

Global Shocks and Local Response: Currency Risk and Monetary Policy

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- Weak ER insulation $\longrightarrow$ ER more volatile & loses value in recessions
 - ▶ Currency Risk + risk premium

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- An Economy's response to global shocks $\longrightarrow$ Riskiness of its currency
- Traditional view $\longrightarrow$ ER insulates the economy against external shocks
- Weak ER insulation $\longrightarrow$ ER more volatile & loses value in recessions
 - ▶ Currency Risk + risk premium
- Risk premium $\uparrow$: People expect higher returns to hold local currency
 - ▶ Policy rate can be 'too low' $\longrightarrow$ High structural inflation

Currency Risk: Global or Local Factors?

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 - ▶ Significant drivers of currency returns (Lustig et al 2011)
 - ▶ Close to 60% of excess returns can be explained by global factors

Currency Risk: Global or Local Factors?

- Kalemli-Ozcan & Varela (2025) → **Local factors** determine currency risk/return
- **Global Factors:** Two principal components of currency returns
 - ▶ Significant drivers of currency returns (Lustig et al 2011)
 - ▶ Close to 60% of excess returns can be explained by global factors
- ER movements driven by global shocks
 - ▶ Local response of the economy shapes the risk
- This paper → **Bridge** between international finance and macro

Data

- Data from 25 countries between 02/2003 - 11/2018 (Fx4Casts)
- Monthly currency returns,

$$R_t^L \frac{S_t}{S_{t+1}} - R_t^{US}$$

- Currency Risk: Lustig et al (2011): First two principal components of currency returns
 - ▶ Dollar risk: Value of the dollar against all currencies
 - ▶ Carry trade risk: Safe vs risky currencies

Global or Local Shocks?

- Regress country returns on two principle components
 - ▶ In some EMEs close to 60% of returns are driven by common components

	<i>Dependent variable:</i>				
	<i>Turkey</i>	<i>Chile</i>	<i>Mexcio</i>	<i>Euro Area</i>	<i>Japan</i>
	(1)	(2)	(3)	(4)	(5)
<i>Dollar Risk Exposure</i>	0.258*** (0.025)	0.167*** (0.016)	0.167*** (0.014)	0.191*** (0.005)	0.035 (0.028)
<i>Carry trade Risk Exposure</i>	0.406*** (0.093)	0.118*** (0.028)	0.156*** (0.041)	-0.219*** (0.029)	-0.130** (0.051)
<i>Constant</i>	0.005** (0.002)	0.003*** (0.001)	0.001 (0.001)	0.0005 (0.001)	-0.001 (0.002)
<i>Observations</i>	190	190	190	190	190
<i>R²</i>	0.599	0.460	0.553	0.876	0.097
<i>Adjusted R²</i>	0.595	0.454	0.548	0.874	0.087
<i>Residual Std. Error (df = 187)</i>	0.033	0.024	0.021	0.010	0.027

Note:

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Global Shocks?

- Exposure to the two components explain significant portion of excess returns

	<i>Dependent variable:</i>		
	<i>Excess Returns</i>		
	(1)	(2)	(3)
<i>Dollar Risk Exposure</i>	0.012* (0.006)		0.011** (0.005)
<i>Carry trade Risk Exposure</i>		0.007*** (0.002)	0.007*** (0.002)
<i>Constant</i>	0.0001 (0.001)	0.002*** (0.0003)	0.0003 (0.001)
<i>Observations</i>	25	25	25
<i>R²</i>	0.136	0.458	0.571
<i>Adjusted R²</i>	0.098	0.435	0.532
<i>Residual Std. Error</i>	0.002 (df = 23)	0.002 (df = 23)	0.001 (df = 22)

Note:

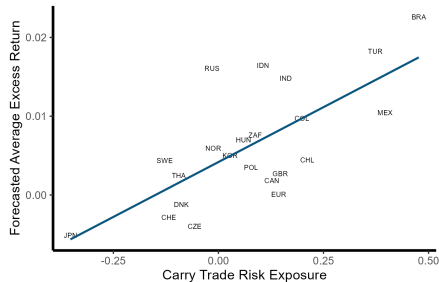
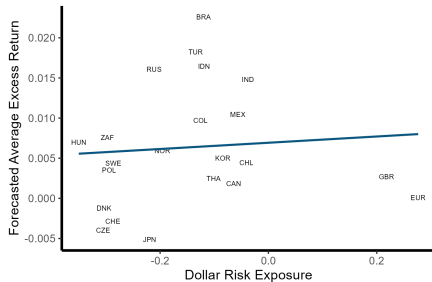
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Expected Returns

- Risk premium or unanticipated movements?
- Do investors forecast excess returns?
 - ▶ Data on 1 month ahead forecast by large institutions (FX4Casts)
 - ▶ 25 countries between 02/2003 - 11/2018
- Expected excess return,

$$R_t^L \frac{S_t}{\mathbb{E}_t(S_{t+1})} - R_t^{US}$$

Expected Returns



Determinants of Currency Returns

- Net foreign assets (Wiriadinata (2018), Della Corte et al. (2016))
 - ▶ Net debtor countries offer higher interest rates
- Foreign liabilities of the banking system (Levy-Yeyati (2006), Christiano et al (2021))
 - ▶ Associated with banking crises
- Dollar Invoicing (Gopinath and Stein 2023)
- Reserves (Bocola and Lorenzoni, 2020)
 - ▶ Buffer against crises
- Size (Hassan, 2013)
- Trade Centrality (Richmond, 2019)
 - ▶ Larger and more central economies comove together → Lower currency returns

Local Response

- Two global factors: Foreign Liabilities of the banking system and Dollar Invoicing explain the exposure

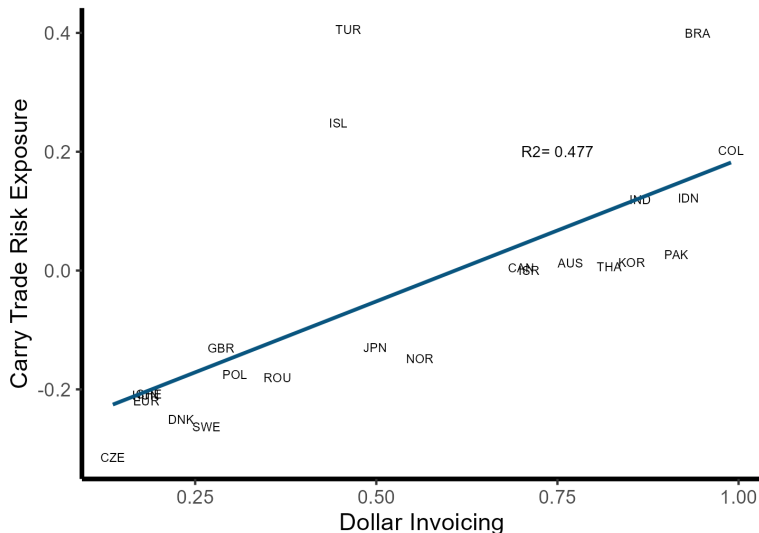
	<i>Dependent variable:</i>			
	<i>Dollar Risk Exposure</i>		<i>Carry Risk Exposure</i>	
	(1)	(2)	(3)	(4)
<i>FL/FA</i>	0.035* (0.018)	0.043** (0.019)	0.016 (0.030)	0.037 (0.059)
<i>Net Foreign Assets/GDP</i>	-0.029 (0.029)	-0.049 (0.032)	-0.190*** (0.071)	-0.090 (0.060)
<i>Reserves/GDP</i>	-0.079 (0.219)	-0.161 (0.138)	-0.157 (0.330)	-0.384 (0.360)
<i>Dollar Invoicing</i>	-0.098** (0.043)	-0.095** (0.040)	0.490*** (0.086)	0.457*** (0.075)
<i>GDP(Nominal USD)</i>	0.006 (0.018)		0.018 (0.026)	
<i>Average Centrality</i>		-6.345 (10.384)		-7.729 (14.102)
<i>Constant</i>	0.213*** (0.053)	0.228*** (0.076)	-0.285*** (0.088)	-0.280** (0.119)
<i>Observations</i>	20	14	20	14
<i>R²</i>	0.496	0.743	0.615	0.533
<i>Adjusted R²</i>	0.316	0.582	0.477	0.242
<i>Residual Std. Error</i>	0.063 (df = 14)	0.047 (df = 8)	0.154 (df = 14)	0.167 (df = 8)

Note:

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Currency Risk

- Dollar Invoicing (Gopinath et al 2020) → Higher carry trade risk



Cyclicalty of the Exchange Rate

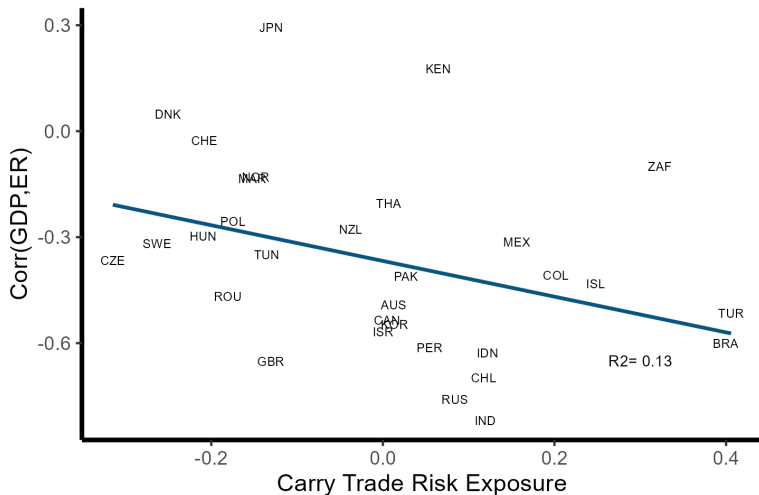
- Measuring the comovement,

$$\frac{\Delta GDP_t}{\sigma_{\Delta GDP}} = \alpha + \rho \frac{\Delta \frac{S_t}{P_t}}{\sigma_{\Delta S/P}} + \epsilon_i$$

- $\hat{\rho}$: Correlation coefficient, Direction-free
 - ▶ How many standard deviation movement in GDP is associated with one stdev increase in the exchange rate
 - ▶ Linked to household portfolio formation (Dalgic 2024)
 - ▶ Intranational risk sharing (Christiano, Dalgic, Nurbekyan, 2024)
- High Currency risk → Countercyclical Exchange rate
 - ▶ Exchange rate depreciates in recessions

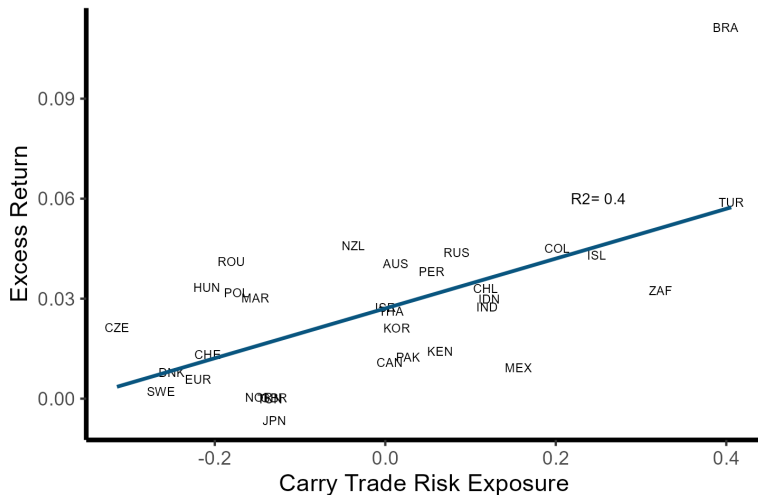
Cyclicity of the Exchange Rate

- High Currency risk $\rightarrow$ Countercyclical Exchange rate



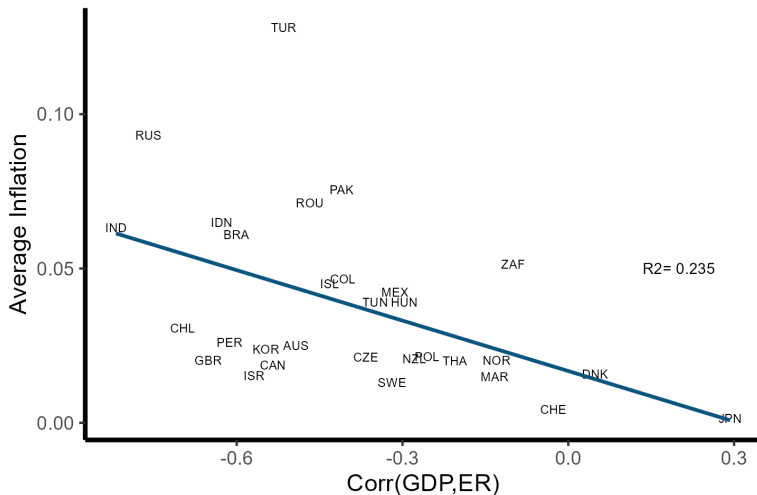
Currency Returns

- High Currency risk $\rightarrow$ Higher average returns



High Inflation

- Countercyclical exchange rate → High average inflation



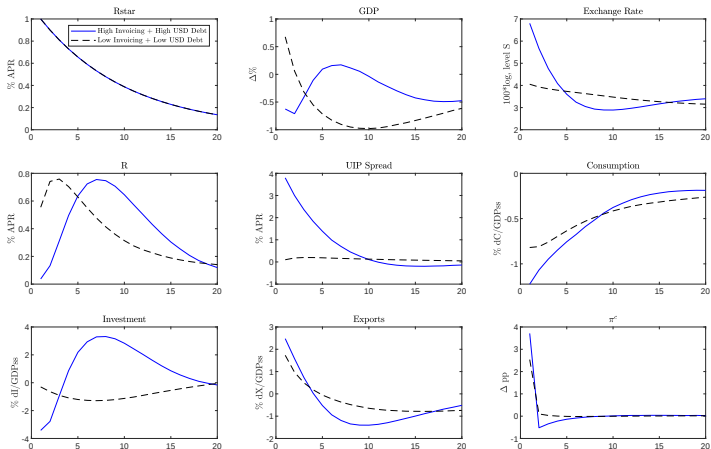
Model

- Small open economy NK model
 - ▶ Based on Camara et al (2024)
- Export invoiced in dollars (DCP) → Sticky export prices
 - ▶ High dollar invoicing → Weak expenditure switching channel → Depreciations are recessionary
- Financial Frictions (a la Gertler & Karadi 2011)
 - ▶ Foreign financiers (Gabaix Maggiori 2015)
 - ▶ Dollar Debt (Dalgic 2024) → ER Depreciations create financial stress

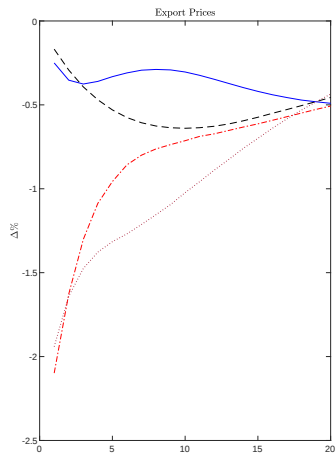
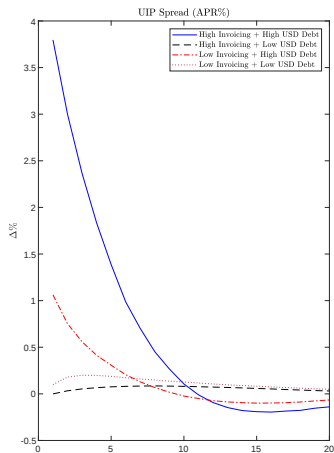
Response to Foreign Interest Rate Shocks

- Important driver of SOE business cycles
 - ▶ Neumeyer & Perri (2005); Fernandez-Villaverde et al. (2011)
- US Monetary Policy Shocks → Global financial cycle
 - ▶ Global risk aversion & liquidity demand
 - ▶ Capital flight: Flight to quality
 - ▶ Low US demand for exports (Camara, Christiano, Dalgic 2024)
 - ▶ Miranda-Agrippino & Rey (2020); Bruno & Shin (2015a; 2015b); Ilzetski & Jin (2021)
- Compare economies:
 - ▶ High USD Debt, Sticky export prices
 - ▶ Low USD Debt, Flexible export prices: M-F ER insulation

Response to Foreign Interest Rate Shocks



Mechanism

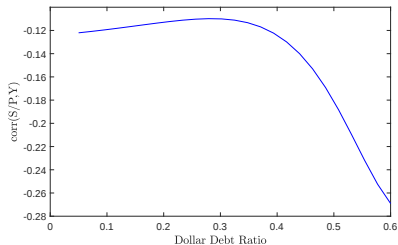
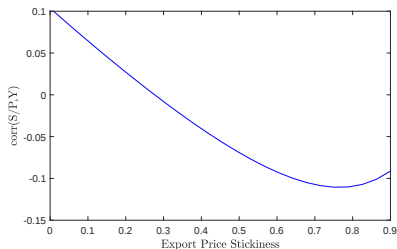


Steady State Results

- Steady state as a function of export price stickiness (θ^x) and ratio of dollar debt ($\bar{\phi}$)
- Export price stickiness (θ^x) $\longrightarrow$ Exports do not respond to ER depreciations
 - ▶ Weak ER insulation
- Dollar debt ($\bar{\phi}$): ER depreciations hurt bank balance sheets
- Depreciations are recessionary $\longrightarrow$ More negative $corr(\Delta Y_t, \Delta S_t/P_t)$

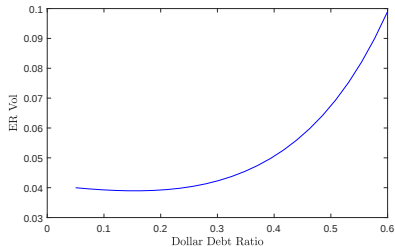
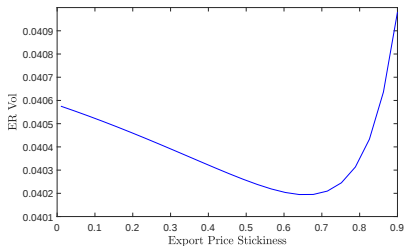
GDP-ER Correlation

- More negative $\text{corr}(\Delta Y_t, \Delta S_t/P_t)$
- Global shocks become more recessionary



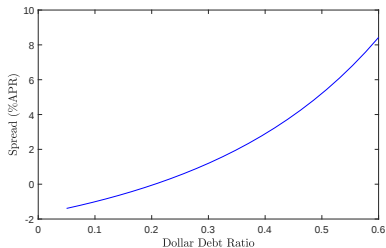
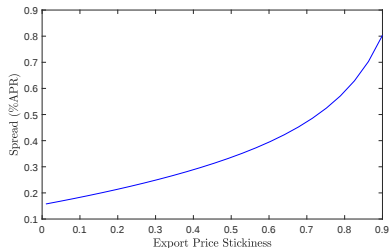
Exchange Rate Volatility

- Higher ER volatility in the steady state



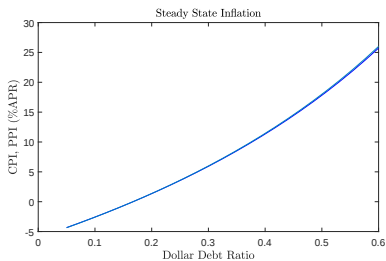
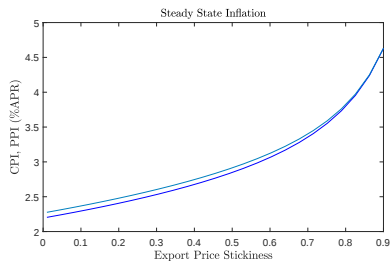
Interest Rate Spread

- Negative $corr(\Delta Y_t, \Delta S_t/P_t) \longrightarrow$ Local assets lose value in recessions
- Risky currency $\longrightarrow$ Low peso demand $\longrightarrow$ High interest rates (Dalgic 2024)



Inflation

- High structural inflation



Inflation

- Why does inflation go up?
- Risk premium $\uparrow$: Investors demand higher local interest rates
 - ▶ Natural interest rate $R^* \uparrow$
- Taylor rule at the target inflation is 'too loose'
 - ▶ High inflation

$$\log \left(\frac{R_t}{\bar{R}} \right) = r^\pi \log \left(\frac{\pi_t}{\bar{\pi}} \right)$$

Conclusion

- Global Shocks + Local response
 - ▶ How does an economy respond to global shocks → Riskiness of the currency
- Volatile and countercyclical exchange rate
 - ▶ High interest rates
 - ▶ If monetary policy accomodates → High structural inflation