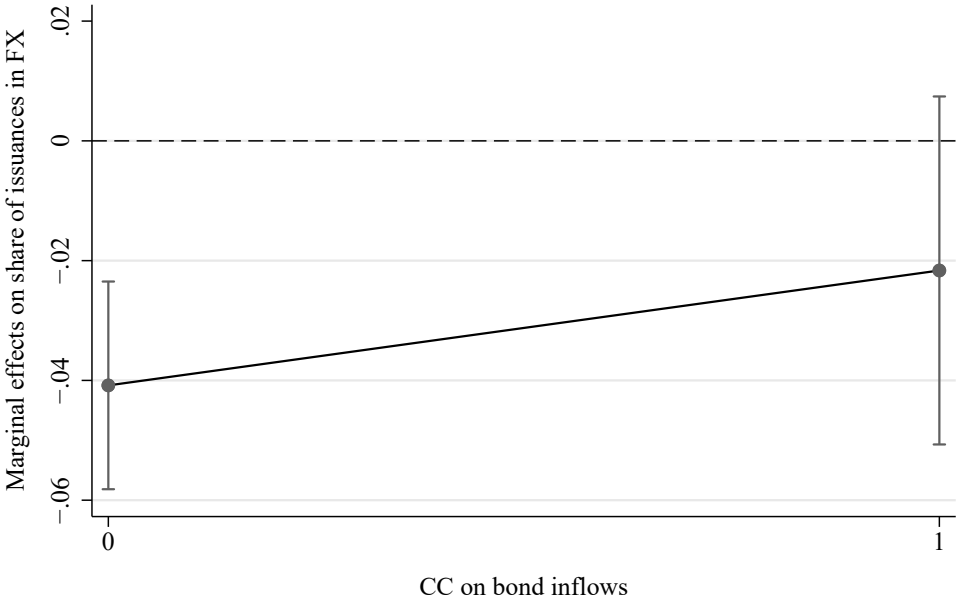
Note: 95% confidence intervals, other control variables evaluated at their means

Figure 7: Marginal effects of various types of capital controls



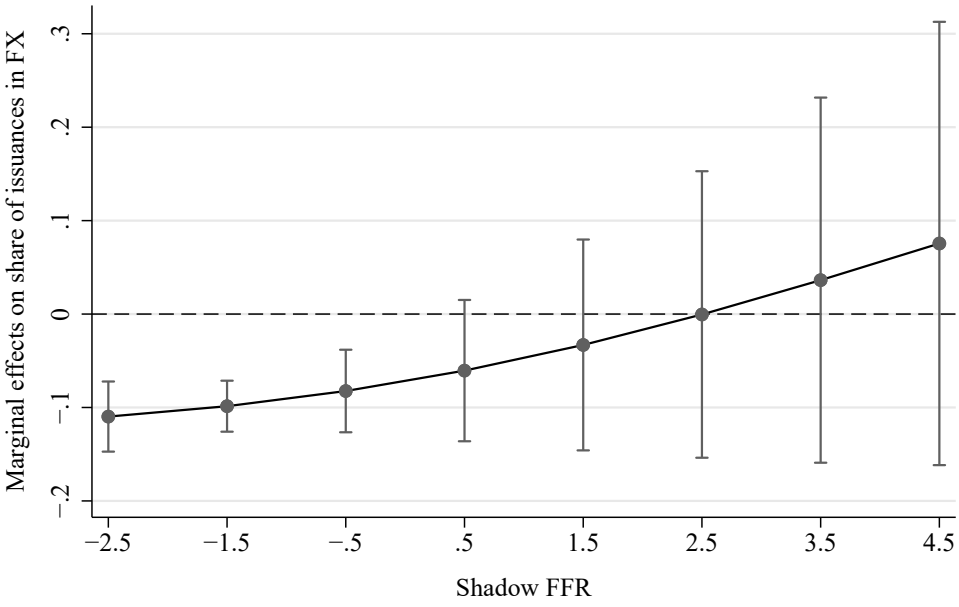
Note: 95% confidence intervals, other control variables evaluated at their means

Figure 8: Marginal effects of shadow FFR with or without bond inflows capital controls



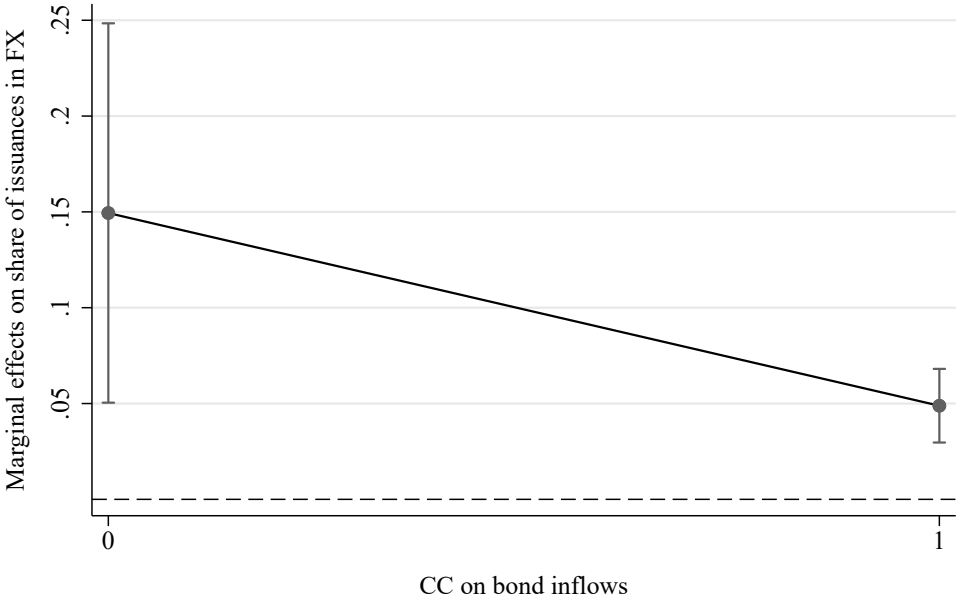
Note: 95% confidence intervals, other control variables evaluated at their means

Figure 9: Marginal effects of CC on bond inflows for various values of shadow FFR



Note: 95% confidence intervals, other control variables evaluated at their means

Figure 10: Marginal effects of variations in FX regulations when having or not capital controls on bond inflows



Note: 95% confidence intervals, other control variables evaluated at their means

Appendix A: Additional Tables and Figures

Table A.1: The impact of global financial conditions

Share of FX bond issuances (%)	Baseline	10Y gov. yield	LT gov. average yield	FED funds rate	Post-crisis dummy	MOVE	Global uncertainty	VIX EME
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ShadowFFR/Alt variable	-0.016**	-0.026**	-0.078**	-0.018*	0.257***	-0.012**	-0.014**	-0.004
	(0.007)	(0.011)	(0.031)	(0.010)	(0.050)	(0.005)	(0.006)	(0.003)
VIX/Alt variable	-0.002*	-0.002*	-0.004	-0.003**		-0.001**	-0.000	0.000
	(0.001)	(0.001)	(0.003)	(0.001)		(0.000)	(0.000)	(0.000)
CC on bond inflows (dummy)	-0.058***	-0.049***	-0.116***	-0.060**	-0.207***	-0.050***	-0.050***	0.002
	(0.019)	(0.017)	(0.031)	(0.024)	(0.032)	(0.015)	(0.018)	(0.005)
ER Regime index	-0.034**	-0.035***	-0.131***	-0.036**	-0.139***	-0.030**	-0.033**	-0.008
	(0.014)	(0.011)	(0.035)	(0.016)	(0.042)	(0.012)	(0.014)	(0.010)
Inflation volatility	-0.016*	-0.017*	-0.040	-0.017*	-0.056**	-0.012*	-0.014*	0.001
	(0.009)	(0.009)	(0.029)	(0.010)	(0.022)	(0.007)	(0.007)	(0.004)
Interest rates differential	-0.001	0.004	0.014	0.000	-0.000	0.000	-0.001	0.004***
	(0.005)	(0.004)	(0.013)	(0.005)	(0.012)	(0.004)	(0.004)	(0.001)
Real GDP growth	-0.001	-0.000	-0.002	-0.001	-0.010**	-0.001*	-0.000	-0.001
	(0.001)	(0.001)	(0.003)	(0.001)	(0.004)	(0.001)	(0.001)	(0.001)
Derivatives market depth	-0.001	-0.001	-0.002	-0.001	-0.002	-0.001	-0.000	-0.000*
	(0.001)	(0.001)	(0.003)	(0.001)	(0.003)	(0.001)	(0.001)	(0.000)
Real GDP/capita	-0.015	-0.014*	-0.033*	-0.010	-0.055*	-0.014*	-0.009	0.007
	(0.010)	(0.008)	(0.020)	(0.010)	(0.029)	(0.008)	(0.009)	(0.005)
Regulatory quality	0.134	0.141	0.483	0.148	0.548	0.113	0.116	0.096***
	(0.096)	(0.114)	(0.361)	(0.105)	(0.348)	(0.078)	(0.073)	(0.022)
FX reserves	0.000	0.001	0.002	0.001	-0.002	-0.000	0.000	0.002***
	(0.002)	(0.002)	(0.008)	(0.002)	(0.006)	(0.001)	(0.002)	(0.001)
High-yield flag	0.855***	0.857***	0.609***	0.857***	0.679***	0.844***	0.845***	0.631***
	(0.027)	(0.029)	(0.030)	(0.027)	(0.027)	(0.032)	(0.030)	(0.060)
Leverage	0.001*	0.001*	0.004**	0.001**	0.004*	0.001*	0.001**	0.000
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)
Size	-0.001	-0.002	-0.008	-0.001	0.000	-0.001	-0.000	0.001
	(0.017)	(0.016)	(0.050)	(0.017)	(0.051)	(0.014)	(0.014)	(0.005)
Cash	0.018	0.019	0.059	0.019	0.051	0.014	0.015	0.003
	(0.016)	(0.015)	(0.047)	(0.016)	(0.048)	(0.013)	(0.014)	(0.005)
Book-to-market	0.006***	0.006***	0.019***	0.006***	0.018***	0.005***	0.006***	0.002***
	(0.002)	(0.002)	(0.005)	(0.002)	(0.006)	(0.002)	(0.002)	(0.000)
ROA	0.003*	0.002	0.007	0.003*	0.008*	0.002*	0.002*	0.001***
	(0.002)	(0.002)	(0.005)	(0.002)	(0.005)	(0.001)	(0.001)	(0.001)
Collaterals	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Country-industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3841	3841	3820	3841	3841	3841	3841	2244
Pseudo R^2	0.654	0.652	0.652	0.653	0.654	0.655	0.653	0.641

Notes: The table shows the marginal effects (all variables evaluated at their means) obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses. All variables are lagged. The stars indicate the statistical significance as follow: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$. The dependent variable is the share of issuances denominated in foreign currency (%). The shadow FED funds rate is from Wu and Xia (2016). VIX is an index of implied volatility of the U.S. S&P500. In columns (2) to (4), shadow FFR is replaced by, the 10-Year treasury constant maturity rate (2), the treasury inflation-indexed long-term average yield (3) and the FED funds rate (4). In (5), both shadow FFR and VIX are replaced by a dummy taking the value of 1 for 2010Q1 onwards. In columns (6) to (8), VIX is replaced by, respectively, the MOVE, a global uncertainty index and the VIX for emerging markets. Capital controls (CC) on bond inflows is a dummy variable taking the value 1 when any type of restrictions on bond inflows is in place. Other control variables are: the exchange rate regime, that is an index variable going from 1 to 4 with a higher value standing for more freely floating ER; the interest rates differential calculated as the difference between local money market rate (or T-bill) and local sovereign issuances yield in USD; real GDP growth calculated as the change in real GDP relative to the same period the previous year; inflation volatility which is the standard deviation of CPI inflation over a 16-quarter rolling window; derivatives market depth to proxy for the derivatives market liquidity; real GDP per capita that is adjusted for PPP and rescaled by 1000; regulatory quality; debt over assets (leverage); a high yield flag dummy for issuances considered highly leveraged; log total assets (size); the log of cash and equivalent; return on assets (profitability); book to market value; collateral measured as the share of tangible assets over total assets. Descriptive statistics and description of all variables are available in Appendix B.

Table A.2: Impact of other interest rates - Predicted probabilities

	Shadow FFR	FFR	EONIA (EU)	SONIA (UK)	TONAR (JP)	3M LIBOR (CH)
	(1)	(2)	(3)	(4)	(5)	(6)
Int. rate=-0.5	0.091***	0.115***	0.147***	0.402***	0.336***	0.109***
	(0.009)	(0.020)	(0.023)	(0.037)	(0.080)	(0.016)
Int. rate=0	0.083***	0.104***	0.123***	0.436***	0.099***	0.086***
	(0.008)	(0.014)	(0.016)	(0.043)	(0.013)	(0.010)
Int. rate=1	0.070***	0.086***	0.084***	0.339***	0.005**	0.052***
	(0.009)	(0.009)	(0.009)	(0.027)	(0.002)	(0.006)
Int. rate=2	0.058***	0.071***	0.057***	0.280***	0.000	0.031***
	(0.011)	(0.011)	(0.008)	(0.023)	(0.000)	(0.006)
Country-industry FE	No	No	No	No	No	No
Country/Firms controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3841	3841	3841	3841	3841	3841
Pseudo R^2	0.654	0.653	0.657	0.656	0.656	0.656

Notes: The table shows the predicted probabilities for different values of interest rates and with all other variables evaluated at their means. There are obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses. All variables are lagged. The stars indicate the statistical significance as follow: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is the share of issuances denominated in foreign currency (%). Country and firm-specific control variables are included as in the baseline.

Table A.3: The impact of capital controls

Share of FX bond issuances (%)	CC on bond inflows										Other CC	
	Dummy	Index as continuous	Local CC dummy	CC abroad dummy	Local & abroad	Dummy	Local CC dummy	CC abroad dummy	Local & abroad	Non-wall countries	Total bond flows CC	Adding bond outflows CC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Shadow FED funds rate	-0.016**	-0.017**	-0.002*	-0.012**	-0.045***					-0.066***	-0.000***	-0.014**
	(0.007)	(0.007)	(0.001)	(0.006)	(0.016)					(0.019)	(0.000)	(0.006)
VIX	-0.002*	-0.002*	-0.000	-0.002*	-0.004					-0.007	-0.000*	-0.002*
	(0.001)	(0.001)	(0.000)	(0.001)	(0.003)					(0.006)	(0.000)	(0.001)
CC	-0.058***	-0.056*				-0.116***				-0.209***		-0.045**
	(0.019)	(0.030)				(0.035)				(0.030)		(0.023)
CC local			-0.006*		-0.158***		-0.053**		-0.078***			
			(0.003)		(0.051)		(0.022)		(0.023)			
CC abroad				0.053***	0.212***			0.078***	0.072***			
				(0.010)	(0.034)			(0.016)	(0.012)			
CC total bond flows											-0.000**	
											(0.000)	
CC bond outflows												-0.024
												(0.032)
ER Regime index	-0.034**	-0.042***	-0.005***	-0.027	-0.112*	-0.058**	-0.040**	-0.035	-0.046	-0.031	-0.000**	-0.035***
	(0.014)	(0.014)	(0.002)	(0.021)	(0.061)	(0.024)	(0.020)	(0.038)	(0.033)	(0.056)	(0.000)	(0.012)
Interest rates differential	-0.001	0.000	-0.000	0.001	-0.005	-0.002	-0.002	0.001	-0.002	0.002	-0.000	-0.001
	(0.005)	(0.006)	(0.001)	(0.004)	(0.014)	(0.006)	(0.004)	(0.005)	(0.004)	(0.013)	(0.000)	(0.004)
Real GDP growth	-0.001	-0.001	-0.000	-0.001	-0.002	-0.003	-0.002	-0.003	-0.002	-0.002	-0.000	-0.001
	(0.001)	(0.001)	(0.000)	(0.001)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)	(0.006)	(0.000)	(0.001)
Inflation volatility	-0.016*	-0.018*	-0.002	-0.015*	-0.047*	-0.019	-0.018*	-0.017	-0.020	-0.077	-0.000**	-0.016*
	(0.009)	(0.010)	(0.002)	(0.009)	(0.027)	(0.013)	(0.010)	(0.014)	(0.013)	(0.055)	(0.000)	(0.009)
Derivatives market depth	-0.001	-0.001	-0.000	-0.001	-0.002	-0.001	-0.001	-0.002	-0.001	0.007	-0.000	-0.001
	(0.001)	(0.001)	(0.000)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)	(0.000)	(0.001)
Real GDP/capita	-0.015	-0.017	-0.002	-0.012	-0.047	-0.015	-0.011	-0.021	-0.019	-0.129**	-0.000*	-0.013
	(0.010)	(0.011)	(0.002)	(0.011)	(0.033)	(0.013)	(0.009)	(0.021)	(0.017)	(0.058)	(0.000)	(0.008)
Regulatory quality	0.134	0.129	0.014	0.080	0.381	0.202	0.098	0.060	0.111	0.793**	0.000	0.094
	(0.096)	(0.089)	(0.014)	(0.068)	(0.251)	(0.148)	(0.088)	(0.115)	(0.124)	(0.392)	(0.000)	(0.068)
FX reserves	0.000	-0.000	-0.000	0.001	0.001	-0.000	0.000	-0.000	-0.001	-0.003	0.000	-0.000
	(0.002)	(0.002)	(0.000)	(0.001)	(0.005)	(0.003)	(0.002)	(0.004)	(0.003)	(0.018)	(0.000)	(0.002)
High-yield flag	0.855***	0.858***	0.480***	0.854***	0.800***	0.876***	0.861***	0.886***	0.880***	0.654***	0.000***	0.848***
	(0.027)	(0.025)	(0.118)	(0.025)	(0.017)	(0.019)	(0.028)	(0.013)	(0.016)	(0.045)	(0.000)	(0.031)
Leverage	0.001*	0.001*	0.000**	0.001*	0.003*	0.002*	0.001*	0.001	0.001	0.002	0.000*	0.001*
	(0.001)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)
Size	-0.001	-0.002	-0.000	0.002	0.008	0.002	0.000	0.005	0.004	0.019	-0.000	-0.001
	(0.017)	(0.018)	(0.002)	(0.015)	(0.045)	(0.022)	(0.014)	(0.020)	(0.017)	(0.039)	(0.000)	(0.015)
Cash	0.018	0.020	0.002	0.013	0.036	0.018	0.013	0.014	0.011	0.052**	0.000	0.016
	(0.016)	(0.017)	(0.002)	(0.014)	(0.043)	(0.020)	(0.013)	(0.019)	(0.016)	(0.025)	(0.000)	(0.014)
Book-to-market	0.006***	0.007***	0.001*	0.005***	0.016***	0.006***	0.004***	0.006***	0.005***	0.027	0.000***	0.005***
	(0.002)	(0.002)	(0.000)	(0.002)	(0.005)	(0.002)	(0.002)	(0.002)	(0.002)	(0.023)	(0.000)	(0.002)
ROA	0.003*	0.003*	0.000*	0.002*	0.007*	0.004*	0.002*	0.003*	0.003*	-0.001	0.000*	0.003*
	(0.002)	(0.002)	(0.000)	(0.001)	(0.004)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.000)	(0.001)
Collaterals	0.000	0.000	0.000	0.000**	0.000***	0.000	0.000	0.000	0.000	0.004**	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)
Country-industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No
Observations	3841	3841	3787	3735	3717	3841	3787	3735	3717	1633	3841	3826
Pseudo R^2	0.654	0.654	0.653	0.661	0.662	0.670	0.669	0.658	0.660	0.687	0.654	0.653

Notes: The table shows the marginal effects (all variables evaluated at their means) obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses. All variables are lagged. The stars indicate the statistical significance as follow: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is the share of issuances denominated in foreign currency (%). The shadow FED funds rate is from Wu and Xia (2016). VIX is an index of implied volatility of the U.S. S&P500. Capital controls (CC) variables are from Fernandez et al. (2016). The dummy CC on bond inflows take the value 1 when there are CC on bond inflows. The continuous CC on bond inflows can take three values, 0 for no controls, 0.5 with controls either abroad or locally and 1 for both abroad and locally. It is entered as a continuous variable. Local CC is a dummy variable for having controls on local issuances and CC abroad is a dummy variable for having controls on issuances by residents abroad. Total bond flows CC is a variable taking 5 different values depending on the existence of CC on both bond inflows and outflows. The bond outflows CC is similar to the one for bond inflows and can take three values. Descriptions of all the other controls and their respective descriptive statistics can be found in Appendix B.

Table A.4: The impact of macroprudential policies

Share of FX bond issuances (%)	Macroprudential policies only			With capital controls					
	Both sides	Liability side	Asset side	Liability side			Asset side		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Shadow FED funds rate	-0.025***	-0.015**	-0.046**	-0.017***		-0.046***	-0.046***		-0.046***
	(0.009)	(0.006)	(0.019)	(0.006)		(0.015)	(0.017)		(0.018)
VIX	-0.004**	-0.002**	-0.007*	-0.002**		-0.006*	-0.006*		-0.006*
	(0.002)	(0.001)	(0.004)	(0.001)		(0.003)	(0.003)		(0.003)
CC on bond inflows (dummy)				-0.113***	-0.184***	-0.214***	-0.150***	-0.000	-0.166***
				(0.028)	(0.055)	(0.039)	(0.035)	(0.000)	(0.047)
FX regulations (t to t-3)	4.228	4.152	3.419	4.190	4.181		4.258	4.000	
p-value	0.000	0.000	0.197	0.000	0.011		0.711	0.000	
FXregulationspooled						0.159***			0.021
						(0.028)			(0.138)
ER Regime index	-0.060***	-0.039***	-0.109**	-0.038***	-0.050***	-0.098***	-0.101**	-0.000***	-0.101**
	(0.021)	(0.013)	(0.043)	(0.013)	(0.019)	(0.035)	(0.043)	(0.000)	(0.042)
Interest rates differential	-0.003	-0.002	0.002	-0.004	-0.004	-0.013	-0.003	-0.000	-0.003
	(0.010)	(0.006)	(0.019)	(0.005)	(0.005)	(0.013)	(0.016)	(0.000)	(0.016)
Real GDP growth	-0.003*	-0.002*	-0.005	-0.002*	-0.003	-0.006**	-0.004	-0.000	-0.004
	(0.002)	(0.001)	(0.004)	(0.001)	(0.003)	(0.003)	(0.004)	(0.000)	(0.004)
Inflation volatility	-0.022	-0.014	-0.049*	-0.014	-0.008	-0.036	-0.046*	-0.000	-0.046
	(0.014)	(0.010)	(0.029)	(0.010)	(0.013)	(0.026)	(0.027)	(0.000)	(0.028)
Derivatives market depth	-0.002	-0.001	-0.003	-0.001	-0.001	-0.003	-0.003	-0.000	-0.003
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.000)	(0.002)
Real GDP/capita	-0.021	-0.013	-0.048	-0.014	-0.010	-0.037	-0.047	-0.000	-0.047
	(0.016)	(0.011)	(0.035)	(0.011)	(0.011)	(0.028)	(0.033)	(0.000)	(0.034)
Regulatory quality	0.070	0.030	0.239	0.069	0.090	0.171	0.295	0.000	0.296
	(0.155)	(0.104)	(0.335)	(0.113)	(0.124)	(0.285)	(0.346)	(0.000)	(0.352)
FX reserves	0.002	0.001	0.004	0.001	0.001	0.003	0.003	0.000	0.003
	(0.004)	(0.002)	(0.007)	(0.002)	(0.002)	(0.006)	(0.007)	(0.000)	(0.007)
High-yield flag	0.646***	0.418***	1.268***	0.417***	0.387***	1.098***	1.201***	0.000***	1.204***
	(0.067)	(0.045)	(0.080)	(0.045)	(0.044)	(0.080)	(0.084)	(0.000)	(0.080)
Leverage	0.002	0.001*	0.004	0.001	0.001	0.003	0.004	0.000	0.003
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.000)	(0.002)
Size	0.001	0.000	-0.001	0.001	0.003	0.001	-0.000	0.000	-0.000
	(0.024)	(0.016)	(0.047)	(0.016)	(0.016)	(0.041)	(0.044)	(0.000)	(0.044)
Cash	0.027	0.017	0.054	0.017	0.013	0.045	0.051	0.000	0.051
	(0.021)	(0.014)	(0.041)	(0.014)	(0.013)	(0.037)	(0.039)	(0.000)	(0.039)
Book-to-market	0.010***	0.006**	0.019***	0.006**	0.005**	0.017**	0.018***	0.000**	0.018***
	(0.003)	(0.003)	(0.007)	(0.003)	(0.002)	(0.007)	(0.007)	(0.000)	(0.007)
ROA	0.005*	0.003*	0.009*	0.003*	0.003*	0.008*	0.009*	0.000*	0.009*
	(0.003)	(0.002)	(0.005)	(0.002)	(0.002)	(0.004)	(0.005)	(0.000)	(0.005)
Collaterals	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Country-industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	No	No	No	No	Yes	No	No	Yes	No
Observations	3339	3339	3339	3339	3339	3339	3339	3339	3339
Pseudo R^2	0.661	0.661	0.660	0.663	0.680	0.662	0.661	0.678	0.661

Notes: The table shows the marginal effects (all variables evaluated at their means) obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses. All variables are lagged. The stars indicate the statistical significance as follow: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is the share of issuances denominated in foreign currency (%). The shadow FED funds rate is from Wu and Xia (2016). VIX is an index of implied volatility of the U.S. S&P500. The dummy for capital controls (CC) on bond inflows is from Fernandez et al. (2016) and take the value 1 when there are any types of CC on bond inflows. FX regulation are macroprudential policy variables from Ahnert et al. (2018), taking the value of 1 in every quarter macroprudential policies increase, -1 when they decrease and 0 when they do not change. In columns (1)-(5) and (7)-(8), FX regulations variables are included at current quarter and with up to 3 lags. The p-value of the F-test is then computed. Columns (6) and (9) include the cumulated FX regulations, i.e. the variable is computed as the sum of the variables over a year. Descriptions and descriptive statistics of all the other controls can be found in Appendix B.

Table A.5: Impact of macroprudential policies from Cerutti et al. (2017)

Share of FX bond issuances (%)	Liability side		Asset side	
	(1)	(2)	(3)	(4)
Shadow FED funds rate	-0.014**		-0.000	
	0.006		0.000	
VIX	-0.002*		-0.000	
	0.001		0.000	
CC on bond inflows (dummy)	-0.050***	-0.085***	-0.000*	-0.001***
	0.017	0.027	0.000	0.000
Macroprudential policy	0.065***	0.058	-0.000	0.001
	0.024	0.035	0.000	0.001
ER Regime index	-0.032**	-0.045**	-0.000***	-0.001*
	0.013	0.019	0.000	0.001
Interest rates differential	-0.001	-0.002	-0.000	-0.000
	0.004	0.004	0.000	0.000
Real GDP growth	-0.001	-0.003	-0.000	-0.000
	0.001	0.003	0.000	0.000
Inflation volatility	-0.013	-0.012	-0.000	-0.000
	0.008	0.010	0.000	0.000
Derivatives market depth	-0.001	-0.001	-0.000	-0.000
	0.001	0.001	0.000	0.000
Real GDP/capita	-0.012	-0.011	-0.000	-0.000
	0.009	0.010	0.000	0.000
Regulatory quality	0.107	0.140	0.000	0.004
	0.083	0.108	0.000	0.003
FX reserves	0.000	-0.000	0.000	0.000
	0.002	0.002	0.000	0.000
High-yield flag	0.372***	0.374***	0.000***	0.010***
	0.041	0.042	0.000	0.001
Leverage	0.001*	0.001*	0.000**	0.000*
	0.001	0.001	0.000	0.000
Size	-0.001	0.001	-0.000	0.000
	0.015	0.016	0.000	0.000
Cash	0.016	0.014	0.000	0.000
	0.014	0.015	0.000	0.000
Book-to-market	0.005***	0.005***	0.000*	0.000***
	0.002	0.002	0.000	0.000
ROA	0.003*	0.003*	0.000*	0.000*
	0.001	0.001	0.000	0.000
Collaterals	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000
Country-industry FE	Yes	Yes	Yes	Yes
Quarter FE	No	Yes	No	Yes
Country/Firms controls	Yes	Yes	Yes	Yes
Observations	3841	3841	3841	3841
Pseudo R^2	0.654	0.670	0.654	0.670

Notes: The table shows the odds ratios obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses and all variables are lagged. T-tests are completed for the null being equal to 1 and $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is the share of issuances denominated in foreign currency (%). The shadow FED funds rate is from Wu and Xia (2016). VIX is an index of implied volatility of the U.S. S&P500. The dummy for capital controls (CC) on bond inflows is from Fernandez et al. (2016) and take the value 1 when there are any types of CC. Macroprudential policy variables from Cerutti et al. (2017); asset side macroprudential policy is a dummy variable taking the value 1 if limits on FX currency loans are in place in a given year and liability side policy is a dummy variable taking the value 1 if FX or/and countercyclical reserve requirements are in place in a given year. Descriptions and descriptive statistics of all the other controls can be found in Appendix B.

Table A.6: First-step: Linear regressions of Δ trade-weighted exchange rate on various country variables, including capital controls and macroprudential policy variables

Δ ER	(1)	(2)
CC (y-1 to y-3)	-0.199	
	(0.313)	
CC (y to y-3)		-0.053
		(0.268)
Cum. FX regulations (q to q-3)	0.182	0.188
	(0.299)	(0.299)
Short-term int. rate	-0.019	-0.021
	(0.054)	(0.054)
Real GDP growth	0.051	0.056
	(0.058)	(0.058)
Inflation (y/y)	0.185***	0.185***
	(0.066)	(0.066)
Real GDP/capita	-0.011	-0.011
	(0.174)	(0.174)
Rule of law	-0.034	0.022
	(1.574)	(1.578)
Constant	-3.135	-3.367
	(2.480)	(2.516)
Quarter FE	Yes	Yes
Country FE	Yes	Yes
Observations	696	696
Number of countries	16	16
R-squared	0.140	0.140

Notes: The table shows the estimates obtained from a linear regression with robust standard errors clustered at the country level in parentheses and $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. As dependent variable, we use Δ trade-weighted, i.e. a (log) change in the nominal trade-weighted exchange rate. CC (y-1 to y-3) stands for cumulated capital controls over the years, with CC being a dummy for the presence of CC. Cum. FX regulations represent the cumulated FX regulations between current and 3 quarters in the past. Short-term interest is the 3-month interest rate. Real GDP growth is the change in real GDP relative to the same period the previous year. Inflation is the year-on-year growth rate of the quarterly CPI. Real GDP per capita are adjusted for PPP and rescaled by 1000 and rule of law is an index of institution's quality (higher value for greater quality). Further descriptions and descriptive statistics for all variables can be found in Appendix B.

Table A.7: Second-step: Stock returns, exchange rate fluctuations and capital controls

Stock returns	Country level		Firm level					
			All	Large firms	Small firms	All	Large firms	Small firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δ trade-weighted ER	0.829**	0.876**	1.104***	0.874***	1.327***	1.085***	0.865***	1.331***
	(0.296)	(0.299)	(0.295)	(0.264)	(0.410)	(0.290)	(0.266)	(0.392)
CC (y-1 to y-3)	-1.303		0.924	1.158	0.336			
	(1.080)		(0.796)	(0.877)	(1.358)			
CC (y to y-3)		-1.158				1.321	0.421	1.512
		(0.900)				(0.893)	(1.141)	(1.492)
CCxΔ ER	-0.572**	-0.449**	-0.603***	-0.426**	-0.771***	-0.446***	-0.320**	-0.573***
	(0.205)	(0.163)	(0.125)	(0.153)	(0.135)	(0.094)	(0.118)	(0.094)
Cum. FX regulations (q to q-3)	2.159	2.148	-1.528	0.047	-2.468	-1.572	0.049	-2.494
	(1.469)	(1.456)	(1.885)	(1.844)	(2.022)	(1.876)	(1.838)	(2.006)
Cum. FX reg x Δ ER	0.347	0.349	-0.075	0.037	-0.208	-0.034	0.039	-0.151
	(0.552)	(0.537)	(0.280)	(0.401)	(0.237)	(0.265)	(0.390)	(0.209)
VIX	-0.035	-0.029	0.076*	0.071	0.050	0.080**	0.072	0.060*
	(0.051)	(0.049)	(0.036)	(0.047)	(0.032)	(0.036)	(0.048)	(0.032)
Short-term int. rate	0.031	0.045	-0.272	-0.422	-0.080	-0.255	-0.420	-0.075
	(0.185)	(0.178)	(0.547)	(0.540)	(0.491)	(0.550)	(0.543)	(0.508)
Real GDP growth	-0.666***	-0.665***	0.038	-0.075	0.093	0.035	-0.079	0.100
	(0.190)	(0.189)	(0.220)	(0.176)	(0.290)	(0.220)	(0.177)	(0.287)
Inflation (y/y)	-0.583**	-0.599**	-1.475*	-1.116*	-2.034**	-1.477*	-1.106*	-2.036**
	(0.256)	(0.252)	(0.712)	(0.602)	(0.724)	(0.709)	(0.600)	(0.718)
Real GDP/capita	-2.017***	-2.019***	0.459	-0.302	1.073	0.474	-0.282	1.132
	(0.340)	(0.345)	(0.661)	(0.763)	(0.680)	(0.651)	(0.757)	(0.654)
Rule of law	7.813	7.684	7.215	6.401	11.217	6.994	6.036	9.024
	(4.921)	(4.978)	(4.907)	(3.785)	(8.625)	(4.743)	(3.842)	(7.505)
Leverage			0.025	-0.011	0.050*	0.026	-0.011	0.051*
			(0.026)	(0.024)	(0.026)	(0.026)	(0.023)	(0.026)
Size			-2.524***	-3.168**	-3.146***	-2.559***	-3.204**	-3.216***
			(0.682)	(1.121)	(0.893)	(0.680)	(1.112)	(0.865)
Cash			-0.058	0.570	-0.475	-0.048	0.565	-0.462
			(0.444)	(0.378)	(0.579)	(0.444)	(0.379)	(0.567)
Book-to-market			7.285***	7.697***	7.256***	7.325***	7.712***	7.393***
			(0.533)	(1.087)	(0.756)	(0.540)	(1.086)	(0.816)
ROA			0.237**	0.108	0.346***	0.239**	0.111	0.357***
			(0.092)	(0.123)	(0.089)	(0.091)	(0.122)	(0.085)
Collaterals			-0.004	-0.006	0.003	-0.004	-0.006	0.004
			(0.032)	(0.025)	(0.055)	(0.032)	(0.025)	(0.054)
Return on equity			-0.043	-0.048	-0.050	-0.044	-0.049	-0.055
			(0.042)	(0.056)	(0.047)	(0.042)	(0.056)	(0.045)
Beta			-0.017	-1.285	0.709	-0.008	-1.248	0.731
			(2.032)	(2.124)	(2.205)	(2.027)	(2.117)	(2.216)
Constant	42.559***	42.785***	54.561***	71.557***	65.008***	52.743***	73.461***	60.554***
	(6.666)	(6.616)	(12.251)	(22.835)	(13.885)	(12.107)	(22.431)	(13.621)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	696	696	24479	12920	11559	24479	12920	11559
Number of firms	16	16	846	517	545	846	517	545
R-squared	0.148	0.150	0.098	0.083	0.133	0.098	0.083	0.132

Notes: The table shows the estimates OLS regression with robust standard errors clustered at the country level in parentheses and all variables are lagged. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The dependent variable is either stock returns at country-level based on the MSCI index or stock returns at the firm level directly. Small and large firms are firms below and above the median size, where the size is measured with total assets Δ ER is instrumented using the residuals from the first-step regression (Table A.5), where change in trade-weighted exchange rate is regressed on macroprudential policy and country variables. An increase in the ER is an appreciation of the local currency. Capital controls (CC) on bond inflows are from Fernandez et al. (2016), taking the value of 1 in case of controls both abroad and locally, 0.5 if one type of controls is in place, 0 otherwise. They are included as the sum of CC over the current and last three years or over the last three years. FX regulation are macroprudential policy variables from Ahnert et al. (2018), taking the value of 1 every quarter macroprudential policies increase, -1 when they decrease and 0 when they do not change. They are included as the sum of the variable over four quarters. Further controls are included as well in the regressions. Descriptions and descriptive statistics of all the other controls can be found in Appendix B.

Table A.8: Linear regressions of various firm-level variables on cumulated capital controls

	Net debt	Cash growth	Δ Int. cov.	Emp. growth	CAPX	Sales growth
	(1)	(2)	(3)	(4)	(5)	(6)
CC(y-1toy-3)	0.007*	-1.641	0.210	-2.393***	0.003	-0.014*
	(0.004)	(1.669)	(1.554)	(0.909)	(0.006)	(0.007)
Real annual GDP growth	0.000	0.639**	-0.623*	0.071	0.003***	-0.001
	(0.001)	(0.305)	(0.327)	(0.137)	(0.001)	(0.001)
Real GDP/capita	-0.000	-1.475	0.349	-1.105**	-0.011***	-0.009**
	(0.003)	(1.065)	(0.793)	(0.439)	(0.003)	(0.004)
Inflation volatility	0.000	-0.227	-0.150	-0.058	-0.001	-0.000
	(0.001)	(0.374)	(0.206)	(0.165)	(0.001)	(0.001)
REER annual average	-0.017	18.171*	-5.989	4.446	0.093***	-0.007
	(0.023)	(10.409)	(7.883)	(4.742)	(0.031)	(0.040)
ST int. rate annual average	0.001	0.623*	-0.051	-0.141	0.001	-0.001
	(0.001)	(0.368)	(0.299)	(0.147)	(0.001)	(0.001)
Size	0.010**	-30.668***	-0.722	-5.317***	-0.084***	-0.103***
	(0.004)	(2.393)	(1.240)	(1.233)	(0.008)	(0.009)
Leverage	0.001***	-0.342***	-0.091	0.013	0.001**	0.001***
	(0.000)	(0.093)	(0.065)	(0.038)	(0.000)	(0.000)
Interest coverage	-0.000***	0.000		0.000***	-0.000	0.000***
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Net worth	-0.447***	-19.347**	-10.378	8.262**	0.106***	0.022
	(0.022)	(8.284)	(6.579)	(3.380)	(0.023)	(0.030)
Tangibility	0.202***	112.133***	4.146	-10.460**	-0.639***	0.001
	(0.020)	(10.848)	(6.771)	(4.238)	(0.030)	(0.043)
EBITDA/Assets	-0.275***	60.673***	-63.887***	15.763***	0.349***	-0.196***
	(0.029)	(13.707)	(10.619)	(5.756)	(0.042)	(0.066)
Cash flow		-2.647***				
		(0.209)				
CAPX		-2.290				
		(4.178)				
Constant	0.410***	595.037***	54.673	129.871***	1.977***	2.699***
	(0.133)	(66.596)	(41.711)	(33.818)	(0.200)	(0.245)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14021	12969	13694	8387	14011	14033
Number of firms	1881	1848	1849	1481	1888	1889
R-squared	0.279	0.081	0.006	0.040	0.199	0.099

Notes: The table shows the estimates obtained from a linear regression with robust standard errors clustered at the firm level in parentheses and $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.11$. The dependent variables are net debt ($= (Current + Noncurrentliabilities - cash)/totalassets$), growth in cash holdings, change in interest rate coverage ($= EBIT/InterestExpenses$), the growth rate of the number of employees, CAPX ($= (FixedAssets_t - FixedAssets_{t-1} + Depreciation_t)/FixedAssets_t$) and sales growth. Descriptions and descriptive statistics of all the other controls can be found in Appendix B.

Table A.9: Linear regressions of various firm-level variables on cumulated capital controls

	Firms with high external financial dependency						Firms with low external financial dependency					
	Net debt (1)	Cash growth (2)	Δ Int. cov. (3)	Emp. growth (4)	CAPX (5)	Sales growth (6)	Net debt (7)	Cash growth (8)	Δ Int. cov. (9)	Emp. growth (10)	CAPX (11)	Sales growth (12)
CC(y-1toy-3)	0.009	0.337	0.835	-4.489***	0.001	-0.013	0.008	-3.013	0.258	-0.439	0.011	-0.008
	(0.006)	(2.838)	(1.562)	(1.493)	(0.008)	(0.011)	(0.006)	(2.363)	(3.212)	(1.188)	(0.008)	(0.010)
Real annual GDP growth	0.000	0.715*	-0.153	0.053	0.003**	-0.001	0.000	0.099	-0.757	0.077	0.003**	-0.002
	(0.001)	(0.422)	(0.384)	(0.191)	(0.001)	(0.002)	(0.001)	(0.529)	(0.601)	(0.215)	(0.002)	(0.002)
Real GDP/capita	0.000	-1.153	0.776	-0.971	-0.012**	-0.012*	0.002	-1.250	-0.625	-0.567	-0.008	-0.002
	(0.004)	(1.555)	(0.990)	(0.657)	(0.005)	(0.006)	(0.004)	(1.758)	(1.462)	(0.740)	(0.005)	(0.006)
Inflation volatility	-0.000	0.101	0.364	-0.225	0.001	0.003	-0.001	-0.018	-0.282	0.154	-0.002	-0.002
	(0.001)	(0.633)	(0.259)	(0.254)	(0.001)	(0.002)	(0.001)	(0.430)	(0.417)	(0.262)	(0.001)	(0.002)
REER annual average	-0.039	19.750	-2.188	6.626	0.137***	0.016	-0.027	12.109	-17.983	-3.571	0.041	-0.050
	(0.033)	(15.898)	(10.059)	(7.210)	(0.045)	(0.061)	(0.033)	(16.218)	(14.557)	(7.242)	(0.049)	(0.056)
ST int. rate annual average	0.001	0.303	-0.009	-0.259	0.002	-0.002	0.001	0.891	0.138	-0.340	0.001	-0.001
	(0.001)	(0.549)	(0.339)	(0.198)	(0.001)	(0.002)	(0.001)	(0.552)	(0.508)	(0.223)	(0.002)	(0.002)
Size	0.007	-33.387***	0.044	-4.096**	-0.090***	-0.100***	0.019**	-40.436***	-2.363	-7.188***	-0.089***	-0.121***
	(0.005)	(2.934)	(1.684)	(1.619)	(0.010)	(0.011)	(0.008)	(3.701)	(2.660)	(1.920)	(0.011)	(0.017)
Leverage	0.001**	-0.375***	-0.171*	0.009	0.001**	0.001	0.002***	-0.325**	-0.043	-0.036	0.001*	0.001
	(0.000)	(0.125)	(0.094)	(0.056)	(0.000)	(0.000)	(0.000)	(0.160)	(0.141)	(0.055)	(0.000)	(0.001)
Interest coverage	-0.000***	0.000		0.000***	-0.000**	0.000***	-0.000*	-0.000**		0.000	-0.000***	0.000
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Net worth	-0.466***	-17.323	-15.458*	6.223	0.103***	0.046	-0.353***	-37.008***	-11.873	3.502	0.098***	-0.077
	(0.029)	(10.877)	(9.156)	(5.241)	(0.030)	(0.041)	(0.030)	(14.308)	(13.364)	(4.028)	(0.037)	(0.050)
Tangibility	0.217***	130.866***	-2.649	-11.481*	-0.640***	-0.030	0.164***	115.130***	27.602**	-12.872**	-0.774***	0.044
	(0.026)	(14.379)	(8.288)	(6.535)	(0.041)	(0.059)	(0.035)	(17.168)	(13.713)	(5.609)	(0.057)	(0.079)
EBITDA/Assets	-0.228***	53.098***	-80.507***	17.308*	0.487***	-0.028	-0.161***	48.795**	-57.403***	18.168*	0.312***	-0.320***
	(0.041)	(19.539)	(13.838)	(8.858)	(0.054)	(0.092)	(0.048)	(23.956)	(18.886)	(9.481)	(0.083)	(0.107)
Cash flow		-2.945***						-2.580***				
		(0.318)						(0.275)				
CAPX		-6.618						-6.755				
		(6.321)						(6.832)				
Constant	0.595***	626.228***	21.277	104.349**	1.946***	2.589***	0.151	865.986***	139.490*	199.469***	2.343***	3.266***
	(0.180)	(87.439)	(55.085)	(48.578)	(0.248)	(0.327)	(0.231)	(106.233)	(78.164)	(46.559)	(0.304)	(0.452)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8310	7637	8132	4855	8276	8235	5711	5332	5562	3532	5735	5798
Number of firms	1657	1618	1634	1197	1657	1664	1351	1301	1346	1041	1362	1369
R-squared	0.265	0.096	0.008	0.048	0.240	0.116	0.242	0.085	0.008	0.038	0.172	0.073

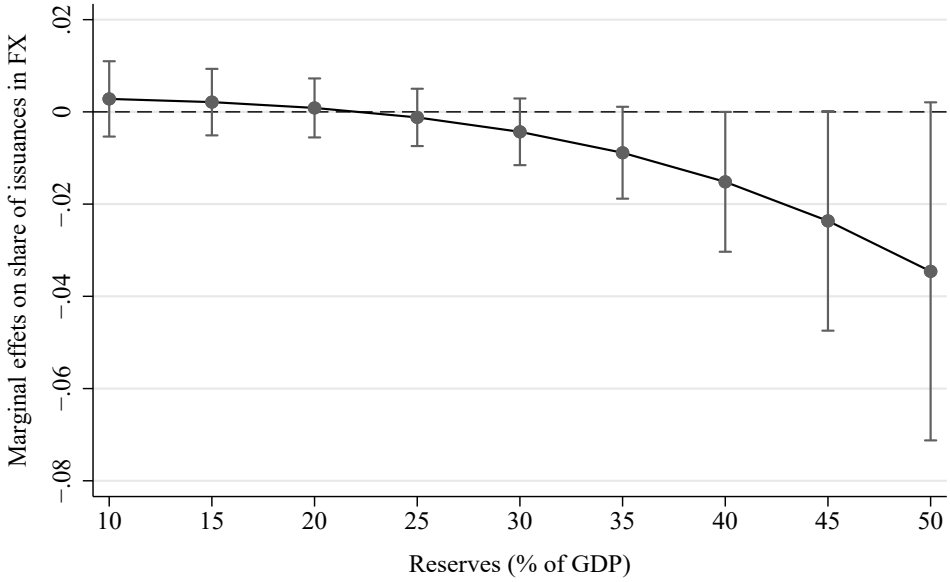
Notes: The table shows the estimates obtained from a linear regression with robust standard errors clustered at the firm level in parentheses and $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.11$. The dependent variables are net debt ($= (Current + Noncurrentliabilities - cash)/totalassets$), growth in cash holdings, change in interest rate coverage ($= EBIT/InterestExpenses$), the growth rate of the number of employees, CAPX ($= (FixedAssets_t - FixedAssets_{t-1} + Depreciation_t)/FixedAssets_t$) and sales growth. Descriptions and descriptive statistics of all the other controls can be found in Appendix B.

Table A.10: Linear regressions of various firm-level variables on cumulated capital controls

	Large firms						Small firms					
	Net debt (1)	Cash growth (2)	Δ Int. cov. (3)	Emp. growth (4)	CAPX (5)	Sales growth (6)	Net debt (7)	Cash growth (8)	Δ Int. cov. (9)	Emp. growth (10)	CAPX (11)	Sales growth (12)
CC(y-1toy-3)	-0.009**	-5.248**	-0.323	-3.759***	0.003	-0.014	0.018**	1.517	2.552	0.176	0.009	-0.008
	(0.004)	(2.085)	(2.357)	(1.190)	(0.008)	(0.009)	(0.007)	(3.109)	(2.598)	(1.712)	(0.009)	(0.012)
Real annual GDP growth	0.001	0.303	-0.340	0.143	0.003***	-0.002	-0.002	1.352**	-1.388**	-0.041	0.003	-0.002
	(0.001)	(0.357)	(0.366)	(0.158)	(0.001)	(0.001)	(0.001)	(0.599)	(0.660)	(0.282)	(0.002)	(0.002)
Real GDP/capita	0.005*	0.102	-1.034	-1.327***	-0.015***	-0.010**	-0.003	-3.999	4.285**	1.358	0.003	0.012
	(0.003)	(1.210)	(0.942)	(0.499)	(0.004)	(0.005)	(0.006)	(2.513)	(2.144)	(1.040)	(0.008)	(0.008)
Inflation volatility	-0.000	0.536	-0.342	-0.149	-0.001	0.003*	0.001	-1.303**	0.251	0.171	-0.000	-0.002
	(0.001)	(0.534)	(0.348)	(0.187)	(0.001)	(0.002)	(0.001)	(0.507)	(0.287)	(0.327)	(0.001)	(0.002)
REER annual average	0.020	19.097*	-2.467	2.448	0.082**	-0.036	-0.108**	26.658	-19.952	3.995	0.056	-0.105
	(0.025)	(11.596)	(8.968)	(4.929)	(0.036)	(0.044)	(0.044)	(20.741)	(17.367)	(11.262)	(0.059)	(0.073)
ST int. rate annual average	0.001*	0.130	0.239	-0.272	0.003**	-0.003**	-0.000	1.753**	-0.241	0.354	0.001	0.002
	(0.001)	(0.426)	(0.420)	(0.170)	(0.001)	(0.002)	(0.001)	(0.725)	(0.538)	(0.321)	(0.002)	(0.002)
Size	0.004	-34.882***	-3.571*	-5.539***	-0.100***	-0.116***	0.018***	-33.422***	-1.396	-10.269***	-0.082***	-0.106***
	(0.006)	(2.764)	(1.899)	(1.316)	(0.008)	(0.011)	(0.007)	(4.267)	(2.627)	(2.092)	(0.010)	(0.015)
Leverage	0.001***	-0.214**	-0.069	0.018	0.001**	0.001	0.001	-0.445***	-0.127	0.072	0.001	0.001**
	(0.000)	(0.109)	(0.082)	(0.045)	(0.000)	(0.000)	(0.000)	(0.157)	(0.110)	(0.072)	(0.000)	(0.001)
Interest coverage	-0.000***	0.000		0.000***	-0.000	0.000***	0.000	-0.000*		0.000*	-0.000	0.000
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Net worth	-0.475***	-10.939	-3.324	5.405	0.119***	-0.011	-0.420***	-25.357*	-15.773	15.532***	0.125***	0.041
	(0.026)	(11.861)	(9.269)	(3.770)	(0.028)	(0.040)	(0.037)	(13.053)	(10.388)	(5.458)	(0.036)	(0.046)
Tangibility	0.220***	118.278***	7.757	-11.234**	-0.665***	-0.077	0.199***	105.337***	5.272	-2.871	-0.667***	0.074
	(0.029)	(14.324)	(9.117)	(5.217)	(0.040)	(0.058)	(0.029)	(17.658)	(11.467)	(7.986)	(0.048)	(0.065)
EBITDA/Assets	-0.310***	41.433**	-61.586***	3.444	0.291***	-0.395***	-0.211***	58.468**	-71.883***	32.910***	0.380***	0.001
	(0.036)	(17.060)	(12.484)	(6.722)	(0.054)	(0.075)	(0.046)	(23.037)	(18.688)	(10.202)	(0.062)	(0.102)
Cash flow		-2.449***						-3.143***				
		(0.274)						(0.326)				
CAPX		-0.263						-4.701				
		(5.089)						(7.126)				
Constant	0.385**	719.061***	113.658**	156.959***	2.604***	3.370***	0.694***	569.780***	93.415	183.085***	1.759***	2.731***
	(0.172)	(76.893)	(54.568)	(35.969)	(0.224)	(0.314)	(0.234)	(122.529)	(83.458)	(61.884)	(0.307)	(0.417)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8374	7914	8148	5640	8285	8358	5647	5055	5546	2747	5726	5675
Number of firms	1163	1140	1139	971	1152	1162	1078	1013	1060	706	1087	1073
R-squared	0.330	0.075	0.008	0.036	0.193	0.105	0.227	0.083	0.006	0.065	0.178	0.081

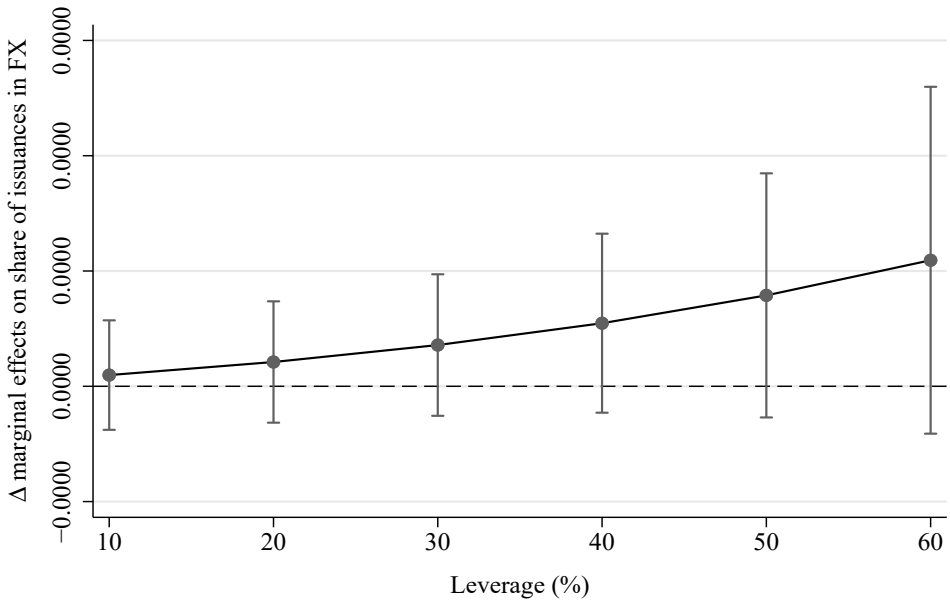
Notes: The table shows the estimates obtained from a linear regression with robust standard errors clustered at the firm level in parentheses and $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.11$. The dependent variables are net debt ($= (Current + Noncurrentliabilities - cash)/totalassets$), growth in cash holdings, change in interest rate coverage ($= EBIT/InterestExpenses$), the growth rate of the number of employees, CAPX ($= (FixedAssets_t - FixedAssets_{t-1} + Depreciation_t)/FixedAssets_t$) and sales growth. Descriptions and descriptive statistics of all the other controls can be found in Appendix B.

Figure A.1: Marginal effects of shadow FFR for various levels of reserves in countries with fixed ER



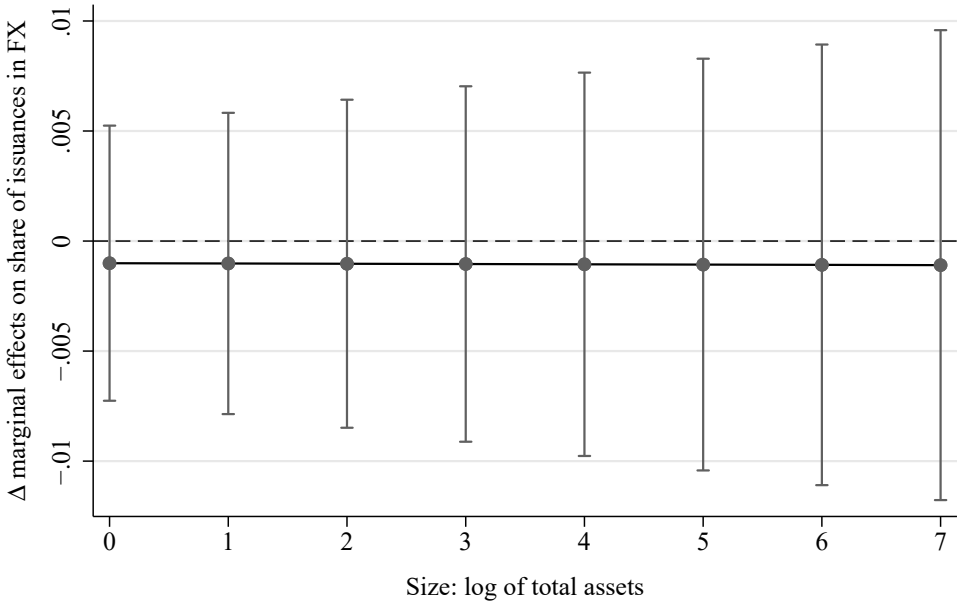
Note: 95% confidence intervals, other control variables evaluated at their means

Figure A.2: Changes in the conditional marginal effects of shadow FFR on probability of issuing in foreign currency across various leverage levels



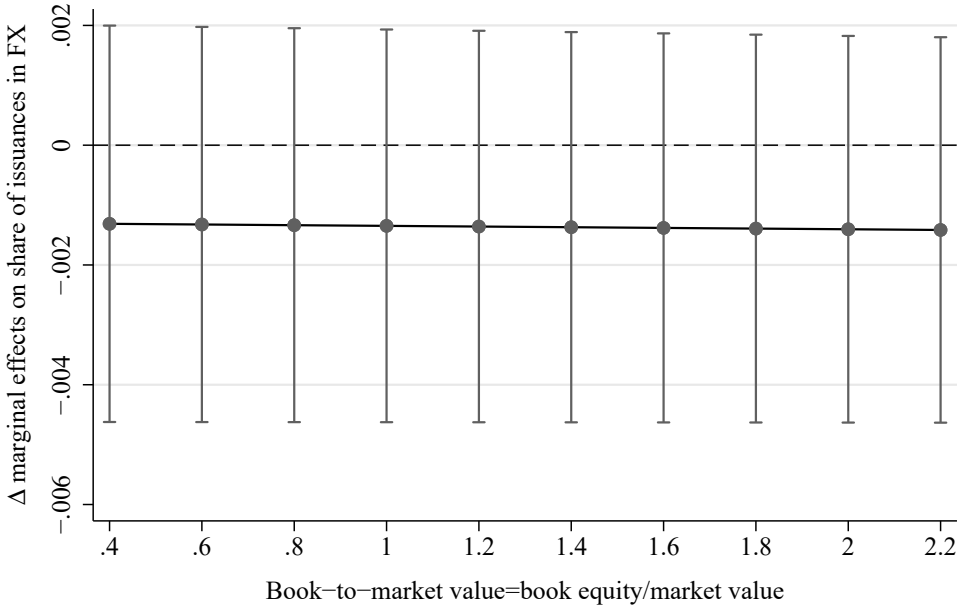
Note: 95% confidence intervals, other control variables evaluated at their means

Figure A.3: Changes in the conditional marginal effects of shadow FFR on probability of issuing in foreign currency across firm size



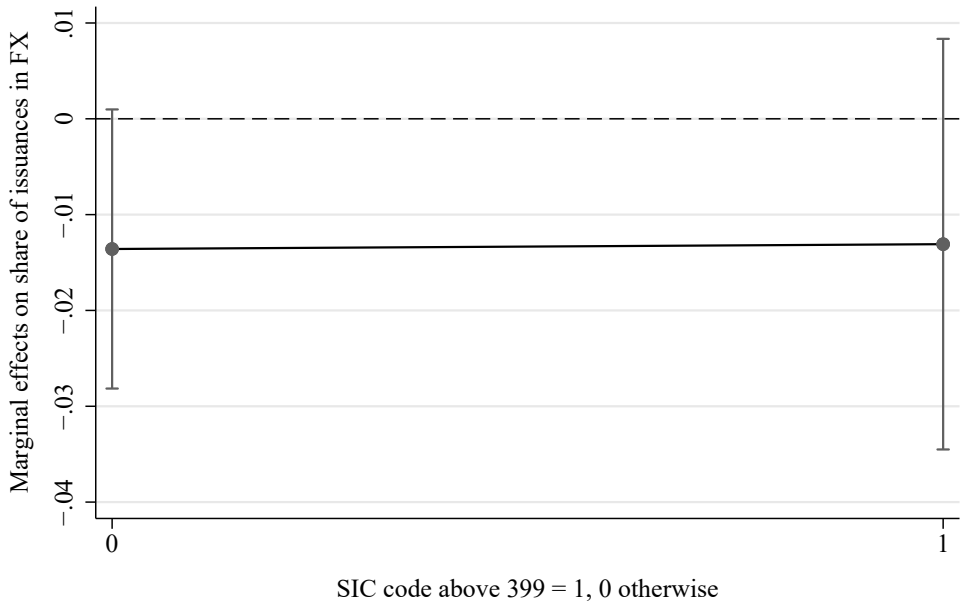
Note: 95% confidence intervals, other control variables evaluated at their means

Figure A.4: Changes in the conditional marginal effects of shadow FFR on probability of issuing in foreign currency across growth opportunities, measured by book-to-market value



Note: 95% confidence intervals, other control variables evaluated at their means

Figure A.5: Marginal effects of shadow FFR on probability of issuing in foreign currency at high or low trade intensity



Note: 95% confidence intervals, other control variables evaluated at their means

Appendix B: Description of variables

Descriptive statistics

Table B.1: Descriptive statistics of firm variables

Variable	Mean	SD	Median	Min	Max
Foreign currency issuances (%)	0.2569	0.4333	0	0	1
Size: log of total assets	3.0591	2.4146	2.9552	-8.9872	11.147
Book-to-market value	0.8010	1.8176	0.6128	-77.746	32.668
Profitability: ROA	6.6178	10.766	5.9830	-448.18	71.200
Collateral: Tangible assets/total assets (%)	55.982	1062.0	36.171	0	65245.5
Cash: log of cash or equivalent	0.4613	2.5390	0.4900	-11.870	9.2714
Leverage: debt over total assets (%)	22.750	14.863	21.880	0	108.54
High-yield flag	0.1135	0.3173	0	0	1
Local/abroad issuances	0.8007	0.3995	1	0	1
High/low trade intensity	0.5111	0.4999	1	0	1
Firm stock returns (%)	1.8392	18.485	1.2032	-63.404	66.244
Return on equity (ROE)	10.703	14.865	10.540	-104.51	67.280
Beta	0.5461	0.3932	0.4952	-0.2694	1.8016
Net debt	0.5054	0.2246	0.5144	-0.1637	1.7864
Growth in cash holdings (or equivalent)	13.063	71.2237	9.7918	-279.4817	343.8056
Change in interest coverage	-0.8079	61.449	-0.04816	-767.09	785.26
Growth rate of number of employees (%)	6.2624	23.730	2.5642	-106.61	154.97
CAPX	0.1753	0.2363	0.1540	-1.1733	1.1271
Sales growth (%)	0.1336	0.3044	0.1212	-1.3747	1.6981
Net worth	0.3868	0.2114	0.3808	-0.7571	0.967
Tangibility	0.5707	0.2233	0.5995	0.0001	0.9732
EBITDA/Assets	0.1114	0.0809	0.1059	-0.2858	0.3954
Log of cash flow	5.5	6.6348	3.0255	0.0041	43.1281
High/low external financial dependency	0.5876	0.4923	1	0	1

Note: The statistics are computed for the sample in which the variables are used. In case of multiple samples, the first sample is used.

Table B.2: Descriptive statistics of country variables

Variable	Mean	SD	Median	Min	Max
Interest rates differential	4.2830	3.4209	4.0284	-4.9498	27.115
Real GDP growth (%)	5.7952	4.3418	6.2136	-11.151	26.509
ER regime index	2.5780	0.5156	3	1	4
Derivatives market depth (bios US$)	24.396	19.177	18.260	0.1962	65.381
Inflation volatility	1.7530	0.9944	1.4846	0.3373	20.140
Real GDP per capita PPP (1000 US$)	12.456	5.5940	12.757	2.6233	49.659
Regulatory quality index	0.01974	0.4235	-0.1281	-1.0790	1.5465
Capital controls (CC) on bond inflows	0.8480	0.3591	1	0	1
Reserves/GDP (%)	29.121	13.779	31.436	4.5474	97.198
CC on bond inflows continuous (0,0.5,1)	0.74	0.372	1	0	1
Local CC on bond inflows	0.6846	0.4647	1	0	1
CC on bond inflows abroad	0.9449	0.2283	1	0	1
Wall/non-wall country	0.5751	0.4944	1	0	1
CC on total bond flows (0,0.25,0.5,0.75,1)	0.8302	0.2416	1	0	1
CC on bond outflows (0, 0.5, 1)	0.9201	0.216	1	0	1
FX regulations: both sides	-0.0072	0.1797	0	-1	1
FX regulations: liability side	-0.0069	0.1755	0	-1	1
FX regulations: asset side	-0.0003	0.0387	0	-1	1
FX regulations pooled: liability side	-0.0024	0.3134	0	-1	1
FX regulations pooled: asset side	0.0018	0.1271	0	-1	1
Macroprudential policy: liability side	0.1358	0.3427	0	0	1
Macroprudential policy: asset side	0.2688	0.4434	0	0	1
Δ trade-weighted nominal ER (%)	-0.5266	3.8244	-0.1455	-23.9115	13.3649
Cumulated CC on bond inflows (y-1 to y-3)	1.6512	1.2074	1.5	0	3
Cumulated CC on bond inflows (y to y-3)	2.219	1.5816	2	0	4
Cumulated FX regulations (liability side) (q to q-3)	0.1021	0.4996	0	-2	3
Short-term interest rate (%)	6.5744	5.6421	5.4553	0.05342	52.265
CPI year-on-year inflation rate (%)	5.5234	4.5873	4.3841	-3.2986	47.4672
Rule of law	-0.0969	0.5778	0.126	-1.1264	1.4187
Country stock returns (%)	3.4233	11.9842	4.0116	-85.7791	53.2766
Real annual GDP growth (%)	5.8236	3.9363	6.0146	-7.8899	22.9278
Inflation volatility, annual average	4.1654	3.298	1.6221	0.3636	55.0216
log of REER, annual average	4.5635	0.0988	4.5778	3.9404	4.8526
Short-term interest rate, annual average (%)	5.9363	3.9087	5.1123	0.2074	58.4674

Note: The statistics are computed for the sample in which the variables are used. In case of multiple samples, the first sample is used.

Table B.3: Descriptive statistics of global variables

Variable	Mean	SD	Median	Min	Max
Shadow FED funds rate	-0.4671	2.0976	-1.1095	-2.9220	5.2567
VIX	19.742	8.0294	16.750	11.030	58.600
10-year U.S. government bond yields(%)	2.9032	0.8792	2.74	1.64	5.07
Long-term treasury inflation-indexed yield (%)	1.2736	0.8134	1.0767	-0.09	2.8133
FED funds rate (%)	0.7305	1.3945	0.14	0.07	5.25
Post-crisis dummy (%)	0.7086	0.4545	1	0	1
MOVE	89.4786	25.7681	84.0773	59.8154	182.5182
Global uncertainty index	118.8631	32.6929	113.6755	58.1153	195.8473
VIX for emerging markets	23.826	5.7711	23.3102	17.288	42.5791
EONIA (%)	0.9029	1.2849	0.3443	-0.1248	4.2527
SONIA (%)	1.3608	1.7717	0.456	0.4131	5.8614
TONAR (%)	0.1211	0.1305	0.0787	0	0.514
Swiss 3-month LIBOR (%)	0.3733	0.8895	0.0889	-0.8393	2.8186

Note: The statistics are computed for the sample in which the variables are used. In case of multiple samples, the first sample is used.

Description of variables

Firm variables

Variable	**Description**	**Source**
Share of foreign currency issuances (%)	Use corporate bond issuances data to compute the share of issuances denominated in foreign currency by taking the ratio of issuances in foreign currency over issuances in domestic currency, given a company is issuing. Quarterly average of daily date of issuances: if a company issues more than once in a given quarter, we use principal amounts as weights.	SDC (Thomson Reuters)
Size	Log of total assets, the sum of total current assets and fixed assets, yearly frequency.	Orbis/Worldscope

Book-to-market value	Ratio of book equity (the difference between total assets and total liabilities) over the market capitalization of the company, yearly frequency.	Orbis/Worldscope
Return on assets (ROA)	Ratio of net income after preferred dividend requirement over total assets, yearly frequency.	Orbis/Worldscope
Collateral: Ratio of tangible assets over total assets	Used as proxy for the companies capital structure or collateral. Computed as the ratio of tangible assets - also called net property, plant and equipment, which is obtained after having deducted the historical cost and revaluation of properties, the accumulated depreciation, amortization and depletion over total assets, yearly frequency.	Orbis/Worldscope
Cash or equivalent / cash growth	Regroup all immediate negotiable medium of exchange or instrument normally accepted by banks for deposits and immediate credit to a customer account - it also represents funds that can be used to pays current invoices - plus short term investments that can be realized on short notice, take the logarithm, yearly frequency. Cash growth is computed as the log difference of the cash or equivalent variable.	Orbis/Worldscope
Leverage	Ratio of long-term debt over total assets. Long-term debt is defined as the sum of bank loans, debentures & convertible debt, lease liabilities, and other long-term interest bearing debt, yearly frequency.	Orbis/Worldscope
High-yield flag	Dummy variable provided together with other information on bond issuances: take the value of 1 if the deal is indicated as highly leveraged. Quarterly average of daily date of issuances: if a company issues more than once in a given quarter, we use principal amounts as weights and round it to the closest integer (0 or 1).	SDC (Thomson Reuters)
Abroad/local bond issuances dummy	Use corporate bond issuances data to compute the share of issuances done locally by a given company in a given quarter. If more than 50% of the issuance is done locally, the dummy takes the value 1, zero otherwise.	SDC (Thomson Reuters)

High/low trade intensity	Use of the SIC code to determine whether a company is in a high or low trade intensive sector. The dummy variable takes the value of 1 for SIC code above 399, 0 otherwise.	Orbis/Worldscope
Firms stock returns	Quarterly average of firm daily stock returns.	Datastream
Return on equity (ROE)	Net income per equity (obtained by dividing net income by shareholders equity). Yearly frequency.	Orbis/Worldscope
Firm beta	Obtained from averaging at quarterly frequency the estimated β of a CAPM model regression at daily frequency. Formally, we estimate the following: $\Delta S_i = \alpha + \beta_i * \Delta M + \epsilon$, with ΔS_i the change in the firm stock price and ΔM the change in the market price.	Orbis/Worldscope and own computations
Net debt	= Current Assets + Non-Current Liabilities Cash)/Total Assets. Annual frequency.	Orbis/Worldscope and own computations
Growth in cash holdings or equivalent	Annual growth in cash holdings or equivalent.	Orbis/Worldscope.
Change in interest coverage	Annual change in interest coverage, where interest is = EBIT/Interest Expenses. Annual frequency.	Orbis/Worldscope and own computations
Growth rate of number of employees	Computed as the growth in the number of employees in a company between two years. Annual frequency.	Orbis/Worldscope and own computations
CAPX	= (Fixed Assets at t Fixed Assets at t-1 + Depreciation at t)/Fixed Assets at t. Annual frequency	Orbis/Worldscope and own computations
Sales growth	Computed as the growth in the amount of sales in a company between two years. Annual frequency.	Orbis/Worldscope and own computations
Net worth	= Total Assets Total Liabilities. Annual frequency.	Orbis/Worldscope and own computations
Tangibility	= Tangible Assets/Total Assets. Annual frequency.	Orbis/Worldscope and own computations

EBITDA over Assets	= EBITDA/Total Assets. Annual frequency.	Orbis/Worldscope and own computations
Log of cash flow	Logarithm of operating cash flow. Annual frequency.	Orbis/Worldscope and own computations
High/low external financial dependency	Dummy variable based on external financial dependency= (Capital Expenditures Operating Cash Flow)/Capital Expenditures, with Capital Expenditures = Net Acquisition of Tangible Assets + Depreciation. The dummy takes the value of 1 if it is higher then the median of the distribution across firms, 0 otherwise. Annual frequency	Orbis/Worldscope and own computations

Country variables

Variable	Description	Source
Interest rates differential	Difference between domestic 3-month money market interest rate or equivalent and the U.S. 3-month LIBOR interest rate. Quarterly average of business day differences. Description of each countrys interest rate: · Argentina: LEBAC 3-month interest rate · Brazil: 3-month implied interest rate based on government bonds computed by Thomson Reuters · China: 3-month interbank rate · Colombia: 90-day colombian certificate of deposit rate. · India: 3-month MIBOR · Indonesia: 3-month interbank rate · Malaysia: 3-month interbank rate, KLIBOR - Kuala Lumpur Interbank Offered Rate · Mexico: Cetes 91-day rate · Philippines: 91-day treasury bill rate · Peru: 3-month interbank offered interest rate · Poland: Warswaw 3-month interbank rate (WIBOR) · Russian Federation: 3-month interbank rate, 31 to 90 days. · Saudi Arabia: 3-month interbank rate · South Africa: 3-month interbank rate - Jibar · Thailand: 3-month interbank rate (BIBOR) · Turkey - 3-month interbank rate	Datastream
Real GDP growth	Growth of real GDP based on expenditures approach, not seasonally adjusted for most countries, quarterly frequency.	IMF/IFS
Exchange rate regime index	Based on Ilzetzki et al. (2017) methodology: the variable is an index between 1 and 5, where a higher value means more flexible exchange rate, quarterly averaged and rounded from monthly frequency.	Carmen Reinharts website

Derivatives market depth (in bios USD)	Use of BIS Triennal Survey to obtain a countrys total amounts of foreign exchange derivatives, including currency swaps, FX swaps, options, outright forwards and other derivatives. Missing quarters are interpolated using the BIS semi-annual Survey and the amounts of foreign exchange derivatives in other currency (all except five biggest) as weights.	BIS
CPI inflation and volatility	Inflation is computed as the year-on-year change in the country CPI. Inflation volatility is the standard error of CPI inflation over a 16 quarter rolling window, quarterly frequency.	IMF/IFS
Real GDP per capita PPP (/1000)	PPP adjusted GDP is GDP converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchasers prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2011 international dollars, annual frequency.	World Bank
Regulatory quality index	Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Estimate gives the countrys score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. Annual frequency.	World bank: World governance indicators
Capitl controls (CC) on bond inflows (continuous or dummy)	Index variable: takes values 0, 0.5 or 1, with 1 meaning a higher degree of controls. It is based on two dummy variables described below: local controls and controls abroad. As a dummy, it takes only two values: 0 when no controls at all (value = 0), 1 otherwise (values = 0.5 or 1). At annual frequency.	Fernandez et al. (2016)
Reserves/GDP	Ratio of reserves over GDP per country.	IMF/IFS

Local CC on bond inflows	Dummy variable: it takes the value of 1 when controls on bonds purchased locally by non-residents are in place, 0 otherwise. At annual frequency	Fernandez et al. (2016)
Controls on bond inflows abroad	Dummy variable: it takes the value of 1 when controls on bonds sold or issued abroad by residents are in place, 0 otherwise. At annual frequency.	Fernandez et al. (2016)
Wall/non-wall country	According to Klein (2012) a wall country is a country with permanent capital controls. A non-wall country is a country with intermittent or no capital controls.	Klein (2012)
CC on total bond flows	Index variable: takes values 0, 0.25, 0.5, 0.75 and 1, with high meaning a higher degree of CC. The index is built based on indices for CC on bond inflows and outflows. As a dummy, takes value 0, when no controls at all (value = 0) and 1 otherwise (values >0). At annual frequency.	Fernandez et al. (2016)
CC on bond outflows	Index variable: it takes value 0, 0.5 or 1, with 1 meaning higher degree of controls. Build similarly to controls on bond inflows. As a dummy, it takes only two values: 0 when no controls at all (value = 0), 1 otherwise. At annual frequency.	Fernandez et al. (2016)
FX regulations: both sides	Variable measuring a tightening as a +1 and a reduction or removal as a -1 of macroprudential FX regulations. A quarter with no change in FX regulations is entered as a 0. It is based on two sub-variables, distinguishing between the asset and liability side described below. At quarterly frequency. The cumulated measure is built as the sum of the index over the current and last three quarters.	Ahnert et al. (2018)

FX regulations: liability side	Variable measuring a tightening as a +1 and a reduction or removal as a -1 of macroprudential FX regulations targeting the FX liabilities of domestic banks. These could be broadly defined as focusing on the funding decisions of banks (FX reserves requirements and FX liquidity requirements). A quarter with no change is entered as a 0. At quarterly frequency. The cumulated measure is built as the sum of the index over the current and last three quarters.	Ahnert et al. (2018)
FX regulations: asset side	Variable measuring a tightening as a +1 and a reduction or removal as a -1 of macroprudential FX regulations targeting the FX assets of domestic banks. These could be broadly defined as restricting FX lending to domestic firms and households. A quarter with no change is entered as a 0. At quarterly frequency. The cumulated measure is built as the sum of the index over the current and last three quarters.	Ahnert et al. (2018)
Macroprudential policy: liability side	Macroprudential variable defined as limits on FX currency loans being in place in a given year. Dummy variable taking the value of 1 when the tool is enforced, 0 otherwise. Annual frequency.	Cerutti et al. (2017)
Macroprudential policy: asset side	Macroprudential variable defined as FX or/and countercyclical reserve requirements being in place in a given year. Dummy variable taking the value of 1 when the tool is enforced. Annual frequency.	Cerutti et al. (2017)
Trade-weighted ER	Trade-weighted nominal exchange rate, quarterly average from daily frequency. Change is computed as the log-difference.	BIS
Short-term interest rate	Use the same short-term interest rate variable as described under interest rate differential.	See above

Rule of law index	Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. Annual frequency.	World bank: World governance indicators
Country stock returns	Based on MSCI index computed using various constituents lists covering generally approximately 85% of the free float-adjusted market capitalization in each country, available at daily frequency. Returns computed as the log change in the quarterly average of the index.	Datastream.
Log of REER annual average	Logarithm of broad real effective exchange rate index from the BIS averaged at annual frequency.	BIS

Global variables

Variable	**Description**	**Source**
Shadow FED funds rate	Official FED funds rate when above zero and interest rate reflecting the FED monetary policy based on Wu and Xia (2016) methodology, quarterly average.	Wu and Xia (2016)
VIX	Chicago Board Options Exchange (CBOE) index of the S&P500 implied volatility: measures market expectation of near term volatility conveyed by stock index option prices, quarterly average of business days.	FRED, Federal Reserve Bank of St. Louis
10-year U.S. government bond yields	10-year treasury constant maturity rate for the U.S., quarterly average of business days	FRED, Federal Reserve Bank of St. Louis
Long-term treasury inflation-indexed yield	Treasury inflation-indexed long-term average yield: Averages of business days. Based on the unweighted average bid yields for all treasury inflation-indexed securities with remaining terms to maturity of more than 10 years.	FRED, Federal Reserve Bank of St. Louis

FED funds rate	Effective Federal funds rate: interest rate at which depository institutions trade federal funds with each other overnight, quarterly average of business days	FRED, Federal Reserve Bank of St. Louis
Post-crisis dummy	Dummy variable with value of 1 for 2010 Q1 onwards.	Own computations.
MOVE	MOVE stands for Merrill lynch Option Volatility Estimate and is a yield curve weighted index of the normalized implied volatility on 3-month. Treasury options which are weighted on the 2, 5, 10, and 30 year contracts, quarterly average of business days.	Datastream (Thomson Reuters)
Global economic policy uncertainty index	Global EPU is computed as the GDP-weighted average of monthly EPU index values for US, Canada, Brazil, Chile, UK, Germany, Italy, Spain, France, Netherlands, Russia, India, China, South Korea, Japan, Ireland, and Australia, using GDP data from the IMFs World Economic Outlook Database. Each national EPU index is renormalized to a mean of 100 from 1997 to 2015 before calculating the Global EPU index. Quarterly average of monthly values.	Baker et al. (2016)
VIX EME	CBOE Emerging Markets ETF Volatility Index: Exchange Traded Funds (ETFs) are shares of trusts that hold portfolios of stocks designed to closely track the price performance and yield of specific indices. Originally from the CBOE market statistics, quarterly average of business days.	FRED, Federal Reserve Bank of St. Louis
EONIA	Euro area overnight index average rate. Quarterly average of daily data.	European Central Bank.
SONIA	United Kingdom sterling overnight index average rate. Quarterly average of daily data.	Bank of England
TONAR	Japan unsecured interbank overnight interest rate. Quarterly average of daily data.	Bank of Japan
Swiss 3-month LIBOR	Swiss 3-Month London Interbank Offered Rate. Quarterly average of daily data.	Swiss National Bank.

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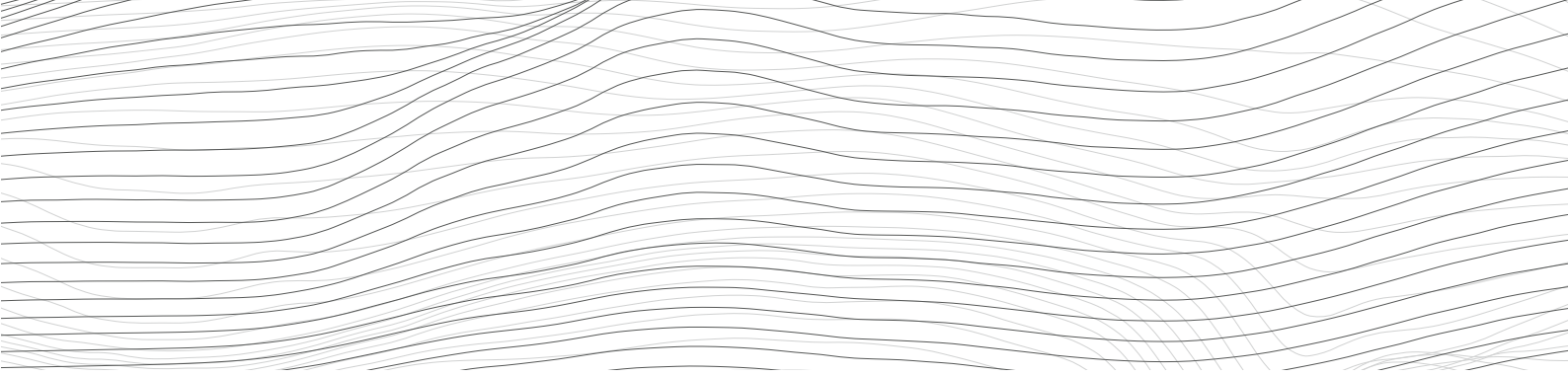

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