

# SOVEREIGN RISK, CURRENCY RISK AND CORPORATE BALANCE SHEETS

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Discussion by

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The views expressed herein are those of the author and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.

## INTRODUCTION

- Credit risk for external debt in local currency (LC) positive
- **Q:** why would a government default on debt issued in its own currency?
- **A:** currency depreciation has adverse effects on firms' balance sheets
  - Construct new dataset on external debt by currency and sectors
  - Fact: corporations borrow extensively in foreign currency
  - Quantitative model of sovereign debt
  - Cross-country analysis consistent with mechanism
- Great paper. Blends new dataset with quantitative model

## OUTLINE OF THE DISCUSSION

- Overview of the paper: background, dataset, economic mechanism
- Three remarks/suggestions:
  - Dataset construction
  - Some key model predictions should be tested in the data
  - Default and external private debt
- Conclusion

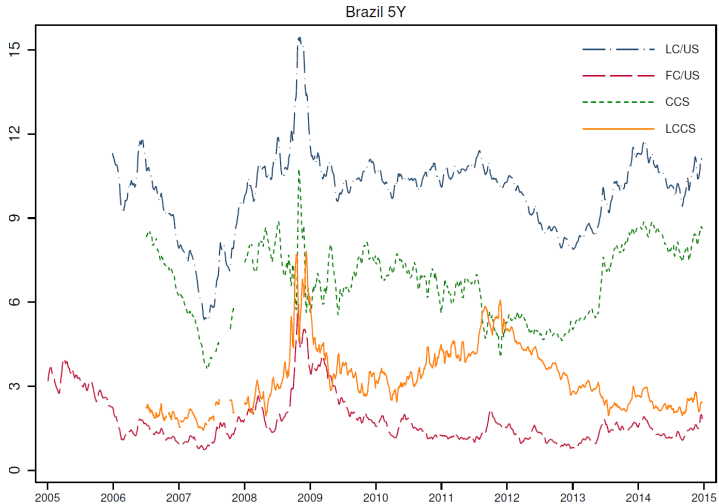
## LOCAL CURRENCY SPREADS

- Growing fraction of external debt of EMs in LC
- Interest rate differentials

$$s_t^{LC/US} = \underbrace{s_t^{LCCS}}_{\text{Credit risk}} + \underbrace{\rho_t}_{\text{Currency risk}}$$

- Du and Schreger (2015) construct time series for local currency credit risk for many emerging markets

# LOCAL CURRENCY SPREADS: BRAZIL



## WHY CREDIT SPREADS ON LOCAL CURRENCY RISK?

- Remark 0: not a “puzzle”
- Inflation more costly than outright default in some states of the world
- Mechanism in the paper: currency mismatch in firms’ balance sheets
- Authors construct a new dataset of external debt

## DATASET: EXTERNAL DEBT BY CURRENCY AND SECTOR

|    | Sovereign  |         | Corporate  |        |
|----|------------|---------|------------|--------|
|    | Securities | Loans   | Securities | Loans  |
| LC | \$ 604     | \$ 0.02 | \$ 66      | \$ 116 |
| FC | \$ 379     | \$ 29   | \$ 842     | \$ 899 |

- Document corporations borrow from abroad in foreign currency
- Argue that depreciation risk not hedged by firms (Mexico and Brasil)
- Data used to calibrate structural model
- Cross-country analysis to validate model mechanism

## REMARK 1: IMPUTATIONS

|    |         | Sovereign        |                 | Corporate        |                  |
|----|---------|------------------|-----------------|------------------|------------------|
|    |         | Securities       | Loans           | Securities       | Loans            |
| LC | Various | Imp. (BIS, Thom) | Imp. (BIS, TIC) | Imp. (BIS, Thom) | Imp. (BIS, Thom) |
| FC | BIS     | Imp. (BIS, Thom) | BIS             | Imp. (BIS, Thom) | Imp. (BIS, Thom) |

- Documenting facts is one key contribution of the paper
- Need to convince the reader on the imputations
- Suggestions
  - For LC securities, look just at US TIC data
  - For loans, look at syndicated loan data in Thomson dealscan
  - Does the pattern remain? Do the results hold?



# ECONOMIC MECHANISM

Quantitative sovereign debt model

- 1 Government borrow from foreign lenders through long term bonds in LC
- 2 Entrepreneurs  $\Rightarrow$  Borrow  $Z$  from abroad ( $\alpha_p Z$  in LC). Revenues in LC
- 3 Government can reduce the debt burden by
  - Inflation  $\Rightarrow$  Negative balance sheet effects on firms  $\rightarrow$  Output costs
  - Default  $\Rightarrow$  Exogenous output losses

Government lacks commitment. Lenders charge premium

$$s_t^{LC/US} \approx \mathbb{E}_t[d_{t+1}] + \mathbb{E}_t \left[ \frac{\pi_{t+1}}{1 + \pi_{t+1}} \right]$$

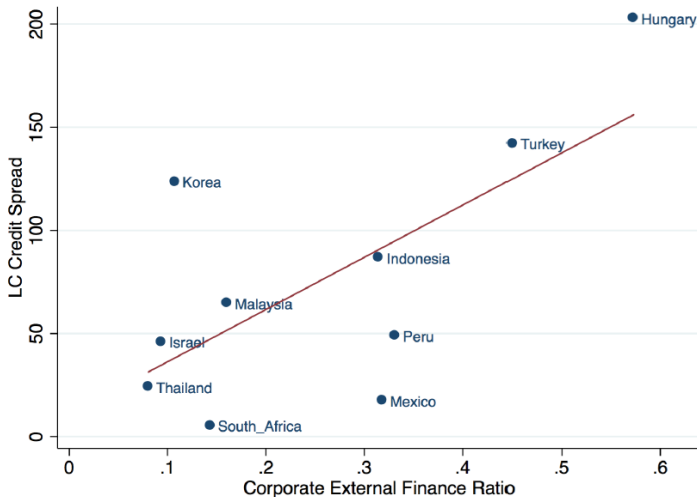
**Main prediction:** Low  $\alpha_p$ , high  $\mathbb{E}_t[d_{t+1}]$

# ECONOMIC MECHANISM

|         | Share LC Debt<br>$\alpha_P$ | Mean LCCS<br>$s^{LCCS}$ | Mean Nom. Spread<br>$s^{LC/US}$ | Credit Share<br>$s^{LCCS}/s^{LC/US}$ | Sov. Debt/GDP<br>$B/Y$ |
|---------|-----------------------------|-------------------------|---------------------------------|--------------------------------------|------------------------|
| Data    | 10%                         | 1.28                    | 4.77                            | 26.8%                                | 9%                     |
| FC Debt | -                           | 2.0                     | 2.0                             | 100%                                 | 9.8%                   |
| Model   | 0%                          | 1.89                    | 2.66                            | 70.9%                                | 8.9%                   |
| Model   | 5%                          | 1.67                    | 2.98                            | 55.9%                                | 8.8%                   |
| Model   | 10%                         | 1.10                    | 3.33                            | 32.9%                                | 8.7%                   |
| Model   | 15%                         | 0.88                    | 3.73                            | 23.6%                                | 8.5%                   |
| Model   | 20%                         | 0.30                    | 4.09                            | 7.3%                                 | 8.4%                   |
| Model   | 25%                         | 0.05                    | 4.28                            | 1.2%                                 | 8.2%                   |
| Model   | 30%                         | 0.00                    | 4.31                            | 0.1%                                 | 8.0%                   |
| Model   | 50%                         | 0.00                    | 4.34                            | 0.0%                                 | 7.1%                   |

$\alpha_P$  low  $\rightarrow$  Inflation more costly  $\rightarrow$  More incentives for outright default

# ECONOMIC MECHANISM: CROSS-COUNTRY EVIDENCE



Relation holds with controls, fixed effects, ...

## REMARK 2: CHECK ADDITIONAL PREDICTIONS

|         | Share LC Debt<br>$\alpha_p$ | Mean LCCS<br>$s^{LCCS}$ | Mean Nom. Spread<br>$s^{LC/US}$ | Credit Share<br>$s^{LCCS} / s^{LC/US}$ | Sov. Debt/GDP<br>$B/Y$ |
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**(Another) Main prediction:** currency risk increasing in  $\alpha_p$

Does it hold in the data? Need countries with high credit risk having low currency risk

## REMARK 2: CHECK ADDITIONAL PREDICTIONS

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**(Another) Main prediction:** interest rate differential decreasing in  $\alpha_P$

Does it hold in the data? Need response of currency risk  $>$  response of credit risk

### **REMARK 3: DEFAULT AND FIRMS' EXTERNAL DEBT**

- Experiment in the model: keeping borrowing constant, change currency composition
- Difficult to replicate it in the data (not enough variation)
- Outright defaults have large impact on external debt of private sector
- Possible solution would be modeling default costs as well

# CONCLUSION

- Great paper.
- Suggestions:
  - Robustness on the imputation
  - Theory richer, use same data to validate mechanism
  - Default and firms' external debt