
Coming to Terms: The Politics of Sovereign Bond Denomination

Online Appendix

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Below can be found all referenced results from Ballard-Rosa, Mosley and Wellhausen (2021) "Coming to Terms: The Politics of Sovereign Bond Denomination," *International Organization*.

Online Appendix

TABLE A.1. Data sources

VARIABLE NAME	SOURCE
Bond issues: timing, amount, and terms (currency, maturity, and yield)	Bloomberg terminals (see replication data)
Government partisanship	World Bank, Database of Political Institutions (DPI)
GDP per capita	World Bank, World Development Indicators (WDI)
GDP growth	World Bank, World Development Indicators (WDI)
External debt	Abbas et al. (2010)
Current account balance	World Bank, World Development Indicators (WDI)
Trade	World Bank, World Development Indicators (WDI)
Oil rents	World Bank, World Development Indicators (WDI)
Foreign direct investment, net inflows	World Bank, World Development Indicators (WDI)
Interest rate on 10-year US Treasury bonds	US Federal Reserve
Pegged exchange rate	Shambaugh (2004)
Central bank independence	Weighted measure from Garriga (2016)
Capital account openness	Chinn and Ito (2006)
IMF program in place	Dreher (2006)
Inflation crisis	Valencia and Laeven (2012)
Inflation crisis history	Calculated from Valencia and Laeven (2012)
Sovereign debt crisis	Valencia and Laeven (2012)
Currency crisis	Valencia and Laeven (2012)
Democracy	"Polyarchy" score from Varieties of Democracy (VDem)

Full regression output from text

TABLE A.2. Domestic currency bond issuance (1990-2016), Non-OECD countries

VARIABLES	(1) CBI	(2) Peg XR	(3) Currency crisis	(4) Inflation crisis
Right govt.	-0.060 (0.039)	-0.088** (0.038)	-0.049 (0.033)	-0.054 (0.034)
Left govt.	0.008 (0.047)	0.082** (0.040)	0.112*** (0.042)	0.110** (0.045)
High CBI	-0.011 (0.033)			
Right govt. x CBI	-0.045 (0.052)			
Left govt. x CBI	0.149** (0.066)			
Pegged XR		-0.039 (0.026)		
Right govt. x Peg		0.031 (0.049)		
Left govt. x Peg		0.162*** (0.054)		
Currency crisis			0.079*** (0.022)	
Right govt. x Currency crisis			-0.236*** (0.058)	
Left govt. x Currency crisis			-0.136*** (0.037)	
Inflation crisis				-0.136** (0.059)
Right govt. x Inflation crisis				-0.255** (0.117)
Left govt. x Inflation crisis				-0.072 (0.084)
Baseline controls	✓	✓	✓	✓
Full controls	✓	✓	✓	✓
Observations	8,163	8,163	8,163	8,163
R-squared	0.115	0.112	0.112	0.115
Number of countries	79	79	79	79

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions of proportion of domestic-currency denominated bonds on government partisanship interacted with measures for economic institutions and crisis environments, along with a full set of controls. Country and year fixed effects are suppressed, as is a cubic polynomial in time.

TABLE A.3. Amount issued (% GDP) (1990-2016)

VARIABLES	(1) Amount issued
Right govt.	0.052 (0.101)
Left govt.	-0.121 (0.079)
GDP per capita	-0.017 (0.065)
GDP growth (annual %)	-0.010* (0.006)
External debt (% of GDP)	0.002 (0.001)
Current account balance (% of GDP)	-0.004* (0.002)
Trade (% of GDP)	-0.003 (0.003)
Oil rents (% of GDP)	0.006 (0.004)
FDI, net inflows (% of GDP)	-0.002 (0.002)
US treasury rate	-0.045* (0.026)
Pegged XR	0.031 (0.027)
High CBI	-0.008 (0.082)
Chinn-Ito index	0.013 (0.019)
IMF prog. in place	0.017 (0.077)
Currency crisis	-0.019 (0.036)
Inflation crisis	-0.047 (0.045)
Sov. debt crisis	0.022 (0.102)
Democracy (VDem)	0.294 (0.264)
Observations	17,879
Number of countries	84
R-squared	0.004

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regression of amount of sovereign bonds issued (by month, % GDP) on government partisanship and a full set of controls. Country fixed effects are suppressed, as is a cubic polynomial in time.

TABLE A.4. Domestic currency bond issuance by decade, Non-OECD countries

VARIABLES	(1) Decade dummies
Right govt.	-0.017 (0.039)
Right govt. x 1990s	-0.132* (0.071)
Right govt. x 2000s	-0.024 (0.035)
Left govt.	0.152*** (0.052)
Left govt. x 1990s	-0.076 (0.056)
Left govt. x 2000s	-0.051 (0.037)
1990s	0.184*** (0.055)
2000s	0.064** (0.026)
Baseline controls	✓
Full controls	✓
Observations	8,163
Number of countries	79
R-squared	0.122

Robust standard errors clustered by country in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

This table reports results of OLS regressions of the proportion of domestic-currency denominated bonds on government partisanship interacted with a dummy for decade, along with a full set of controls. Country fixed effects are suppressed, as is a cubic polynomial in time.

TABLE A.5. Domestic currency bond issuance (1990-2016), Democracies vs Autocracies

VARIABLES	(1) Democ. only	(2) Autoc. only
Right govt.	-0.076** (0.033)	-0.243 (0.158)
Left govt.	0.093** (0.039)	0.150 (0.202)
GDP per capita	-0.059 (0.073)	0.056 (0.055)
GDP growth (annual %)	0.004* (0.003)	-0.003 (0.002)
External debt (% of GDP)	0.001 (0.001)	0.002 (0.002)
Current account balance (% of GDP)	0.004 (0.003)	-0.001 (0.004)
Trade (% of GDP)	-0.000 (0.001)	-0.001 (0.001)
Oil rents (% of GDP)	0.001 (0.009)	0.004 (0.004)
FDI, net inflows (% of GDP)	0.003 (0.003)	-0.001 (0.002)
US treasury rate	0.024*** (0.008)	0.007 (0.015)
Pegged XR	-0.013 (0.041)	0.050* (0.027)
High CBI	0.004 (0.040)	-0.020 (0.037)
Chinn-Ito index	0.000 (0.018)	-0.026 (0.046)
IMF prog. in place	-0.032 (0.031)	-0.116** (0.048)
Currency crisis	-0.053* (0.031)	-0.032 (0.031)
Inflation crisis	-0.197*** (0.059)	0.002 (0.042)
Sov. debt crisis	0.176 (0.114)	-0.254 (0.311)
Democracy (VDem)	0.088 (0.154)	-0.584* (0.299)
Observations	5,992	2,171
R-squared	0.135	0.077
Number of countries	56	39

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions taking proportion of bonds issued in domestic currency as the dependent variable, separately for democratic and non-democratic countries. Country fixed effects are suppressed, as is a cubic polynomial in time.

TABLE A.6. Domestic currency bond issuance, Institutional Controls

VARIABLES	(1) PR	(2) CBI time	(3) CBI time	(4) Peg time	(5) Peg time
Right govt.	-0.072** (0.032)	-0.060* (0.034)	-0.074 (0.046)	-0.073** (0.032)	-0.076** (0.036)
Left govt.	0.109** (0.044)	0.119*** (0.044)	0.043 (0.043)	0.106** (0.041)	0.104** (0.042)
Proportional Representation	-0.141* (0.073)				
Time since CBI		0.009** (0.005)	0.005 (0.005)		
Right X CBI time			0.002 (0.006)		
Left X CBI time			0.012* (0.006)		
Time since peg XR				0.001 (0.007)	0.001 (0.009)
Right X Peg time					0.001 (0.006)
Left X Peg time					0.001 (0.008)
Baseline controls	✓	✓	✓	✓	✓
Full controls	✓	✓	✓	✓	✓
Observations	7,838	7,863	7,863	8,308	8,308
R-squared	0.116	0.124	0.130	0.108	0.108
Number of countries	77	73	73	78	78

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions of the proportion of domestic-currency denominated bonds on government partisanship, as well as controls for additional factors potentially correlated with left government. Country fixed effects are suppressed, as is a cubic polynomial in time.

Results using VParty partisan coding

FIGURE A.1. Government partisanship and currency of issuance, using VParty data.

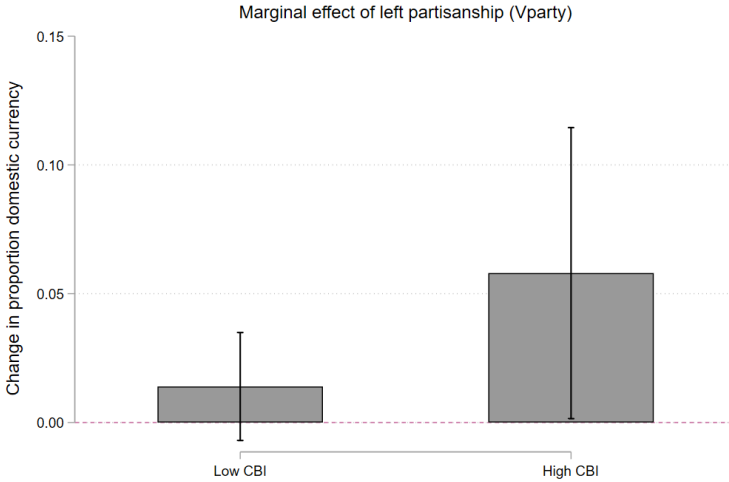


FIGURE A.2. Government partisanship and currency of issuance, using VParty data.

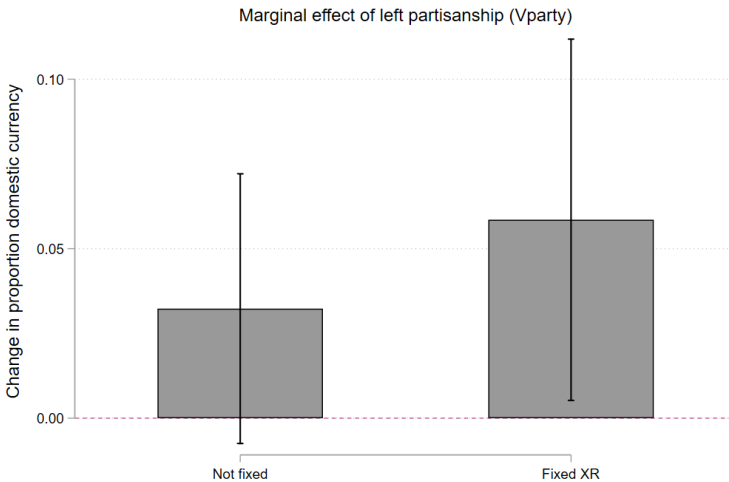


TABLE A.7. Domestic currency bond issuance (1990-2016), Non-OECD countries, using VParty data

VARIABLES	(1) % Domestic	(2) % Domestic	(3) % Domestic	(4) % Domestic	(5) % Domestic
Right-left partisanship	0.035* (0.019)	0.014 (0.011)	0.032 (0.020)	0.045** (0.020)	0.043** (0.019)
High CBI		0.041 (0.032)			
CBI x RL partisanship		0.044 (0.027)			
Pegged XR			-0.015 (0.035)		
Peg x RL partisanship			0.026 (0.026)		
Currency crisis				-0.014 (0.026)	
Currency crisis x RL partisanship				-0.046*** (0.017)	
Inflation crisis					-0.186*** (0.053)
Inflation crisis x RL partisanship					-0.034 (0.033)
Baseline controls	✓	✓	✓	✓	✓
Full controls	✓	✓	✓	✓	✓
Observations	7,121	7,121	7,121	7,121	7,121
R-squared	0.095	0.085	0.083	0.085	0.082
Number of countries	71	71	71	71	71

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions of the proportion of domestic-currency denominated bonds on a continuous measure of government economic ideology, along with a full set of controls. Country fixed effects are suppressed, as is a cubic polynomial in time.

Results by country-year

FIGURE A.5. Government partisanship and currency of issuance, by country-year.

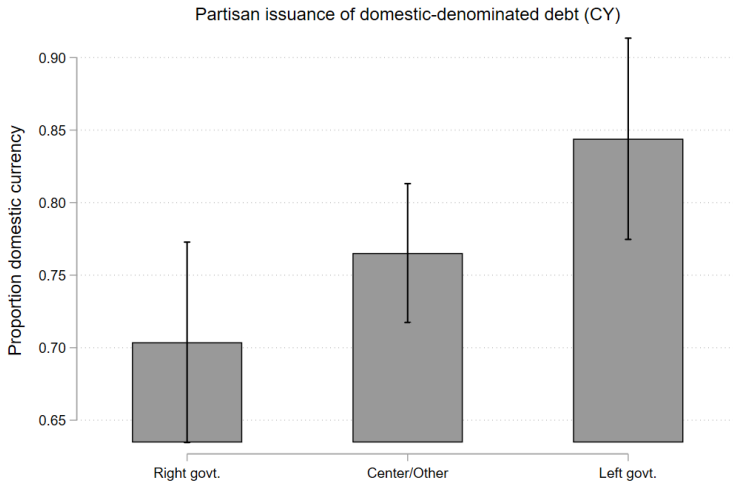


FIGURE A.6. Government partisanship and currency of issuance, by country-year.

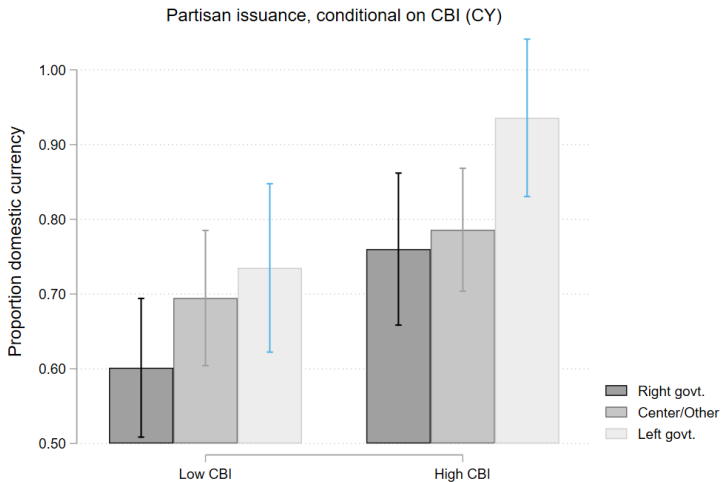


FIGURE A.7. Government partisanship and currency of issuance, by country-year.

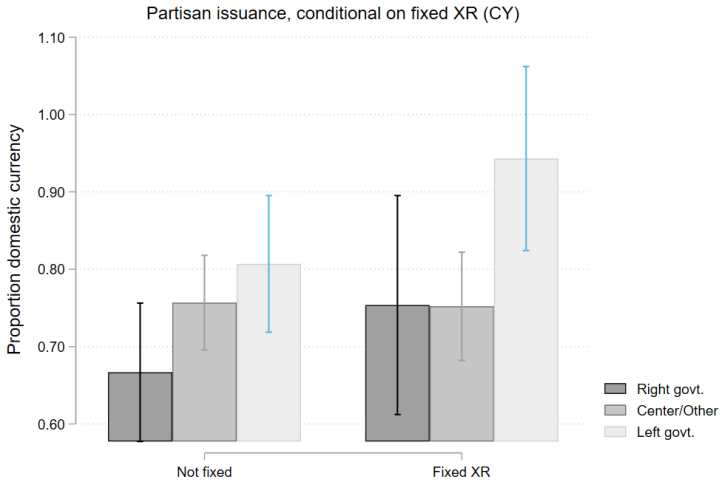


FIGURE A.8. Government partisanship and currency of issuance, by country-year.

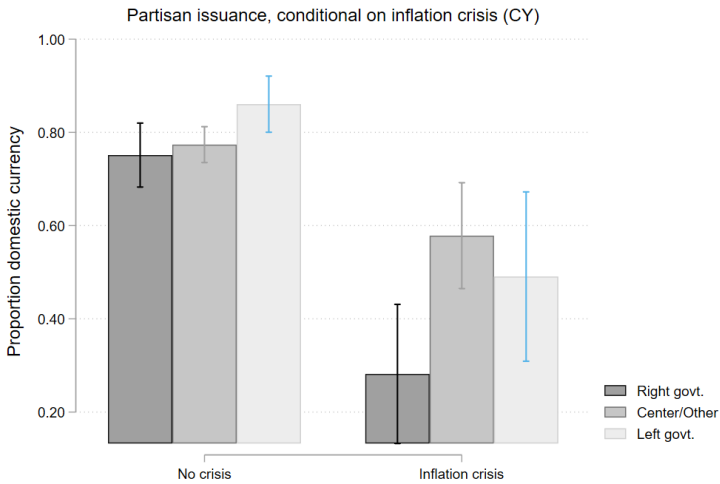


FIGURE A.9. Government partisanship and currency of issuance, by country-year.

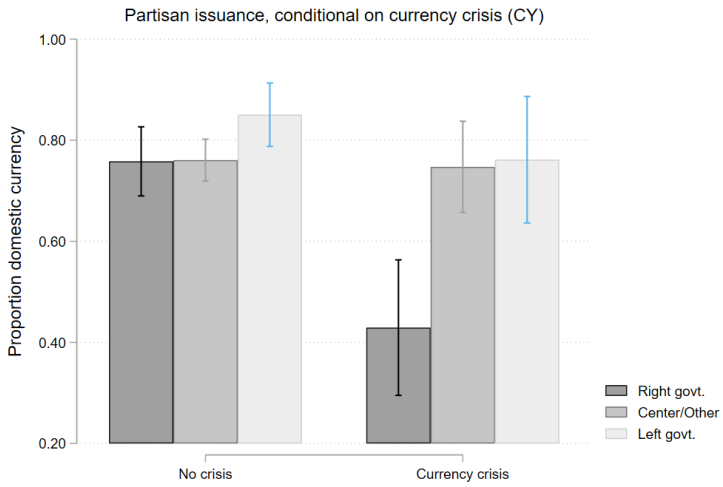


TABLE A.8. Domestic currency bond issuance (1990-2016), Non-OECD countries, by country-year

VARIABLES	(1) Partisanship	(2) CBI	(3) Peg	(4) Curr. crisis	(5) Infl. crisis
Right	-0.062 (0.053)	-0.093 (0.065)	-0.090 (0.063)	-0.002 (0.047)	-0.022 (0.046)
Left	0.079 (0.055)	0.040 (0.075)	0.050 (0.062)	0.090* (0.049)	0.087* (0.046)
High CBI		0.091 (0.071)			
Right x CBI		0.068 (0.086)			
Left x CBI		0.110 (0.093)			
Pegged XR			-0.005 (0.043)		
Right x Peg			0.092 (0.084)		
Left x Peg			0.141* (0.077)		
Currency crisis				-0.013 (0.048)	
Right x Currency crisis				-0.316*** (0.084)	
Left x Currency crisis				-0.076 (0.075)	
Inflation crisis					-0.195*** (0.061)
Right x Inflation crisis					-0.274** (0.107)
Left x Inflation crisis					-0.174 (0.107)
Baseline controls	✓	✓	✓	✓	✓
Observations	1,384	1,140	1,317	1,384	1,384
R-squared	0.154	0.193	0.162	0.184	0.215
Number of ccode	86	84	85	86	86

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions of the proportion of domestic-currency denominated bonds (by country-year) on government partisanship interacted with measures for economic institutions and crisis environments, along with a full set of controls. Country fixed effects are suppressed, as is a cubic polynomial in time.

TABLE A.9. Domestic currency bond issuance (1990-2016), Non-OECD countries, all bonds issued

VARIABLES	(1) Bivar.	(2) Baseline	(3) Full controls
Right govt.	-0.029 (0.027)	-0.017 (0.025)	-0.010 (0.029)
Left govt.	0.061 (0.043)	0.071* (0.038)	0.092** (0.035)
GDP per capita		0.012 (0.048)	0.008 (0.047)
GDP growth (annual %)		0.004*** (0.001)	0.003** (0.002)
External debt (% of GDP)		0.002* (0.001)	0.002*** (0.001)
Current account balance (% of GDP)		-0.000 (0.001)	0.001 (0.002)
Trade (% of GDP)		-0.000 (0.001)	-0.000 (0.001)
Oil rents (% of GDP)		0.000 (0.002)	0.002 (0.003)
Foreign direct investment, net inflows (% of GDP)		-0.000 (0.000)	0.001 (0.001)
US treasury rate		0.011** (0.005)	0.016*** (0.005)
Pegged XR			-0.005 (0.021)
High CBI			-0.010 (0.022)
Chinn-Ito index			0.001 (0.011)
IMF prog. in place			-0.037 (0.025)
Currency crisis			-0.044* (0.026)
Inflation crisis			-0.090** (0.038)
Sov. debt crisis			0.184** (0.090)
Democracy (VDem)			-0.072 (0.098)
Observations	16,141	14,416	10,499
R-squared	0.050	0.061	0.102
Number of countries	104	89	80

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions of the proportion of domestic currency issuance (by month, all bonds issued) on government partisanship (by month, lagged) and varying sets of controls. Country effects are suppressed, as is a cubic polynomial in time.

TABLE A.10. Domestic currency bond issuance (1990-2016), Non-OECD countries, all bonds issued

VARIABLES	(1) CBI	(2) Fix XR	(3) Currency crisis	(4) Inflation crisis
Right govt.	-0.002 (0.037)	-0.017 (0.035)	0.013 (0.029)	0.000 (0.029)
Left govt.	0.027 (0.051)	0.071* (0.036)	0.095*** (0.035)	0.095*** (0.036)
High CBI	-0.067 (0.048)			
Right govt. x High CBI	-0.031 (0.041)			
Left govt. x High CBI	0.087 (0.068)			
Pegged XR		-0.029 (0.022)		
Right govt. x Peg XR		0.018 (0.049)		
Left govt. x Peg XR		0.103** (0.049)		
Currency crisis			0.047** (0.020)	
Right govt. x Currency crisis			-0.172*** (0.054)	
Left govt. x Currency crisis			-0.072** (0.034)	
Inflation crisis				-0.061 (0.046)
Right govt. x Inflation crisis				-0.117 (0.122)
Left govt. x Inflation crisis				-0.092 (0.060)
Baseline controls	✓	✓	✓	✓
Full controls	✓	✓	✓	✓
Observations	10,499	10,499	10,499	10,499
R-squared	0.095	0.106	0.108	0.109
Number of countries	80	80	80	80

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions of the proportion of domestic-currency denominated bonds (for all bonds issued) on government partisanship interacted with measures for economic institutions and crisis environments, along with a full set of controls. Country fixed effects are suppressed, as is a cubic polynomial in time.

Heckman selection estimates

We have demonstrated robust evidence for an association between left government partisanship and domestic currency issuance, as well as the inverse for right governments. However, we can only observe the terms of bonds for those country-months in which issuance actually occurred. This raises the possibility, of course, that our inferences on the effects of partisanship on denomination choice are colored by problems of selection bias, such as might arise if a state's capacity to borrow internationally at all in a given month is, in part, due to the partisan orientation of its government.

In order to address this potential problem, we re-implement our estimations in a two stage Heckman selection framework. In the first stage, we estimate the probability that a country issues any sovereign bonds in a given month; in the second stage, we account for any potential effects of selection into issuance and re-estimate both the unconditional relationship between government partisanship and currency composition, in addition to the conditional effects of partisanship after accounting for institutional constraints and crisis environments.

In order for Heckman selection models to be consistent, it is standard to identify some factor that helps explain the selection stage but is uncorrelated with the error term in the outcome equation. In our case, this requires a factor that correlates with the issuance of sovereign bonds, but not with the currency composition of the bonds. Here, we rely on democracy and US Treasury rates, drawing on recent work by Ballard-Rosa, Mosley and Wellhausen (2019) that demonstrates a strong effect of democratic regime type on the likelihood of issuance across countries, conditional on global liquidity as measured by US Treasury rates, and recovers no effect of partisanship on the timing or amount of issuance. As reported in column 1 in Appendix Table A.11, we find no evidence that the interaction of democracy and US Treasury rates is related to the currency composition of the debt incurred. While impossible to prove definitively that the "exclusion restriction" for this instrument is valid, we take this as evidence in favor of using the interaction of democracy and US Treasury rates as the excluded factor in our Heckman selection estimations.

Table A.12 reports results from our two-stage Heckman selection estimation. In the issuance stage, we reconfirm results from Ballard-Rosa, Mosley and Wellhausen (2019) that there exists a significant effect of democratic regime type on bond issuance conditioned by global liquidity. Turning then to results from the outcome stage, even after taking into account the possibility of selection bias into our data, we continue to recover a significant unconditional positive association between left governments and the percent of domestic denomination, as reported in column 1.¹ Columns 2 through 5 further demonstrate conditional effects of government partisanship.

In discussion of Heckman models, it is common to report the estimated correlation between the error terms in the selection versus outcome equations. This parameter,

1. Note, however, that the negative association between right governments and domestic issuance is less robust in the Heckman selection framework.

generally referred to as ρ , is reported at the bottom of Table A.12. As can be seen, the estimated correlation between error terms across the two equations is very low; on only one of the specifications does it come close to rejecting the null hypothesis that the true degree of correlation across these errors is zero, which is usually taken as evidence for the need to perform a correction for sample selection. Thus, while we include Heckman selection results here in order to forestall plausible concerns over selection bias, the data suggest that our original OLS estimates are unlikely to suffer heavily from such bias.

TABLE A.11. Domestic currency issuance and global liquidity (Non-OECD countries, 1990-2016)

VARIABLES	(1) % Domestic
Democracy (VDem)	0.341 (0.247)
US treasury rate	0.049* (0.030)
Democ. x UST	-0.055 (0.045)
GDP per capita	-0.049 (0.060)
GDP growth (annual %)	0.003 (0.002)
External debt (% of GDP)	0.001 (0.001)
Current account balance (% of GDP)	0.002 (0.003)
Trade (% of GDP)	-0.000 (0.001)
Oil rents (% of GDP)	-0.001 (0.006)
Foreign direct investment, net inflows (% of GDP)	0.003 (0.002)
Pegged XR	-0.002 (0.027)
High CBI	0.004 (0.030)
Chinn-Ito index	-0.015 (0.016)
IMF prog. in place	-0.044 (0.030)
Currency crisis	-0.057* (0.033)
Inflation crisis	-0.175*** (0.050)
Sov. debt crisis	0.206 (0.128)
Observations	8,187
Number of countries	79
R-squared	0.090

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions of the proportion of sovereign bonds issued in domestic currency on an interaction between democracy and US Treasury rates, as well as a set of control variables reported. Country fixed effects are suppressed, as is a cubic polynomial in time.

TABLE A.12. Domestic currency bond issuance, Heckman selection results

EQUATION	VARIABLES	(1) Baseline	(2) CBI	(3) Peg XR	(4) Currency crisis	(5) Inflation crisis
DENOM.	Right exec.	-0.076* (0.039)	-0.058 (0.059)	-0.098* (0.050)	-0.027 (0.033)	-0.053 (0.036)
	Left exec.	0.111* (0.057)	0.049 (0.067)	0.108** (0.055)	0.121** (0.053)	0.110** (0.054)
	CBI		0.006 (0.061)			
	Right x CBI		-0.039 (0.069)			
	Left x CBI		0.172* (0.097)			
	Pegged XR			-0.041 (0.038)		
	Right x Peg			0.098 (0.074)		
	Left x Peg			0.151** (0.071)		
	Currency crisis				0.074 (0.046)	
	Right x Currency				-0.321*** (0.078)	
	Left x Currency				-0.133** (0.064)	
	Inflation crisis					-0.137*** (0.053)
	Right x Inflation					-0.281*** (0.089)
	Left x Inflation					-0.077 (0.101)
	ISSUANCE	Democracy	-1.547** (0.626)	-1.511** (0.676)	-1.458** (0.629)	-1.538** (0.628)
UST rate		-0.260*** (0.072)	-0.132* (0.072)	-0.213*** (0.069)	-0.259*** (0.072)	-0.259*** (0.072)
Democ. x UST		0.300*** (0.106)	0.280** (0.111)	0.291*** (0.104)	0.298*** (0.106)	0.297*** (0.106)
Right govt.		-0.124 (0.137)	-0.193 (0.138)	-0.148 (0.137)	-0.124 (0.137)	-0.124 (0.137)
Left govt.		0.015 (0.151)	-0.049 (0.154)	0.003 (0.150)	0.015 (0.151)	0.015 (0.151)
Controls		✓	✓	✓	✓	✓
ρ		0.157 (0.097)	0.144* (0.086)	0.147 (0.104)	0.129 (0.095)	0.118 (0.105)
Observations		22,854	21,455	22,262	22,854	22,854
Countries		88	88	88	88	88

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of two-stage Heckman selection estimation, with issuance of debt as the selection outcome and proportion of foreign-currency denominated bonds as the second state outcome.

Tradeoffs across terms?

As discussed in Section 5, we anticipate that all governments, regardless of ideology, face tradeoffs across the financial and non-financial terms at which they borrow. Our analysis of the financial terms for which we have data in Table 1 suggests the existence of such tradeoffs. While we expect that left governments are more inclined to trade off in favor of domestic currency denomination, we do not expect the magnitude of the tradeoff to vary with ideology. Table A.13 provides descriptive support for this intuition.

TABLE A.13. Partisanship, currency of issuance, and other debt terms

VARIABLES	(1) Maturity	(2) Maturity	(3) Coupon	(4) Coupon
Right govt.	-0.383 (0.581)	-0.140 (0.610)	-0.817 (0.726)	-0.729 (0.729)
Left govt.	0.471 (1.258)	0.213 (1.197)	0.869 (0.651)	0.761 (0.620)
Proportion dom.	-4.858*** (0.625)	-4.555*** (0.733)	-1.018* (0.513)	0.095 (0.649)
Right x Prop. dom.	0.770 (0.726)	0.667 (0.725)	0.351 (0.791)	0.174 (0.783)
Left x Prop. dom.	0.227 (1.243)	0.471 (1.198)	-0.820 (0.697)	-0.872 (0.686)
Avg. coupon		0.297*** (0.072)		
Avg. maturity				0.229*** (0.049)
Controls	✓	✓	✓	✓
Observations	14,416	14,416	14,416	14,416
R-squared	0.116	0.176	0.058	0.122
Number of countries	89	89	89	89

Robust standard errors clustered by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This table reports results of OLS regressions of either the average maturity or average coupon of bonds issued by country-month on an interaction between government partisanship and the proportion of debt issued in domestic currency, as well as a set of control variables. Country fixed effects are suppressed, as is a cubic polynomial in time.