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Inflation Surge and Sovereign Borrowing: The Role of Policy Practices in Strengthening Sovereign Resilience

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ABSTRACT

Sovereign borrowing during inflation surges is a litmus test of a government's ability to withstand and navigate macroeconomic shocks. Based on transaction-level bond issuance data, we explore how sovereign financing strategies respond to inflation surges and how policy practices affect their ability to weather inflation shocks. We find that governments rely more on foreign-currency debt from foreign investors during periods of high inflation. This pattern is particularly prevalent in emerging markets (EMs), especially when the inflation surge is prolonged and severe. We further show that good practices of fiscal discipline, credibly pegged exchange regime, open capital account, and monetary dependence alleviate the need to borrow foreign capital in foreign currency during periods of inflation surges.

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1. Introduction

Surging inflation around the world puts sovereign governments to the test of their resilience to macroeconomic shocks. During periods of low and stable inflations, which are often accompanied by more prolonged expansions of economic activity, governments, especially those from investable emerging markets (EMs), increasingly borrow externally in their own currency, which mitigates EM's exposures to income risk and currency mismatch risk (Ottonello and Perez 2019). With easy access to international borrowing and low-interest rates over the past two decades, governments have built up a massive sovereign debt burden, leaving them vulnerable when inflation spikes. Inflation surges, often accompanied by recessions, can weaken fiscal positions and trigger a vicious cycle of default risk, capital flight, and currency depreciation. These factors undermine debt sustainability and make sovereign borrowing more challenging. During such periods, governments may resort to borrowing in less favorable terms, particularly in foreign-currency debts that are more exposed to income and exchange rate risk, and from foreign investors who are more prone to capital flight, which exacerbates sovereign risk. This paper explores how sovereign financing behavior responds to inflation surges and identifies policy options and fiscal disciplines that improve sustainable debt management over inflation-deflation cycles. Our findings offer valuable insights into how governments can navigate the challenges of sovereign borrowing during inflation surges and ultimately improving long-term debt sustainability, by sticking to good policy practices even during periods of low and stable inflation.

We first explore whether inflation shocks force governments to borrow in less favorable terms. To answer this question, we compare sovereign borrowing behavior between periods of high and stable inflation, utilizing transaction-level sovereign bond issuance data for 50 economies from 1970M1 to 2022M12. Our identifications of high and stable inflation episodes following the peak-to-trough approach by Braun and Larrain (2005) and the absolute criteria by Blanco, Ottonello, and Ranosova (2022). Ideally, borrowing in local currency provides a natural hedge against exchange rate and income risks that often accompany inflation surges. However, we find that governments are more likely to issue foreign-currency sovereign bonds to borrow from foreign investors in episodes of high inflation than in episodes of stable inflation. This provides evidence that low monetary credibility reduces sovereign capacity to borrow from foreign sources in local currency in time of need. We show that this result is mainly driven by the EM subsample. Indeed, there is little evidence that governments change currency

denominations and target investors in different inflation episodes. This echoes with previous finding that monetary policy is less credible in EMs than AEs and highlights the the importance of maintaining monetary credibility.

After documenting evidence that governments borrow in less favorable terms when hit by inflation shocks, we proceed to explore the roles of policy practices in alleviating the negative effects of inflation shocks on sovereign borrowing. The inflation shock provides a litmus test of monetary credibility perceived by sovereign debt investors. When investors trust that governments would take the necessary steps to keep inflation in check such as raising interest rates or cutting public spending, they would be less concern about income risk and foreign exchange rate risk, and therefore more willing to hold local-currency debt. This would in turn facilitate sovereign borrowing in local currency. We measure the trustworthiness of governments by the track records of managing inflation and practice of fiscal disciplines. Focusing on EMs, which are found to be more vulnerable to macroeconomic shocks, we demonstrate that prolonged and severe episodes of high inflation, which indicate lower sovereign capability (or willingness) to tame inflation, are associated with an even higher probability of borrowing foreign capital in foreign currency. We also find that inflation targeting, which signals governments' commitment to credible monetary policy, appears to mitigate the need to borrow foreign capital in foreign currency, though the evidence is not statistically significant—possibly because investors place low weight on the government commitments that may not be fulfilled. We further show that EMs with higher debt burden and fiscal deficits, which are associated with weaker fiscal sustainability and greater likelihood of inflating away debt, are more likely to borrow foreign capital in foreign currency during episodes of high inflation.

In addition to track records of monetary credibility, foreign investors may also care about international economic policies, which affect the return of risk measured in their home country currency. Credibly pegged exchange regimes, which preserve the value of local currency relative to USD and other international currencies, also protect investors' holding of local-currency debt. Open capital accounts facilitate capital mobility, enabling foreign investors to buy or sell debt in response to volatile risk-return tradeoff swiftly. Pegged exchange regimes and open capital account lead to dependent monetary policy (Mundell's Trilemma). Thereby, country's monetary policy is mostly determined by leading central banks, whose monetary policies are often highly credible, improving EMs' monetary credibility relative to those

pursuing autonomous monetary policy. All these policies protect the interest of foreign investors holding local-currency debt and enable EM governments to borrow foreign capital in their own local currency in difficult times. In line with this conjecture, we find that EMs with credibly pegged exchange regimes, open capital accounts, and monetary dependence on leading economies are less likely to borrow foreign capital in foreign currency when inflation surges.

Our findings have useful policy implications. First, the increasing sovereign borrowing from foreign investors in foreign currency warns of rising sovereign risk accumulated during periods of high inflation. Second, it highlights the importance for EMs to maintain credible monetary policy, greater stability of exchange rate, free capital mobility during high inflation, which contribute to mitigating the reliance on foreign-currency external debt and improving debt sustainability. Our contributions to the literature are twofold. First, it adds to the literature on sovereign debt structure by uncovering how inflation dynamics changes the choice of currency denomination and marketing strategies. Second, we document new evidence on how international policies alleviate the need to borrow foreign capital in foreign currency that expose governments to greater risk during high inflation.

1.1 Literature review

This paper is closely related to the literature on currency denomination of sovereign debt. Traditionally, EMs have difficulty borrowing foreign capital in their own local currencies, a phenomenon dubbed as “original sin” (Eichengreen and Hausmann 1999). This exposes EMs to volatile capital flows, exchange rate, economic outputs, and in extreme cases currency crises (Eichengreen, Hausmann, and Panizza 2005). The original sin recedes in recent decades, especially after the 2007 global financial crisis (Arslanalp et al. 2014; Du and Schreger 2016; Zheng 2020), and rebounds after the pandemic outbreak. Many theories seek to uncover potential determinants of original sin. High levels of local-currency debt hedge against income risk while creating incentives to dilute debt repayment through inflation or currency depreciation. Ottonello & Perez (2019) show that prolonged economic expansion and inflation stabilization in EMs over the past decades mitigate the dilution incentives and motivate governments to borrow more in local currency. Aguiar et al. (2014) and Engel & Park (2022) prove that monetary credibility contributes to improving sovereign borrowing in local currency. Empirical evidences are however mixed. Hausmann and Panizza (2003) and Aizenman et al. (2021) document weak correlation between monetary credibility and

sovereign capacity to borrow in local currency, while Hale, Jones, and Spiegel (2020) show that firms in countries with a history of lower inflation issue more local-currency bonds. We contribute to this strand of literature by showing that the relation between inflation and the currency composition of sovereign debt is contingent, and by uncovering the new roles of inflation targeting and international policies in mitigating the response of local-currency sovereign debt to inflation surges.

This paper also fits into the literature on inflation targeting. Inflation targeting improves monetary policy coherence, transparency and discipline (Bernanke and Mishkin 1997). Emerging economies that adopt inflation targeting typically have lower inflation and inflation volatility (Gonçalves and Salles 2008; Lin and Ye 2009), though the evidence is mixed for advanced economies (Ball and Sheridan 2003; Mishkin and Schmidt-Hebbel 2007). Rose (2007) document international evidence that economies adopting inflation targets enjoy lower volatility of exchange rates and capital flows. This paper is most closely related to Ogrokhina and Rodriguez (2018), which find that inflation targeting increases the share of local-currency international debt. We contribute to this strand of literature by discovering the additional value of inflation targeting during periods of inflation surges in improving sovereign borrowing in local currency and therefore enhance debt sustainability in difficult time.

2. Data and methodology

2.1 Data

2.1.1 Sovereign bond

We obtain transaction-level sovereign bond issuance data for the period of 1970M1-2022M12 from the Refinitiv Eikon. To focus on active issuers, we require an economy to have bond records in at least 10 years in our sample (our main results remain robust when removing or loosening this restriction). We further drop economies lacking data on key independent variables. This leaves us with 50 distinct economies, including 31 advanced markets (AMs) and 19 emerging markets (EMs). Appendix Table 1 provides a list of these economies.

Out key dependent variables are bond specific indicators. To understand the structure of investor base, we define ***Foreign*** as a dummy that equals 1 if the bond is issued in international markets targeting foreign investors, and 0 otherwise. To look into the role of

currency denomination, we define ***FC*** as a dummy that equals 1 if the bond is denominated in foreign currency, and 0 otherwise. According to the combination of targeted investors and currency denomination, we introduce (i) ***FCF***, a dummy that equals 1 if the bond is denominated in foreign currency and market to foreign investors, and (ii) ***FCD***, a dummy that equals 1 if the bond is denominated in foreign currency and market to domestic investors.

2.1.2 Inflation episodes

We obtain monthly inflation data for each economy in our sample from IMF's International Financial Statistics. From the fluctuations of monthly inflation, we identify episodes of high inflation, which comprised of inflation surge and inflation reversal. Our identifications of different inflation episodes follow the institution in Braun and Larrain (2005), whose algorithm was originally applied to identify recessions. The algorithm well replicates NBER's identification of the US business cycles peaks and troughs (see for example Samaniego & Sun, 2015). We customize this algorithm to identify peaks and troughs, which correspond to the local maximum and minimum inflation in each economy respectively, and utilize a peak-to-trough criterion to identify economy-specific inflation surges and reversals. In particular, a peak occurs when inflation in a month is more than one standard deviation above the mean and is higher than in both the previous and the posterior 12 months (one year). We use the mean and standard deviation of the inflation in each economy. To mitigate the concern about the disturbing hyperinflation in many EMs before 2000, which may bias our identification, we also calculate the mean and stand deviation for the period before and after 2000 separately to check the robustness of our results.

After identifying the peak, we search *backward* in time to find a local trough, which is the month in which inflation is lower than both the previous and posterior 12 months. An episode of inflation surge goes from the month of the backward trough to the month of the peak, which captures the transition from stable to high inflation. For each peak, we also trace *forward* in time to find a local trough, and define inflation reversal as the periods from the month of the peak to the month of the forward trough. The episode of inflation reversal captures the process of disinflation.

Each episode of inflation surge is followed by an episode of inflation reversal unless such an episode is still ongoing. There is significant uncertainty as inflation deviates from its stable trajectory, going up from trough to peak and then reverse the trend. We therefore refer

the episode of inflation surge and its companion inflation reversal as episode of high inflation. Combining inflation surge and reversal also enables us to compare our identifications of high inflation episodes with Blanco et al. (2022).

For robustness checks, we also follow the relative criteria in Blanco et al. (2022) to identify episodes of high inflation (or large inflation surges in Blanco et al.'s terminology). In particular, we first calculate the mean and standard deviation of inflation in the past 10 years for each economy, and then define the episode of high inflation as the periods when inflation is at least 1.65 standard deviation higher than its mean.

Appendix Figure 1 illustrates episodes of inflation surges and reversals in the US, which well capture key large fluctuations of inflation in the history.

2.1.3 Control variables

We include into our baseline regressions a series of economy-specific monthly macroeconomic variables, including monetary policy rate, the logarithm of official reserve, unemployment rate, and output growth. Output growth is calculated as the annual growth rate of industrial production index. All these variables are obtained from Datastream.

In the robustness checks, we also include a series of other monthly variables that have a smaller coverage. Each economy's local currency appreciation is calculated as the reverse return from the spot foreign exchange rate from WM/Refinitiv, with a positive value indicating currency appreciation relative to the USD. Also included is OECD's business confidence index, which reflects the forward-looking performance in economic activities.

2.1.4 Macroeconomic variables

We classify each economy's foreign exchange rate regime based on Ilzetzki et al. (2019). Economies that are in a currency union, follow a currency board arrangement, or have a crawling band not wider than +/–2% (fine classification code is below 9) are considered to have a credibly pegged exchange rate system. All the other economies are then classified as floating exchange regime.

We obtain the normalized Chinn–Ito capital account openness index from Chinn and Ito (2006). An economy has a fully open capital account and therefore perfect capital mobility if its capital account openness index equals 1. All the others with different degree of capital

control are classified as regulated markets.

An economy is considered to have monetary autonomy if it is pursuing either floating exchange rate or regulated capital account, and monetary dependence otherwise.

We also obtain annual macroeconomic variables from World Development Indicator (WDI) including (i) GDP per capita growth rate, (ii) the logarithm of GDP per capita, and (iii) trade openness calculated as the sum of import and export normalized by GDP.

2.2 Summary statistics

We report the summary statistics of key variables during episodes of high and stable inflation as well as their differences between the two episodes in Table 1. We show preliminary evidence that, on average, government are more likely to issue bonds in foreign markets and denominate bonds in foreign currency. The dummy indicator *FCF*, which equals 1 for foreign-currency bonds issued in foreign market, has a mean of 9.5 percentage points in high inflation episode, suggesting that about 10 out of 100 sovereign bonds issued are denominated in foreign currency and marketed to foreign investors. This number is 0.8 percentage points higher than that in stable inflation episode, and the difference is statistically significant at the 1% level. It suggests preliminarily that governments are more likely to issue foreign-currency bonds in foreign markets during high inflation episode. We observe similar pattern for *FCD*, a dummy that equals 1 for foreign-currency bonds issued in domestic market, is 3.8 percentage points higher during episodes of high inflation. Consolidating *FCF* and *FCD* into *FC*, which equals 1 for bonds denominated in foreign currency regardless of markets of issuances, we observe that governments are 4.5 percentage points more likely to denominate bonds in foreign currency during high inflation. *Foreign*, a dummy that equals 1 for bonds issued in foreign markets regardless of currency denomination, has a larger mean in high inflation episode, suggesting that governments are more likely to borrow foreign capital when inflation is high.

Inflation rate is 5.6% on average in episode of high inflation, compared to 3.4% during stable inflation, and the difference (2.2 percentage points) is statistically significant at the 1% level. Interest rate is also higher in high inflation episode, suggesting central banks tighten monetary policy during these periods. Official reserve is slightly lower during high inflation episode, possibly because policymakers draw reserve to defend local currency that tends to depreciate when inflation surges. Unemployment is lower while output growth is higher during

high inflation, which is consistent with the Philip curve that high inflation reduces unemployment and boost economic growth.

[Insert Table 1 here]

2.3 Methodology

2.3.1 Baseline model

We compare the difference of sovereign bond issuing behaviour between high and stable inflation episodes by estimating the following model:

$$FCF_{i,t}^{j} = \beta \times D_{i,t}^{HighInflation} + \gamma \times X_{i,t} + C_{i,y} + C_t + \varepsilon_{i,t}^{j}. \quad (1)$$

The dependent variable $FCF_{i,t}^{j}$ is a dummy that equals 1 if bond j issued by economy i at month t is denominated in *foreign currency* and marketed in *foreign markets,* and 0 otherwise. For robustness checks, we also look into three other dependent variables related to currency denominations and targeted investors of sovereign bonds: (i) $Foreign_{i,t}^{j}$, a dummy that equals 1 if bond j issued by economy i at month t is marketed in *foreign markets*; (ii) $FC_{i,t}^{j}$, a dummy that equals 1 if bond j issued by economy i at month t is denominated in *foreign currency*, and 0 otherwise; (iii) $FCD_{i,t}^{j}$, a dummy that equals 1 if bond j issued by economy i at month t is denominated in *foreign currency* and marketed in *domestic markets,* and 0 otherwise.

The independent variable $D_{i,t}^{HighInflation}$ is a dummy indicator that equals 1 during episode of high inflation, and 0 otherwise. The set of monthly economy-specific control variables is X_{it}, which captures monthly variations in the tendency to issue bonds in foreign markets and/or denominated them in foreign currency. In our main regressions, It takes the value of (i) $Inflation_{i,t}$, the inflation rate; (ii) $Interest_{i,t}$, the key policy interest rate; (iii) $Unemployment_{i,t}$, the unemployment rate; (iv) $OutputGrowth_{i,t}$, the output growth measured by the logarithmic change in industrial production index relative to the same month in the previous year; and (v) $Reserve_{i,t}$, the logarithm of the dollar amount of official reserve, in economy i at period t. Economy-year fixed effects $C_{i,y}$ are included to take care of other annual economy-specific factors that may affect sovereign bond issuance patterns. To absorb the effects of global factors such as the global risk appetite and liquidity risk that could

influence global debt market, we further control for time fixed effects.

The key parameter of interest is β, the coefficient of $D_{i,t}^{HighInflation}$, which capture the average probability of issuing bonds in foreign markets and denominating them in foreign currency during periods of high inflation relative to periods of stable inflation. Intuitively, high inflation undermines monetary credibility which undermines the real value of investors' bond holdings. When suffering from high inflation, domestic credit market is usually constrained, government may tend to international market to access more external funding. As high inflation in an economy is typically accompanied with significant local currency depreciation, which expose foreign investors to substantial foreign exchange rate risk. Thus, foreign investors tend to prefer bonds denominated in their own country's currency or international currency. Domestic investors may also seek to preserve their asset value or hedge inflation risk through investing in foreign-currency bonds. During periods of high inflation, we expect governments to issue more foreign currency denominated bonds and/or market these bonds in foreign markets, relative to periods of stable inflation. If this this the case, the parameter β should be positive and statistically significant.

2.3.2 State-dependent responses to high inflation

Various factors may affect the response of sovereign borrowing behaviour to high inflation. To understand how inflation-disinflation dynamics, economic fundamentals, debt structure, and policies affect the probability of foreign-currency bond issuances in foreign market during episode of high inflation by estimating the following model:

$$FCF_{i,t}^{j} = \lambda_1 \times D_{i,t}^{HighInflation} \times I_{i,t} + \lambda_0 \times D_{i,t}^{HighInflation} \times (1 - I_{i,t}) + \gamma \times X_{i,t} + C_{i,y} + C_t + \varepsilon_{i,t}^{j} \qquad (2)$$

Here $I_{i,t}$ is a dummy that equals 1 for a specific condition i.e., when the duration of inflation is above the sample median, and 0 otherwise. Note that $1 - I_{i,t}$ equals 1 when $I_{i,t} = 0$, which captures the scenario other than $I_{i,t} = 1$. The coefficients $\boldsymbol{\lambda_1}$ and $\boldsymbol{\lambda_0}$ essentially reflects the response of sovereign borrowing to high inflation in two distinct states indicated by $I_{i,t}$ and $1 - I_{i,t}$. If a specific indicator or policy strengthens (weakens) the response of foreign-currency sovereign bond issuances in foreign market to high inflation, we should have $\boldsymbol{\lambda_1 > \lambda_0}$ ($\boldsymbol{\lambda_1 < \lambda_0}$).

2.3.3 Aggregate borrowing differentiated by currency denomination

Greater likelihood of foreign-currency bond issuances in foreign market may not necessarily translate into more foreign-currency borrowing from foreign investors. To address this concern, we aggregate bonds issued by the same sovereign in each month according to whether they are marketed to foreign investors and denominated in foreign currency. We then compare the size of foreign-currency borrowing from foreign investors with the size of other borrowing in the same economy during episodes of high inflation, relative to that during stable inflation by estimating the following model:

$$Size_{i,t}^{k} = \boldsymbol{\lambda} \times D_{i,t}^{HighInflation} \times k_{i,t} + \beta \times D_{i,t}^{HighInflation} + \tau \times k_{i,t} + \gamma \times X_{i,t} + C_{i,y} + C_t + \varepsilon_{i,t}^{j} \quad (3)$$

Here $Size_{i,t}^{k}$ refers to the size of sovereign borrowing by economy i at month t in category k, where the category indicator $k_{i,t}$ is a dummy that equals 1 for foreign-currency borrowing from foreign investors and 0 otherwise. For robustness checks, we also replace the dependent variable with its logarithmic and inverse hyperbolic sine transformation, as well as employ Poisson pseudo maximum likelihood (PPML) estimator to deal with zero observations and heteroscedasticity (Silva and Tenreyro 2006). If the size of foreign-currency borrowing from foreign investors increases relative to that of other borrowing, the coefficient $\boldsymbol{\lambda}$ should be positive and statistically significant.

3. Empirical analysis

3.1 Baseline results

We estimate equation (1) to explore how sovereign bonds issuances differ between episodes of high and stable inflation and report the results in Table 2. The coefficient of $D_{i,t}^{HighInflation}$, a dummy indicator of high inflation episode, are positive and statistically significant in column 1, indicating governments are more likely to issue bonds in foreign markets and denominate them in foreign currency when inflation is relatively high. In particular, the average probability of issuing foreign-currency bonds in foreign markets (FCF) increases significantly by 1.6 percentage points during periods of high inflation, relative to periods of stable inflation. This is equivalent to a 18% increase given that the average probability of issuing foreign-currency bonds in foreign markets is only 8.7 percentage points (see column 3 in Table 2).

We further explore whether the source of capital (foreign or domestic) or currency denomination are driving our result by replacing the dependent variable with $Foreign_{i,t}^{j}$, a dummy that equals 1 if bond *j* issued by economy i at month t is marketed in *foreign markets*; and $FC_{i,t}^{j}$, a dummy that equals 1 if bond *j* issued by economy i at month t is denominated in *foreign currency*. Columns 2 and 3 show that the average probability of issuing bonds in foreign markets or denominating bonds in foreign currency increases significantly during high inflation episode. The estimated coefficient of $D_{i,t}^{HighInflation}$ is similar in columns 1 and 2, suggesting that the most bonds issued in foreign markets in response to high inflation are denominated in foreign currency. The result in column 3 rules out the possibility that our baseline result in column 1 is driven by foreign borrowing but not foreign-currency denomination. The coefficient of $D_{i,t}^{HighInflation}$ in column 3 is larger than that in column 1 because some governments issue foreign-currency denominated bonds in domestic markets to attract domestic investors who seek to preserve their asset value or hedge inflation risk (given the comovements between exchange rate and inflation when inflation is surging). Column 4 shows no statistical evidence that the probability of issuing foreign-currency bonds in local markets differ between high and stable inflation episodes. This corroborates that both foreign borrowing and foreign-currency denomination are driving the positive response to high inflation.

Overall, our findings point to a significant increase in the probability of issuing foreign-currency bonds in foreign markets during periods of high inflation. The estimated coefficients of various control variables are also consistent with the literature. We find that bonds are more likely to be issued in foreign markets and/denominated in foreign currency in economies with higher inflation and interest rate (indicating tighter domestic credit), greater reserve, lower unemployment rate, and faster output growth.

[Insert Table 2 here]

3.2 Differentiating emerging and advanced markets

Emerging markets (EMs) typically have lower monetary credibility than advanced markets (AMs), which means they are less capable of borrowing foreign capital in their local currency. We decompose the full sample into EM and AM subsamples and repeat the analysis above. The results reported in panels A and B of Table 3 show that our baseline results are mainly

driven by the EM subsample. Specifically, panel A of Table 3 shows that sovereign bonds issued by EM governments are 2.7 percentage points more likely to be denominated in foreign currency and marketed to foreign investors (column 1), which is driven by both foreign borrowing (column 2) and foreign currency denomination (column 3). The coefficient of $D_{i,t}^{HighInflation}$ is similar in columns 1 and 2 and insignificant in column 4, which is consistent with the previous results that both foreign borrowing and foreign currency denomination are driving the positive response of foreign-currency bond issuances in foreign markets in EMs. This is consistent with the baseline result.

In panel B of Table 3, we find that the coefficients of $D_{i,t}^{HighInflation}$ are not statistically significant at the 5% conventional significance level. This echoes with the literature that original sin—the lack of capability to borrow in local currency— is mainly the issue of EMs, and less for AMs (Eichengreen, Hausmann, and Panizza 2005). We therefore focus on the EM subsample for further analysis.

[Insert Table 3 here]

3.3 The roles of policy practices

After documenting consistent evidence that EM governments are more likely to issue bonds in foreign markets and denominate them in foreign currency during high inflation episodes, we further explore various policy practices affect such sovereign response to inflation shocks. To measure monetary credibility, instead of directly utilizing policy measures, whose effects may differ across economies, we focus on observed outcomes reflected in the historical inflation patterns. In particular, we check how these bond issuing patterns are associated with the surges and reversals of high inflation, the duration and severity of high inflation episode. Similarly, to compare debt sustainability across economies, we look into the fiscal position and debt structure instead of particular fiscal or debt policy. Finally, we explore the roles of specific policies including inflation targeting and international macroeconomic policies in shaping the sovereign borrowing behavior during inflation surges.

3.3.1 Characteristics of high inflation episodes

Inflation surges and reversals

We decompose the episode of high inflation into inflation surges (trough to peak) and reversals (peak to trough) and check whether they asymmetrically affect the patterns of sovereign bond issuances. The top left panel of Figure 1 shows that the additional probability of issuing foreign-currency bonds in foreign markets during inflation surges (1.8 percentage points), relative to episodes of stable inflation, is higher than that during inflation reversals (1.3 percentage points), the difference is not statistically significant ($p = 0.244$).

[insert Figure 1 here]

Duration of high inflation episodes

When the episode of high inflation lasts longer, it is more likely to exhaust existing resources domestically and force governments to tend to external debt for funding. We calculate the duration of each high inflation episode as the time gap between the backward trough and forward trough associated with the same peak. An episode of high inflation is considered long if its duration is higher than the sample median (42 months or 3.5 years), and short otherwise. The top right panel of Figure 1 shows that the additional probability of issuing foreign-currency bonds in foreign markets during long high-inflation episodes (8.5 percentage points) more than quintuples that during short high-inflation episodes (1.6 percentage points). The difference is statistically significant ($p < 1\%$). The average duration of high inflation episode in Thailand is 31 months (around 2.6 years), while that in Brazil is 89 months (around 7.4 years). Our finding suggests that EMs that have experienced long episodes of high inflation like Brazil are more likely to borrow from foreign investors in foreign currency when hit by inflation shocks than EMs that have experienced short episodes of high inflation like Thailand.

Severity of high inflation episode

The deviation from stable inflation may went out of control, which generate significant risk that forces governments to borrow from foreign investors on one hand and constrains their borrowing capacity on the other hand. We are interested in whether the patterns of bond issuances during high-inflation episodes differ between severe and mild inflation. We measure the severity of high inflation by the difference between the peak and backward trough in each

episode. An episode of high inflation is considered severe if the severity is above sample median (13%), and mild otherwise. The bottom left panel of Figure 1 shows that the additional probabilities of foreign-currency bonds in foreign markets during sever high-inflation episodes (4.3 percentage points) more than doubles that during mild high-inflation episodes (0.9 percentage points), and the difference is statistically significant ($p < 1\%$).

We redefine an inflation episode as severe if its peak inflation is more than 40%, and mild otherwise. The bottom right panel of Figure 1 shows similar result: the additional probabilities of foreign-currency bonds in foreign markets during sever high-inflation episodes (4.4 percentage points) is larger than that during mild high-inflation episodes (2.1 percentage points), and the difference is statistically significant ($p = 0.032$). For EMs that have experienced severe inflation like Brazil, Turkey, Russia and Ukraine, they have greater need to turn to borrow from foreign investors in foreign currency when inflation surges, than EMs that experience relatively mild inflation such as Malaysia, the Philippines and Thailand.

3.3.2 Debt sustainability

Fiscal deficits

According to the fiscal theory, the present value of fiscal surplus should equal to that of sovereign debt. Governments running larger fiscal deficits (measured as a ratio of GDP to facilitate cross-economy comparison) should be less capable of repaying their debt in the future and have greater incentives to inflate away their debt burden. Taking this into account, foreign investors should could better future hedge inflation risk through lending in their own currency instead of sovereign borrowers'. We therefore expect government with larger fiscal deficits to borrow more foreign capital in foreign currency during high inflation episodes. The top left panel of Figure 2 supports this conjecture: the rising likelihood of issuing foreign-currency bonds in foreign markets during episode of high inflation is mainly driven by EMs with above sample-median fiscal deficit (5.8%). This highlights fiscal sustainability as an important driver of sovereign borrowing patterns during high inflation episodes. Our findings imply that EMs with more balance fiscal budget such as Thailand (fiscal deficit = 1.9%) and the Philippines (fiscal deficit = 2.0%) have less need to borrow from foreign investors in foreign currency even when encounter inflation surges than those running significant fiscal deficits such as Brazil (fiscal deficit = 20%) and Columbia (fiscal deficit = 13%).

[insert Figure 2 here]

Debt burden

Many EMs have already borrowed substantially before hitting by inflation spikes, which further constrains their capacity to borrow. They would have to offer better terms to investors to borrow during periods of high inflation. Moreover, for a given path of future fiscal surplus, governments with higher historical debt burden are also more likely to print money, which drive investors away from these sovereign borrowers' local currency. Consistent with this prediction, the top right panel of Figure 2 shows that EMs with above median debt-to-GDP ratio (40%) are 4.2 percentage points ($p < 1\%$) more likely to issue foreign-currency bonds in foreign markets during high inflation episodes than their peers with below median debt-to-GDP. This implies that EMs with high debt burden like Egypt (81%) and Brazil (70%) are more exposed to inflation surges than those with moderate debt burden such as Thailand (30%) and Mexico (31%). Overall, the top two panels of Figure 2 deliver the same message that EMs with lower debt sustainability have to borrow more from foreign investors in foreign currency during periods of high inflation.

Other than the level of debt burden, the composition of debt may also affect the overall debt sustainability: external debt, especially those denominated in foreign currency, is generally more destabilizing than internal debt. We show in the bottom left panel of Figure 2 that EMs with high external debt (3.1 percentage points) are more likely to issue foreign-currency bonds in foreign markets during high inflation episodes than their peers with low external debt (2.2 percentage points), but the difference (0.9 percentage points) is not statistically significant ($p = 0.293$). We find similar insignificant evidence when comparing EMs with high and low foreign-currency external debt in their response to high inflation.

3.3.3 Inflation targeting

The rapid diffusion of inflation targeting administered by independent central banks, following clear rules linking inflationary developments with changes of policy interest rates has been a game change for EMs, which is credited by Rose (2007) as 'a stable international monetary system emerges'. By right, EMs adopting inflation target should commit to bring down any high inflation back to the target range. But would inflation targeting remain credible during periods of high inflation? It may be economically and politically costly to fight inflation, which force policymakers to give up inflation targeting. Moreover, even if central banks were to stick to inflation targeting, they may not be able to restore stable inflation. If inflation targeting is

not credible, EMs adopting such a policy should be indifferent from the rest, otherwise, they should have less need to borrow foreign capital in foreign currency. The top left panel of Figure 3 shows that the probability of issuing foreign-currency bonds in foreign markets during episode of high inflation is lower for EMs adopting inflation targeting but the difference is not statistically significant ($p = 0.153$). There appears no statistical evidence that inflation targeting is credible.

[insert Figure 3 here]

3.3.4 International macroeconomic policies

Exchange rate regime

Under pegged exchange rate regime and financial integration, local currency can be converted into foreign currency with low uncertainty. When exchange rates are stable, investing in foreign and local currency should be largely comparable, which reduces the need to denominate bonds in foreign currency. The ability to maintain stable exchange rate also indicates commitment to bringing inflation back to normalcy, which may increase tolerance and expectation of temporarily high inflation, and therefore sovereign capacity to borrow from domestic market. We follow Ilzetzki et al. (2019) to broadly define economies whose fine classification code is below 9 as pursuing credibly pegged exchange regime and then estimate Eq.(2).

Consistent with our conjecture, we find in the top right panel of Figure 3 that EMs with credibly pegged exchange regimes (0.02 percentage points) are less likely to issue foreign-currency bonds in foreign markets during high inflation episodes when their exchange rates are pegged than EMs with (managed) floating exchange regimes (3.8 percentage points). The difference in the probability of issuing foreign-currency bonds in foreign markets in the response to high inflation episodes between EMs with credibly pegged exchange regimes (i.e., Thailand) and floating exchange regimes (i.e., Brazil) is statistically significant ($p < 1\%$).

Capital control

When capital account is regulated, it is difficult and costly to move capital in and out of a market, which makes foreign currency denominated bonds in foreign markets more attractive to foreign investors. We therefore expect capital control to increase the likelihood to issue foreign currency bonds in foreign market. The bottom left panel of Figure 3 provides no

statistical evidence to support this conjecture. Although EMs with controlled capital accounts (2.9 percentage points) are slightly more likely to issue foreign-currency bonds in foreign markets in response to high inflation than EMs with open capital accounts (2.1 percentage points), the difference (0.7 percentage points) is not statistically significant ($p = 0.630$).

Monetary autonomy

With monetary autonomy, governments may utilize their monetary policy to tame inflation at their own discretion, which may improve monetary credibility and reduce the need to borrow in foreign currency. However, to gain monetary autonomy, they would have to sacrifice capital mobility or exchange rate stability, which leads to greater tendency to borrow in foreign currency from foreign markets. The bottom right panel of Figure 3 shows that EMs with autonomous monetary policy significantly increase the probability of issuing foreign-currency bonds in foreign markets during high-inflation episodes. There is not significant evidence that those with dependent monetary policy do the same. One possible reason is that EMs do not actively (or effectively) tame inflation or convince markets that they can even if they have monetary autonomy.

4. Further analysis and robustness checks

In this section, we first explore the heterogeneous sovereign borrowing response to high inflation and then perform various robustness checks.

4.1 The size of foreign-currency borrowing from foreign investors

So far, we have been focusing on the likelihood of foreign-currency borrowing in foreign markets to better utilize transaction level data. But would more issuances of foreign-currency sovereign bonds in foreign market leads to greater borrowing of foreign capital in foreign currency? To explore whether the amount of foreign-currency borrowing in foreign markets also increases in episodes of high inflation, we aggregate the size of bonds issued in each economy according to their currency denominations and issuing markets and then estimate Eq. (3). Column 1 Table 4 shows that during episodes of high inflation, foreign-currency borrowing from foreign investors increases by 45% than other forms of borrowing. The result remains robust when we replace the dependent variable with the inverse hyperbolic sine transformation of aggregate borrowing (column 2), or follow Silva and Tenreyro (2006) to deal with zero

observations and heteroscedasticity with PPML estimator (column 4). Even in absolute amount, we find that foreign-currency borrowing from foreign investors increases by 3 million per month more than other forms of borrowing during episodes of high inflation (column 3). These results provide evidence that the aggregate sovereign borrowing from foreign investors in foreign currency increase significantly in response to high inflation.

[Insert Table 4 here]

4.2 Heterogeneity over time

Most EMs have difficulty borrowing in local currency before 2000 (Eichengreen, Hausmann, and Panizza 2005), which is characterized by relatively high and volatile inflation. But this phenomenon gradually dissipates afterwards (Arslanalp et al. 2014; Du and Schreger 2016; Zheng 2020; Ottonello and Perez 2019), which coincides with periods of relatively stable and low inflation. We decompose our sample into three subperiods to see whether the response of foreign-currency borrowing from foreign investors vary over time. Figure 4 shows that the response of foreign-currency borrowing from foreign investors is the most pronounced before 2000, possibly because inflation surges were more severe and last longer at that time, quite mute between 2000 and 2010 when inflation is rather low and stable, and become significant again after 2010 as concerns over inflation rises after various global turmoil. The result implies that even with dissipations of original sin in recent decades, sovereign governments still need to turn to foreign-currency external debt when inflation is out of control.

[Insert Figure 4 here]

4.3 Robustness checks

We check the robustness of our key results based on the EM subsample using alternative identifications of high inflation, model specifications, and estimation techniques.

4.3.1 Alternative identifications of high inflation episodes

We follow Blanco et al. (2022) to identify episodes of high inflation based on absolute criteria. In particular, we define $AltD_{i,t}^{HighInflation}$ as a dummy variable that equals 1 when the inflation is above the average inflation in the past 10 years by at least 1.65 standard deviations, and 0

otherwise. Replacing $D_{i,t}^{HighInflation}$ in Eq.(1) with $AltD_{i,t}^{HighInflation}$, we repeat the analysis and report the estimation results in column 1 of Table 5. Consistent with our key results for EM, we find that the probability of issuing foreign-currency bonds in foreign market increase significantly. The estimated coefficient of $AltD_{i,t}^{HighInflation}$ (2.6 percentage points) is very similar with that of $D_{i,t}^{HighInflation}$ (2.7 percentage points, see column 1 in panel A of Table 3). This suggest that our result is robust to high inflation episodes identified based on Blanco et al. (2022).

[Insert Table 5 here]

4.3.2 Alternative model specifications

We next replace the economy-year fixed effects with a series of macroeconomic variables available at annual frequency and explore how they affect the patterns of sovereign bond issuances. Table 6 show that our key results remain robust after controlling for *Trade Openness*, the degree of current account openness measured by the sum of import and export normalized by GDP, *Per Capita Growth*, the growth rate of GDP per capita, and *Per Capita*, the logarithmic GDP per capita. Moreover, we find that economies with more open current account and higher GDP per capita are less likely to issue sovereign bonds in foreign markets and/or denominate bonds in foreign currency.

[Insert Table 6 here]

5. Conclusion

Our study explores the sovereign financing strategies during periods of inflation surges, and highlights several key findings. Firstly, we document new insights that governments are more likely to rely on foreign-currency external debt during inflation surges, particularly when they are longer and more intense. Secondly, we show that credible monetary policies and stable international policies, such as inflation targeting, monetary dependence on leading central banks, credibly pegged exchange rate regimes, can help reduce the reliance on foreign-currency external debt over the inflation cycles. Finally, we demonstrate that fiscal disciplines mitigate exposure to external financing risks and promote debt sustainability during high inflation.

Our findings have useful implications for policymakers seeking to improve the stability and sustainability of their economies in the face of macroeconomic shocks. This is particularly important in the current environment of rising fiscal deficits and surging inflation, where many emerging market economies are facing challenges related to external financing and debt sustainability. Inflation surges can often lead to currency depreciations, which increase the burden of external debt denominated in foreign currencies. It is exactly during such a difficult time that EM governments have to increase their reliance on foreign-currency external debt, which exacerbate these challenges and increase their exposure to external financing risks. This underscores the importance of taking measures to mitigate these risks. Our study emphasizes certain policy tools, such as inflation targeting and credibly pegged exchange rate regimes, and fiscal disciplines can help reduce the reliance on foreign-currency external debt during inflation surges. These findings inform policy design to mitigating the risks associated with inflation surges and external financing vulnerabilities.

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Figure 1: The duration and severity of high inflation episodes.

This figure illustrates the additional probability of issuing foreign-currency bonds in foreign markets during different types of high inflation episodes in emerging markets. The top left panel compares the roles of inflation surges (from the bottom to the peak of inflation during the high inflation episode) and reversals (from the peak to the bottom of inflation during the high inflation episode). The top right panel illustrates the roles of long and short episodes of high inflation, using the median duration as a cutoff (about 42 months). The bottom left panel reports the effects of severe and mild inflation surges, using the median value of high inflation as a cutoff (about 13%). The bottom right panel differentiates inflation above and below 40% during high inflation episodes in their effects on foreign-currency bond issuances in foreign market. The horizontal band highlights the 95% confidence interval.

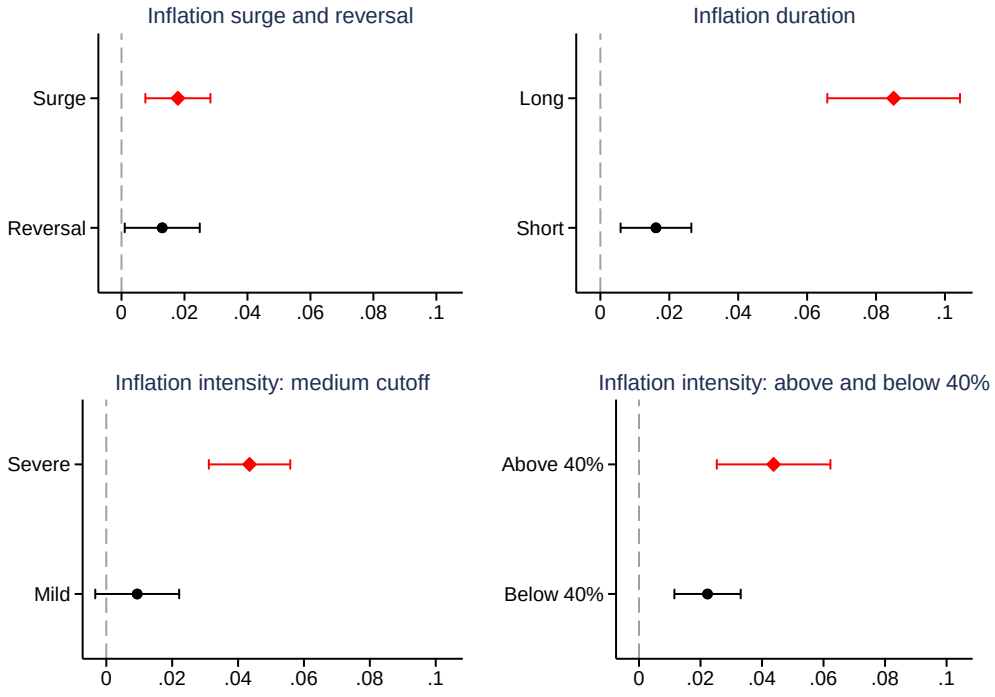


Figure 2: Debt sustainability and the role of high inflation.

This figure illustrates how the extent of debt sustainability in emerging markets affect the roles of high inflation in changing the probability of issuing foreign-currency bonds in foreign markets. The top left panel compares the roles of high inflation when fiscal deficit as a ratio of GDP is relatively high and low, using the median value as a cutoff. The top right panel illustrates the roles high inflation contingent on high and low debt-to-GDP ratio. The bottom left and right panels report the different effects of high inflation conditional on high and low foreign-currency external debt and external debt respectively. The horizontal band highlights the 95% confidence interval.

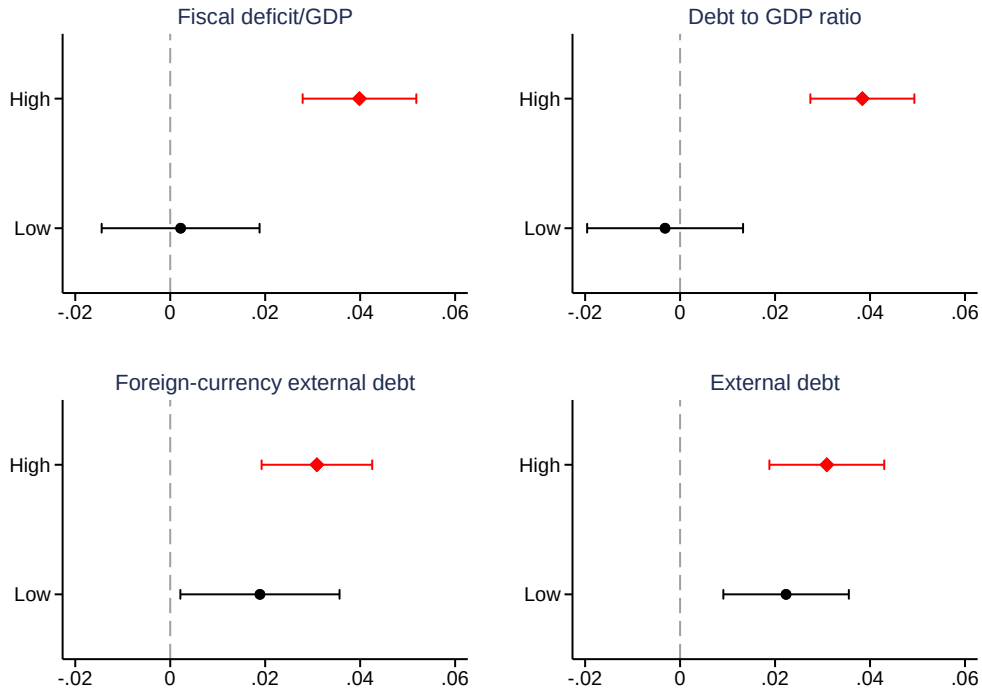


Figure 3: International macroeconomic policies and the role of high inflation.

This figure illustrates how different international economic policies in emerging markets affect the roles of high inflation in changing the probability of issuing foreign-currency bonds in foreign markets. The top left panel compares the roles of high inflation in markets with and without inflation targeting. The top right panel illustrates the roles high inflation contingent on floating and pegged foreign exchange regimes. The bottom left panel reports the different effects of high inflation conditional on open and close capital accounts. The bottom right panel summarizes the roles of high inflation for markets with autonomous and dependent monetary policy. The horizontal band highlights the 95% confidence interval.

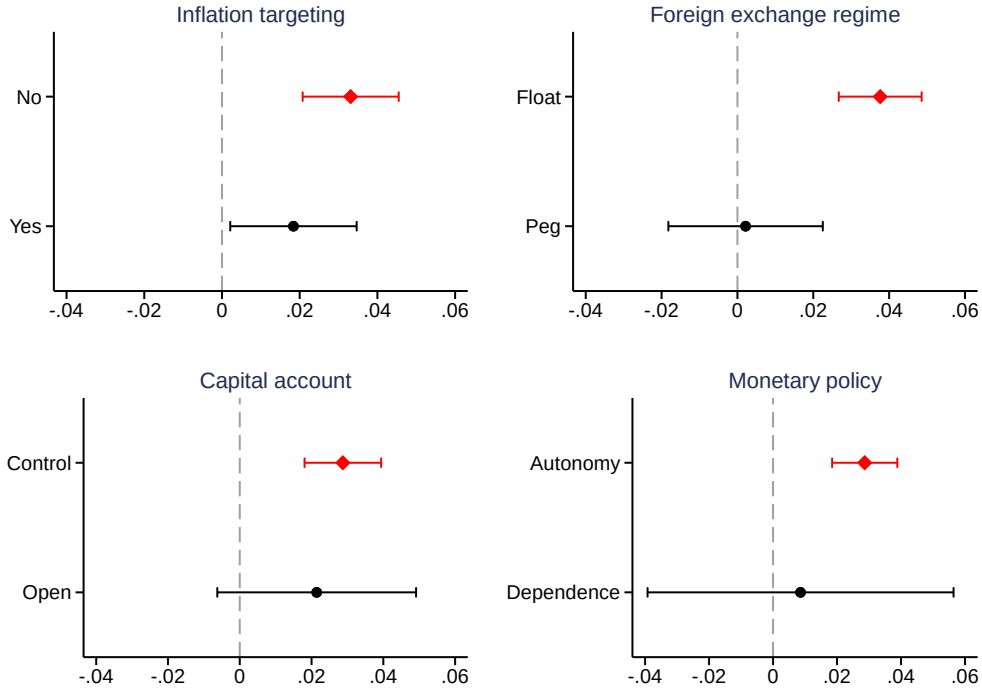


Figure 4: Heterogeneous effects of high inflation over time.

This figure illustrates the effects of high inflation on the probability of issuing foreign-currency bonds in foreign markets in during the periods of 1970-2000, 2000-2010, and 2010-2022. The diamonds mark the change in the probability of issuing foreign-currency bonds in foreign markets and the horizontal band highlights the 95% confidence interval.

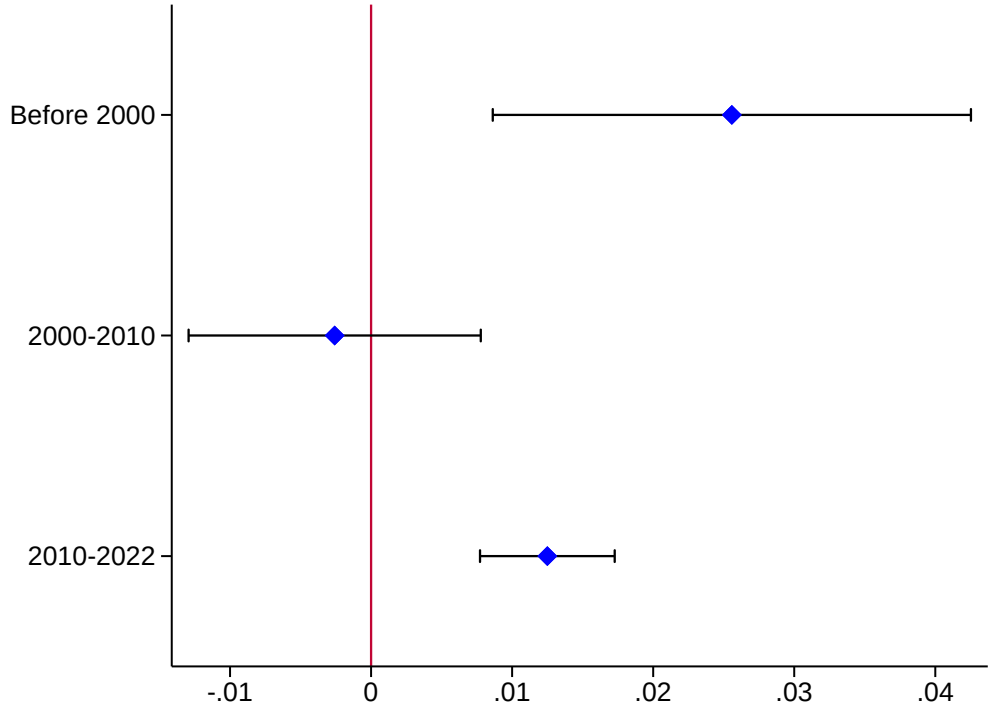


Table 1: Summary statistics.

This table summarizes the mean and standard deviation (SD) of key variables during episodes of high and stable inflation, as well as their difference between the two distinct episodes of inflation and the associated p-value. *FCF*, *Foreign*, *FC*, and *FCD* equal 1 respectively if the bond is (i) denominated in foreign currency and issued in foreign market, (ii) issued in foreign market, (iii) denominated in foreign currency, and (iv) denominated in foreign currency and issued in domestic market. *Inflation* is the percentage change in CPI relatively to the same month in the previous year, *Reserve* is the logarithm of official reserve, *Unemployment* is the unemployment rate, and *Output Growth* is the percentage change in the industrial production index.

	High inflation		Stable inflation		Difference = (1) - (3)	
	Mean	SD	Mean	SD	Difference	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
FCF	0.095	0.293	0.087	0.282	0.008	0.007
Foreign	0.106	0.308	0.091	0.287	0.016	0.000
FC	0.147	0.354	0.102	0.302	0.045	0.000
FCD	0.052	0.222	0.015	0.120	0.038	0.000
Inflation	5.611	6.676	3.419	3.099	2.192	0.000
Interest	0.198	0.387	0.051	0.120	0.147	0.000
Reserve	3.746	1.531	4.000	1.389	-0.254	0.000
Unemployment	0.061	0.040	0.086	0.052	-0.025	0.000
Output Growth	0.047	0.132	0.017	0.096	0.030	0.000
Observations	11607		90061			

Table 2: Baseline result.

This table summarizes how sovereign bonds issued in foreign markets and denominated in foreign currency differ between high and stable inflation episodes based on the full sample. The dependent variables are bond-level dummy indicators: *FCF*, *Foreign*, *FC*, and *FCD* equal 1 respectively if the bond is (i) denominated in foreign currency and issued in foreign market, (ii) issued in foreign market, (iii) denominated in foreign currency, and (iv) denominated in foreign currency and issued in domestic market. Periods of high inflation are indicated by $D_{i,t}^{HighInflation}$, a dummy that equals 1 during high inflation and 0 during stable inflation. *Inflation* is the percentage change in CPI relatively to the same month in the previous year, *Reserve* is the logarithm of official reserve, *Unemployment* is the unemployment rate, and *Output Growth* is the percentage change in the industrial production index. All regressions control for time fixed effects (FE) and economy-year FE. Heteroscedasticity robust standard errors are reported in the parenthesis. ***, ** and * denote significance level at 1%, 5% and 10%.

Dependent variable:	FCF	Foreign	FC	FCD
$D_{i,t}^{HighInflation}$	0.016***	0.016***	0.020***	0.004
	(0.004)	(0.004)	(0.006)	(0.004)
Inflation	0.001	0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.000)
Interest	0.021	-0.005	0.396***	0.374***
	(0.075)	(0.076)	(0.095)	(0.063)
Reserve	0.061***	0.073***	0.049***	-0.012
	(0.009)	(0.009)	(0.012)	(0.008)
Unemployment	-0.170**	-0.199**	-0.141	0.028
	(0.083)	(0.085)	(0.106)	(0.070)
Output Growth	0.017**	0.016**	0.011	-0.006
	(0.007)	(0.007)	(0.009)	(0.006)
Constant	-0.147***	-0.184***	-0.104**	0.042
	(0.037)	(0.038)	(0.048)	(0.031)
Observations	101,627	101,627	101,627	101,627
R-squared	0.792	0.793	0.716	0.364

Table 3: Emerging markets versus advanced markets.

Panels A and B report respectively estimation results based on the subsample of Emerging markets (EMs) and advanced markets (AMs). The dependent variables are bond-level dummy indicators: *FCF*, *Foreign*, *FC*, and *FCD* equal 1 respectively if the bond is (i) denominated in foreign currency and issued in foreign market, (ii) issued in foreign market, (iii) denominated in foreign currency, and (iv) denominated in foreign currency and issued in domestic market. Periods of high inflation are indicated by $D_{i,t}^{HighInflation}$, a dummy that equals 1 during high inflation and 0 during stable inflation. All regressions control for economy-specific variables in Table 2 (not reported), time fixed effects (FE) and economy-year FE. Heteroscedasticity robust standard errors are reported in the parenthesis. ***, ** and * denote significance level at 1%, 5% and 10%.

Dependent variable:	FCF	Foreign	FC	FCD
Panel A: EM subsample				
$D_{i,t}^{HighInflation}$	0.027***	0.026***	0.032***	0.005
	(0.005)	(0.005)	(0.007)	(0.005)
Observations	48,178	48,178	48,178	48,178
R-squared	0.114	0.121	0.196	0.184
Panel B: AM subsample				
$D_{i,t}^{HighInflation}$	0.008	0.010	0.016*	0.007
	(0.008)	(0.007)	(0.009)	(0.006)
Observations	53,449	53,449	53,449	53,449
R-squared	0.835	0.843	0.773	0.450

Table 4: The size of foreign-currency borrowing from foreign investors during high inflation.

This table present the estimation results on the amount of foreign-currency borrowing from foreign investors during high inflation relative to that during stable inflation. The dependent variable is different transformations of *Size*, the amount of foreign-currency borrowing from foreign investors. IHS(*Size*) is the inverse hyperbolic sine (IHS) transformation of *Size*. Periods of high inflation are indicated by $D_{i,t}^{HighInflation}$, a dummy that equals 1 during high inflation and 0 during stable inflation. *Inflation* is the percentage change in CPI relatively to the same month in the previous year, *Reserve* is the logarithm of official reserve, *Unemployment* is the unemployment rate, and *Output Growth* is the percentage change in the industrial production index. The estimator is ordinary least square (OLS) in columns 1-3 and Poisson pseudo-maximum-likelihood (PPML) in column 4. All regressions control for time fixed effects (FE) and economy-year FE. Heteroscedasticity robust standard errors are reported in the parenthesis. ***, ** and * denote significance level at 1%, 5% and 10%.

Estimator	OLS		PPML	
Dependent variable:	ln(1+*Size*)	IHS(*Size*)	*Size*	*Size*
$D_{i,t}^{HighInflation} \times FCF_{i,t}$	0.453***	0.569***	3.279***	0.783***
	(0.103)	(0.126)	(1.088)	(0.187)
$FCF_{i,t}$	-0.147***	-0.142**	-3.287***	-0.795***
	(0.047)	(0.058)	(0.504)	(0.086)
$D_{i,t}^{HighInflation}$	-0.043	-0.060	0.156	0.040
	(0.042)	(0.051)	(0.442)	(0.060)
Inflation	0.001	0.001	0.002	-0.004
	(0.003)	(0.003)	(0.027)	(0.005)
Interest	-0.139	-0.259	-0.931	1.348
	(0.527)	(0.647)	(5.585)	(1.160)
Reserve	-0.056	-0.087	0.634	-0.006
	(0.064)	(0.079)	(0.683)	(0.102)
Unemployment	1.186**	1.653**	6.711	1.437
	(0.579)	(0.711)	(6.138)	(1.585)
Output Growth	0.334***	0.391***	2.551***	0.655***
	(0.091)	(0.112)	(0.963)	(0.206)
Constant	1.271***	1.653***	1.799	2.043***
	(0.266)	(0.327)	(2.823)	(0.512)
Observations	2,992	2,992	2,992	2,992
R-squared	0.623	0.626	0.458	

Table 5: Alternative identifications of high inflation episodes.

This table utilizes high inflation episodes identified based on Blanco, et al. (2022) to explore how sovereign bonds issued in foreign markets and denominated in foreign currency differ between high and stable inflation episodes based on the emerging market subsample. The dependent variables are bond-level dummy indicators: *FCF*, *Foreign*, *FC*, and *FCD* equal 1 respectively if the bond is (i) denominated in foreign currency and issued in foreign market, (ii) issued in foreign market, (iii) denominated in foreign currency, and (iv) denominated in foreign currency and issued in domestic market. Periods of high inflation are indicated by $AltD_{i,t}^{HighInflation}$, a dummy that equals 1 during when the inflation is above 1.65 standard deviation of an economy's average inflation, and 0 otherwise. All regressions control for economy-specific variables in Table 2 (not reported), time fixed effects (FE) and economy-year FE. Heteroscedasticity robust standard errors are reported in the parenthesis. ***, ** and * denote significance level at 1%, 5% and 10%.

Dependent variable:	FCF	Foreign	FC	FCD
$AltD_{i,t}^{HighInflation}$	0.026***	0.029***	0.077***	0.051***
	(0.008)	(0.008)	(0.010)	(0.007)
Observations	48,178	48,178	48,178	48,178
R-squared	0.113	0.120	0.197	0.185

Table 6: Alternative model specifications.

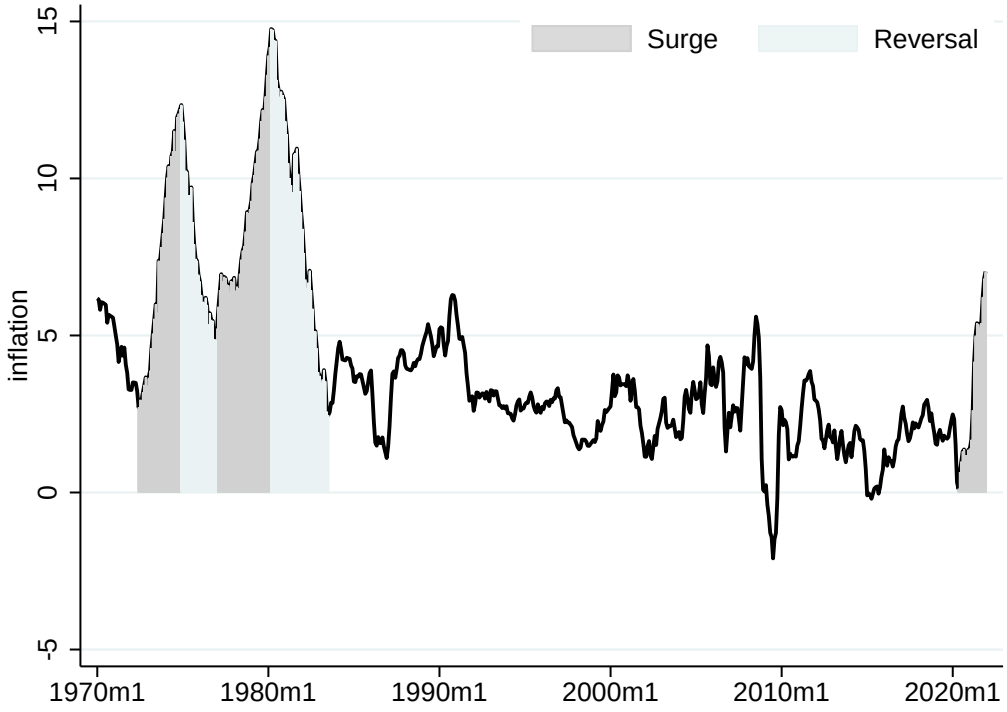
In this table, we replace economy-year fixed effects (FE) with yearly varying macroeconomic variables and estimate the difference in sovereign bonds issuing patterns between high and stable inflation episodes based on the emerging market subsample. The dependent variables are bond-level dummy indicators: *FCF*, *Foreign*, *FC*, and *FCD* equal 1 respectively if the bond is (i) denominated in foreign currency and issued in foreign market, (ii) issued in foreign market, (iii) denominated in foreign currency, and (iv) denominated in foreign currency and issued in domestic market. Periods of high inflation are indicated by $D_{i,t}^{HighInflation}$, a dummy that equals 1 during high inflation and 0 during stable inflation. *Trade Openness* measures the current account openness and is calculated as the sum of import and export normalized by GDP. *Per Capita Growth* is the growth rate of GDP per capita. *Per Capita* is the logarithmic GDP per capita. All regressions control for economy-specific variables in Table 2 (not reported) and time FE. Heteroscedasticity robust standard errors are reported in the parenthesis. ***, ** and * denote significance level at 1%, 5% and 10%.

Dependent variable:	FCF	Foreign	FC	FCD
$D_{i,t}^{HighInflation}$	0.019***	0.007**	0.026***	0.007***
	(0.003)	(0.003)	(0.003)	(0.003)
Trade Openness	6.367***	5.386***	-2.696**	-9.063***
	(0.863)	(0.931)	(1.173)	(0.845)
Per Capita Growth	-0.031	0.097***	0.057	0.089***
	(0.028)	(0.031)	(0.039)	(0.028)
Per Capita	0.025**	-0.032**	0.178***	0.153***
	(0.012)	(0.013)	(0.016)	(0.012)
Observations	48,179	48,179	48,179	48,179
R-squared	0.068	0.071	0.133	0.119

Appendix

Appendix Figure 1: Illustration of inflation surges and reversals in the US.

This figure illustrates the time trend of the monthly inflation in the US. The grey and blue shaded areas highlight the episodes of inflation surges and reversals, respectively.



Appendix Table 1: List of economies.

There are 19 emerging markets and 31 advanced markets in our sample.

Emerging Markets	**Advanced Markets**	
Brazil	Austria	Malta
Colombia	Belgium	Netherlands
Ecuador	Canada	Norway
Egypt	Croatia	Poland
Indonesia	Cyprus	Portugal
Jordan	Czech Republic	Singapore
Kazakhstan	Denmark	Slovakia
Malaysia	Finland	Slovenia
Mexico	France	Spain
Moldova	Germany	Sweden
North Macedonia	Greece	United Kingdom
Pakistan	Hungary	United States
Peru	Ireland	
Philippines	Israel	
Russia	Italy	
South Africa	Japan	
Thailand	South Korea	
Turkey	Latvia	
Ukraine	Luxembourg	