Sovereign Defaults at Home and Abroad

Aitor Erce, Enrico Mallucci and Mattia Picarelli

UPNA, Fed Board, and ESM

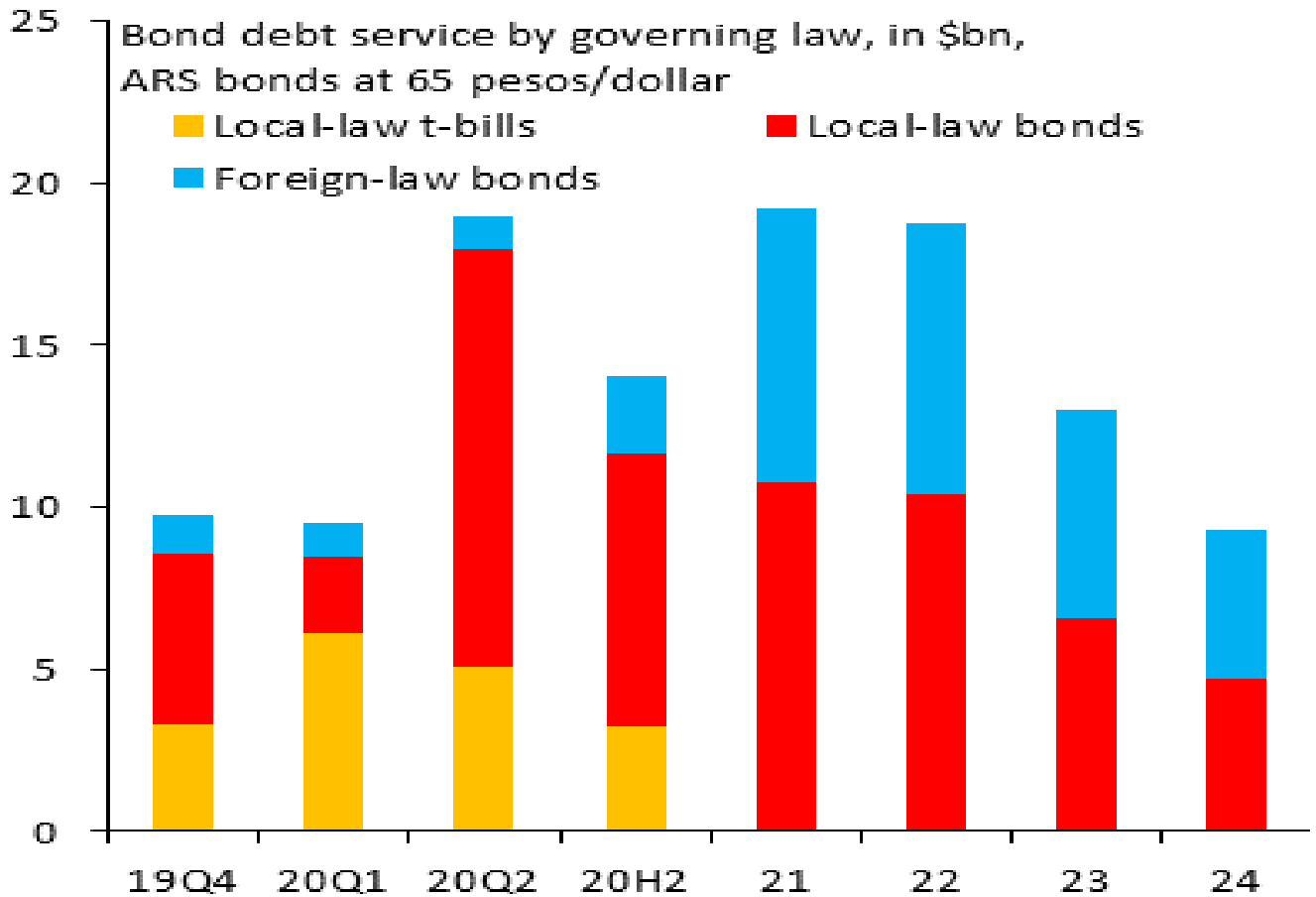
ABCDE July 2024

The views presented are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or the European Stability Mechanism

Introduction

- Growing role of domestic markets for government debt has translated into a greater involvement in defaults and restructuring events.
  - Greece is a poster-child example.
- Countries, both under and outside the cover of the Common Framework, are conducting sovereign debt restructurings involving bonds issued domestically (Ghana and Sri Lanka).
  - Argentina 2020 restructuring also involved domestic debt

Argentina's bond repayment profile in 2019



Source: Institute of International Finance

Introduction

- Limited systematic understanding of how sovereign debt defaults and restructurings of debt issued in domestic and external markets differ.
- There are nontrivial tradeoffs involved with the decision to default domestically or externally:
  - Domestic debt is subject to local laws and can be more easily amended than external debt.
  - Domestic debt is the backbone of the domestic financial system and a pillar of political stability.

What do we do?

- We systemically compare sovereign defaults of government debt issued in domestic and international debt markets.
- Use the insights to inform the academic literature and policy making.

The Database

- We merge and harmonize two state-of-the-art databases:
  - Asonuma and Trebesch (2016): 197 external default events.
  - Erce at al. (2022): 134 domestic default events. Dom Def Database
- We extend Asonuma and Trebesch (2016) to include defaults from 2010 to 2018.
- We verify that events in Asonuma and Trebesch (2016) can be classified as external according to the market definition used in Erce at al. (2022).
- We drop deposit freezes, as they are only reported by Erce at al. (2022).

The Database. Resulting Features

- 116 domestic defaults and 177 external defaults
- Spanning from 1980 to 2018
- Data on:
  - timing
  - instruments involved (bonds and loans)
  - volumes involved
  - restructuring terms (principals, coupons & maturities)
  - restructuring approach (pre- or post-default)
  - net-present-value losses for creditors (limited coverage)

The Database. Resulting Features

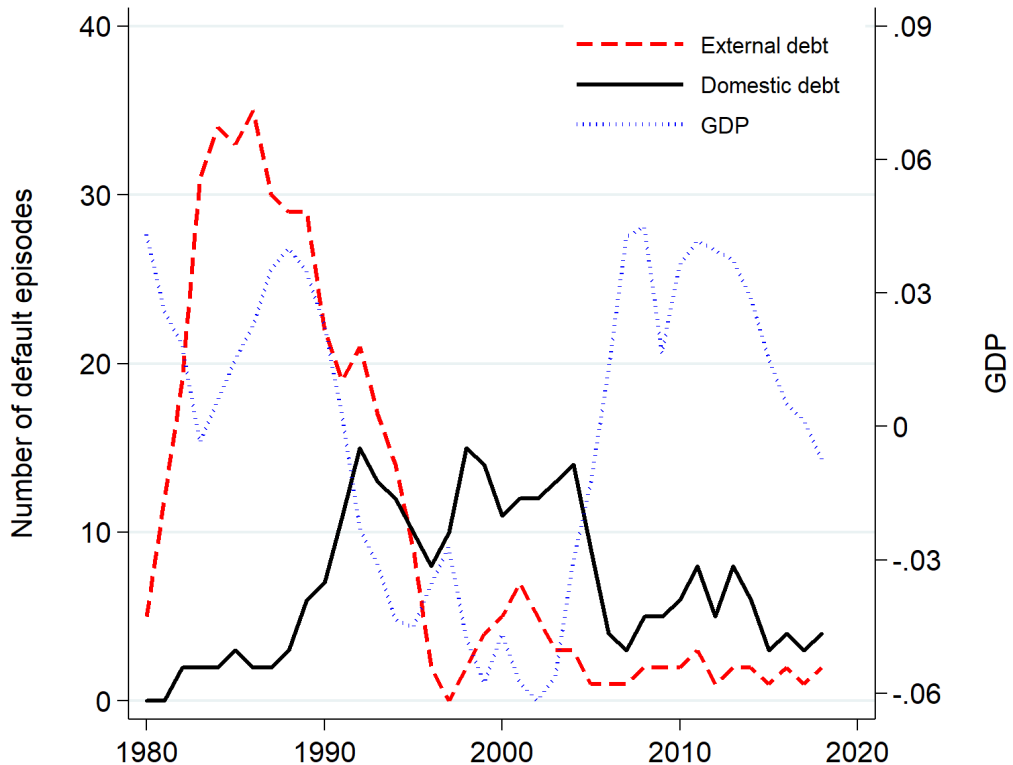
- Global coverage: 84 countries spanning all continents and income groups.

Table: Default by Continent and Income Group

	Total	Africa	America	Asia	Europe	Oceania
Domestic	116	30	67	8	10	1
External	177	61	75	15	26	0

	Total	Low income	Lower middle income	Upper middle income	High income
Domestic	116	11	41	46	18
External	177	28	54	64	31

Domestic Defaults Have Become More Frequent Than External Ones



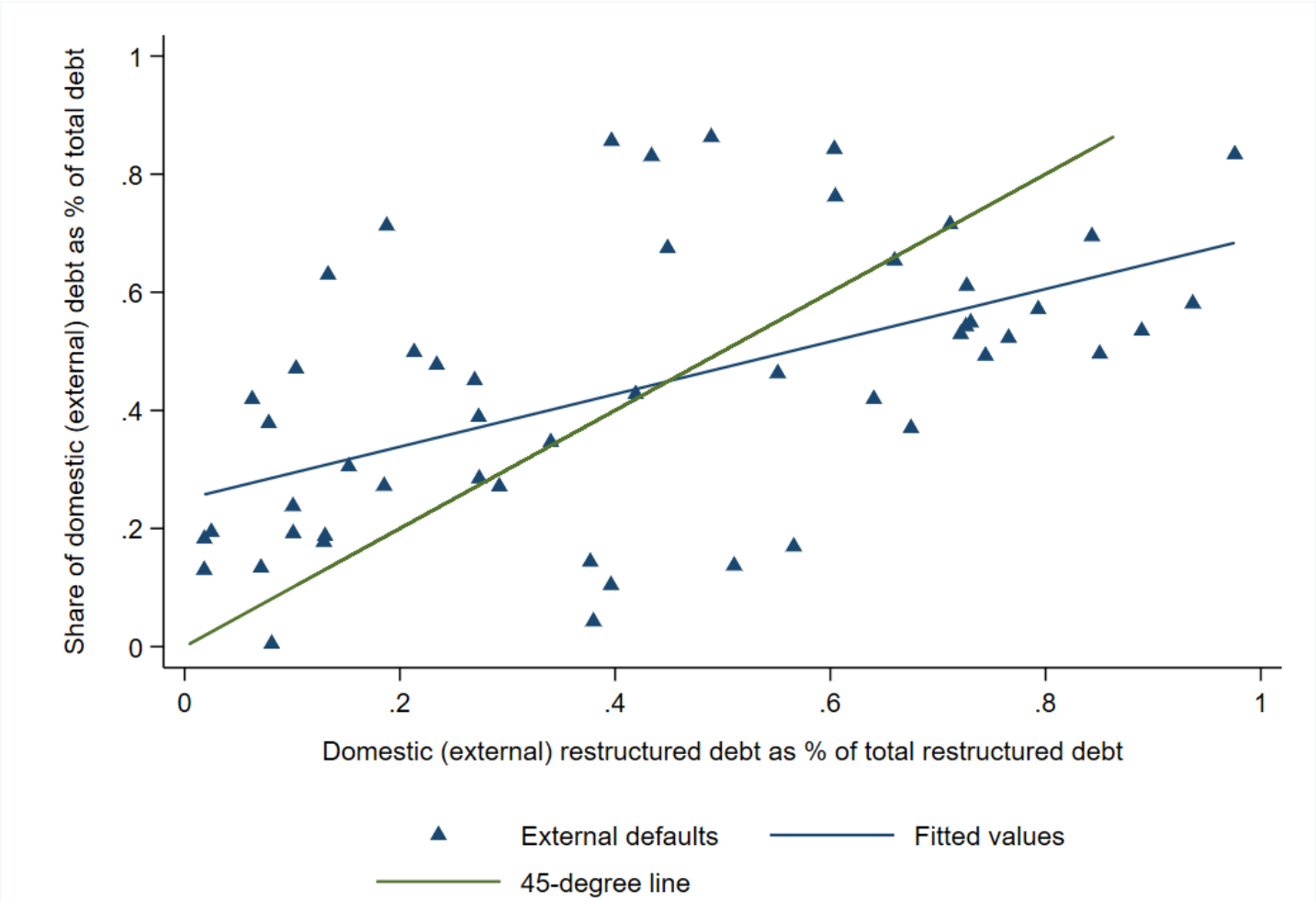
- Increase in the frequency of domestic restructurings mirrors the expansion of domestic debt markets since the 1990s.

Selective Defaults Are the Norm

- To assess the frequency of selective defaults, we aggregate events that happen in consecutive years and those that are part of a comprehensive package.
- 70% of the default episodes are selective (affect only one market).
- 60% of domestic defaults and 77% of external defaults are selective.

Nonselective Defaults Also Discriminate

- Governments discriminate between domestic and external debt even in nonselective defaults.



Domestic Defaults Are Smaller

Table: Debt in Default (% of GDP)

	Mean	Median	SD	N
Domestic	7.7%	2.7%	14.8%	116
External	12.7%	5.3%	94.9%	177
Difference	$-5.0\%^{***}$	$-2.6\%^{***}$		

- Difference has declined over time.

Domestic Restructurings Are Faster

Table: Duration of Restructurings (Months)

	Mean	Median	SD	N
Domestic	30.1	9.0	54.0	116
External	39.0	17.0	50.2	177
Difference	-8.9^{*}	-8.0^{**}		

- Speed of domestic restructurings reflects the local-law advantage, though external restructurings have become faster with the introduction of CACs.
- In state-of-art sovereign default models, longer exclusion times are consistent with larger default volumes

Yet, Some Domestic Restructurings Take Very Long

Table: Share of Restructurings by Duration (Months)

	Less than 6	6 to 12	12 to 36	More than 36
Domestic	46%	12%	16%	27%
External	13%	23%	35%	29%

- Almost 50% of domestic defaults are resolved in less than six months.
- Most external defaults are resolved between 6 months and 3 years.
- Domestic and external defaults are equally likely to become extremely lengthy.

Domestic Defaults are More Punitive

Table: NPV Losses

	Mean	Median	SD	N
Domestic	42%	49%	22%	40
External	37%	33%	27%	175
Difference	5%	16%**		

- NPV estimates are taken from sources. Coverage is partial.
- Domestic defaults are smaller. Yet, more punitive.
- Evidence points against domestic market bias.

Face Value Reductions are Rare, Especially in Domestic Restructurings

Table: Incidence of Restructuring Strategies

	Maturity Ch.	Coupon Ch.	Face Value Red.
Domestic	87%	83%	23%
External	91%	88%	34%
Difference	−4%	−5%	−11%**

- Most restructurings feature amendments to the maturity structure and coupon changes.
- Face value reductions are rare, especially in domestic restructurings. Financial stability considerations may play a role.

Preemptive Def.

The Economic and Political Context

- We compare key metrics in years when a country is in default relative to any other year.
- Focus on variables capturing macro-financial and political developments
- Data: annual frequency (1980-2019)
- Sample: all existing countries (AEs, EMEs and DCs)
- Econometric approach: OLS & Probit model

The Economic and Political Context

- When the dependent variable is not binary, we use a contemporaneous linear panel regression:

$$y_{it} = \gamma_0 + \gamma_D D^D_{i,t} + \gamma_E D^E_{i,t} + \alpha_i + \beta_t + \epsilon_{i,t}. \quad (1)$$

$D^D_{i,t}$ ($D^E_{i,t}$) takes value one in those years in which a country is in a domestic (external) default. α_i and β_t are country and year FEs.

- When the dependent variable is binary, we use a probit model:

$$P(y_{i,t} = 1) = \Phi\left(\gamma_0 + \gamma_D D^D_{i,t} + \gamma_E D^E_{i,t}\right) + \epsilon_{i,t}. \quad (2)$$

where $\Phi(.)$ is the cumulative normal distribution function.

The Macroeconomic Context

	GDP Growth	Public Debt	Primary balance
$D_{i,t}^{Ext}$	-2.476***	22.960***	2.610***
	(0.489)	(2.817)	(0.513)
$D_{i,t}^{Dom}$	-2.517***	16.647***	0.054
	(0.766)	(4.650)	(0.390)
N	6202	4903	4869
Model	OLS	OLS	OLS
Country-Effects	Yes	Yes	Yes
Year-Effects	Yes	Yes	Yes
R^2	0.085	0.565	0.217

- Both domestic and external defaults happen in periods of low growth and high debt levels.
- Strong fiscal adjustment in place during external defaults.

The Macroeconomic Context

	Net Exports	Foreign Inflows	Private Credit	Bank Crisis
$D_{i,t}^{Ext}$	3.439***	-4.310***	-1.761	0.411***
	(0.487)	(0.653)	(2.628)	(0.063)
$D_{i,t}^{Dom}$	0.351	-2.356**	-15.667***	0.312***
	(0.812)	(0.921)	(3.336)	(0.088)
N	6412	5239	5761	6165
Model	OLS	OLS	OLS	Probit
Country-Effects	Yes	Yes	Yes	No
Year-Effects	Yes	No	Yes	No
R^2	0.745	0.234	0.083	

- External defaults happen in periods of substantial external adjustment.
- Domestic defaults happen in periods of credit crunch.
- Both domestic and external defaults are associated with banking crises.

What about inflation?

	Hyperinflation (500%)	Hyperinflation (250%)	Currency crisis
$D_{i,t}^{Ext}$	0.466***	0.587***	0.919***
	(0.128)	(0.109)	(0.064)
$D_{i,t}^{Dom}$	0.395**	0.347**	-0.025
	(0.165)	(0.152)	(0.112)
N	8078	8078	8078
Model	Probit	Probit	Probit
Country-Effects	No	No	No
Year-Effects	No	No	No

- High inflation is not a substitute of domestic default.
- High inflation is equally likely during domestic and external defaults (exchange rate channel).

The Political Context

	Political Stability	Elections	Moderate Government
$D_{i,t}^{Ext}$	-4.558***	0.167**	-0.367***
	(1.068)	(0.070)	(0.071)
$D_{i,t}^{Dom}$	-3.817***	0.310***	0.189
	(1.036)	(0.096)	(0.118)
N	3,959	6,200	3,591
Model	OLS	Probit	Probit
Country-Effects	Yes	No	No
Year-Effects	Yes	No	No
R^2	0.904		

- Both domestic and external defaults are associated with political instability.
- Elections are twice as likely during domestic defaults.
- Radical governments are often in power during external defaults.

The International Financial Architecture

	IMF Program	Official Debt Relief
$D_{i,t}^{Ext}$	-0.354***	1.339***
	(0.083)	(0.063)
$D_{i,t}^{Dom}$	0.624***	0.060
	(0.083)	(0.117)
N	8,078	8,078
Model	Probit	Probit
Country-Effects	No	No
Year-Effects	No	No

- Countries that receive support from the IMF prioritize repayments of external debt (LIOA).
- Countries that receive official debt relief are more likely to default externally (CoT).

Conclusions

- Compared to defaults abroad, defaults at home:
  - Are smaller, quicker and deliver larger losses
  - Are usually implemented amending maturities and coupon payments. Face value reductions are rare
- The environment surrounding domestic and external defaults is different:
  - Domestic defaults are associated with credit crunches.
  - External defaults happen at times of fiscal and external adjustment.
  - External defaults are less likely with moderate governments.
  - Domestic defaults are more likely to trigger elections.

Implications for the Literature

- Defaults at home and abroad are different. Models and calibration strategies should be different too
- Selectivity is the norm. Models of non-selective defaults apply to a limited sample of defaults
- Evidence does not support preferential treatment of domestic investors. Yet, financial stability concerns may play a role

Policy Lessons

- IMF policies affect domestic and external default patterns
  - Is the arrears policies (LIOA) incentivizing domestic default to the advantage of external debt? Is that the way to go?
- The macro framework used in the IMF's DSAs needs to recognize the systematic differences between domestic and external defaults.
  - Financial loops are key
  - The ongoing revision of the LIC's DSA framework should address this issue. Revision should be extended to MACs.

Domestic Default Data: Additional Details

In two companion papers we:

- provide the fine details about our database on domestic-law restructurings, and
- present a collection of "sovereign histories" that contain the fine details about each default episode, including the references where we obtained our information.

Domestic Default Data: Sources

Multiple sources:

- Reinhart and Rogoff (R&R) (2008); Beers and de Leon-Manlagnit (2019), Asonuma and Trebesch (2016), IMF (2021)
- Reports from rating agencies
- Local and international press (Factiva) in English, French, Spanish and Italian
- IMF program documents and Article IV reports
- Reports from Development Banks
- Accounts from Ministries and Central Banks
- Parliamentary resolutions
- Books and academic articles

Comparison With Alternative Databases

- R&R (2011) focuses on law and contains 27 domestic-law default episodes for the period 1980-2008
- IMF (2021) extends R&R, combining law and residence, to cover the period 1980-2020. It contains 63 episodes
- Key differences:
  - Details on the restructuring processes and actors
  - Monthly Frequency
  - Focus on explicit default. We exclude: Hyper-inflationary episodes, defaults by Central Banks, and payment arrears on resident non-financial creditors.

Payment arrears on resident non-financial creditors

- We uncover 30 events of payment arrears with non-financial local creditors
- Not included in the database due to:
  - Incomplete coverage
  - Poor data quality / limited information available
- Features:
  - Large amounts involved (on average 19% of GDP)
  - Very long duration (on average 89 months)
  - Significant losses (54% of NPV on average - 5 cases)

Back

Comparison with alternative databases

- Partial overlap with existing databases

Table: Number of defaults jointly reported in the databases specified by the corresponding row and column

Database Criterion	Our Data Law	B&LM (2019) Currency	IMF (2021) "Residence"
Our Data	76	20	37
B&LM (2019)		40	24
IMF (2021)			63

Back

Preemptive and Post-default Restructurings.

Table: Characteristics of Preemptive and Post-Default Restructurings

	% (all events)	Size (% of GDP)	Duration (months)	NPV Losses
Domestic debt				
Pre-default	46%	10.4%	2.2	31.8%
Post-default	54%	6.7%	51.1	42.5%
External debt				
Pre-default	39.5%	13.0%	11.1	20.9%
Post-default	60.5%	12.5%	57.2	47.0%

- Preemptive restructurings are larger, quicker, and less punitive.
- This applies both domestically and externallly.

Back