Are All Exchange Rate Depreciations the Same?

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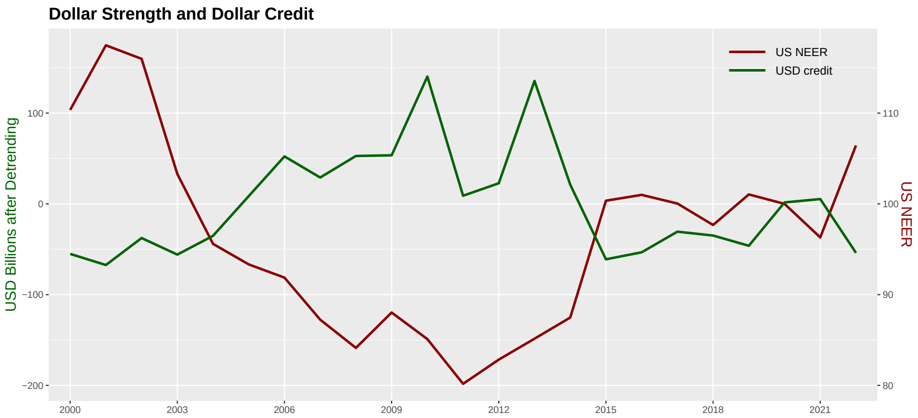
Research Questions and Main Findings

- **Main Questions**:
  - Do locally induced and US-induced exchange rate changes lead to different outcomes? What are their relative effects on international trade and balance sheet channels?
  - Is there a separate "global dollar liquidity channel" of US-induced changes?
    - Mechanism à la Bruno and Shin (2015): weaker dollar improves balance sheets of non-US firms with USD liabilities, creating a slack in the risk taking capacity of global banks.

- **Main Findings:**
  - US-induced depreciations lead to lower investment for tradable sector firms.
  - Mixed results for the balance sheet effect: the effect is stronger for US-induced changes but the difference is not statistically significant.
  - Existence of the global dollar credit channel: firms that have access to foreign funding cut back investment more than their peers in response to US-induced depreciations.

Motivation


Dollar Strength and Dollar Credit
US NEER
USD credit
USD Billions after Detrending
US NEER
100
0
−100
−200
110
100
90
80
2000
2003
2006
2009
2012
2015
2018
2021

Contribution

Academic literature

- First thorough analysis of the comparison of locally-induced vs US-induced exchange rate changes on firm-level investment.
- First thorough analysis of the global dollar credit channel of exchange rate changes with firm & bond & loan level data.

Policy Relevance

- Bilateral exchange rates may be misleading.
- Suppose null effects have been found for exchange rate depreciations using bilateral rates. Would you conclude that exchange rate policy is not relevant as a policymaker?

Related Literature

- **Strand 1**: Firm-level studies on balance sheet and trade channels of exchange rate changes.
  - Bleakley and Cowan (2008), Caballero (2021), Serena and Sousa (2017), Banerjee et al. (2022), Kalemli-Ozcan et al. (2021), Bruno and Shin (2020), Alfaro et al. (2023), Dao et al. (2021), among others.
- **Strand 2**: Importance of the strength of the dollar.
  - Macro: Bruno and Shin (2015a), Bruno and Shin (2015b), Avdjiev, Du, Koch and Shin (2019), Bruno et al. (2022), Obstfeld and Zhou (2023).
  - Firm-level: Bruno and Shin (2023), Avdjiev, Bruno, Koch and Shin (2019).
- Our work can be seen as an attempt to connect these two branches.

Exchange Rate Channels and Firm Investment

Channel	**Affected Firms**	**Locally-Induced Depr.**	**US-Induced Depr.**	**Firm Sample**
International Trade	Exporting Firms	DCP: Internal Finance ↑ (+) PCP: Competitiveness ↑ (+)	PCP: Competitiveness ↑ (+) DCP: Internal Finance ↑ (+) DCP: Foreign Demand ↓ (-) Dollar Credit for Exporters ↓ (-)	Tradable Sector Firms (Excluding FX debt issuers)
Balance Sheet	Firms with outstanding FX debt	Net Worth ↓ (-)	Net Worth ↓ (-)	Non-Tradable Sector Firms
Global Dollar Credit	Firms with access to USD funding	No Effect	US Dollar Funding ↓ (-)	Non-Tradable Sector Firms (Only USD issuers with no outstanding FX debt)

Data

- Firm-level data (Capital IQ): balance sheet, income statement and cash flow data for 17,855 firms from 19 EM/DC.
- USD denominated loans (Refinitiv Eikon): 6,331 loans for 1,921 firms.
- USD denominated bonds (Refinitiv Eikon): 2,772 bonds issued by 903 firms.
- Exchange rates (Refinitiv Datastream)
- Macro data (IMF)

Baseline Regressions

- Average effect of exchange rate changes:

$$y_{i,s,c,t+1} = \beta \Delta e^{j}_{c,t} + \sum_{w \in W} \alpha_w w_{i,t-1} + \alpha_i + \varepsilon_{i,s,c,t+1}$$

- Using country-sector-time fixed effects for identification:

$$\begin{aligned} y_{i,s,c,t+1} = {} & \beta FXD_{i,t-1} + \theta FXD_{i,t-1} \times \Delta e^{j}_{c,t} + \sum_{w \in W} \alpha_w w_{i,t-1} \\ & + \sum_{w \in W} \alpha_w w_{i,t-1} \times \Delta e^{j}_{c,t} + \psi_{s,c,t} + \varepsilon_{i,s,c,t+1} \end{aligned}$$

- Replace FXD with USD issuer dummy for the global dollar credit channel.

Baseline Results

	All Firms		Tradable Sector Firms (Excluding USD Debt Issuers)		Non-Tradable Sector Firms		Non-Tradable Sector Firms (Only USD Debt Issuers)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\Delta e_{Bilateral}$	-0.329^{**}		-0.315^{*}				
	(0.152)		(0.152)				
Δe_{Local}		-0.232		-0.237			-0.272
		(0.154)		(0.157)			(0.242)
Δe_{US}		-0.529^{***}		-0.503^{***}			-0.785^{***}
		(0.180)		(0.167)			(0.247)
$FXD \times \Delta e_{Bilateral}$					-0.393^{*}		
					(0.207)		
$FXD \times \Delta e_{Local}$						-0.310	
						(0.234)	
$FXD \times \Delta e_{US}$						-0.631^{**}	
						(0.247)	
Macro Variables	Y	Y	Y	Y	N	N	N
Firm Controls	Y	Y	Y	Y	Y	Y	Y
$\Delta e \times$ Firm Controls	N	N	N	N	Y	Y	N
Firm FE	Y	Y	Y	Y	N	N	Y
Industry-Country-Time FE	N	N	N	N	Y	Y	N
Adj. R^2	0.38	0.38	0.35	0.35	0.16	0.16	0.48
N	162, 107	162, 107	112, 271	112, 271	50, 156	50, 156	2, 831

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

Testing The Global Dollar Credit Channel

	Tradable Sector Firms Excluding FX Debt Issuers	Non-Tradable Sector Firms (Only EUR Debt Issuers)	Non-Tradable Sector Firms Excluding USD Debt Issuers		Non-Tradable Sector Firms (Only USD Debt Issuers)	Non-Tradable Sector Firms
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta e_{Bilateral}$			-0.247^{**}			
			(0.118)			
Δe_{Local}	0.106	0.376		-0.149	-0.296	
	(0.123)	(0.443)		(0.122)	(0.239)	
Δe_{EA}	-0.289	0.064				
	(0.200)	(0.490)				
Δe_{US}				-0.377^{*}	-0.731^{***}	
				(0.192)	(0.239)	
$\Delta e_{Local} \times USD_{Issuer}$						-0.226
						(0.197)
$\Delta e_{US} \times USD_{Issuer}$						-0.539^{**}
						(0.205)
Macro Variables	Y	N	Y	Y	Y	N
Firm Controls	Y	N	Y	Y	Y	Y
Δe × Firm Controls	N	N	N	N	N	Y
Firm FE	Y	Y	Y	Y	Y	N
Industry-Country-Time FE	N	N	N	N	N	Y
Adj. R^2	0.35	0.43	0.40	0.40	0.50	0.16
N	111,847	197	44,855	44,855	2,118	50,156

$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

DiD Results

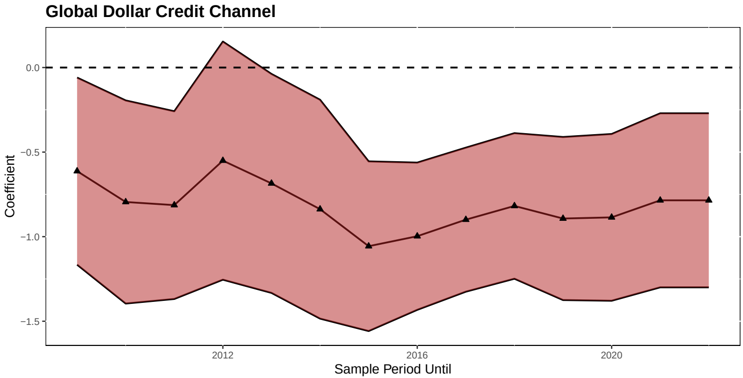
- A simple DiD study around 2013-2014:

$$y_{i,s,c,t+1} = \gamma T_t + \theta(T_t \times USDissuer_i) + \alpha_i + \varepsilon_{i,s,c,t+1}$$

	2012-2015		2016-2018	
	(1)	(2)	(3)	(4)
$T_t \times USD_{issuer_i}$	-1.745^{*}	-2.050^{**}	0.047	0.246
	(0.955)	(1.010)	(0.560)	(0.569)
T_t	-1.167^{***}		-0.352^{*}	
	(0.250)		(0.198)	
Firm Controls	N	Y	N	Y
Firm Controls $\times$ T_t	N	Y	N	Y
Firm FE	Y	Y	Y	Y
Country-Year FE	N	Y	N	Y
Adj. R^2	0.45	0.44	0.52	0.55
N	1,966	1,773	2,377	2,130

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

Global Dollar Credit Channel Over Time



Conclusion

- Bilateral exchange rates may hide subtle but quite relevant information
- Locally-induced and US-induced exchange rate changes have differential impacts on firm investment.
- Global dollar credit channel implies that firms that fund themselves in global markets react more to stronger dollar.

Thank you for listening!

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