

# Financial Linkages and Stability via Tax Havens

Matteo Maggiori    Jesse Schreger  
Stanford            Columbia

September 2024

# Ultimate Investors and Ultimate Borrower Around the world

- ▶ Financial intermediation transfers capital from savers to productive users
- ▶ Actual intermediation has many layers mostly for minimizing tax and regulation
- ▶ Hard to know systematically who ultimate borrower and investors are. Two broad issues:
  - ▶ Directly create risks and distortions
  - ▶ Obscures reality, researchers and policymakers draw the wrong conclusions
- ▶ Scale of the problem has become enormous

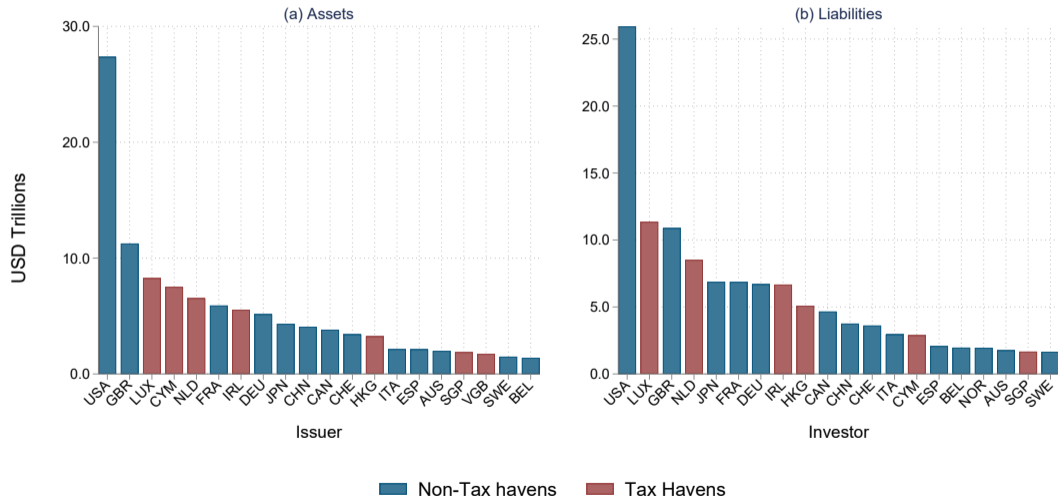
## Part of An Agenda

1. International Currencies and Capital Allocation, M. Maggiori, B. Neiman, J. Schreger, JPE 2020
2. The Rise of the Dollar and Fall of the Euro as International Currencies, M. Maggiori, B. Neiman, J. Schreger, AEA P&P 2019
3. Redrawing the Map of Global Capital Flows: The Role of Cross-Border Financing and Tax Havens, A. Coppola, B. Neiman, and J. Schreger, QJE 2021
4. Exchange Rate Reconnect, A. Lilley, B. Neiman, J. Schreger, ReStat 2022
5. China in Tax havens, C. Clayton, A. Coppola, A. Dos Santos, M. Maggiori, J. Schreger, AEA P&P 2023

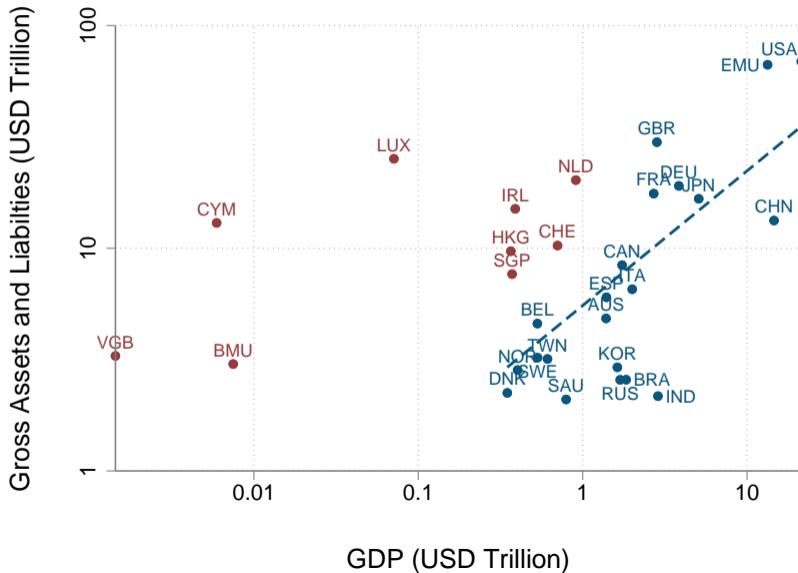
### Papers this Project Has Supported:

6. **Internationalizing Like China**, C. Clayton, A. Dos Santos, M. Maggiori, J. Schreger, R&R at AER
7. **Corporate Debt Structure with Home and International Currency Bias**, M. Maggiori, B. Neiman, J. Schreger, IMF Economic Review 2024
8. **The Geography of Capital Allocation in the Euro Area**, R. Beck, A. Coppola, A. Lewis, M. Maggiori, M. Schmitz, J. Schreger, R&R QJE
9. **Global Capital Allocation**, S. Florez-Orrego, M. Maggiori, J. Schreger, Z. Sun, S. Tinda, Annual Review of Economics 2024

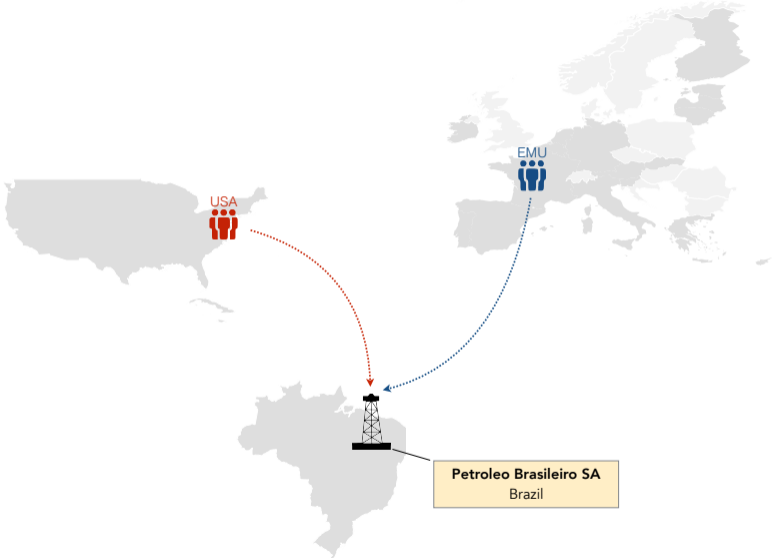
# The Importance of Tax Havens in Global Capital Allocation



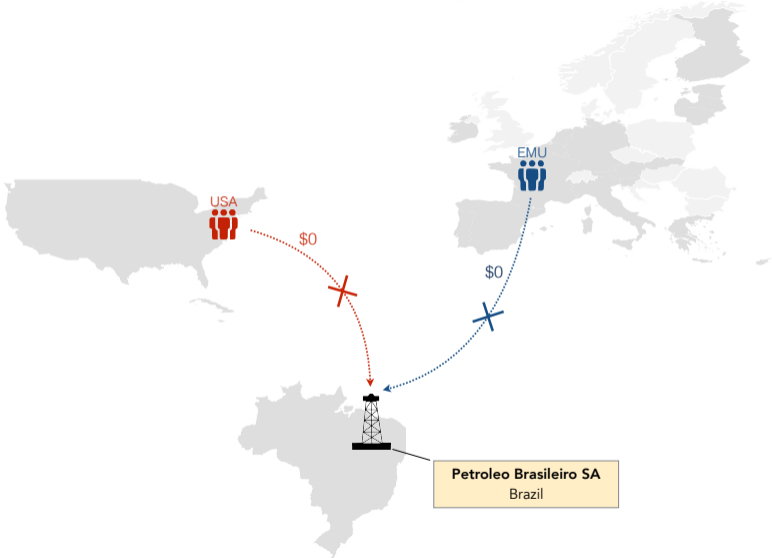
# Tax Havens and Offshore Financial Centers



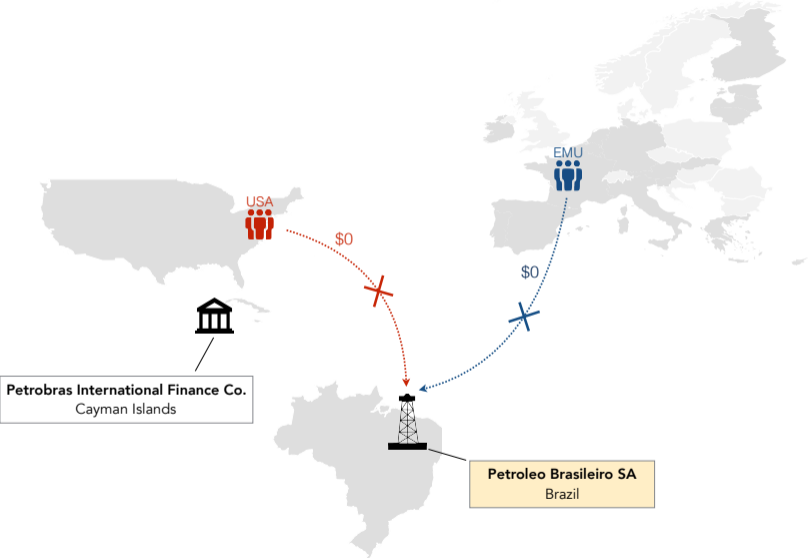
# How Petrobras Raises Capital From Developed Countries



# How Petrobras Raises Capital From Developed Countries

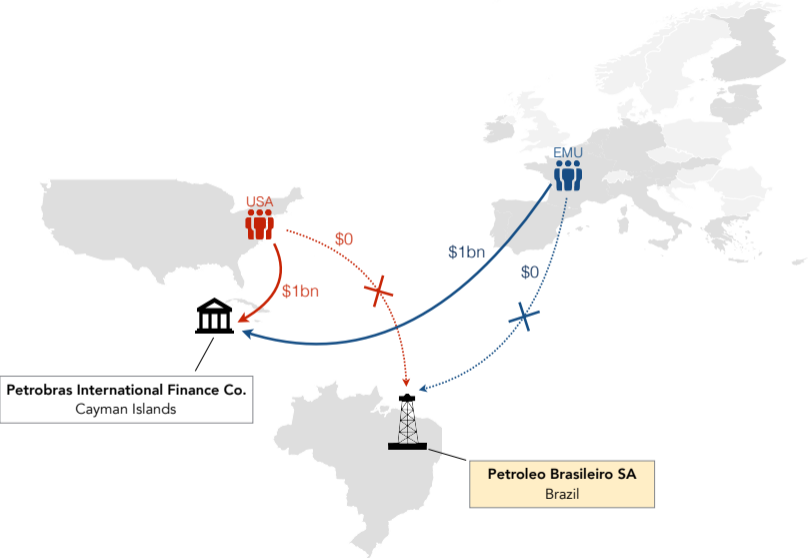


# How Petrobras Raises Capital From Developed Countries

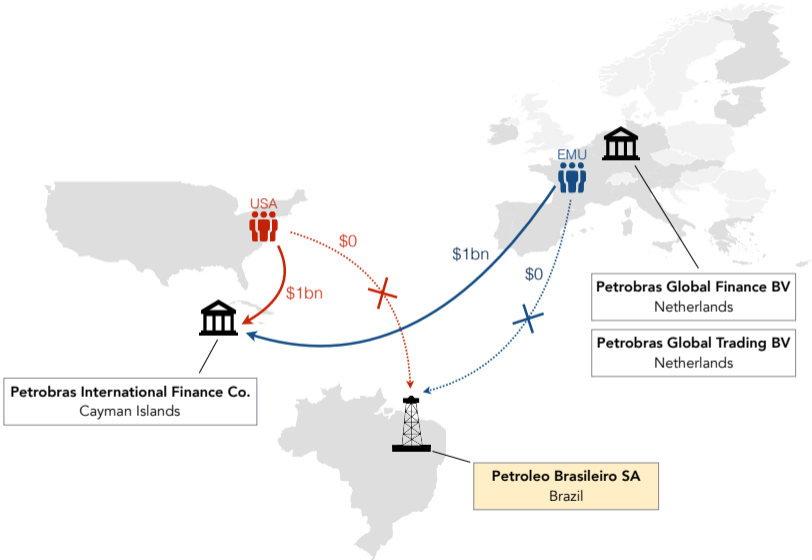




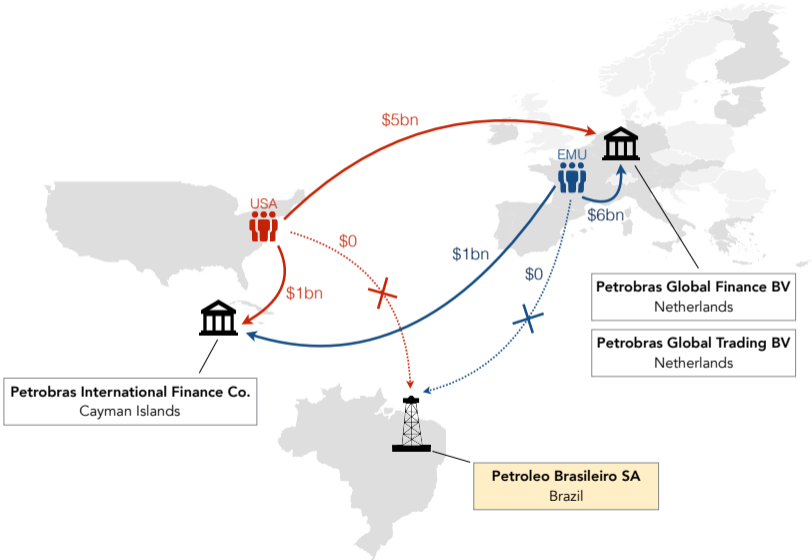
# How Petrobras Raises Capital From Developed Countries



# How Petrobras Raises Capital From Developed Countries



# How Petrobras Raises Capital From Developed Countries



# Aggregating to Ultimate Parent Entity

- ▶ Aggregate each security to ultimate parent:
  - ▶ E.g., Petrobras International Finance from Caymans to Brazil
  - ▶ Mapping algorithm from Coppola, Maggiori, Neiman, Schreger (QJE 2021)
- ▶ Holdings, who owns the securities around the world:
  1. Morningstar, Factset, Lipper data on mutual funds and ETFs
  2. US: Regulatory data on insurance companies (NAIC)
  3. Euro Area: security holdings data by ECB (SHS)
  4. Positions of the Norwegian sovereign wealth fund (SWF)  
Constantly expanding micro-holdings data as new sources (public, commercial, regulatory) are fast becoming available
- ▶ Key assumption: Within each year, asset class, and bilateral country pair, holdings are representative of the universe of portfolio investment

## Reallocation Matrices

What share of investments in each country on residency basis go to others when on a nationality basis? (*rows sum to 100%*):

Share Reallocated To:							
Destination	BRA	CHN	CYM	GBR	LUX	USA	RoW
<b>BRA</b>	100.0						
<b>CHN</b>		99.2		0.8			
<b>CYM</b>	20.1	33.0	1.4	3.5		13.3	28.7
<b>GBR</b>	0.2			86.5		4.0	9.3
<b>LUX</b>	4.7	0.1		1.5	4.4	44.8	44.5
<b>USA</b>	0.3	0.1		1.3		92.3	6.0

*Reallocation Matrix for US Corporate Bond Investments*

## Reallocation Matrices

What share of investments in each country on residency basis go to others when on a nationality basis? (*rows sum to 100%*):

Destination	Share Reallocated To:						RoW
	BRA	CHN	CYM	GBR	LUX	USA	
BRA	100.0						
CHN		99.2		0.8			
<b>CYM</b>	<b>20.1</b>	33.0	1.4	3.5		13.3	28.7
GBR	0.2			86.5		4.0	9.3
LUX	4.7	0.1		1.5	4.4	44.8	44.5
USA	0.3	0.1		1.3		92.3	6.0

*Reallocation Matrix for US Corporate Bond Investments*

## Reallocation Matrices

What share of investments in each country on residency basis go to others when on a nationality basis? (*rows sum to 100%*):

Destination	Share Reallocated To:						RoW
	BRA	CHN	CYM	GBR	LUX	USA	
BRA	100.0						
CHN		99.2		0.8			
CYM	20.1	33.0	1.4	3.5		13.3	28.7
GBR	0.2			86.5		4.0	9.3
LUX	4.7	0.1		1.5	4.4	44.8	44.5
USA	0.3	0.1		1.3		92.3	6.0

*Reallocation Matrix for US Corporate Bond Investments*

## Reallocation Matrices

What share of investments in each country on residency basis go to others when on a nationality basis? (*rows sum to 100%*):

Destination	Share Reallocated To:						RoW
	BRA	CHN	CYM	GBR	LUX	USA	
BRA	100.0						
CHN		99.2		0.8			
CYM	20.1	33.0	1.4	3.5		13.3	28.7
GBR	0.2			86.5		4.0	9.3
LUX	4.7	0.1		1.5	4.4	44.8	44.5
USA	0.3	0.1		1.3		92.3	6.0

*Reallocation Matrix for US Corporate Bond Investments*



## Restating TIC for the US: Corporate Bonds

Destination	TIC	Tax Haven Only		Full Nationality	
		Position	$\Delta$	Position	$\Delta$
Brazil	8	50	42	68	59
Bermuda	30	0	-30	0	-30
Cayman Islands	80	1	-79	1	-79
China	3	47	44	55	52
Hong Kong	8	7	-1	9	0
India	6	6	1	21	15
Ireland	63	24	-39	40	-23
Luxembourg	72	3	-69	3	-69
Russia	0	12	12	12	12

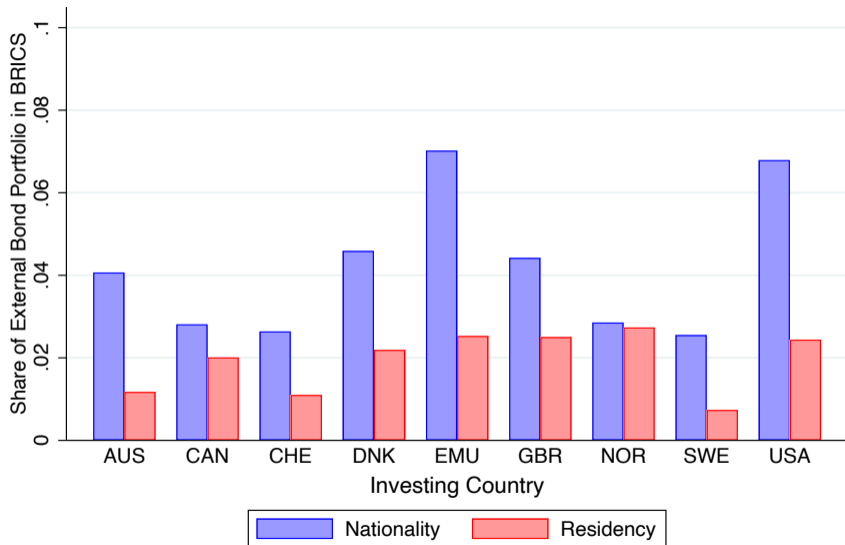
## Restating TIC for the US: Corporate Bonds

Destination	TIC	Tax Haven Only		Full Nationality	
		Position	$\Delta$	Position	$\Delta$
Brazil	<b>8</b>	<b>50</b>	<b>42</b>	68	59
Bermuda	30	0	-30	0	-30
Cayman Islands	80	1	-79	1	-79
China	<b>3</b>	<b>47</b>	<b>44</b>	55	52
Hong Kong	8	7	-1	9	0
India	6	6	1	21	15
Ireland	63	24	-39	40	-23
Luxembourg	72	3	-69	3	-69
Russia	<b>0</b>	<b>12</b>	<b>12</b>	12	12

## Restating TIC for the US: Corporate Bonds

Destination	TIC	Tax Haven Only		Full Nationality	
		Position	$\Delta$	Position	$\Delta$
Brazil	8	50	42	68	59
Bermuda	<b>30</b>	<b>0</b>	<b>-30</b>	0	-30
Cayman Islands	<b>80</b>	<b>1</b>	<b>-79</b>	1	-79
China	3	47	44	55	52
Hong Kong	8	7	-1	9	0
India	6	6	1	21	15
Ireland	<b>63</b>	<b>24</b>	<b>-39</b>	40	-23
Luxembourg	<b>72</b>	<b>3</b>	<b>-69</b>	3	-69
Russia	0	12	12	12	12

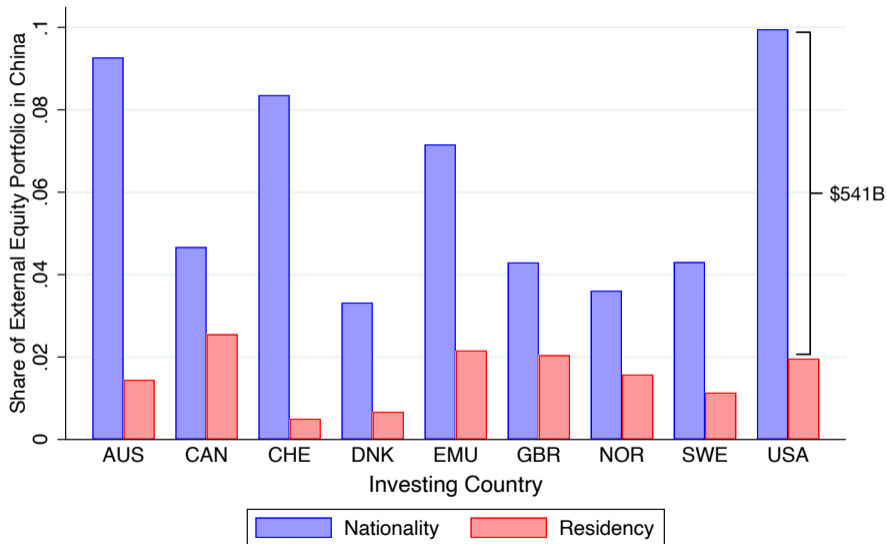
## Developed Market Investment in BRICS Bonds



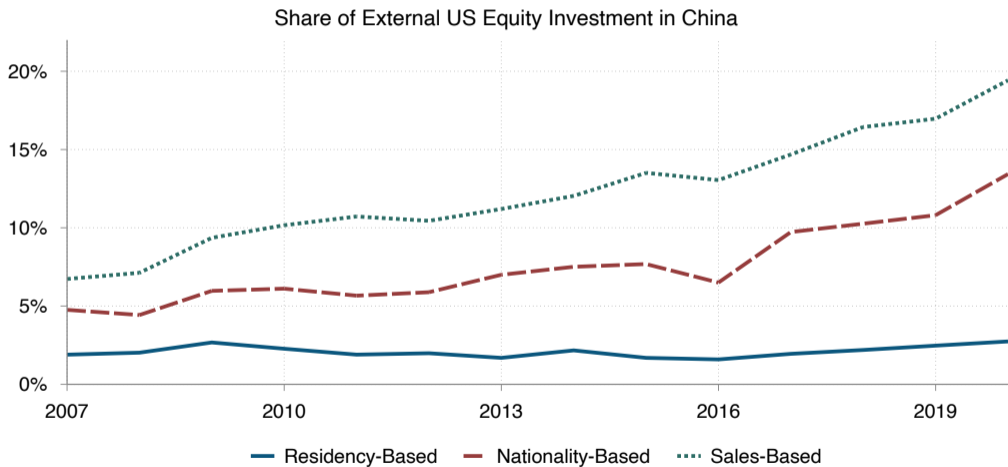
## Restating TIC for the US: Equity

Destination	TIC	Tax Haven Only		Full Nationality	
		Position	$\Delta$	Position	$\Delta$
Brazil	119	120	1	107	-13
Bermuda	<b>195</b>	<b>1</b>	<b>-194</b>	1	-194
Cayman Islands	<b>547</b>	<b>0</b>	<b>-547</b>	0	-547
China	<b>154</b>	<b>695</b>	<b>541</b>	695	541
Hong Kong	147	134	-13	134	-12
India	179	181	2	173	-6
Ireland	<b>385</b>	<b>71</b>	<b>-315</b>	71	-314
Luxembourg	33	4	-29	4	-29
Russia	55	62	7	61	7

## Developed Market Investment in Chinese Equity

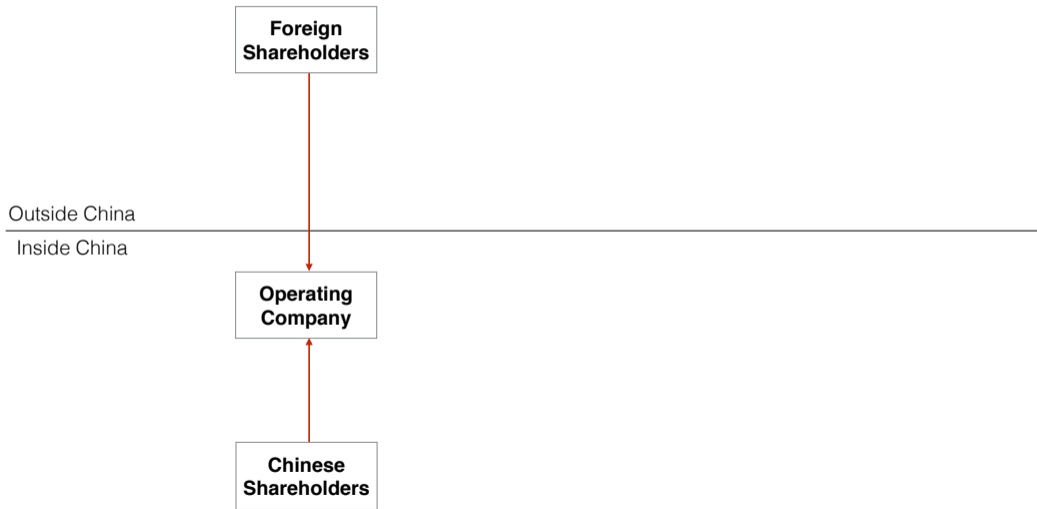


# Larger Portfolio Exposures to China: Residency, Nationality, and Sales-Based



# Financial Stability Concern: Standard vs. VIE Structure

## Standard Structure



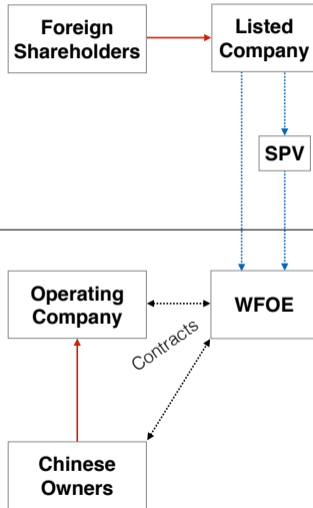


# Financial Stability Concern: Standard vs. VIE Structure

Standard Structure



VIE Structure



Outside China

Inside China

## Financial Stability Concerns for US Investors

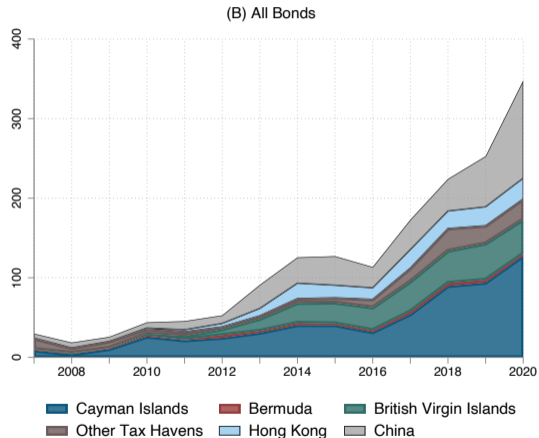
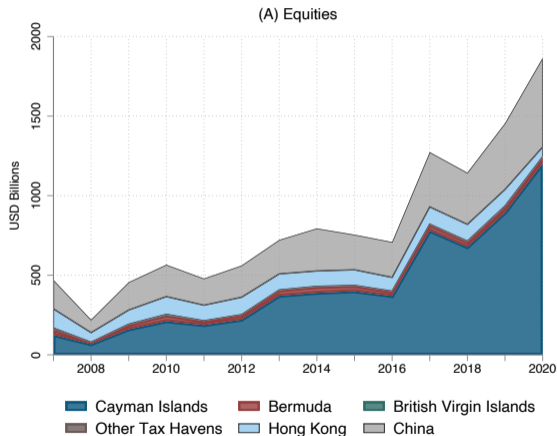
- ▶ VIE structures add a layer of complexity across opaque jurisdictions...in the middle of US and China geopolitical tensions
- ▶ Securities are held by general public either directly or via pension funds and mutual funds. Ultimate owners unlikely to understand the risks
- ▶ Alibaba's prospectus for IPO on NYSE (SEC Form F-1):  
*"If the [Chinese] government deems that the contractual arrangements in relation to our variable interest entities do not comply with [Chinese] governmental restrictions on foreign investment, or if these regulations or the interpretation of existing regulations changes in the future, we could be subject to penalties or be forced to relinquish our interests in those operations."*

**Improving Financial Stability:** force a conversion to common equity with a 3 year deadline

- ▶ If truly equivalent to common equity, then conversion should not be very costly
- ▶ If not equivalent, then need to clarify what the rights are

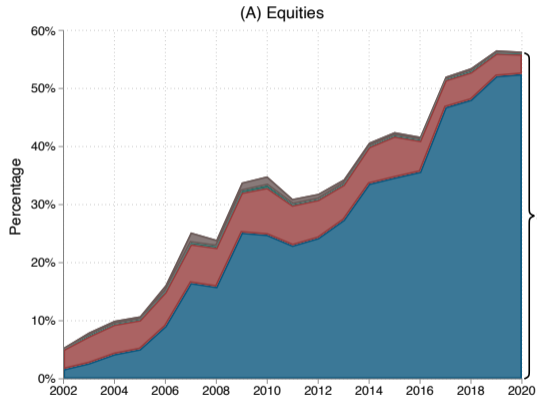
# Offshore Financing Crucial for Chinese Access to Foreign Capital

Foreign Investment Fund Holdings of Chinese Securities, By Residency of Issuer

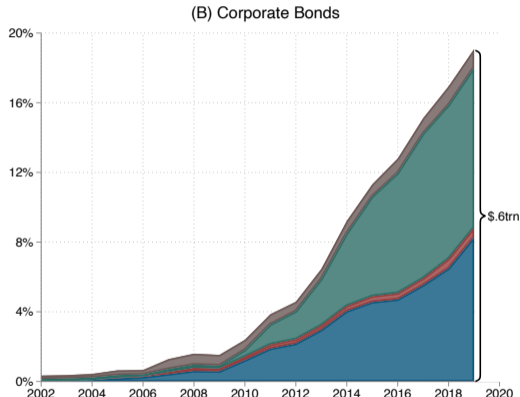


# Conversely, China Accounts for a Growingly Large Share of All Tax Haven Financing

China's Share of Outstanding Securities Issued in Tax Havens

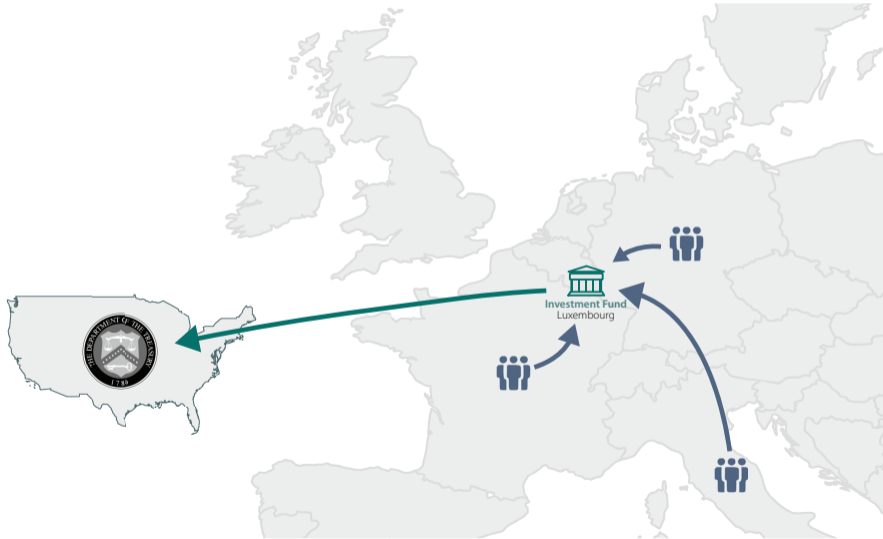


Cayman Islands  
British Virgin Islands  
Bermuda  
Other Tax Havens

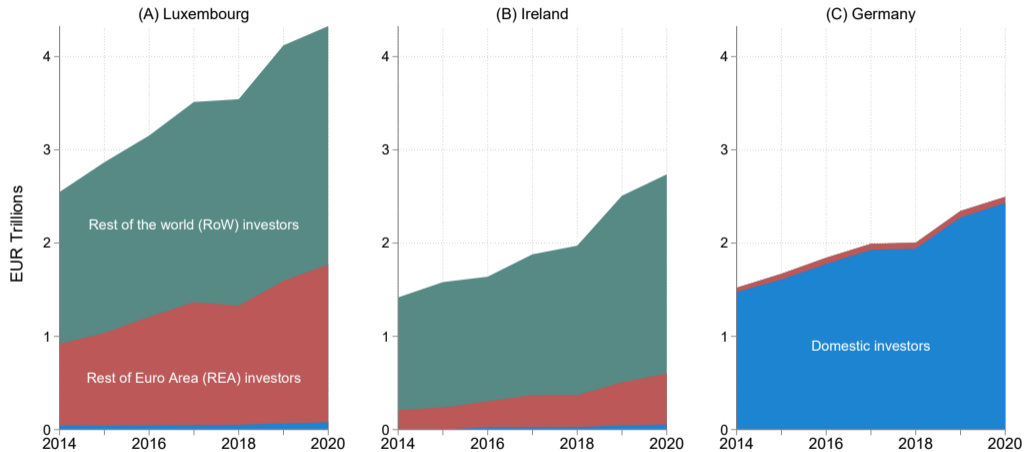


Cayman Islands  
British Virgin Islands  
Bermuda  
Other Tax Havens

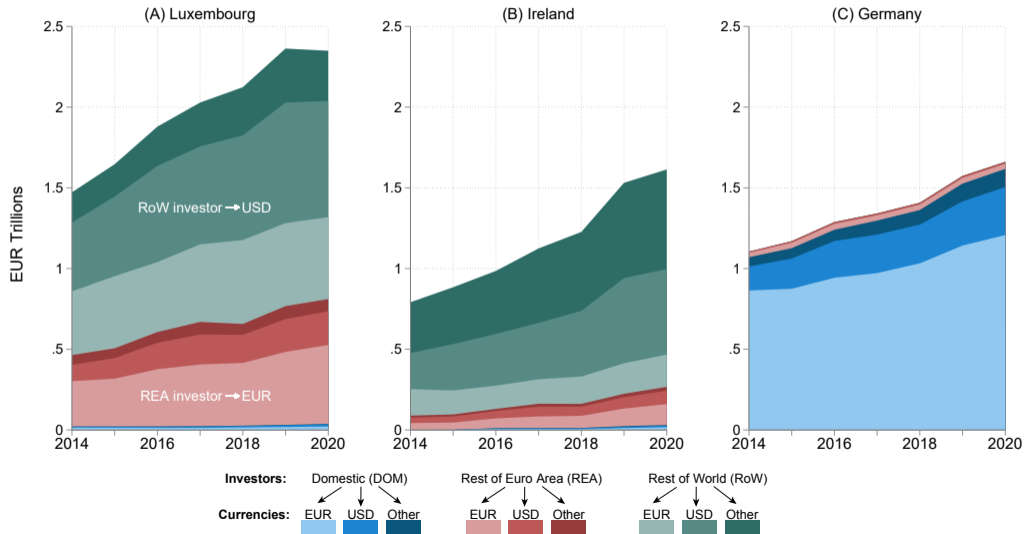
# Tax Havens as a “Source” of Investment



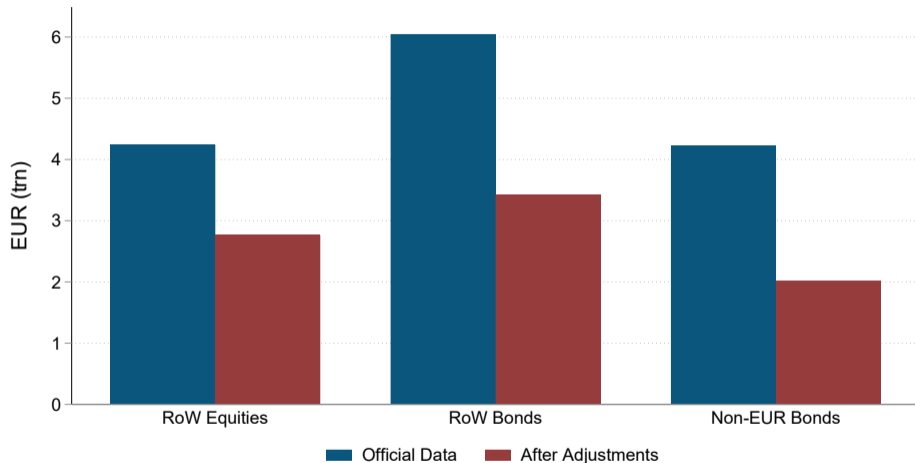
# Ownership of Luxembourg and Ireland Funds



# RoW and Euro Area Investors: Different Currencies Through LUX, IRL Funds



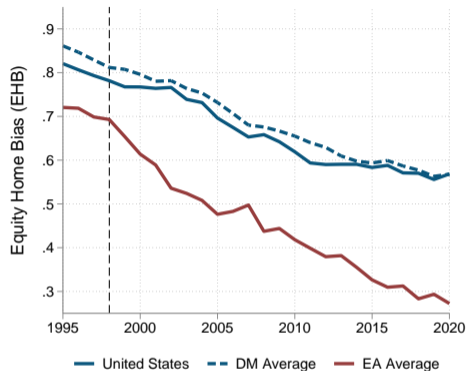
## Aggregate Consequences for the Euro Area's External Position



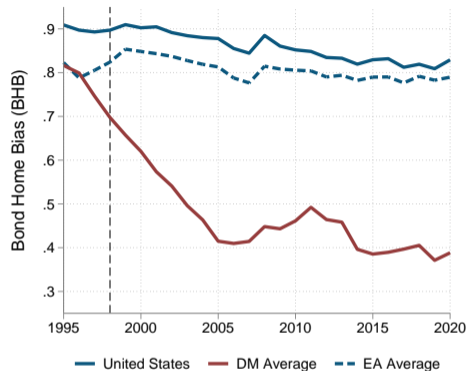
⇒ Euro Area's gross external position substantially smaller, with larger Euro exposure



# Revisiting Home Bias in the Euro Area



(a) Equity Home Bias



(b) Bond Home Bias

$$\text{Home Bias}_j = 1 - \frac{\text{Share of Foreign Securities in Country } j \text{ Portfolio}}{\text{Share of Foreign Securities in World Market Portfolio}}$$

# Conclusions

- ▶ Tax Havens and offshore financial centers grown enormous
- ▶ Create risks and distortions, obfuscate actual economic relationship
- ▶ Not just US corporates in Ireland. China plays an important role
- ▶ Euro Area financial centers of Ireland and Luxembourg are crucial to track down ultimate investors