Sovereign Debt, Currency Composition, and Financial Repression*

Teresa Balestrini
University of Minnesota

Leonardo Barreto
University of Minnesota

Carlos Bolivar
University of Minnesota

June 6, 2026

Abstract

In emerging economies, local-currency bonds dominate government debt and are predominantly held by domestic investors. We develop a model that explains both facts jointly. Domestic investors prefer local-currency bonds because they provide insurance against distortionary taxation. The government exploits this preference: issuing local-currency debt stimulates domestic demand, which lowers default risk. As a result, issuing local-currency debt remains optimal even when it provides no fiscal insurance. Finally, we present empirical evidence from 17 emerging economies consistent with the model predictions.

JEL classification : F34, F41, H63

Keywords: sovereign debt, currency composition, financial repression, bondholder composition

*We thank Manuel Amador, Tim Kehoe, and Marco Bassetto for their guidance. We also thank the seminar participants at the University of Minnesota Trade Workshop, the seminar of the Federal Reserve Bank of St. Louis, and the Spring 2025 Midwest Macro Conference.

. Emails: bales@umn.edu, barre843@umn.edu, boliv@umn.edu.

1 Introduction

Sovereign debt markets in emerging economies display a clear asymmetry between domestic and foreign investors. Table 1 decomposes central government debt securities for 17 emerging markets by currency denomination and investor type. Three patterns stand out. First, LC bonds dominate government debt, averaging 74% of total issuance. Second, domestic investors are the largest group of bondholders, holding 68% of all debt. Third, 91% of the bonds held by domestic investors are denominated in LC.

Table 1: Taxonomy of Sovereign Debt

	Domestic lenders	**Foreign lenders**
Local currency debt	62 %	12 %
Foreign currency debt	6 %	20 %

Source: Arslanalp and Tsuda (2014)

This paper develops a model of sovereign debt in which the currency denomination and the bondholder composition of government bonds are jointly determined in equilibrium. We propose a new mechanism linking these two dimensions: governments issue LC debt to manage who holds their debt. We establish three results that build this argument. First, domestic investors endogenously prefer LC bonds because these assets provide insurance against fluctuations in distortionary taxation. Second, the government exploits this preference: issuing LC debt stimulates domestic demand and reduces default risk, even when LC debt offers no hedging benefit to the government. Third, in the model LC issuance and financial repression are substitute policy instruments: when the government can directly mandate minimum domestic holdings, it no longer needs LC debt to manage bondholder composition. We do not take this result to the data.

We develop these results in a two-period model in which the government issues bonds denominated in LC and FC in an integrated market populated by domestic and foreign investors. As in Lucas and Stokey (1983), the government finances an exogenous expenditure using distortionary taxes and can use debt to smooth tax distortions over time. The government lacks commitment and can default on its debt. The two bond types differ in their real payoffs: FC bonds deliver a fixed real return, while the real value of LC bonds moves with the nominal exchange rate. A key distinction between investor types is that domestic investors are subject to the government's tax policy, while foreign investors are not. The government is benevolent and maximizes the utility of domestic investors. As a result, both the cost of taxation and the cost of default are borne by the agents whose welfare the government seeks to maximize. Two features distinguish our framework from the existing literature. First, both LC and FC bonds are traded in a single market, so the bondholder composition of each bond type is an equilibrium outcome rather than a direct policy choice. Second, the government internalizes how its currency denomination decision affects who holds its debt, generating an endogenous link between currency composition and default risk.

The first mechanism concerns the portfolio choice of domestic investors. In the model, the government must raise taxes to repay its debt, so government bonds pay off precisely in states where taxes are high, making them a natural hedge against tax risk. LC bonds provide a stronger hedge than FC bonds. When the government issues LC debt, the real value of its repayment obligations depends on the nominal exchange rate, which makes taxes more volatile. At the same time, the real value of LC bonds also depends on the exchange rate, so LC bonds and taxes co-move more closely than FC bonds and taxes. As a result, domestic investors tilt their portfolios toward LC bonds.

The second mechanism is a wedge between the government and domestic investors over the optimal level of domestic bond holdings. From the government's perspective, higher domestic demand for bonds serves as a commitment device: it lowers the economy's foreign debt position, reduces the future cost of repayment, and decreases default risk. The government, acting as a monopolist in the bond market, internalizes the effect of domestic demand on bond prices. In contrast, the representative domestic investor treats prices as given and does not consider how her demand affects default risk or bond prices. This wedge implies that domestic demand for government bonds is inefficiently low in the decentralized equilibrium. We derive a Generalized Euler Equation (GEE) that characterizes how the government internalizes the effect of currency composition on domestic demand.

These two mechanisms generate the paper's core result. Because domestic investors prefer LC bonds, the government can boost domestic demand—and thus lower foreign debt—by tilting its debt composition toward LC. This benefit comes at a cost: LC issuance raises fiscal risk by exposing the budget to exchange rate volatility. The government optimally trades off these forces. We show that even when LC debt offers no insurance the government still optimally issues a positive amount of LC debt to stimulate domestic demand.

The literature argues that governments issue LC debt for insurance against fiscal shocks: in bad times, currency depreciation reduces the real value of LC obligations (Ottonello and Perez 2019; Engel and Park 2018). We propose a different mechanism: governments use LC debt to manage who holds their debt. To isolate this channel, we assume the nominal exchange rate is uncorrelated with fiscal shocks, shutting down the insurance motive. Our results show LC issuance remains optimal even then. When the covariance is nonzero, both channels operate simultaneously; quantifying their relative importance is a natural path for future work.

Next, we extend the model to allow for financial repression. Following Chari, Dovis, and Kehoe (2020), we consider a government that can impose minimum domestic holdings of FC-denominated government bonds. When financial repression is costless, the government uses it to close the wedge in domestic demand directly. In this case, there is no need to distort the currency composition, and the government issues only FC debt. This result sharpens the interpretation of our main finding: the government issues LC debt not because LC is inherently desirable, but because it serves as an indirect instrument for increasing domestic bond holdings when direct regulation is unavailable.

The theory generates two testable predictions that we validate in the data. First, an increase in the supply of LC bonds should be associated with a larger increase in domestic demand than an equivalent increase in FC bonds. Extending Broner et al. (2022), we estimate the co-movement between debt issuance and domestic holdings separately for LC and FC bonds across 17 emerging economies over a 20-year period. Consistent with the model, we find a significantly stronger positive association for LC bonds. Second, the model predicts a positive correlation between the share of LC debt and the share of domestic debt in total government debt. We document this relationship in the data, confirming that the currency composition of sovereign debt is linked to the composition of bondholders.

1.1 Related Literature

This paper builds on the literature on currency and bondholder composition of sovereign debt, particularly in emerging markets. First, our paper is related to the quantitative literature on sovereign debt, following the work of Eaton and Gersovitz (1981), Aguiar and Gopinath (2006) and Arellano (2008). Most of this literature focuses on the fourth category of Table 1, namely debt in FC held by foreign lenders.

There are several recent contributions on the currency composition of debt in emerging economies following Eichengreen and Hausmann (1999). These models analyze governments' currency choices, focusing on the trade-offs between the hedging benefits of LC and the incentive benefits of FC debt (see the second column in Table 1). As emerging market governments gain credibility in their monetary policy, Ottonello and Perez (2019) and Engel and Park (2018) argue that they are increasingly borrowing in LC, overcoming the "original sin". Similarly, Du, Pflueger, and Schreger (2020) show that governments unable to commit to an inflation policy rule borrow more in FC. Lee (2021) highlights that despite the increased credibility in their monetary policy, emerging markets continue to borrow substantially in FC due to high exchange rate volatility. In an environment with a constant real exchange rate and no monetary policy, we argue that there is an additional incentive to issue in LC, as it increases domestic holdings of government bonds.

The composition of bondholders is key for sovereign default risk, as shown by D Erasmo and Mendoza (2021). Like us, they study a benevolent government that cares about domestic investors, so default risk depends on who holds the bonds. They focus on the lower row of Table 1, with debt issued only in foreign currency and held by domestic and foreign lenders. In our model, instead, the bondholder composition is determined in equilibrium.

The paper closest to ours in structure is Sunder-Plassmann (2020), who analyzes all four cells of Table 1, local and foreign-currency debt held by domestic and foreign investors, but treats the currency–holder composition as exogenous, studying its implications for inflation and default. Our paper endogenizes these shares: the fraction of each bond type held by each investor group is determined in equilibrium jointly with the government's currency issuance choice.

Within the literature on bondholder composition, Chari, Dovis, and Kehoe (2020), Mallucci (2022), Perez (2018), and Bolivar (2023) examine models in which the government and domestic investors do not agree on the optimal domestic demand for government bonds, so there is scope for financial repression. These papers analyze various government policies aimed at reducing the foreign debt position or increasing the share of domestic investors' savings in government bonds. They find that domestic demand for government bonds is lower compared to the centralized equilibrium, where the government directly chooses the level of foreign and domestic debt, as domestic investors fail to internalize how their demand for government bonds affects the risk of default. We propose the currency composition of debt as an alternative instrument through which the government can influence the domestic demand for bonds. We show that LC issuance arises only when direct regulation of domestic bond holdings is unavailable. When financial repression is costless, the government uses it to increase domestic holdings directly and issues only FC debt.

A key strand of the literature on optimal taxation is based on Barro (1979), which shows that governments use debt to smooth out tax distortions. Lucas and Stokey (1983) find that under complete markets, taxes and debt follow the stochastic properties of government spending. Aiyagari et al. (2002) extend this to incomplete markets, showing that borrowing constraints introduce a near-random walk in taxes and debt. Pouzo and Presno (2022) incorporate default risk in a closed economy, leading to endogenous credit limits that restrict the government's ability to smooth shocks through debt. Our model builds on this by introducing debt currency choice and bondholder composition in an open economy with sovereign default and distortionary taxation.

Outline. The remainder of the paper is organized as follows. Section 2 documents the currency and bondholder composition of sovereign debt in emerging economies. Section 3 presents the model. Section 4 characterizes optimal policy and the currency composition of debt. Section 5 analyzes the constrained efficient equilibrium and financial repression. Section 6 presents empirical evidence consistent with the model's mechanisms. Section 7 concludes.

2 Empirical Motivation

This section documents the currency and bondholder composition of sovereign debt in emerging economies using the Arslanalp and Tsuda (2014) database, updated in April 2024. We establish three facts beyond the headline numbers reported in Table 1: the patterns are broad-based across countries, the share of LC debt has increased over time, and the data are consistent with an integrated bond market rather than segmented markets.

2.1 Data

Our sample consists of 17 out of 22 emerging economies in the database. We exclude Bulgaria, Chile, Colombia, Malaysia, and Mexico due to missing information on domestic investors' total debt. The resulting unbalanced panel contains quarterly data from 2004Q1 to 2023Q4. The dataset identifies central government debt securities by currency denomination (LC and FC) and investor type (domestic and foreign). We use inflation data from the IMF's International Financial Statistics (IFS) dataset to compute variables in real terms.

2.2 Currency and Bondholder Composition

Table 2 presents the composition of sovereign debt for each country. Three features of the data are worth noting.

Table 2: Empirical Regularities of Sovereign Debt by Currency

Country	Total Debt Average (% of GDP)	Share of Debt in LC Average (% of T. Debt)	Share of Debt in LC Δ 2023 - 04 (% of T. Debt)	Share of Domestic Debt in LC Average (% of Dom. Debt)	Share of Domestic Debt in LC Δ 2023 - 04 (% of Dom. Debt)
Argentina	65	40	0	66	-2
Brazil	72	93	24	98	2
China	45	99	1	100	0
Egypt	80	84	-27	91	-24
Hungary	73	71	-5	95	-5
India	75	100	0	100	0
Indonesia	32	78	-19	96	-6
Peru	27	52	47	83	55
Philippines	52	74	13	86	7
Poland	51	77	2	97	-1
Romania	31	56	-18	78	-9
Russia	15	69	58	82	38
South Africa	45	91	3	100	0
Thailand	32	99	7	100	0
Turkey	37	70	-24	82	-14
Ukraine	46	49	14	90	-9
Uruguay	56	47	52	73	72
Mean	49	74	8	89	6
Median	46	74	2	91	0
Std. Dev.	19	19	25	10	25

Notes: Average total debt is calculated using total central government debt securities from 2004 to 2023. The share of debt in local currency refers to the percentage of total debt securities issued in local currency. The share of domestic debt in local currency refers to the share of debt securities issued in local currency held by domestic investors. The differences are calculated taking the share for 2023q4 and 2004q1, or the first and last observation available for each country.

The dominance of LC debt and the preference of domestic investors for LC bonds are not driven by a few outliers. In all 17 countries, LC debt accounts for at least 40% of total debt, and in 12 of 17, it exceeds 70%. The domestic preference for LC is even more uniform: in 10 of 17 countries, over 90% of domestic debt is in LC, with a cross-country standard deviation of only 10 percentage points. There is, however, meaningful heterogeneity in levels. India, China, and Thailand have near-complete LC denomination, while Argentina, Ukraine, and Uruguay have LC shares between 40 and 50 percent.

Over the past two decades, the average share of LC debt rose by 8 percentage points (see Figure B.1 for the full dynamics). Similarly, the share of domestic debt denominated in LC increased by 6 percentage points on average. (see Figure B.2).

No market segmentation. A natural question is whether the patterns in Table 2 reflect segmented markets—domestic investors restricted to LC bonds and foreign investors to FC bonds—rather than portfolio choice in an integrated market. The data do not support this interpretation. In most economies, both domestic and foreign investors hold positive quantities of both LC and FC bonds. While domestic investors tilt heavily toward LC, they also hold FC bonds in all but four countries. Foreign investors hold LC bonds in every country in the sample.[1] The coexistence of both investor types in both bond markets is consistent with an integrated market in which the bondholder composition is an equilibrium outcome, which serves as our motivation for the environment we model in the next section.

3 Model

We consider a small open economy that lasts for two periods, indexed by $t \in \{0, 1\}$. The key departure from standard frameworks is the presence of two types of investors and two types of bonds simultaneously. We assume that the government lacks commitment and can default on its bonds. We also assume that the law of one price applies and that the government cannot selectively default on foreign investors.

3.1 Exogenous Processes

Uncertainty is modeled by an exogenous utility cost (ϕ) that the government would face if it defaults and the exogenous exchange rate (e_1).

Assumption 1. *The stochastic structure satisfies the following conditions:*

(i) $\phi \in \mathbb{V} \equiv (\underline{\phi}, \tilde{\phi})$

(ii) ϕ *is drawn from a distribution independent of liabilities p.d.f* $f(\phi)$

(iii) the inverse of the nominal exchange rate has mean one; this is $\mathbb{E}\left[\frac{1}{e_1}\right] = 1$

(iv) $Cov(e_1^{-1}, \phi) = 0$

We assume that the covariance of the nominal exchange rate and the cost of default is zero. We do so to abstract from the insurance motive that the government could have to issue LC and highlight the role of the currency composition as a determinant of the composition of bondholders and how it

1. Appendix B provides detailed information on foreign debt composition. On average, foreign investors hold 54% of their sovereign bond portfolios in FC, a share that has declined by 13 percentage points over the past two decades (see Table B.1).

changes the incentives of the government to issue LC debt. We summarize the exogenous state in the second period as $s = \{e_1, \phi\}$

3.2 Domestic Investors

The representative domestic investor allocates time to leisure or labor n, which is used to produce goods. Preferences are time-separable and follow the Greenwood, Hercowitz, and Huffman (1988) (GHH) framework that eliminates income effects on labor supply. Utility over consumption $\{c_t\}$ and labor $\{n_t\}$ is given by:

$$U = u(c_0 - v(n_0)) + \beta\mathbb{E}[u(c_1(s) - v(n_1(s))) - d(s)\phi] \tag{1}$$

Here, $d \in \{0, 1\}$ equals 1 if the government defaults and 0 otherwise. The utility function u satisfies: (i) $u : \mathbb{R}^2_+ \to \mathbb{R}$; (ii) u is twice differentiable with $u' > 0$ and $u'' < 0$. And $\beta \in (0, 1)$ denotes the discount factor.

The production function is linear, $y = n$, and the government finances its expenditure by imposing a distortionary tax on labor income. The consumption good is tradable, and we normalize the international price to one, so the domestic price level equals the exchange rate: $p = e$. This implies that the real value of LC bonds in period one depends on the realization of the nominal exchange rate e_1^{-1}, while the real value of FC bonds does not. This is the key distinction between the two bond types.

Let $\{b_D, b_D^\star\}$ denote the domestic investor's holdings of LC and FC bonds, and let $\{q, q^\star\}$ denote their prices. Domestic investors are borrowing-constrained. The budget constraint in period zero, expressed in FC, is:

$$\begin{gathered} c_0 + qb_D + q^\star b_D^\star = (1 - \tau_0)n_0 \\ b_D, b_D^\star \geq 0 \end{gathered} \tag{2}$$

In period one, in each state s:

$$c_1(s) = (1 - \tau_1(s))n_1(s) + (1 - d(s))\left(\frac{b_D}{e_1} + b_D^\star\right) \quad \forall s \tag{3}$$

The problem of domestic investors is choosing the sequences of consumption, labor and debt $\{c_0, n_0, \{c_1(s), n_1(s)\}_s, b_D, b_D^\star\}$ to maximize (1) subject to (2) and (3). The FOC of this problem are:

$$v'(n_t) = (1 - \tau_t) \qquad \forall t = 0, 1 \tag{4}$$

where equation (4) is the usual optimality condition that equates the marginal cost of labor to the marginal productivity of domestic investors after taxes. The FOC imply:

$$q\, u'(c_0 - v(n_0)) = \beta \mathbb{E}\left[(1-d(s))\frac{u'\Big(c_1(s) - v(n_1(s))\Big)}{e_1}\right] + \eta_1 \tag{5}$$

$$q^\star u'(c_0 - v(n_0)) = \beta \mathbb{E}\left[(1-d(s))u'\Big(c_1(s) - v(n_1(s))\Big)\right] + \eta_2 \tag{6}$$

Those are the Euler equations for the domestic investor for the bonds in LC and FC. Because domestic investors are borrowing constrained, η_1 and η_2 stand for the multipliers in these constraints. We also define the stochastic discount factor (SDF) of the domestic investors as follows:

$$\Lambda \equiv \frac{\beta u'\Big(c_1(s) - v(n_1(s))\Big)}{u'(c_0 - v(n_0))} \tag{7}$$

Finally, we define $B_D, B_D^\star$ as the aggregate positions of domestic investors in the bond market.

3.3 Foreign Investors

There is a continuum of risk-neutral foreign lenders that have access to a risk-free asset with a return $\frac{1}{\beta}$. Let W be the initial wealth of foreign investors. The problem of foreign investors can be written as follows:

$$\pi = \max_{\{b_F, b_F^\star\}} \; \mathbb{E}\left[(1-d(s))\left(\frac{b_F}{e_1} + b_F^\star\right)\right] + (W - q b_F - q^\star b_F^\star)\frac{1}{\beta} \tag{8}$$

Because the maximization problem of foreign investors is linear, we can derive the usual demand functions for government bonds.

$$b_F^\star = \begin{cases} 0 & \text{if } q^\star > \mathbb{E}\left[(1-d(s))\beta\right], \\ [0, W] & \text{if } q^\star = \mathbb{E}\left[(1-d(s))\beta\right], \\ W & \text{otherwise.} \end{cases} \tag{9}$$

$$b_F = \begin{cases} 0 & \text{if } q > \mathbb{E}\left[(1-d(s))\beta\frac{1}{e_1}\right], \\ [0, W] & \text{if } q = \mathbb{E}\left[(1-d(s))\beta\frac{1}{e_1}\right], \\ W & \text{otherwise.} \end{cases} \tag{10}$$

We assume foreign investors collectively have unlimited resources, so $W \rightarrow \infty$. Let B_F and $B_F^\star$ denote the foreign debt position. Their piecewise-linear demand implies they will buy any amount of debt if the price compensates them for default risk. In a model with only foreign investors, as in Eaton and Gersovitz (1981), this implies that the bond price in foreign currency equals the probability of default. Here, by contrast, the price can be higher in equilibrium if domestic demand for bonds equals supply.

3.4 Government

The government starts with an initial debt held by foreign investors, denoted as $\bar{B}_0$, and borrows B_1 and $B_1^\star$, denominated LC and FC, respectively. In addition, it collects income taxes. In period zero, the budget constraint of the government expressed in FC is given by:

$$\bar{B}_0 = \tau_0 n_0 + qB_1 + q^\star B_1^\star \tag{11}$$

In period one, in every state s, the fiscal budget expressed in FC is given by:

$$(1 - d(s))\left(\frac{B_1}{e_1} + B_1^\star\right) = \tau_1(s)n_1(s) \tag{12}$$

3.5 Equilibrium

Definition 1. (Competitive Equilibrium) Given an initial debt $\bar{B}_0$ and government policies $\{B_1, B_1^\star, \tau_0, \{\tau_1(s), d(s)\}_s\}$; an equilibrium consists of a sequence of prices $\{q, q^\star\}$, and allocations $\{c_0, n_0, \{c_1(s), n_1(s)\}_s, b_D, b_D^\star\}$ such that:

- i Given prices and government policies, $\{c_0, n_0, \{c_1(s), n_1(s)\}_s, b_D, b_D^\star\}$ maximizes (1) subject to (2) and (3);
- ii Given government policies, foreign demand for government bonds satisfy (9) and (10);
- iii Given prices and domestic investors' allocations, $\{B_1, B_1^\star, \tau_0, \{\tau_1(s), d(s)\}_s\}$ is consistent with government budget constraints (11) and (12);
- iv Markets clear: $B_D = B_1 - B_F$, $B_D^\star = B_1^\star - B_F^\star$, $B_D = b_D$ and $B_D^\star = b_D^\star$.

Equilibrium in the Labor Market. Before analyzing the optimal policy, we derive some equilibrium conditions in this economy. First, to characterize the equilibrium in the labor market, we combine the budget constraint of the government and the FOC of the labor supply to derive:

$$v'(n_0) = \left[1 - \frac{\bar{B}_0 - qB_1 - q^\star B_1^\star}{n_0}\right] \tag{13}$$

$$v'(n_1(s)) = \left[1 - \frac{(1 - d(s))\left(\frac{B_1}{e_1} + B_1^\star\right)}{n_1(s)}\right] \tag{14}$$

These equilibrium conditions imply that the government uses debt, $B_1^\star$ and B_1, to smooth labor tax distortions[2]. Higher debt lowers the first-period labor distortion but raises it in the second period when the government repays. If the government issues LC-denominated debt, the second-period labor distortion also depends on the realization of the nominal exchange rate.

Resource Constraints. Finally, we can use the budget constraint of the domestic investor and the government to derive the resource constraints in the economy.

$$c_0 + \bar{B}_0 = n_0 + q(B_1 - B_D) + q^\star(B_1^\star - B_D^\star) \tag{15}$$

$$c_1 = n_1(s) - (1 - d(s))\left(\frac{B_1 - B_D}{e_1} + B_1^\star - B_D^\star\right) \tag{16}$$

Note that the resource constraints depend on the foreign debt position in LC and FC, as well as on production, which is affected by the size of total government debt through distortionary taxes.

4 Optimal Policy

In this section, we characterize the optimal policy of the government. The preferences of the government are given by:

$$U = u\big(c_0 - v(n_0)\big) + \beta\mathbb{E}\Big[u\big(c_1(s) - v(n_1(s))\big) - d(s)\phi\Big] \tag{17}$$

We solve the government's problem using backward induction: first deriving the optimal policy in period one, and then using that result to determine the optimal policy in period zero.

4.1 Default Function

We define the aggregate state on the bond market as $\boldsymbol{B} \equiv (B_1^\star, B_1, B_D^\star, B_D)$. The relevant state of the economy in period one is the state in the bond market ($\boldsymbol{B}$), and the exogenous state (s). The government solves the following problem:

$$V_1(\boldsymbol{B}, s) = \max_{d\in\{0,1\}} (1 - d)V^R(\boldsymbol{B}, e_1) + dV^D(\phi) \tag{18}$$

Here V^R and V^D are the values of repayment and default, respectively. The value of repayment is

2. See Pouzo and Presno (2022) for an analysis of tax smoothing in sovereign default models.

given by the following:

$$V^R(\boldsymbol{B}, e_1) = u\left(n - \frac{B_1 - B_D}{e_1} - B_1^\star + B_D^\star - v\,(n)\right) \tag{19}$$

subject to

$$v'(n) = \left[1 - \frac{\frac{B_1}{e_1} + B_1^\star}{n}\right]$$

The constraint stands for the government's implementability constraint in the labor market. The value of repayment depends on the foreign debt position of the economy, and on the realization of the nominal exchange rate through the real value of LC debt. The value of default is:

$$V^D(\phi) = u\,(n - v\,(n)) - \phi \tag{20}$$

subject to

$$v'(n) = 1$$

The government's only choice in the second period is whether to default or to repay. We characterize the default decision of the government by defining the following threshold.

$$V^D\left(\hat{\phi}(\boldsymbol{B}, e_1)\right) = V^R(\boldsymbol{B}, e_1) \tag{21}$$

The threshold $\hat{\phi}(\boldsymbol{B}, e_1)$ is the default cost that makes the government indifferent between repayment and default. Using this threshold, the default function of the government is

$$\mathcal{D}(\boldsymbol{B}, e_1) = \begin{cases} 1 & \text{if} \quad \hat{\phi}(\boldsymbol{B}, e_1) > \phi \\ 0 & \text{otherwise.} \end{cases} \tag{22}$$

The government defaults when the realized cost of default ϕ is below the threshold $\hat{\phi}$, that is, when the cost of repayment exceeds the cost of default. Using the default function of the government, the probability of default conditional on the realization of the nominal exchange rate can be written as

$$F_\phi\left(\hat{\phi}(\boldsymbol{B}, e_1)\right) = \int_{\underline{\phi}}^{\hat{\phi}(\boldsymbol{B}, e_1)} f_\phi(\phi) d\phi \tag{23}$$

Price Functions. The conditional probabilities of default and the demand for government bonds by foreign and domestic investors determine the price functions. The price schedules of government bonds are as follows:

$$Q^\star(\boldsymbol{B}) = \begin{cases} \mathbb{E}\left[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\beta\right] & \text{if } B_F^\star > 0 \\ \mathbb{E}\left[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1)\right] & \text{if } B_F^\star = 0 \end{cases} \tag{24}$$

$$Q(\boldsymbol{B}) = \begin{cases} \mathbb{E}\left[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\beta \frac{1}{e_1}\right] & \text{if } B_F > 0, \\ \mathbb{E}\left[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1) \frac{1}{e_1}\right] & \text{if } B_F = 0 \end{cases} \tag{25}$$

where $\Lambda(\boldsymbol{B}, e_1)$ is the SDF of domestic investors in each state, as defined in (7). There are two possible equilibrium prices for FC (or LC) bonds. If foreign investors participate, $B_F^\star > 0$ (or $B_F > 0$): they are the marginal investors and the bond price equals the probability of repayment discounted by β, as in the standard model (LC bond prices are also multiplied by e_1^{-1}). If $B_F^\star = 0$ (or $B_F = 0$): foreign investors do not participate, domestic investors are marginal, and their SDF prices the bond.

4.2 Domestic Demand

We now turn to analyzing the problem of domestic investors in period zero. Using the price functions and the optimality conditions (6) and (5), we characterize their optimal policies as follows:

Lemma 1. *Given debt policy $B_1^\star, B_1$, the portfolio $B_D^\star, B_D$ solves the problem of domestic investors if and only if:*

$$0 = \eta_1\Big(Q(\boldsymbol{B}) - \mathbb{E}\Big[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\frac{\Lambda(\boldsymbol{B}, e_1)}{e_1}\Big]\Big) \tag{26}$$

$$0 = \eta_2\Big(Q^\star(\boldsymbol{B}) - \mathbb{E}\big[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1)\big]\Big) \tag{27}$$

$$B_D = 0 \quad if \quad \eta_1 > 0. \tag{28}$$

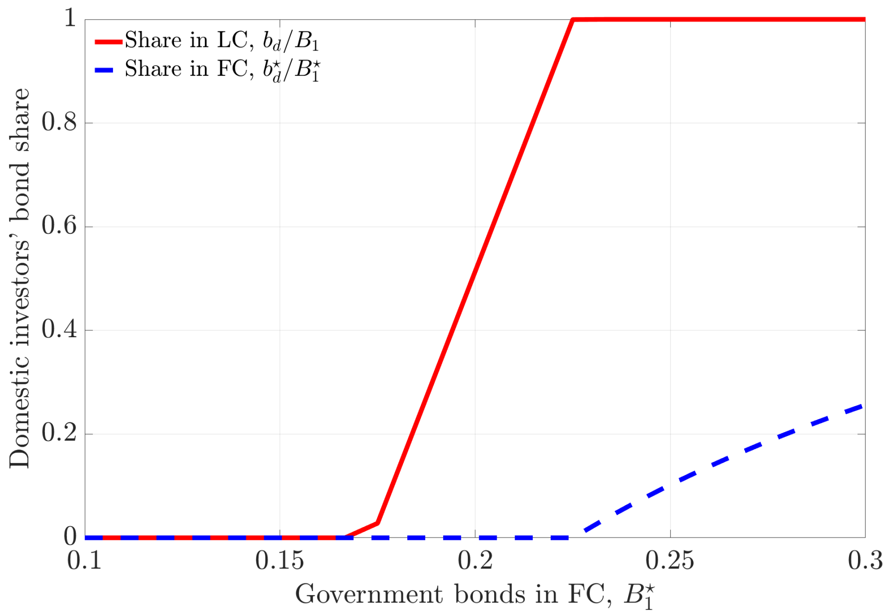
$$B_D^\star = 0 \quad if \quad \eta_2 > 0. \tag{29}$$

Proof. The proof is given in Appendix A.1 □

The problem of domestic investors is the maximization of a concave utility function subject to a convex set, so the solution is unique. As a result, Lemma 1 establishes that the Euler equation of domestic investors is a necessary and sufficient condition for their portfolio choice, given government debt policy.

Figure 1 illustrates domestic demand for government bonds at a fixed level of LC debt and varying levels of FC issuance. When total government debt is low, domestic investors do not hold any bonds. As the government issues FC bonds, domestic investors gradually increase their holdings of LC bonds until they absorb the entire stock of LC debt. With further increases in FC debt, they begin to demand FC bonds as well. We formalize this result in the following proposition.

Figure 1: Domestic Demand for Government Bonds



Notes: This figure displays the domestic demand for government bonds in LC and FC. The solid red line corresponds to the ratio of demand for LC bonds-to-LC bonds issuance, and the dashed blue line corresponds to the ratio of demand for FC bonds-to-FC bonds issuance. We use the following functional forms: $u(x) = \frac{x^{1-1/\sigma}}{1-1/\sigma}$ where $x = c - \psi\frac{n^{1+1/\eta}}{1+1/\eta}$. The parameters are: $\beta = 0.95, \sigma = 0.5, \eta = 1, \psi = 0.1$ and $B_0 = 0.4$.

Proposition 1. *Assume* $Cov(e_1^{-1}, \phi) = 0$. *Let* $B_1^\star > 0$, $B_1 \geq 0$. *Then* $B_D^\star > 0$ *if and only if* $B_D = B_1$.

Proof. The proof is given in Appendix A.2 □

Proposition 1 establishes that domestic investors absorb the entire stock of LC debt before purchasing any FC bonds. The intuition is as follows. The only source of uncertainty for domestic investors is the level of taxes in period one. Government bonds pay off in states where the government repays, which are precisely the states where taxes are high. This makes government bonds a natural hedge against tax risk. When the government issues LC debt, the real value of its obligations moves with the exchange rate, making taxes more volatile. But the real value of LC bonds also moves with the exchange rate, so LC bonds co-move more closely with taxes than FC bonds do. Domestic investors therefore prefer LC bonds as insurance and only demand FC bonds once they hold the full stock of LC debt.

Under our assumption that $\text{Cov}(e_1^{-1}, \phi) = 0$, Proposition 1 implies a sharp ordering: domestic investors absorb the full stock of LC debt before holding any FC bonds. When $\text{Cov}(e_1^{-1}, \phi) \neq 0$, this ordering may not hold as default would be correlated with the exchange rate, weakening the link between LC bond values and taxes.

We close this section by defining $\mathcal{B}_D^\star(B_1, B_1^\star)$ and $\mathcal{B}_D(B_1, B_1^\star)$ as the functions that determine the domestic debt position consistent with the optimality conditions in Lemma 1 for each government debt policy. These functions are central to the government's problem: because the government internalizes how its debt policy affects domestic demand, $\mathcal{B}_D$ and $\mathcal{B}_D^\star$ enter as constraints when choosing the optimal currency composition of debt.

4.3 Optimal Government Debt

The government's problem in period zero is to solve:

$$
\begin{aligned}
V_0 = \max_{B_1, B_1^\star} & \, u\big(c_0 - v(n)\big) + \beta \mathbb{E}\big[V_1(\boldsymbol{B}, s)\big] \\
& \text{subject to} \\
& c_0 + \bar{B}_0 = n + Q(\boldsymbol{B})(B_1 - B_D) + Q^\star(\boldsymbol{B})(B_1^\star - B_D^\star) \\
& v'(n) = \left[1 - \frac{\bar{B}_0 - Q(\boldsymbol{B})B_1 - Q^\star(\boldsymbol{B})B_1^\star}{n}\right] \\
& Q^\star(\boldsymbol{B}), \;\; Q(\boldsymbol{B}) \\
& B_D^\star = \mathcal{B}_D^\star(B_1, B_1^\star), \;\; B_D = \mathcal{B}_D(B_1, B_1^\star)
\end{aligned}
\tag{30}
$$

The government chooses a debt policy subject to implementability constraints in the labor and bond markets. In the bond market, the government must satisfy the optimality conditions of domestic and foreign investors, represented by the price functions and the domestic debt position functions derived from the problem of domestic investors. The first-order conditions of the government yield the Generalized Euler Equation (GEE). For expositional convenience, we focus on the GEE for LC debt, which we characterize in the following proposition.

Proposition 2 (GEE)**.** *Let N_0 and N_1 be the equilibrium labor supply in period zero and period one under repayment. Then the GEE of the government in LC is:*

$$
\underbrace{\left(\frac{\partial N_0}{\partial B_1}\right)\left(1 - \frac{\partial v_0}{\partial B_1}\right) = \mathbb{E}\left[\Big(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Big)\Lambda(\boldsymbol{B}, e_1)\frac{\partial N_1^R}{\partial B_1}\left(\frac{\partial v_1}{\partial B_1} - 1\right)\right]}_{\text{Tax Smooth}}
$$

$$
- \underbrace{\left(\frac{\partial Q}{\partial B_1}\right)(B_1 - B_D) - \left(\frac{\partial Q^\star}{\partial B_1}\right)(B_1^\star - B_D^\star)}_{\text{Default Risk}} - \underbrace{\omega(B_1, B_1^\star)\frac{\partial B_D}{\partial B_1} - \omega^\star(B_1, B_1^\star)\frac{\partial B_D^\star}{\partial B_1}}_{\text{Financial Distortion}}
$$

where $\frac{\partial \mathcal{B}_D^\star}{\partial B_1}$ and $\frac{\partial \mathcal{B}_D}{\partial B_1}$ stand for the change in the domestic debt position in FC and LC, and $\omega(B_1, B_1^\star)$ and $\omega^\star(B_1, B_1^\star)$ are defined as:

$$\omega(B_1, B_1^\star) = \left(\frac{\partial Q}{\partial B_D}\right)(B_1 - B_D) + \left(\frac{\partial Q^\star}{\partial B_D}\right)(B_1^\star - B_D^\star) + \left(\frac{\partial N_0}{\partial B_D}\right)\left(1 - \frac{\partial v_0}{\partial B_1}\right)$$

$$\omega^\star(B_1, B_1^\star) = \left(\frac{\partial Q}{\partial B_D^\star}\right)(B_1 - B_D) + \left(\frac{\partial Q^\star}{\partial B_D^\star}\right)(B_1^\star - B_D^\star) + \left(\frac{\partial N_0}{\partial B_D^\star}\right)\left(1 - \frac{\partial v_0}{\partial B_1}\right)$$

Proof. The proof is in Appendix A.4 □

Proposition 2 characterizes the government's trade-off when issuing debt. Without financial frictions, the optimality condition equalizes the marginal cost of labor distortions across periods—the standard tax-smoothing result. The GEE shows two sources of deviation from tax smoothing.

The first is default risk. The labor market is distorted in period one only in states of repayment, and increasing debt lowers bond prices by raising the probability of default. Both effects appear in the second term of the GEE[3].

The second is a financial distortion arising from a wedge between the government and domestic investors over the optimal level of domestic bond holdings. Domestic investors do not internalize that increasing their demand for government bonds reduces foreign debt, lowers default risk, and raises bond prices. The government, in contrast, acts as a monopolist and internalizes how its debt policy affects domestic demand, which in turn affects prices. If domestic investors' demand coincided with the government's preferred level, the envelope theorem would eliminate the financial distortion term. Because it does not, the GEE reflects the cost to the government of suboptimal domestic demand.

To further characterize how this wedge affects optimal policy, we determine its sign.

Lemma 2. *Assume $B_1 > 0$ or $B_1^\star > 0$. Then $\omega(B_1, B_1^\star) > 0$ and $\omega^\star(B_1, B_1^\star) > 0$.*

Proof. The proof is given in Appendix A.3 □

The positive wedge is central to understanding the role of currency composition: it gives rise to the government's incentive to use LC debt to influence domestic demand, which we turn to next.

4.4 Equilibrium.

Definition 2. (Markov Equilibrium) Given initial debt $\bar{B}_0$, a Markov equilibrium is a set of value functions $V_0, V_1(\boldsymbol{B}, s)$, price functions $Q(\boldsymbol{B}), Q^\star(\boldsymbol{B})$, and policy functions $\mathcal{B}_D^\star(B_1, B_1^\star), \mathcal{B}_D(B_1, B_1^\star), \mathcal{D}(\boldsymbol{B}, e_1), \mathcal{B}, \mathcal{B}^\star$ such that:

(i) given the price, $\{\mathcal{B}_D^\star(B_1, B_1^\star), \mathcal{B}_D(B_1, B_1^\star)\}$ solves the domestic investor's problem at every state;

(ii) $Q(\boldsymbol{B}), Q^\star(\boldsymbol{B})$ satisfy (25) and (24);

3. See Pouzo and Presno (2022) for a related result.

(iii) $\mathcal{D}, \mathcal{B}, \mathcal{B}^\star$ solve the government problem at every state, and V_0, V_1 attain the maximum.

4.5 Optimal Currency Composition

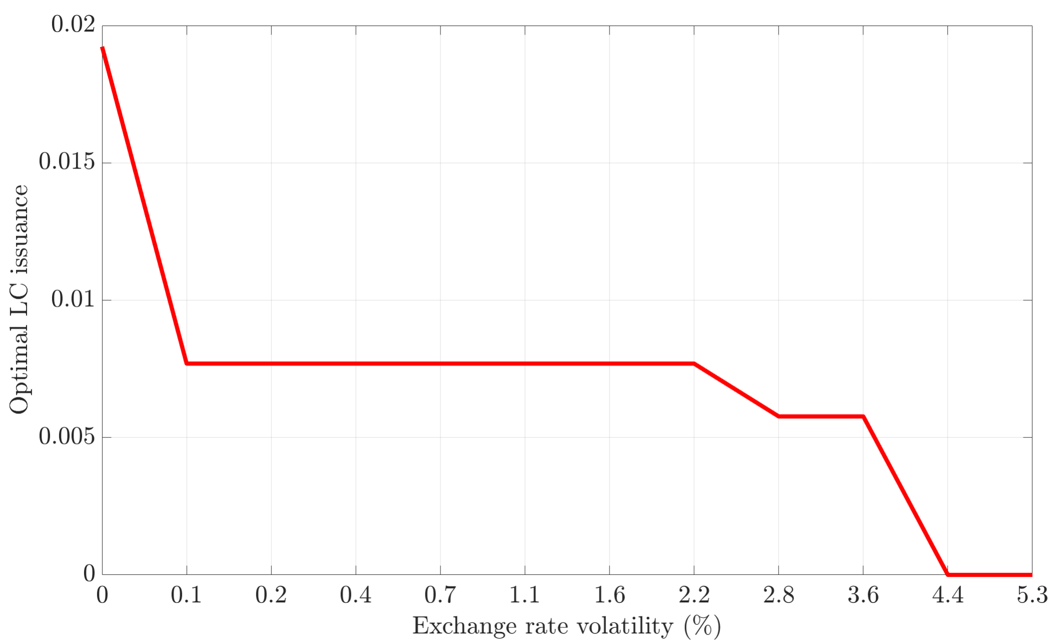
We now turn to the central result of the paper.

Proposition 3. *Assume* $Cov(e_1^{-1}, \phi) = 0$. *Let* $B_1^\star > 0$. *Then* $B_1 = 0$ *cannot be part of the Markov equilibrium.*

Proof. The proof is given in Appendix A.5 □

Proposition 3 establishes that even when LC debt provides no fiscal insurance to the government, it remains optimal to issue a positive amount of LC debt. The result relies on two conditions established above. First, domestic investors have a stronger incentive to hold LC bonds than FC bonds (Proposition 1). Second, there is a positive wedge between the government's preferred level of domestic bond holdings and the level that domestic investors choose (Lemma 2). Together, these imply that the government can increase domestic demand—and thereby reduce the economy's foreign debt position—by issuing LC debt.

Figure 2: Optimal LC Issuance



Notes: To compute this figure we use the following functional forms: $u(x) = \frac{x^{1-1/\sigma}}{1-1/\sigma}$ where $x = c - \psi \frac{n^{1+1/\eta}}{1+1/\eta}$. The parameters are: $\beta = 0.95, \sigma = 0.5, \eta = 1, \psi = 0.1$ and $B_0 = 0.4$.

The government faces a trade-off. Issuing LC debt increases the volatility of taxes and default policy, because the real value of LC obligations moves with the exchange rate. This is costly for the benevolent government, which inherits the risk aversion of domestic investors. At the same time, issuing LC debt stimulates domestic demand for bonds, closing the wedge identified in Proposition 2. Figure 2 plots the optimal supply of LC bonds as a function of exchange rate volatility. At low and intermediate levels of volatility, the benefit of higher domestic demand dominates and the government issues LC bonds. As volatility increases, the cost of exposing the fiscal budget to exchange rate risk grows, and the government reduces LC issuance. At high volatility, optimal LC issuance becomes very small and is visually indistinguishable from zero in Figure 2. However, Proposition 3 guarantees that it remains strictly positive for any finite level of exchange rate volatility.

5 Constrained Efficiency and Financial Repression

The previous section established that the government uses LC debt to increase domestic demand because domestic investors hold too few bonds relative to the government's preferred level. We now ask two questions. First, is the decentralized equilibrium constrained efficient? Second, can the government implement the efficient allocation using an alternative policy instrument?

5.1 Constrained Efficient Equilibrium

Consider a planner who chooses both the debt policy and the domestic demand for government bonds in LC and FC. The foreign lenders' problem and price schedules remain unchanged. The planner's problem in $t = 1$ is the same as the government's problem in the second period. In the first period, the planner solves:

$$
\begin{aligned}
V_0^{CEE} = \max_{B_1, B_1^\star, B_D, B_D^\star} \; & u(c_0 - v(n)) + \beta \mathbb{E}[V_1(\boldsymbol{B}, s)] \\
& \text{subject to} \\
& c_0 + \bar{B}_0 = n + Q(\boldsymbol{B})(B_1 - B_D) + Q^\star(\boldsymbol{B})(B_1^\star - B_D^\star) \\
& v'(n) = \left[1 - \frac{\bar{B}_0 - Q(\boldsymbol{B})B_1 - Q^\star(\boldsymbol{B})B_1^\star}{n} \right] \\
& Q(\boldsymbol{B}), \quad Q^\star(\boldsymbol{B})
\end{aligned}
\tag{31}
$$

The planner chooses the debt policy and domestic debt allocations subject to the resource constraint, the implementability condition in labor, and the price schedules. Prices are pinned down by domestic and foreign lenders' optimality conditions, so the planner takes them as given. The key difference from the decentralized problem is that the planner directly controls B_D and $B_D^\star$.

The FOCs with respect to B_D and $B_D^\star$ reveal that the planner chooses domestic holdings to set the wedges ω and $\omega^\star$ to zero. Since Lemma 2 established that these wedges are strictly positive in the decentralized equilibrium, we have:

Proposition 4. *The decentralized Markov equilibrium is not constrained efficient.*

Proof. The proof is given in Appendix A.6 □

Domestic demand for government bonds is inefficiently low in the decentralized equilibrium because investors do not internalize how their demand affects bond prices and default risk. The planner closes this wedge by directly choosing domestic holdings. As a result, the trade-off between LC and FC debt that exists in the decentralized economy disappears—there is no longer a need to issue LC debt to stimulate domestic demand. This result is related to Mallucci (2022) and Bolivar (2023), who establish a similar inefficiency in environments without currency choice.

5.2 Financial Repression

The constrained efficient allocation requires the planner to choose domestic bond holdings directly. We now show that financial repression can implement this allocation in a decentralized setting. Following Chari, Dovis, and Kehoe (2020), we consider a government that imposes a minimum requirement on domestic holdings of FC-denominated government bonds:

$$b_D^\star \geq \Phi B_1^\star \tag{32}$$

The government incurs no cost from imposing this requirement, and all other aspects of the economy remain unchanged. In the regulated economy, domestic investors choose labor and consumption as in the baseline but face the additional constraint (32). When the minimum requirement binds, the Euler equation for FC bonds need not hold, so the government can directly control the domestic demand for FC bonds by adjusting Φ.

Optimal Policy The government's problem in the regulated economy is:

$$\begin{aligned} V_0^{Reg} = \max_{B_1, B_1^\star, B_D^\star} \; & u(c_0 - v(n)) + \beta \mathbb{E}[V_1(\boldsymbol{B}, s)] \\ & \text{subject to} \\ & c_0 + \bar{B}_0 = n + Q(\boldsymbol{B})(B_1 - B_D) + Q^\star(\boldsymbol{B})(B_1^\star - B_D^\star) \\ & v'(n) = \left[1 - \frac{\bar{B}_0 - Q(\boldsymbol{B})B_1 - Q^\star(\boldsymbol{B})B_1^\star}{n} \right] \\ & Q^\star(\boldsymbol{B}), \;\; Q(\boldsymbol{B}), \;\; \mathcal{B}_D^{Reg}(B_1, B_1^\star) \end{aligned}$$

The government now chooses total debt in LC and FC and the domestic debt position in FC directly. The implementability constraint on domestic demand for FC bonds is dropped from the government's problem because financial repression replaces it. The FOC with respect to $B_D^\star$ yields $\omega^\star(B_1, B_1^\star) = 0$: the government uses financial repression to close the wedge in domestic demand for FC bonds. This is a direct consequence of the envelope theorem.

Proposition 5. *Assume* $Cov(e_1^{-1}, \phi) = 0$*. Let* $B_1^\star > 0$*. Then* $B_1 = 0$ *is part of the Markov equilibrium in a regulated economy.*

Proof. The proof is given in Appendix A.7 □

Proposition 5 establishes that when the government has access to costless financial repression, it does not issue LC debt. The logic follows from two conditions. First, under our maintained assumption, LC debt provides no fiscal insurance. Second, the wedge in domestic demand—the only reason the government issued LC debt in the decentralized equilibrium—is closed directly by financial repression. This result sharpens the interpretation of our main finding: the government issues LC debt not because LC is inherently desirable, but because it is an indirect instrument for increasing domestic bond holdings when direct regulation is unavailable.[4]

6 Empirical Evidence

The model generates two testable predictions. First, an increase in the supply of LC bonds should be more strongly associated with domestic demand than an equivalent increase in FC bonds. Second, the share of LC debt and the share of domestic debt should be positively correlated. We assess both predictions using the panel of 17 emerging economies described in Section 2. We interpret the results as conditional correlations consistent with the model, not as causal estimates.

6.1 Debt Issuance and Domestic Demand

The model predicts that when the government increases LC debt, domestic demand responds more strongly than when the government increases FC debt. To test this, we estimate the relationship between changes in total debt and changes in domestic holdings separately for each currency, following Broner et al. (2022):

$$\triangle B_{it}^D = \gamma_1 + \gamma_2 \triangle B_{it} + \gamma_3 X_{it-1}^D + \gamma_4 X_{it-1}^D \triangle B_{it} + \nu_t \qquad \forall i \in \{LC, FC\}$$

where $\triangle B_{it}^D = B_{it}^D - B_{it-1}^D$ denotes the change in domestic debt in LC or FC, $\triangle B_{it} = B_{it} - B_{it-1}$ denotes the change in total debt in LC or FC, and $X_{it-1}^D = B_{it-1}^D / B_{it-1}$ denotes the lagged domestic share of LC or FC. All regressions include country fixed effects and time dummies.

4. When financial repression is costly, the government uses a combination of both instruments. Since this intermediate case yields an interior solution without additional qualitative insight, we focus on the costless benchmark to isolate the role of each tool.

Table 3: Domestic Demand of Total Debt by Currency

	$\triangle$ Domestic Debt in LC	$\triangle$ Domestic Debt in FC
$\triangle$ *Total debt*$_{it}$	0.599***	0.753***
	(0.053)	(0.146)
$Share^{D}_{it-1}$	−0.007	−0.097
	(0.090)	(0.064)
$\triangle$ *Total debt*$_{it} \times Share^{D}_{it-1}$	0.403***	−7.406***
	(0.055)	(1.415)
Time dummies	Yes	Yes
Country fixed effects	Yes	Yes
Observations	705	619

Notes: Domestic Debt in LC (FC) and Total Debt in LC (FC) are measured in real terms with a fixed exchange rate in percent of GDP. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

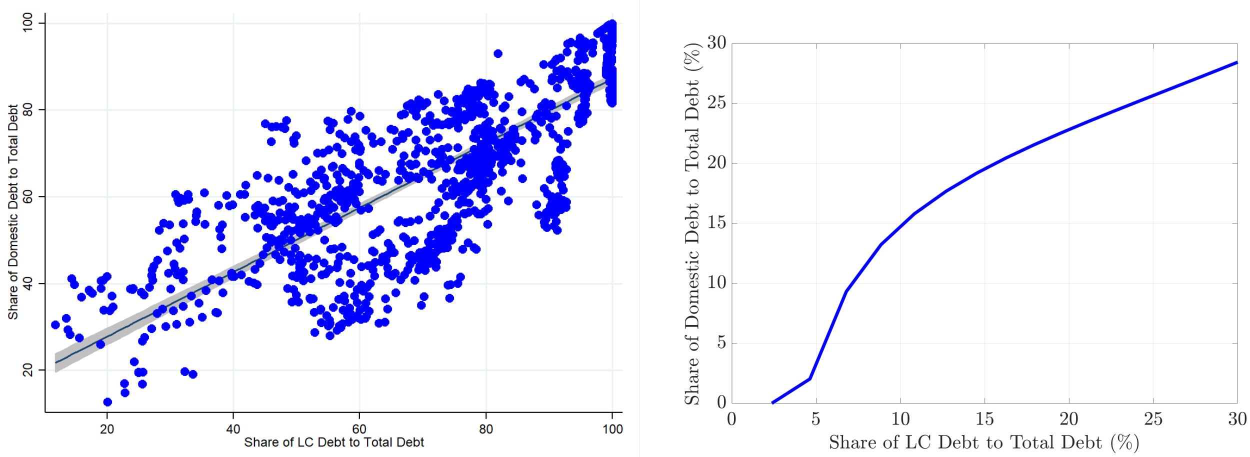
Table 3 presents the results. The key finding is the asymmetry between the two columns. The interaction term γ_4 is positive and significant for LC bonds (0.403) but large, negative, and significant for FC bonds (−7.406). When the government increases its stock of LC debt, domestic investors absorb a larger share of the new issuance than when the government increases its stock of FC debt. This asymmetry is the specific prediction of our model. Domestic investors have a stronger appetite for LC bonds because these provide insurance against tax risk; when the government issues more LC debt, domestic investors absorb it. The same mechanism does not operate for FC bonds.

6.2 Currency and Bondholder Composition

The model also predicts that the share of LC debt and the share of domestic debt in total government debt should be positively related: governments that issue more in LC should have a higher share of domestic bondholders. Figure 3 plots this relationship in the data and in the model.

Panel 3a shows a strong positive correlation between the share of LC debt and the share of domestic debt across countries and time. Panel 3b shows that the model generates the same qualitative pattern: as the share of LC debt increases, domestic investors hold a larger fraction of total debt. The levels differ—the model operates at lower debt-to-GDP ratios than the data—but the direction and shape of the relationship are consistent. This positive correlation is a direct implication of the mechanism in the model: LC debt attracts domestic investors because it provides insurance against tax fluctuations, and the government exploits this relationship when choosing the currency composition of its debt.

Figure 3: Currency and Bondholder Composition



(a) Data

(b) Model

7 Conclusion

This paper examines the relationship between the currency composition of sovereign debt and the composition of bondholders. We develop a two-period model in which domestic and foreign investors demand government bonds denominated in local and foreign currencies. Our analysis shows that the government has incentives to manage the currency composition of the debt to influence the composition of the bondholders. In particular, even in an environment where LC debt provides no insurance, the government finds it optimal to issue LC debt to increase the share of domestic debt.

The empirical analysis supports the predictions of the model. Governments in emerging markets predominantly issue debt in local currency, and domestic investors strongly prefer to hold it. An increase in the supply of local currency bonds is positively correlated with higher domestic debt, reinforcing the link between local currency and domestic debt. These findings highlight the role of currency composition as an instrument to manage bondholder composition, in line with the theoretical framework.

References

Aguiar, Mark, and Gita Gopinath. 2006. "Defaultable debt, interest rates and the current account." *Journal of International Economics* 69 (1): 64–83.

Aiyagari, S Rao, Albert Marcet, Thomas J Sargent, and Juha Seppälä. 2002. "Optimal taxation without state-contingent debt." *Journal of Political Economy* 110 (6): 1220–1254.

Arellano, Cristina. 2008. "Default Risk and Income Fluctuations in Emerging Economies." *American Economic Review* 98 (3): 690–712.

Arslanalp, Serkan, and Takahiro Tsuda. 2014. *Tracking global demand for emerging market sovereign debt.* International Monetary Fund.

Barro, Robert J. 1979. "On the determination of the public debt." *Journal of political Economy* 87 (5, Part 1): 940–971.

Bolivar, Carlos Ivan. 2023. "Domestic Debt and Self-Fulfilling Crises." *Available at SSRN 4617796.*

Broner, Fernando, Daragh Clancy, Aitor Erce, and Alberto Martin. 2022. "Fiscal Multipliers and Foreign Holdings of Public Debt" [in en]. *The Review of Economic Studies* 89, no. 3 (May): 1155–1204.

Chari, V. V., Alessandro Dovis, and Patrick J. Kehoe. 2020. "On the Optimality of Financial Repression." *Journal of Political Economy.*

D Erasmo, Pablo, and Enrique G Mendoza. 2021. "History remembered: Optimal sovereign default on domestic and external debt." *Journal of Monetary Economics* 117:969–989.

Du, Wenxin, Carolin E Pflueger, and Jesse Schreger. 2020. "Sovereign debt portfolios, bond risks, and the credibility of monetary policy." *The Journal of Finance* 75 (6): 3097–3138.

Eaton, Jonathan, and Mark Gersovitz. 1981. "Debt with Potential Repudiation: Theoretical and Empirical Analysis." *Review of Economic Studies* 48 (2): 289–309.

Eichengreen, Barry, and Ricardo Hausmann. 1999. "Exchange Rates and Financial Fragility." (Cambridge, MA), no. w7418 (November).

Engel, Charles, and JungJae Park. 2018. *Debauchery and original sin: The currency composition of sovereign debt.* Technical report. National Bureau of Economic Research.

Greenwood, Jeremy, Zvi Hercowitz, and Gregory W. Huffman. 1988. "Investment, Capacity Utilization and the Real Business Cycle." 78 (3): 402–417.

Lee, Annie Soyean. 2021. "Why Do Emerging Economies Borrow in Foreign Currency? The Role of Exchange Rate Risk." *The Role of Exchange Rate Risk (December 3, 2021).*

Lucas, Robert E, and Nancy L Stokey. 1983. "Optimal fiscal and monetary policy in an economy without capital." *Journal of monetary Economics* 12 (1): 55–93.

Mallucci, Enrico. 2022. "Domestic Debt and Sovereign Defaults." *Journal of Money, Credit and Banking* 54 (6): 1741–1775.

Ottonello, Pablo, and Diego J Perez. 2019. "The currency composition of sovereign debt." *American Economic Journal: Macroeconomics* 11 (3): 174–208.

Perez. 2018. *Sovereign debt, domestic banks and the provision of public liquidity.* Technical report. Stanford Inst. for Economic Policy Research.

Pouzo, Demian, and Ignacio Presno. 2022. "Optimal taxation with endogenous default under incomplete markets." *American Economic Journal: Macroeconomics* 14 (3): 1–41.

Sunder-Plassmann, Laura. 2020. "Inflation, default and sovereign debt: The role of denomination and ownership." *Journal of International Economics* 127:103393.

A Proofs

A.1 Lemma 1

Given debt policy $B_1^\star, B_1$, the portfolio $B_D^\star, B_D$ solve the problem of the domestic investors if and only if:

$$0 = \eta_1\Big(Q(\boldsymbol{B}) - \mathbb{E}_e\left[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\frac{\Lambda(\boldsymbol{B}, e_1)}{e_1}\right]\Big) \tag{33}$$

$$0 = \eta_2\Big(Q^\star(\boldsymbol{B}) - \mathbb{E}_e[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1)]\Big) \tag{34}$$

$$B_D = 0 \quad if \quad \eta_1 > 0. \tag{35}$$

$$B_D^\star = 0 \quad if \quad \eta_2 > 0. \tag{36}$$

Proof. We begin the proof with the Euler equations of the domestic investors:

$$q\, u'(c_0 - v(n_0)) = \beta\mathbb{E}\left[(1 - d(s))\frac{u'\left(c_1(s) - v(n_1(s))\right)}{e_1}\right] + \eta_1 \tag{37}$$

$$q^\star u'(c_0 - v(n_0)) = \beta\mathbb{E}\left[(1 - d(s))u'\left(c_1(s) - v(n_1(s))\right)\right] + \eta_2 \tag{38}$$

Note it is possible to re-write those Euler equations as:

$$0 = \eta_1\left(q\, u'(c_0 - v(n_0)) - \beta\mathbb{E}\left[(1 - d(s))\frac{u'\left(c_1(s) - v(n_1(s))\right)}{e_1}\right]\right) \tag{39}$$

$$0 = \eta_2\left(q^\star u'(c_0 - v(n_0)) - \beta\mathbb{E}\left[(1 - d(s))u'\left(c_1(s) - v(n_1(s))\right)\right]\right) \tag{40}$$

$$B_D = 0 \quad if \quad \eta_1 > 0. \tag{41}$$

$$B_D^\star = 0 \quad if \quad \eta_2 > 0. \tag{42}$$

Next we replace the price functions $Q(\boldsymbol{B}), Q^\star(\boldsymbol{B}), \Lambda(\boldsymbol{B}, e_1)$ to get:

$$0 = \eta_1\left(Q(\boldsymbol{B}) - \mathbb{E}\left[(1 - d(s))\frac{\Lambda(\boldsymbol{B}, e_1)}{e_1}\right]\right) \tag{43}$$

$$0 = \eta_2\left(Q^\star(\boldsymbol{B}) - \mathbb{E}\left[(1 - d(s))\Lambda(\boldsymbol{B}, e_1))\right]\right) \tag{44}$$

$$B_D = 0 \quad if \quad \eta_1 > 0. \tag{45}$$

$$B_D^\star = 0 \quad if \quad \eta_2 > 0. \tag{46}$$

Lastly, we take the conditional expectation of ν over each value of e_1 with the expectation of default using F_ϕ.

□

A.2 Proposition 1.

Assume $\text{Cov}(e_1^{-1}, \phi) = 0$. Also, let $B_1^\star > 0$, $B_1 \geq 0$. Then $B_D^\star > 0$ only if $B_D = B_1$.

Proof. We will prove that $B_D = B_1$ given that $B_D^\star > 0$. The proof is by contradiction. Suppose not. Because $B_D < B_1$, foreign investors are marginal investors in both markets. It implies:

$$q = q^\star + \text{Cov}(e_1^{-1}, (1-d)) = \mathbb{E}\left(\beta(1-d)\frac{1}{e_1}\right) \tag{47}$$

Then we use $\text{Cov}(x, y) = \mathbb{E}(x)\mathbb{E}(y) - \mathbb{E}(xy)$ to re-write the Euler equation for debt in LC of the domestic investors as:

$$\left(q^\star + \text{Cov}(e_1^{-1}, (1-d))\right) u_0' = \mathbb{E}\Big[u_1'(1-d)\Big] + \text{Cov}(e_1^{-1}, u_1'(1-d)) + \eta_1 \tag{48}$$

$$q^\star u_0' - \mathbb{E}\Big[u_1'(1-d)\Big] = \text{Cov}(e_1^{-1}, u_1'(1-d)) + u_0'\text{Cov}(e_1^{-1}, (1-d)) + \eta_1 \tag{49}$$

where $u_0' = u'(c_0 - v(n_0))$ and $u_1' = u'(c_1 - v(n_1))$. This implies that if domestic investors are not constrained in the LC market, that is $\eta_1 = 0$, then:

$$0 = \text{Cov}(e_1^{-1}, u_1'(1-d)) + u_0'\text{Cov}(e_1^{-1}, (1-d)) \tag{50}$$

This is the optimal condition for the demand for LC debt by domestic investors. Next, we will analyze this optimality condition.

Claim: $\text{Cov}(e_1^{-1}, (1-d)) > 0$.

Proof. The proof is a contradiction. So, assume $\text{Cov}(e_1^{-1}, (1-d)) < 0$. It implies:

$$\frac{\partial \hat{\phi}}{\partial e_1} > 0 \tag{51}$$

So:

$$\frac{\partial \hat{\phi}}{\partial e_1} = \frac{\partial V^R}{\partial e_1} > 0 \tag{52}$$

$$u_1'(1-v_1')\frac{\partial N^R}{\partial e_1} - u_1' B_F > 0 \tag{53}$$

We know $u_1' B_F > 0$. Then $u_1'(1-v_1')\frac{\partial N^R}{\partial e_1} > 0$. Also, using the first-order condition of labor:

$$1 - v_1' = \tau > 0 \tag{54}$$

Which implies $u_1'(1-v_1') > 0$. So $\frac{\partial N^R}{\partial e_1} > 0$.
From the equilibrium in the labor market (14):

$$\frac{\partial N^R}{\partial e_1} = -\frac{1-\frac{1}{N^R}}{1-\frac{\frac{B_1}{e_1}+B_1^\star}{(N^R)^2}}\frac{B_1}{e_1} \tag{55}$$

Note $\frac{\partial N^R}{\partial e_1} < 0$ if $\frac{\frac{B_1}{e_1}+B_1^\star}{(N^R)^2} > 1$ and $N^R < 1$. Which leads to a contradiction.

□

As a result:

$$\text{Cov}(e_1^{-1}, u_1'(1-d)) = -u_0'\text{Cov}(e_1^{-1}, (1-d)) > 0 \tag{56}$$

From equation (48) and the claim, we have

$$\text{Cov}(e_1^{-1}, u_1'(1-d)) = -u_0'\text{Cov}(e_1^{-1}, (1-d)) < 0$$

where the inequality follows because $u_0' > 0$ and $\text{Cov}(e_1^{-1}, (1-d)) > 0$ from the claim. This requires $u_1'(1-d)$ to be low when e_1^{-1} is high. Since the claim implies that repayment is more likely when e_1^{-1} is high—so $(1-d)$ is high—u_1' must be low in these states, meaning consumption in repayment states is high when e_1^{-1} is high. But from the resource constraint under repayment, consumption satisfies

$$c_1^R = n_1 - \frac{B_1 - B_D}{e_1} - (B_1^\star - B_D^\star)$$

Since $B_D < B_1$ by assumption, the foreign debt position in LC is positive. When e_1^{-1} is high (i.e., e_1 is low), the real value of foreign debt service $\frac{B_1 - B_D}{e_1}$ rises, lowering consumption. Thus, consumption in repayment states is low when e_1^{-1} is high, so u_1' is high, which contradicts the requirement that u_1' be low. Hence $B_D < B_1$ and $B_D^\star > 0$ cannot both hold, completing the proof.

□

A.3 Lemma 2.

Let $B_1^\star > 0$. Then $\omega(B_1, B_1^\star) > 0$

Proof. First, by Proposition 1, we know $\eta_2 = 0$. So the Euler equation of domestic investors for debt in FC is:

$$Q^\star = \mathbb{E}\left[(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1)\right] \tag{57}$$

In this price, we use the fact that the non-arbitrage condition of FC debt implies that the SDF of foreign and domestic investors is equally evaluated at the payments distribution of FC debt. Define the foreign debt position functions as $\mathcal{B}_F^\star(B_1, B_1^\star) = B_1^\star - \mathcal{B}_D^\star(B_1, B_1^\star)$ and $\mathcal{B}_F(B_1, B_1^\star) = B_1 - \mathcal{B}_D(B_1, B_1^\star)$. By Proposition 1, $\mathcal{B}_F(B_1, B_1^\star) = 0$. Then $\omega(B_1, B_1^\star)$ simplifies to

$$\omega(B_1, B_1^\star) = \frac{\partial Q^\star}{\partial B_F^\star}\mathcal{B}_F^\star(B_1, B_1^\star) \tag{58}$$

Also, from the price function $Q^\star$, we have

$$\frac{\partial Q^\star}{\partial B_F^\star} = \mathbb{E}\left[f_\phi(\hat{\phi}(\boldsymbol{B}, e_1)\frac{\partial V^R}{\partial B_F^\star}\right] < 0 \tag{59}$$

Where the last inequality follows because u is strictly decreasing in debt.

□

A.4 Generalized Euler Equation - Proposition 2

Proof.

$$
\begin{aligned}
[B_1]: \quad & \left(\frac{\partial N_0}{\partial B_1} + \frac{\partial N_0}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1} + \frac{\partial N_0}{\partial B_D}\frac{\partial B_D}{\partial B_1}\right)\left(1 - \frac{\partial v_0}{\partial B_1}\right) \\
& + \left(\frac{\partial Q}{\partial B_1} + \frac{\partial Q}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1} + \frac{\partial Q}{\partial B_D}\frac{\partial B_D}{\partial B_1}\right)(B_1 - B_D) + Q(\boldsymbol{B}) - \frac{\partial B_D}{\partial B_1}Q(\boldsymbol{B}) \\
& + \left(\frac{\partial Q^\star}{\partial B_1} + \frac{\partial Q^\star}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1} + \frac{\partial Q^\star}{\partial B_D}\frac{\partial B_D}{\partial B_1}\right)(B_1^\star - B_D^\star) - \frac{\partial B_D^\star}{\partial B_1}Q^\star(\boldsymbol{B}) \\
& + \mathbb{E}\left[\Big(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Big)\Lambda(\boldsymbol{B}, e_1)\left(\frac{\partial N_1^R}{\partial B_1}\left(1 - \frac{\partial v_1}{\partial B_1}\right) - \frac{1}{e_1} + \frac{1}{e_1}\frac{\partial B_D}{\partial B_1} + \frac{\partial B_D^\star}{\partial B_1}\right)\right] = 0
\end{aligned} \tag{60}
$$

$$
\begin{aligned}
[B_1^\star]: \quad & \left(\frac{\partial N_0}{\partial B_1^\star} + \frac{\partial N_0}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1^\star} + \frac{\partial N_0}{\partial B_D}\frac{\partial B_D}{\partial B_1^\star}\right)\left(1 - \frac{\partial v_0}{\partial B_1^\star}\right) \\
& + \left(\frac{\partial Q}{\partial B_1^\star} + \frac{\partial Q}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1^\star} + \frac{\partial Q}{\partial B_D}\frac{\partial B_D}{\partial B_1^\star}\right)(B_1 - B_D) - \frac{\partial B_D}{\partial B_1^\star}Q(\boldsymbol{B}) \\
& + \left(\frac{\partial Q^\star}{\partial B_1^\star} + \frac{\partial Q^\star}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1^\star} + \frac{\partial Q^\star}{\partial B_D}\frac{\partial B_D}{\partial B_1^\star}\right)(B_1^\star - B_D^\star) + Q^\star(\boldsymbol{B}) - \frac{\partial B_D^\star}{\partial B_1^\star}Q^\star(\boldsymbol{B}) \\
& + \mathbb{E}\left[\Big(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Big)\Lambda(\boldsymbol{B}, e_1)\left(\frac{\partial N_1^R}{\partial B_1^\star}\left(1 - \frac{\partial v_1}{\partial B_1^\star}\right) + \frac{1}{e_1}\frac{\partial B_D}{\partial B_1^\star} - 1 + \frac{\partial B_D^\star}{\partial B_1^\star}\right)\right] = 0
\end{aligned} \tag{61}
$$

Where we used the definition of the domestic investors' SDF in (7)[a]. Using Lemma 1 or the price function equation, we can replace Q and $Q^\star$ to get:

$$\left(\frac{\partial N_0}{\partial B_1} + \frac{\partial N_0}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1} + \frac{\partial N_0}{\partial B_D}\frac{\partial B_D}{\partial B_1}\right)\left(1 - \frac{\partial v_0}{\partial B_1}\right)$$

$$+ \left(\frac{\partial Q}{\partial B_1} + \frac{\partial Q}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1} + \frac{\partial Q}{\partial B_D}\frac{\partial B_D}{\partial B_1}\right)(B_1 - B_D) + Q(\boldsymbol{B}) - \frac{\partial B_D}{\partial B_1}Q(\boldsymbol{B})$$

$$+ \left(\frac{\partial Q^\star}{\partial B_1} + \frac{\partial Q^\star}{\partial B_D^\star}\frac{\partial B_D^\star}{\partial B_1} + \frac{\partial Q^\star}{\partial B_D}\frac{\partial B_D}{\partial B_1}\right)(B_1^\star - B_D^\star) - \frac{\partial B_D^\star}{\partial B_1}Q^\star(\boldsymbol{B})$$

$$+ \mathbb{E}\left[\left(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\right)\Lambda(\boldsymbol{B}, e_1)\left(\frac{\partial N_1^R}{\partial B_1}\left(1 - \frac{\partial v_1}{\partial B_1}\right)\right)\right] + \left(-Q(\boldsymbol{B}) + Q(\boldsymbol{B})\frac{\partial B_D}{\partial B_1} + Q^\star(\boldsymbol{B})\frac{\partial B_D^\star}{\partial B_1}\right) = 0 \tag{62}$$

Next we define the wedges:

$$\omega(B_1, B_1^\star) = \left(\frac{\partial Q}{\partial B_D}\right)(B_1 - B_D) + \left(\frac{\partial Q^\star}{\partial B_D}\right)(B_1^\star - B_D^\star) + \left(\frac{\partial N_0}{\partial B_D}\right)\left(1 - \frac{\partial v_0}{\partial B_1}\right) \tag{63}$$

$$\omega^\star(B_1, B_1^\star) = \left(\frac{\partial Q}{\partial B_D^\star}\right)(B_1 - B_D) + \left(\frac{\partial Q^\star}{\partial B_D^\star}\right)(B_1^\star - B_D^\star) + \left(\frac{\partial N_0}{\partial B_D^\star}\right)\left(1 - \frac{\partial v_0}{\partial B_1}\right) \tag{64}$$

So we get:

$$\left(\frac{\partial N_0}{\partial B_1}\right)\left(1 - \frac{\partial v_0}{\partial B_1}\right)$$

$$+ \left(\frac{\partial Q}{\partial B_1}\right)(B_1 - B_D) + Q(\boldsymbol{B}) + \omega(B_1, B_1^\star)\frac{\partial B_D}{\partial B_1}$$

$$+ \left(\frac{\partial Q^\star}{\partial B_1}\right)(B_1^\star - B_D^\star) + \omega^\star(B_1, B_1^\star)\frac{\partial B_D^\star}{\partial B_1}$$

$$+ \mathbb{E}\left[\left(1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\right)\Lambda(\boldsymbol{B}, e_1)\left(\frac{\partial N_1^R}{\partial B_1}\left(1 - \frac{\partial v_1}{\partial B_1}\right)\right)\right] = 0 \tag{65}$$

Re-organizing we have:

$$\underbrace{\left(\frac{\partial N_0}{\partial B_1}\right)\left(1-\frac{\partial v_0}{\partial B_1}\right)=\mathbb{E}\left[\left(1-F_\phi(\hat{\phi}(\boldsymbol{B},e_1))\right)\Lambda(\boldsymbol{B},e_1)\frac{\partial N_1^R}{\partial B_1}\left(\frac{\partial v_1}{\partial B_1}-1\right)\right]}_{\text{Tax Smooth}}$$

$$-\underbrace{\left(\frac{\partial Q}{\partial B_1}\right)(B_1-B_D)-\left(\frac{\partial Q^\star}{\partial B_1}\right)(B_1^\star-B_D^\star)}_{\text{Default Risk}}-\underbrace{\omega(B_1,B_1^\star)\frac{\partial B_D}{\partial B_1}-\omega^\star(B_1,B_1^\star)\frac{\partial B_D^\star}{\partial B_1}}_{\text{Financial Distortion}}$$

□

a. The same derivation steps can be applied to equation (61).

A.5 Proposition 3.

Assume $\mathrm{Cov}(e_1^{-1},\phi)=0$. Let $B_1^\star>0$. Then, $B_1=0$ cannot be part of the Markov Equilibrium.

Proof. The proof is by contradiction. Suppose not. Then assume that $B_1=0$ and there exists an $B_1^\star$ such that condition in the Proposition holds. That is, equation (60) in this Appendix should be satisfied.

In this proof, we establish a relationship between the GEE of the government in LC and FC, and we show this relation leads to a contradiction under $B_1>0$. In particular, we claim:

$$\frac{\partial n_0}{\partial B}\left[1-v^{'}(n_0)\right]+\left(\frac{\partial Q}{\partial B}+\frac{\partial Q^\star}{\partial B}\right)\mathcal{B}_F^\star-\mathbb{E}\left((1-F_\phi(\hat{\phi}(\boldsymbol{B},e_1))\Lambda(\boldsymbol{B},e_1)\frac{\partial n_1^R}{\partial B}\left[1-v^{'}(n_1)\right]\right)= \tag{66}$$
$$\frac{\partial n_0}{\partial B^\star}\left[1-v^{'}(n_0)\right]+\left(\frac{\partial Q}{\partial B^\star}+\frac{\partial Q^\star}{\partial B^\star}\right)\mathcal{B}_F^\star-\mathbb{E}\left((1-F_\phi(\hat{\phi}(\boldsymbol{B},e_1))\Lambda(\boldsymbol{B},e_1)\frac{\partial n_1^R}{\partial B^\star}\left[1-v^{'}(n_1)\right]\right)$$

Proof. To prove this claim, we first use (47):

$$Q = Q^{\star} + \text{Cov}(e_1^{-1}, (1-d))$$

Also, because $B_L = 0$, then from the problem of the government, we can deduce $\text{Cov}(e_1^{-1}, (1-d)) = 0$. Which implies:

$$Q = Q^{\star} \tag{67}$$

Given that the price of debt in LC and FC are equal, it is direct from (13) that:

$$\frac{\partial n_0}{\partial B} = \frac{\partial n_0}{\partial B^{\star}} \tag{68}$$

This result implies that the first term in both lines is equivalent. Now, let us focus on the second term. That is, let's analyze the derivatives of the price function. First, note that both prices are equivalent if $B_L = 0$, so their derivative is the same.

$$\begin{aligned}
\frac{\partial Q^{\star}}{\partial B_F} &= \mathbb{E}_e\left[f_{\phi}(\hat{\phi}(\boldsymbol{B}, e_1)\frac{\partial V^R}{\partial B_F}\right] \\
&= \mathbb{E}_e\left[f_{\phi}(\hat{\phi}(\boldsymbol{B}, e_1)\frac{\partial V^R}{\partial B_F^{\star}}\frac{1}{e_1}\right] \\
&= \mathbb{E}_e\left[f_{\phi}(\hat{\phi}(\boldsymbol{B}, e_1)\frac{\partial V^R}{\partial B_F^{\star}}\right]\mathbb{E}_e\left[\frac{1}{e_1}\right] \\
&= \mathbb{E}_e\left[f_{\phi}(\hat{\phi}(\boldsymbol{B}, e_1)\frac{\partial V^R}{\partial B_F^{\star}}\right] \\
&= \frac{\partial Q^{\star}}{\partial B_F^{\star}}
\end{aligned} \tag{69}$$

Where the third line follows from the fact that both the default function and the value of repayment are orthogonal to the realization of the nominal exchange rate under $B_1 = 0$. Also, the fourth line follows because the expectation of the nominal exchange rate is one.
Finally, we focus on the last term of the equation. That is, we still need to prove:

$$\mathbb{E}\left((1 - F_{\phi}(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1)\frac{\partial n_1^R}{\partial B}\left[1 - v^{'}(n_1)\right]\right) =$$
$$\mathbb{E}\left((1 - F_{\phi}(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1)\frac{\partial n_1^R}{\partial B^{\star}}\left[1 - v^{'}(n_1)\right]\right)$$

First, from (14)

$$\frac{\partial n_1}{\partial B} = \frac{\partial n_1}{\partial B^{\star}}\frac{1}{e_1} \tag{70}$$

Then:

Given Claim 1 and the Euler equations of the government in LC and FC:

$$\omega(B_1, B_1^\star)\frac{\partial \mathcal{B}_F^\star}{\partial B_1} = \omega(B_1, B_1^\star)\frac{\partial \mathcal{B}_F^\star}{\partial B_1^\star} \tag{71}$$

Because $\omega(B_1, B_1^\star) > 0$ we know $\frac{\partial \mathcal{B}_F^\star}{\partial B_1^\star} > 0$. Then:

$$\frac{\partial \mathcal{B}_F^\star}{\partial B_1} > 0 \tag{72}$$

Also, it implies that $\frac{\partial b_1^\star}{\partial B_1} > 0$ where $b_1^\star$ is the solution of debt in FC in the problem of the domestic investors. From the FOC of the domestic investors, we know $b_1^\star$ solves:

$$0 = \left(u_0' - \mathbb{E}u_1'\right)\mathbb{E}\left(1-d\right) + \mathrm{Cov}(u_1', (1-d)) \tag{73}$$

We define:

$$m(B_1, b_1^\star) = \left(u_0' - \mathbb{E}u_1'\right)\mathbb{E}\left(1-d\right) + \mathrm{Cov}(u_1', (1-d)) \tag{74}$$

Taking the total difference of m and imposing optimality, we have

$$\frac{\partial m}{\partial B_1} + \frac{\partial m}{\partial b_1^\star}\frac{\partial b_1^\star}{\partial B_1} \tag{75}$$

So:

$$\frac{\partial b_1^\star}{\partial B_1} = -\frac{\frac{\partial m}{\partial B_1}}{\frac{\partial m}{\partial b_1^\star}} \tag{76}$$

Also:

$$\frac{\partial m}{\partial B_1} = \frac{\partial \mathbb{E}(1-d)}{\partial B_1}\left(u_0' - \mathbb{E}u_1'\right) + \frac{\partial\left(u_0' - \mathbb{E}u_1'\right)}{\partial B_1}\mathbb{E}\left(1-d\right) + \frac{\partial \mathrm{Cov}(u_1', (1-d))}{\partial B_1} < 0 \tag{77}$$

The inequality holds because increasing total LC debt raises default risk, lowering the first term; increases expected taxes, reducing the precautionary savings motive in the second term; and weakens the insurance value of bonds in the third term.

$$\frac{\partial m}{\partial b_1^\star} = \frac{\partial \mathbb{E}(1-d)}{\partial b_1^\star}\left(u_0' - \mathbb{E}u_1'\right) + \frac{\partial\left(u_0' - \mathbb{E}u_1'\right)}{\partial b_1^\star}\mathbb{E}\left(1-d\right) + \frac{\partial \mathrm{Cov}(u_1', (1-d))}{\partial b_1^\star} > 0 \tag{78}$$

The inequality is reversed because higher domestic holdings of FC bonds reduce the foreign debt position, lowering default risk and strengthening the insurance value of bonds.
As a result:

$$\frac{\partial b_1^\star}{\partial B_1} > 0 \tag{79}$$

This leads to a contradiction and completes the proof of the proposition.

□

A.6 Proposition 4.

Proof. The FOCs of the planner's problem with respect to B_D and $B_D^\star$ yield $\omega(B_1, B_1^\star) = 0$ and $\omega^\star(B_1, B_1^\star) = 0$ at the constrained efficient allocation. By Lemma 2, $\omega(B_1, B_1^\star) > 0$ and $\omega^\star(B_1, B_1^\star) > 0$ in the decentralized equilibrium. Therefore, the decentralized allocation does not satisfy the planner's optimality conditions. □

A.7 Proposition 5.

Assume $\text{Cov}(e_1^{-1}, \phi) = 0$. Let $B_1^\star > 0$. Then, $B_1 = 0$ is part of the Markov Equilibrium in a regulated economy.

Proof. From proof of Proposition 2, we know:

$$\frac{\partial n_0}{\partial B}\left[1 - v^{'}(n_0)\right] + \left(\frac{\partial Q}{\partial B} + \frac{\partial Q^\star}{\partial B}\right)\mathcal{B}_F^\star - \mathbb{E}\left((1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1)\frac{\partial n_1^R}{\partial B}\left[1 - v^{'}(n_1)\right]\right) = \tag{80}$$

$$\frac{\partial n_0}{\partial B^\star}\left[1 - v^{'}(n_0)\right] + \left(\frac{\partial Q}{\partial B^\star} + \frac{\partial Q^\star}{\partial B^\star}\right)\mathcal{B}_F^\star - \mathbb{E}\left((1 - F_\phi(\hat{\phi}(\boldsymbol{B}, e_1))\Lambda(\boldsymbol{B}, e_1)\frac{\partial n_1^R}{\partial B^\star}\left[1 - v^{'}(n_1)\right]\right)$$

Then absent wedge ($\omega(B_1, B_1^\star) = 0$), this equivalence implies that if the Euler equation holds at any $B_1^\star$ then the Euler equation in LC also holds. This implies that the pair $B_1^\star = 0$ is a solution to the problem for the government.

□

B Additional Tables and Figures

Table B.1 presents the empirical regularities of sovereign debt in foreign currency for 17 emerging economies. The second and third columns detail each country's share of debt denominated in foreign currency. On average, 26 percent of the debt issued by these countries is in foreign currency. The last two columns detail the foreign investors' portfolio, on average, 54 percent of foreign investors' debt holdings are denominated in foreign currency.

Table B.1: Empirical Regularities of Sovereign Debt by Currency

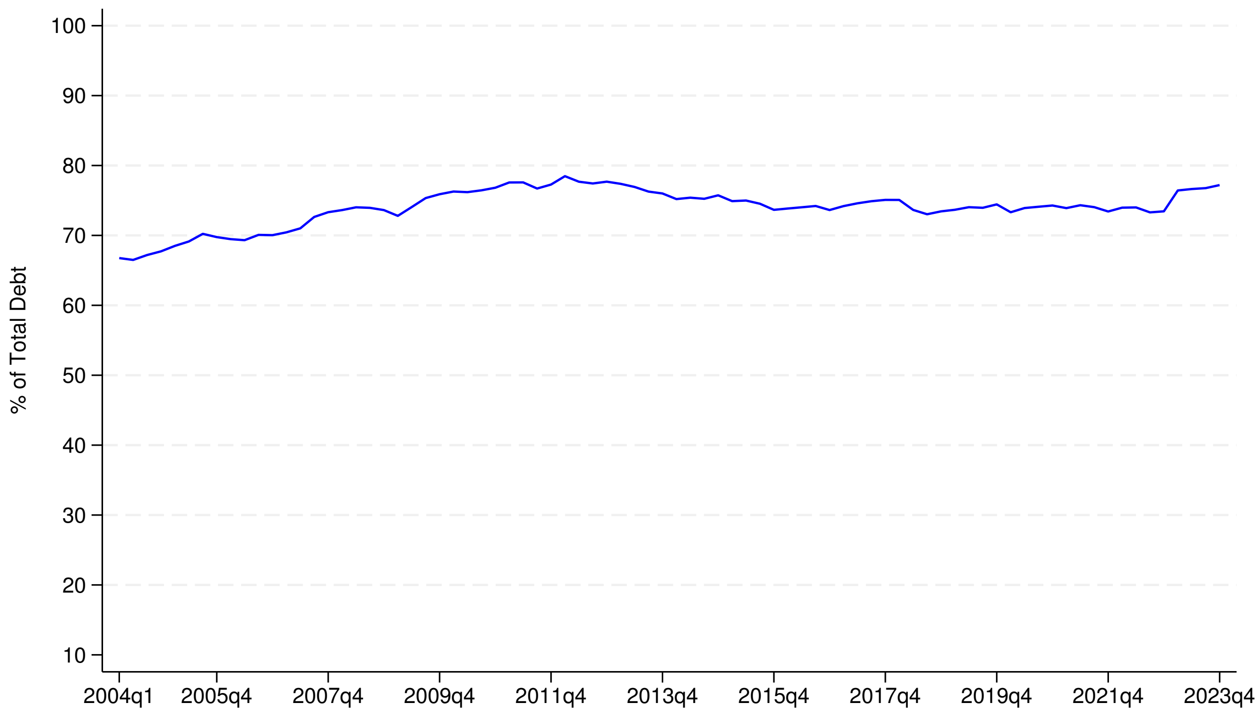
Country	Total Debt	Share of Debt in FC		Share of Foreign Debt in FC	
	Average (% of GDP)	Average (% of T. Debt)	Δ 2023 - 04 (% of T. Debt)	Average (% of For. Debt)	Δ 2023 - 04 (% of For. Debt)
Argentina	65	60	0	91	1
Brazil	72	7	-24	26	-54
China	45	1	-1	43	-92
Egypt	80	16	27	63	39
Hungary	73	29	5	55	22
India	75	0	0	0	0
Indonesia	32	22	19	51	6
Peru	27	48	-47	66	-36
Philippines	52	26	-13	74	-10
Poland	51	23	-2	53	-1
Romania	31	44	18	76	-9
Russia	15	31	-58	63	-52
South Africa	45	9	-3	29	-31
Thailand	32	1	-7	3	-35
Turkey	37	30	24	64	45
Ukraine	46	51	-14	94	13
Uruguay	56	53	-52	73	-23
Mean	49	26	-8	54	-13
Median	46	26	-2	63	-9
Std. Dev.	19	19	25	27	35

Notes: Average total debt is calculated using total central government debt securities from 2004 till 2023. The share of debt in foreign currency refers to the percentage of total debt securities issued in foreign currency. The share of foreign debt in foreign currency refers to the share of debt securities issued in foreign currency held by foreign investors. The differences are calculated taking the share for 2023q4 and 2004q1, or the first and last observation available for each country.

B.1 Additional Figures

Evolution of Total Public Debt in Local Currency Figure B.1 shows the average share of total debt denominated in LC for the 17 emerging economies in our sample. During the last 16 years, the debt in LC has averaged between 70 and 80 percent of total debt.

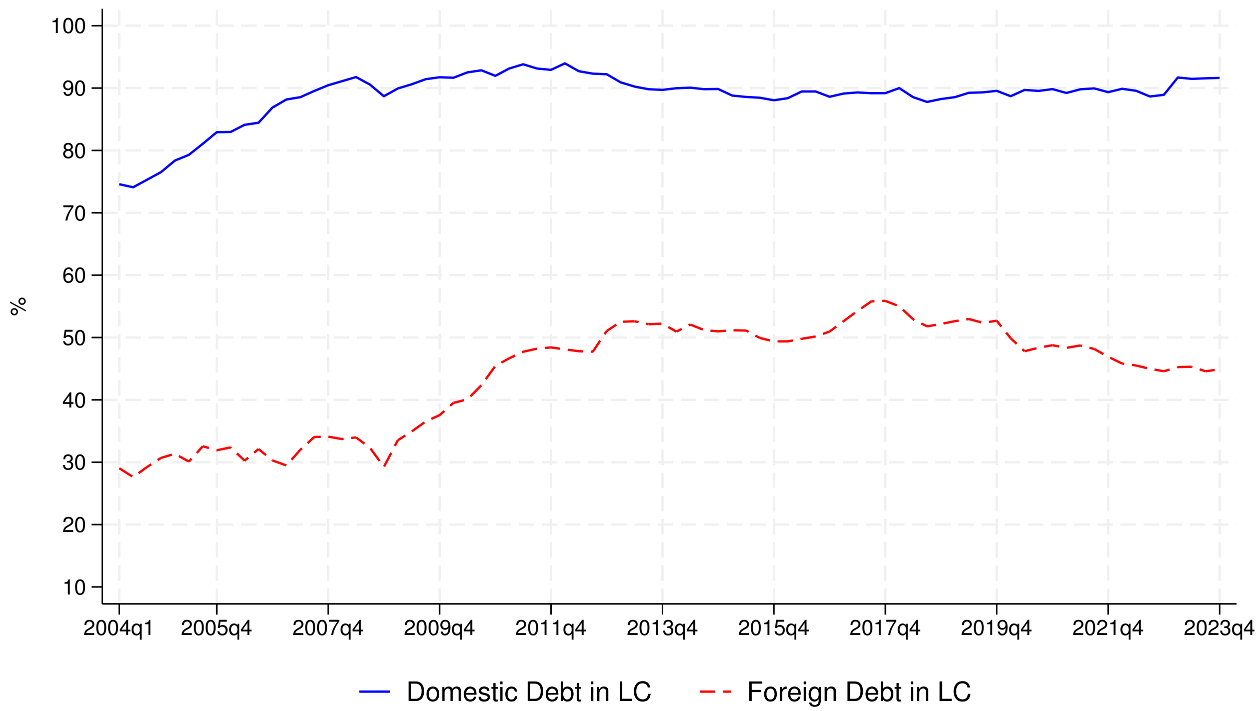
Figure B.1: Share of Total Public Debt in Local Currency



Notes: Arslanalp and Tsuda (2014) and updated on April 30th 2024. Average total debt in LC as a fraction of total debt for the countries in the sample.

In the past 20 years, both domestic and foreign investors have increased their share of debt denominated in LC. Domestic investors' share rose notably in the first few years, while foreign investors increased their LC share after the global financial crisis, after which it stabilized. This pattern is illustrated in Figure B.2.

Figure B.2: Share of Domestic and Foreign Debt in Local Currency



Notes: Arslanalp and Tsuda (2014) and updated on April 30th 2024. Domestic (Foreign) debt in LC is the average domestic (foreign) debt in LC as a fraction of total domestic (foreign) debt for the countries in the sample.