Regulating Carry Trades: Evidence from Foreign Currency Borrowing of Corporations in India

Online Appendix

A Results using Poisson Regressions

In this section, we discuss the robustness of our intensive margin results where we use the log of 1 plus the foreign currency borrowing amount as the dependent variable. Recent advances in the econometric literature (e.g. Chen and Roth (2023), Cohn, Liu and Wardlaw (2022)) suggest that this approach might have some shortcomings. In particular, the magnitude of the estimates using the log(1+x) transformation are sensitive to the units of x and may even deliver an incorrect sign in expectation. We follow Chen and Roth (2023) and Cohn, Liu and Wardlaw (2022), and use Poisson Quasi-Maximum Likelihood Estimation (QMLE) to test the robustness of the results on the amount of foreign currency borrowing. In the Poisson regressions, there is no transformation of the dependent variable, i.e., the amount of borrowing itself is the outcome.

We present these results in Tables A.1, A.2, and A.3. The specifications employed correspond to those in Tables 2, 3, and 4 respectively. For ease of comparison, we also present the base results using the log transformation. These tests give a consistent message – our results are robust to using Poisson QMLE both in sign and significance. In fact, if anything, the magnitudes of the key dependent variables are larger when we use Poisson.

Table A.1: Determinants of Issuance: Carry Trade and the Post-crisis Period

This table shows results from regressions used to predict the issuance of foreign currency debt between September 2008 and March 2019. All observations are at the firm-month level. The dependent variable in the first four columns is the log of 1 plus the amount borrowed by a firm in a given month and estimation is by Ordinary Least-Squares. In the next four columns, the dependent variable is the amount borrowed by a firm in a given month and estimation is by Poisson Quasi-Maximum Likelihood Estimation. In columns (1), (2), (5), and (6), the sample includes all issuances while in the other columns, the sample is comprised only of bank loans. The independent variable, CT, captures the difference in 3-month interest rates between India and the U.S. scaled by the implied volatility of 3-month FX options. $CT^*PostCrisis$ is the value of CT interacted with a dummy that takes the value 1 if the month is between September 2008 and September 2013, and 0 otherwise. $CT^*PostTaper$ is the value of CT interacted with a dummy that takes the value 1 if the month is after September 2013, and 0 otherwise. The INRUSD and NIFTY market returns are included in all specifications. These independent variables are one-month lagged values. Firm-level controls include total assets, debt to asset ratio, ratio of exports to sales, and cash to asset ratio. These are measured at the end of the previous fiscal year. Firm-clustered standard errors are in parentheses. Significance levels: *(p < 0.10), **(p<0.05), *** (p<0.01)

		Mode DV:Log (1	el:OLS +FC Borr)			Model:Pois DV: FC Bo	sson QML orr Amou	E nt
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CT	$\begin{array}{c} 0.139^{***} \\ (0.035) \end{array}$	-0.103 (0.070)	$\begin{array}{c} 0.166^{***} \\ (0.036) \end{array}$	-0.047 (0.067)	0.475^{*} (0.265)	-0.086 (0.470)	0.681^{**} (0.286)	0.451 (0.484)
CT^* post-crisis		$\begin{array}{c} 0.476^{***} \\ (0.085) \end{array}$		$\begin{array}{c} 0.455^{***} \\ (0.084) \end{array}$		$1.483^{***} \\ (0.400)$		$\begin{array}{c} 1.192^{***} \\ (0.459) \end{array}$
CT*post-Taper Tantrum		$0.032 \\ (0.088)$		-0.028 (0.088)		-0.865 (0.802)		-1.496^{*} (0.799)
FX Return	$0.003 \\ (0.003)$	$0.003 \\ (0.003)$	$0.002 \\ (0.003)$	$0.002 \\ (0.003)$	$\begin{array}{c} 0.033 \\ (0.040) \end{array}$	$\begin{array}{c} 0.030 \\ (0.040) \end{array}$	$\begin{array}{c} 0.023 \\ (0.042) \end{array}$	$0.017 \\ (0.041)$
NIFTY return	-0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)	$0.000 \\ (0.001)$	-0.009 (0.010)	-0.006 (0.012)	-0.006 (0.010)	-0.001 (0.011)
Post-crisis	-0.046 (0.028)	-0.339^{***} (0.057)	$0.009 \\ (0.031)$	-0.272^{***} (0.059)	-0.021 (0.154)	-1.023^{***} (0.250)	$0.074 \\ (0.176)$	-0.786^{***} (0.305)
Post-Taper Tantrum	-0.252^{***} (0.033)	-0.190^{**} (0.076)	-0.221^{***} (0.036)	-0.112 (0.079)	-0.282 (0.265)	$0.700 \\ (0.748)$	-0.224 (0.304)	1.230^{*} (0.736)
Sample Firm Controls	All Yes	All Yes	Bank Yes	Bank Yes	All Yes	All Yes	Bank Yes	Bank Yes
Firm FE Observations Adi. R^2	Yes 133913 0.029	Yes 133913 0.029	Yes 123254 0.029	Yes 123254 0.029	Yes 124008	Yes 124008	Yes 116947	Yes 116947
$Pseudo R^2$	0.0_0	0.0_0	0.0_0	0.0_0	0.463	0.467	0.485	0.491

Table A.2: Carry Trade and Macroprudential Policies in the Post-crisis Period

This table shows results from regressions used to predict the issuance of foreign currency debt between September 2008 and March 2019. All observations are at the firm-month level. The dependent variable in the first four columns is the log of 1 plus the amount borrowed by a firm in a given month and estimation is by Ordinary Least-Squares. In the next four columns, the dependent variable is the amount borrowed by a firm in a given month and estimation is by Poisson Quasi-Maximum Likelihood Estimation. In columns (1), (2), (5), and (6), the sample includes all issuances while in the other columns, the sample is comprised only of bank loans. The independent variable, CT, captures the difference in 3-month interest rates between India and the U.S. scaled by the implied volatility of 3-month FX options. *High AIC* is a dummy that takes the value 1 if the maximum All-In-Cost interest rate spread was above its sample median for the post-crisis period, indicating looser policy. CT^*Hi AIC is the value of CT interacted with *High AIC.* The INRUSD and NIFTY market returns are included in all specifications. These independent variables are one-month lagged values. Firm-level controls include total assets, debt to asset ratio, ratio of exports to sales, and cash to asset ratio. These are measured at the end of the previous fiscal year. Firm clustered standard errors are in parentheses. Significance levels: (p<0.10), (p<0.05), (p<0.01)

		Mode DV:Log (1	l:OLS +FC Borr)		N L	/Iodel:Poiss DV: FC Bor	on QMLE r Amount	C t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\overline{\mathrm{CT}} \left[\beta_1 \right]$	-0.617^{***} (0.106)	-0.630^{***} (0.106)	-0.528^{***} (0.108)	-0.541^{***} (0.108)	$\begin{array}{c} -2.212^{***} \\ (0.528) \end{array}$	$\begin{array}{c} -2.070^{***} \\ (0.571) \end{array}$	-1.010^{*} (0.581)	-0.868^{*} (0.507)
High AIC Spread	-0.617^{***} (0.097)	-0.626^{***} (0.101)	-0.533^{***} (0.099)	-0.543^{***} (0.103)	-1.881^{***} (0.501)	-2.086^{***} (0.427)	-0.715 (0.680)	-0.913^{*} (0.502)
CT*Hi AIC Spread $[\beta_2]$	$\begin{array}{c} 0.720^{***} \\ (0.109) \end{array}$	$\begin{array}{c} 0.728^{***} \\ (0.112) \end{array}$	$\begin{array}{c} 0.635^{***} \\ (0.111) \end{array}$	$\begin{array}{c} 0.644^{***} \\ (0.114) \end{array}$	$\begin{array}{c} 2.575^{***} \\ (0.529) \end{array}$	$\begin{array}{c} 2.673^{***} \\ (0.522) \end{array}$	$\frac{1.284^{**}}{(0.634)}$	$\frac{1.399^{***}}{(0.508)}$
FX Return	-0.001 (0.003)	-0.001 (0.003)	-0.001 (0.003)	-0.002 (0.003)	$0.024 \\ (0.050)$	$0.023 \\ (0.049)$	$\begin{array}{c} 0.019 \\ (0.051) \end{array}$	$0.018 \\ (0.050)$
NIFTY return	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.023 (0.015)	-0.018 (0.015)	-0.025^{*} (0.015)	-0.019 (0.014)
$\overline{Pr(\beta_1 + \beta_2 = 0)}$ Sample	0 All	.0002 All	.0001 Bank	.0003 Bank	.0932 All	.0024 All	.2124 Bank	.0118 Bank
Firm Controls	Yes	Yes Ves	Yes No	Yes Ves	Yes	Yes Ves	Yes No	Yes Ves
Observations $\operatorname{Adj} R^2$	$ 181865 \\ 0.003 $	$ 181865 \\ 0.029 $	168239 0.002	$168239 \\ 0.027$	181865	135928	168239	133285
$Pseudo R^2$					0.230	0.446	0.227	0.450

DID Estimates
Tightening:
Macroprudential
Issuance around 1
Cable A.3:

Panel A: Base results

the firm-month level. The dependent variable in the first five columns is the log of 1 plus the amount borrowed by a firm in a given month and estimation is Quasi-Maximum Likelihood Estimation. The independent variable, Treat*Post, is the interaction of Treat and Post. Treat takes the value 1 if a firm borrowed at The independent variable, (Spread-4.5)*Post, is the interaction of (Spread-4.5) and Post. (Spread-4.5) is a continuous variable which is the difference between the This table shows results from regressions used to predict the issuance of foreign currency debt between September 2008 and March 2019. All observations are at by Ordinary Least-Squares. In the next five columns, the dependent variable is the amount borrowed by a firm in a given month and estimation is by Poisson a spread of between 450 bps and 500 bps above 6-month LIBOR prior to November 2015, and 0 otherwise. Post is 1 for all months from November 2015 onwards. average all-in-cost spread for a firm and 450 bps above 6-months LIBOR. We convert this variable to % by dividing by 100 · In columns (1) and (6), the sample and (10), we exclude firms with borrowing cost above 500 bps. In columns (4) and (9), we restrict the sample to firms that borrowed at a cost between 400 bps and 500 bps over 6-month LIBOR. For firms for which we do not have the borrowing cost from Dealscan, we predict the borrowing cost using the average interest is restricted to firms for which we have borrowing costs from the *Dealscan* sample. In columns (2) and (7), we have the entire sample. In columns (3), (5), (8), expense in *Prowess* and the relationship between *Dealscan* and *Prowess* spreads. *Post* takes the value 1 for months starting from November 2015, and 0 otherwise. Firm-level controls include total assets, debt to asset ratio, ratio of exports to sales, and cash to asset ratio. These are measured at the end of the previous fiscal year. Firm-clustered standard errors are in parentheses. Significance levels: *(p<0.10), **(p<0.05), *** (p<0.01)

		DV:Lc	Model:OL ⁶ ig (1+FC	S Borr)			Model DV: F	:Poisson (C Borr A	2MLE mount	
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Treat*Post	-0.555^{**} (0.279)	-0.084^{**} (0.039)	-0.101^{*} (0.054)	-0.128^{**} (0.057)		-0.285 (0.251)	-0.172 (0.282)	-0.856 (0.523)	-1.087^{**} (0.546)	
$(\text{Spread-4.5})^{*}\text{Post}(\%)$					-0.047^{***} (0.017)					-0.357^{**} (0.162)
Sample Controls	Dealscan Yes	All Yes	[0,500] Yes	$\frac{[400,500]}{\text{Yes}}$	[0,500] Yes	Dealscan Yes	All Yes	[0,500] Yes	[400,500] Yes	[0,500] Yes
Year FE and Firm FE	Yes	\mathbf{Yes}	Yes	$\mathbf{Y}_{\mathbf{es}}$	Yes	Yes	\mathbf{Yes}	Yes	Yes	$\mathbf{Y}_{\mathbf{es}}$
Observations $\operatorname{Adi} R^2$	$11224 \\ 0.062$	$176712 \\ 0.030$	$156436 \\ 0.027$	$41029 \\ 0.031$	$156436 \\ 0.027$	9010	132173	118641	29967	118641
$\tilde{\mathrm{Pseudo}R^2}$						0.356	0.448	0.359	0.367	0.359

Panel B: Results with bootstrapped standard	errors
Panel B: Results with bootstrapped st	andard
Panel B: Results with bootstrap	oed sta
Panel B: Results with	bootstrap
Panel B: Results	with l
Panel B:	Results
	Panel B:

This panel shows results using the same specifications as in columns (2)-(5) and columns (7)-(10) of Panel A. However, the standard errors reported are from a bootstrapping procedure. In the bootstrapping process, we make 1000 random draws from N(0.167,0.033). The mean (standard deviation) of this normal distribution is the coefficient (standard error) of the estimated relationship between the marginal Dealscan the Dealscan spread. We then characterize treated firms based on these predicted spreads, and undertake our DID process. We estimate the DID coefficient for both issuance propensity and volume. We repeat this randomization process 1000 times and take the standard deviation of the resulting coefficients as our bootstrapped standard error. This standard error is reported in parantheses below the coefficient (from spread and the average Prowess spread. For each draw, we use the randomly selected value as the coefficient on the Prowess spread to predict Panel A). Significance levels: *(p<0.10), **(p<0.05), *** (p<0.01)

		Moč DV:Log (lel:OLS 1+FC Borr			Model:Pois	son QMLE wr Amount	
	(1)	(2)	(3)	(4)	(2)	(9)	(7)	(8)
Treat*Post	-0.084^{*} (0.051)	-0.101 (0.073)	-0.128 (0.086)		-0.172^{***} (0.058)	-0.856^{***} (0.244)	-1.087^{***} (0.437)	
$(\text{Spread-4.5})^{*}\text{Post}$ (%)				-0.047^{***} (0.019)				-0.357^{***} (0.053)
Sample Controls	All Ves	[0.500]	[400,500]	[0,500]	All Ves	[0,500]	[400,500]	[0,500]
Year FE and Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176712	156436	41029	156436	132173	118641	29967	118641
$\mathrm{Adj.}R^2$	0.030	0.027	0.031	0.027				
$\operatorname{Pseudo} R^2$					0.448	0.359	0.367	0.359

B Additional Results



Figure B.1: Carry Trade and Trade Balance

The figure plots India's quarterly trade balance, in billions of dollars, against CT, a proxy for the difference in short-term rates between India and the U.S. CT is defined as the difference in 3-month interest rates between India and the U.S. scaled by the implied volatility of 3-month FX options. The sample period is from January 2004 to September 2019.

The following table shows the correlation between the monthly CT index and trade balance. Significance levels: *(p<0.10), **(p<0.05), *** (p<0.01).

ρ (monthly)	Jan 04-Sep 19	Jan 04-Aug 08	Sep 08-Sep 13	Oct 13-Oct 15	Nov 15-Sep 19
$\rho(\text{Trade Bal, CT})$	-0.310***	0.004	-0.590***	-0.466**	0.546***

Table B.1: Carry Trade, Macroprudential Policies, and Interest Costs

		Issue	(0/1)			Log(1+H)	C Borr)	
	(1)	(2)	(3)	(4)	(5)	$(\underline{9})$	(2)	(8)
CT	0.350^{*}	-2.332***	0.268	-2.098***	0.117^{**}	-2.303***	0.119^{**}	-1.902***
	(0.205)	(0.557)	(0.202)	(0.589)	(0.052)	(0.417)	(0.056)	(0.430)
Int Cost	-0.026^{*}	0.048^{**}	-0.039***	0.045^{*}	-0.003**	0.008	-0.005***	0.005
	(0.015)	(0.022)	(0.014)	(0.024)	(0.001)	(0.006)	(0.001)	(0.005)
High AIC Spread		-4.205^{***}		-3.875***		-3.389***		-2.933***
		(0.530)		(0.576)		(0.496)		(0.514)
CT*Hi AIC		2.715^{***}		2.449^{***}		2.713^{***}		2.281^{***}
		(0.584)		(0.622)		(0.460)		(0.475)
CT*Int Cost	0.018	-0.064**	0.029^{*}	-0.061^{*}	0.003^{*}	-0.008	0.004^{**}	-0.006
	(0.016)	(0.032)	(0.015)	(0.034)	(0.002)	(0.007)	(0.002)	(0.006)
Hi AIC [*] Int Cost		-0.127^{***}		-0.125^{***}		-0.014^{**}		-0.012^{**}
		(0.029)		(0.031)		(0.006)		(0.006)
CT*Hi AIC*Int Cost		0.128^{***}		0.125^{***}		0.014^{*}		0.012^{*}
		(0.037)		(0.039)		(0.007)		(0.006)
Sample	All	All	Bank	Bank	All	All	Bank	Bank
Controls	Yes	$\mathbf{Y}_{\mathbf{es}}$	\mathbf{Yes}	\mathbf{Yes}	$\mathbf{Y}_{\mathbf{es}}$	$\mathbf{Y}_{\mathbf{es}}$	$\mathbf{Y}_{\mathbf{es}}$	\mathbf{Yes}
Firm FE	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	$\mathbf{Y}_{\mathbf{es}}$
Time FE	Year	Year	Year	Year	Ind-Year	Ind-Year	Ind-Year	Ind-Year
Observations	120015	120015	117535	117535	167615	167615	154441	154441
$\operatorname{Pseudo} R^2 / \operatorname{Adj} R^2$	0.017	0.048	0.018	0.043	0.032	0.039	0.031	0.036

Table B.2: Carry Trade and Macroprudential Policies in the pre-crisis period

This table shows results from logistic and OLS regressions used to predict the issuance of foreign currency debt between January 2004 and August 2008. All observations are at the firm-month level. The dependent variable in the first two columns takes the value 1 if a firm makes at least one issuance in the month, and 0 otherwise. In the next two columns, the dependent variable is the log of 1 plus the amount borrowed by a firm in a given month. The independent variable, CT, captures the difference in 3-month interest rates between India and the US scaled by the implied volatility of 3-month FX options. *High AIC Spread (Pre-crisis)* is a dummy that takes the value 1 if the All-In-Cost Interest Rate spread was above its sample median for the pre-crisis period from Jan 2004 to Aug 2008. $CT^*Hi AIC$ is the value of CT interacted with *High AIC Spread (Pre-crisis)*. The INRUSD and NIFTY market returns are included in all specifications. These independent variables are one-month lagged values. Firm-level controls include total assets, debt to asset ratio, ratio of exports to sales, and cash to assets ratio. These are measured at the end of the previous fiscal year. Firm clustered standard errors are in brackets. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01)

	Issue	(0/1)	Log(1+H	FC Borr)
	(1)	(2)	(3)	(4)
$CT [\beta_1]$	$0.079 \\ (0.259)$	$0.035 \\ (0.265)$	$0.025 \\ (0.084)$	0.010 (0.083)
High AIC Spread	0.466^{**} (0.197)	0.401^{*} (0.205)	0.145^{**} (0.063)	0.140^{**} (0.068)
CT*Hi AIC Spread $[\beta_2]$	-0.736^{**} (0.330)	-0.733^{**} (0.341)	-0.236^{**} (0.106)	-0.236^{**} (0.108)
FX Return	$0.008 \\ (0.023)$	$0.010 \\ (0.023)$	$0.002 \\ (0.007)$	$0.002 \\ (0.007)$
NIFTY return	$0.002 \\ (0.005)$	$0.001 \\ (0.005)$	0.001 (0.002)	0.001 (0.002)
$Pr(\beta_1 + \beta_2 = 0)$.002	.0015	.0022	.0014
Firm Controls	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes
Observations	45948	21417	45948	45948
$Pseudo R^2$	0.043	0.009		
$\operatorname{Adj} R^2$			0.009	0.031

Table B.3: Carry Trade, Macroprudential Policies and Interest Costs in the Pre Crisis Period

This table shows results from logistic and OLS regressions used to predict the issuance of foreign currency debt between January 2004 and August 2008. All observations are at the firm-month level. The dependent variable in the first two columns takes the value 1 if a firm makes at least one issuance in the month, and 0 otherwise. In the next two columns, the dependent variable is the log of 1 plus the amount borrowed by a firm in a given month. The independent variable, CT, captures the difference in 3-month interest rates between India and the US scaled by the implied volatility of 3-month FX options. *High AIC Spread (Pre-crisis)* is a dummy that takes the value 1 if the All-In-Cost Interest Rates spread was above its sample median for the pre-crisis period from January 2004 to August 2008. *Int Cost* is the ratio of total interest expense to debt outstanding. One-month lagged INRUSD and NIFTY market returns are included in all specifications. Firm-level controls include total assets, debt to asset ratio, ratio of exports to sales, and cash to assets ratio. These are measured at the end of the previous fiscal year. Firm clustered standard errors are in brackets. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01)

	Issue	(0/1)	Log(1+I	FC Borr)
	(1)	(2)	(3)	(4)
СТ	$1.755^{***} \\ (0.420)$	$2.309^{***} \\ (0.474)$	$\begin{array}{c} 0.451^{***} \\ (0.119) \end{array}$	$0.676^{***} \\ (0.144)$
Int Cost	0.029^{*} (0.016)	$0.016 \\ (0.023)$	$0.003 \\ (0.003)$	$0.004 \\ (0.004)$
High AIC Spread (Pre-Crisis)		0.906^{**} (0.399)		$\begin{array}{c} 0.383^{***} \\ (0.128) \end{array}$
CT*Hi AIC		-1.025 (0.654)		-0.481^{**} (0.188)
CT*Int Cost	-0.045 (0.028)	-0.007 (0.026)	-0.003 (0.004)	-0.002 (0.005)
Hi AIC*Int Cost		$\begin{array}{c} 0.034 \\ (0.032) \end{array}$		-0.001 (0.005)
CT*Hi AIC*Int Cost		-0.085 (0.057)		-0.003 (0.007)
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Ind-Year	Firm, Ind-Year
Observations	19416	19416	39958	39958
$Pseudo R^2$	0.018	0.021		
$\mathrm{Adj}.R^2$			0.033	0.033

C Rupee-Denominated Bonds and Foreign Investment in Domestic Bonds

In this section, we look at changes in macroprudential policy targeting domestic currency debt. We focus on two key changes: guidelines on the issuance of rupee-denominated bonds in overseas markets and the relaxation of limits on foreign investment in domestic corporate bonds. The rupee bond guidelines were introduced in September 2015 and the first set of bonds were issued in the third quarter of 2016. To rule out the decline in foreign currency debt issuance we document is not just substitution to overseas rupee bonds, we collect data on the latter. Appendix Figure C.1 shows the evolution of rupee bond issuance since 2016, along with the foreign currency debt issuance over the same period. The figure shows that rupee bond issuance is significantly lower than foreign currency debt and the volume of rupee bonds has declined significantly over time. The volume of non-financial rupee bond issuance averages only 5% of the volume of foreign currency debt issuance from 2016 to 2019. Many rupee bond issuars are financial firms, a category we exclude in our analysis.

The RBI imposes capital controls through the imposition of limits on foreign investment in Indian debt and equity markets. In Appendix Figure C.2a, we plot foreign investment against the maximum limits. The limits were fixed from 2013 to 2017 but in early 2018, the RBI started gradually loosening them and has continued to loosen them. Foreign investment in domestic debt reached its peak in August 2019, at almost the maximum limit, but has declined since then and is well below 50% of the maximum limit at the moment. In Appendix Figure C.2b, we plot net foreign investor flows in domestic debt over our entire sample period. The graph indicates that flows have become significantly larger and more volatile since the financial crisis. There were significant outflows due to the taper tantrum, but these reversed soon after. Importantly, the macroprudential tightening of foreign currency borrowing in November 2015 is not accompanied by significant inflows. This enables us to rule out that the results we document are an artifact of foreign investors substituting foreign currency corporate debt with domestic currency debt.



Figure C.1: Foreign Currency Debt and Rupee-Denominated Bonds The figure shows the evolution of the issuance of foreign currency debt and rupeedenominated bonds from September 2016 to December 2020.



(a) Foreign Investment in Domestic Debt and Maximum Limits





Figure C.2: Foreign Investor Domestic Debt Holdings and Flows The figure depicts the evolution of the stock and flows of foreign investor positions in domestic corporate debt. Figure (a) depicts the stock of foreign investor holdings along with the maximum regulatory limits monthly from April 2013 to June 2020. Figure (b) depicts net foreign investment flows quarterly from January 2004 to June 2020.

D Foreign Currency Debt Maturity Dates and Exchange Rates



Figure D.1: Foreign Currency Debt Maturity Dates and INR/USD Exchange Rate The line shows the evolution of the INR/USD Reference Rate while the bars indicate the issuance volume of foreign currency debt due to mature in that quarter. The figure covers the period from the third quarter of 2011 (three years after the global financial crisis) to the fourth quarter of 2020.

Table D.1: Foreign Currency Debt Maturity Dates and Exchange Rates

This table shows results from an OLS regression used to predict exchange rates. All observations are at the monthly level. The dependent variable is the change in the log of the USD/INR reference rate multiplied by 100. The independent variable is the change in the log of foreign currency debt issuances due to mature in that month. The sample period is from September 2011 (three years after the global financial crisis) to September 2020. Newey-West standard errors with four lags are in brackets. Significance levels: *(p<0.10), **(p<0.05), *** (p<0.01)

	Δ Log (I	Exch Rate)	$(\times 100)$
Δ Log (Amt. Maturing)	-0.419^{***} (0.156)		
Δ Log (Amt. Maturing issued Post-crisis)		-0.331^{*} (0.168)	
Δ Log (Amt. Maturing issued Post-taper)		-0.027^{***} (0.007)	
Δ Log (Amt. Maturing Issued Hi AIC)			-0.392^{**} (0.157)
Δ Log (Amt. Maturing Issued Lo AIC)			-0.018 (0.011)
Constant	-0.354^{**} (0.175)	-0.355^{**} (0.176)	-0.353^{**} (0.176)
F-Stat	7.187	10.582	4.854
Obs.	109	109	109