

# Redrawing the Map of Global Capital Flows: The Role of Cross-Border Financing and Tax Havens

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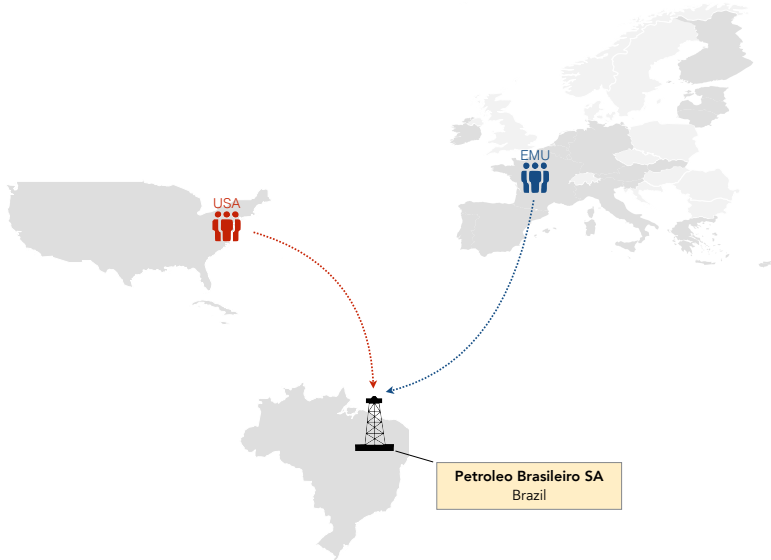
Matteo Maggiori  
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Brent Neiman  
Chicago

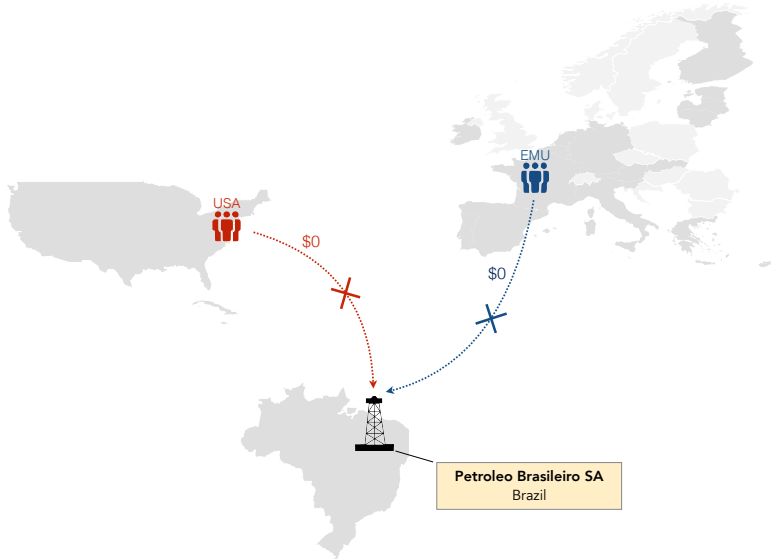
Jesse Schreger  
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February 2021

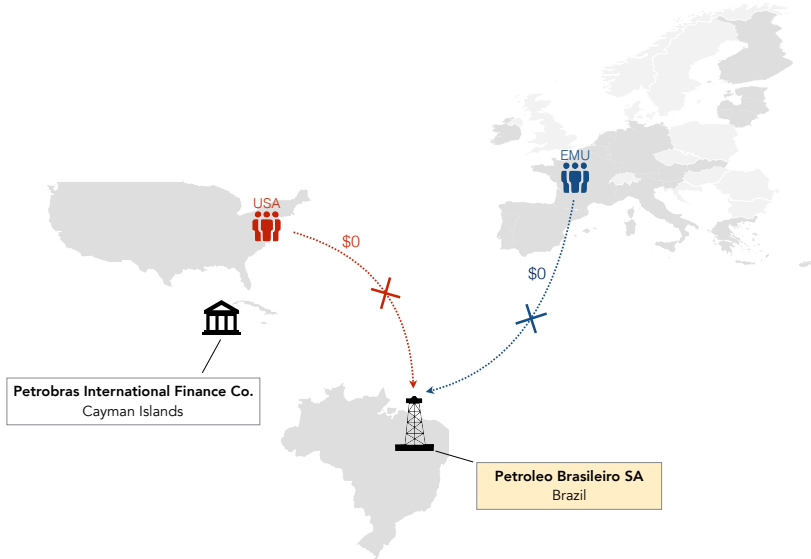
# How Petrobras Raises Capital From Developed Countries



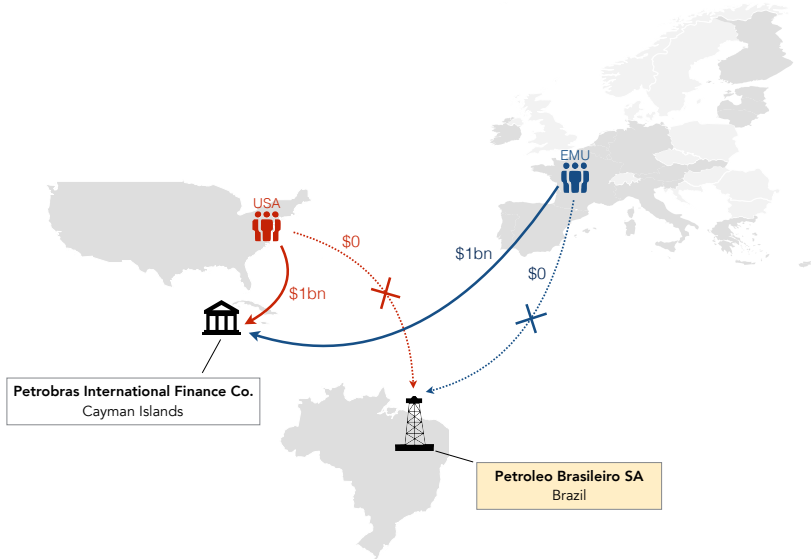
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## How Big A Deal is This?

- ▶ Tax Haven's (TH's) account for  $\approx 8\%$  of all corporate financing and nearly 50% of all foreign affiliate issuances. 14% of US foreign portfolio holdings are in CYM!
- ▶ For some emerging markets, *nearly all* of corporate sector's bond financing from developed markets flows through THs
- ▶ Rapid growth since at least 2005

# Changes the Map of Global Capital Allocation and Economic Exposures

- ▶ Much Larger Corporate Bond Positions in the BRICS
  - ▶ US (for example) holds \$120 billion, not \$20 billion
  - ▶ Implications for currency compositions

# Changes the Map of Global Capital Allocation and Economic Exposures

- ▶ Much Larger Corporate Bond Positions in the BRICS
  - ▶ US (for example) holds \$120 billion, not \$20 billion
  - ▶ Implications for currency compositions
- ▶ Much Larger Equity Positions in China
  - ▶ US (for example) holds \$700 billion, not \$150 billion
  - ▶ China's official NFA is twice its true value



## Related Literature

- ▶ **Nationality-Based Statistics:** Avdjiev, McCauley, Shin (2016); Fuertes and Serena (2016); Bertaut, Bressler, Curcucu (2019); Damgaard et al. (2019)
- ▶ **Tax Havens, Firm Capital Structure:** Hines, Rice (1994); Warnock and Cleaver (2003); Desai et al. (2005); Huizinga et al. (2008); Hines (2010); Dharmapala et al. (2011); Zucman (2013, 15); Fuertes, Serena (2016); Hanlon et al. (2015); Torslov et al. (2018); Bilicka (2019); Guvenen et al. (2019)
- ▶ **Effect of FDI:** Holmes, McGrattan, Prescott (2015); Blanchard, Acalin (2016); Horn, Reinhart, Trebesch (2019)
- ▶ **Global Imbalances and China's NFA:** Bernanke (2005), Gourinchas and Rey (2007, 2011), Caballero, Farhi, and Gourinchas (2008), Mendoza, Quadrini, Rios-Rull (2009), Maggiori (2017)
- ▶ **Bilateral Capital Flows:** Portes, Rey (2005); Lane, Milesi-Ferretti (2018); Benetrix, Lane, Shambaugh (2015); Forbes (2010); Koijen, Yogo (2019)
- ▶ Many others, see paper...

# Agenda

- ▶ Residency, Nationality, and Methodology
- ▶ More Investment in BRICS Debt
- ▶ More Investment in Chinese Equity
- ▶ More in the Paper/Website

## Aggregate Each Security to Ultimate Parent Company

- Use info from CGS, Morningstar, Factset, Dealogic, SDC, Capital IQ, and Orbis to map 27m securities from issuer (**Residency**) to ultimate parent (**Nationality**).

Issuer	Residency	Parent	Nationality	Value (\$B)
<i>A. Corporate bonds</i>				
Petrobras Intl. Finance Co.	CYM	Petroleo Brasileiro SA	BRA	9.2
Gaz Capital SA	LUX	Gazprom PJSC	RUS	22.2
<i>B. Equities</i>				
Alibaba Group Holding Ltd.	CYM	Alibaba Group Holding Ltd.	CHN	441.6
Medtronic Plc	IRL	Medtronic Plc	USA	85.7

## Reallocation Matrices

- Merge mapping with Morningstar data on mutual fund and ETF positions

Share Reallocated To:							RoW
Destination	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*

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## 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

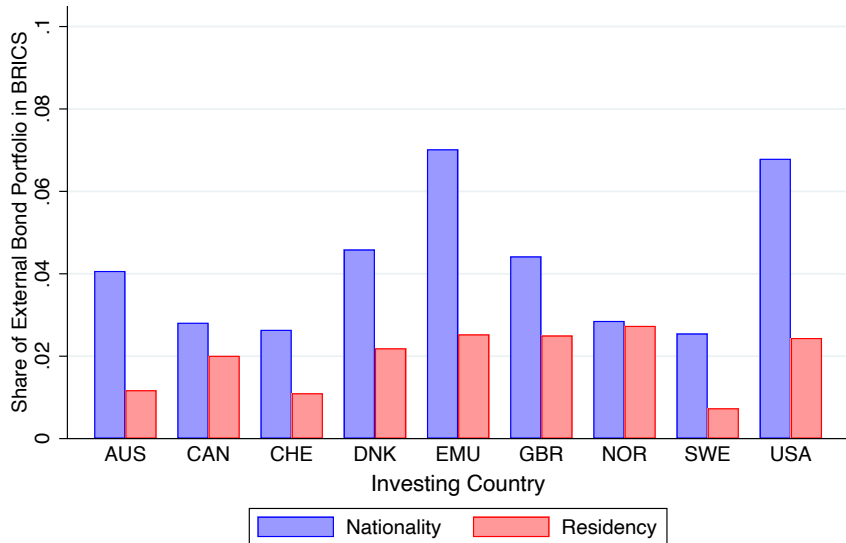
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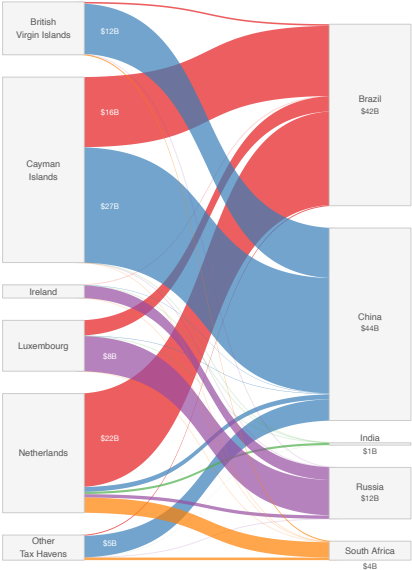
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## Developed Market Investment in BRICS Bonds

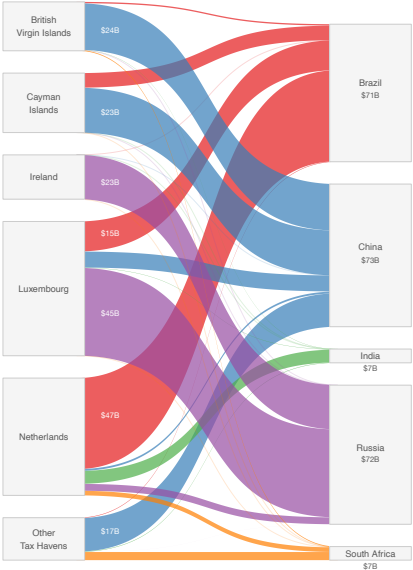


# Where Does this Reallocation Come From?

(a) Flow of U.S. Corporate Bond Investments to BRICS



(b) Flow of EMU Bond Investments to BRICS



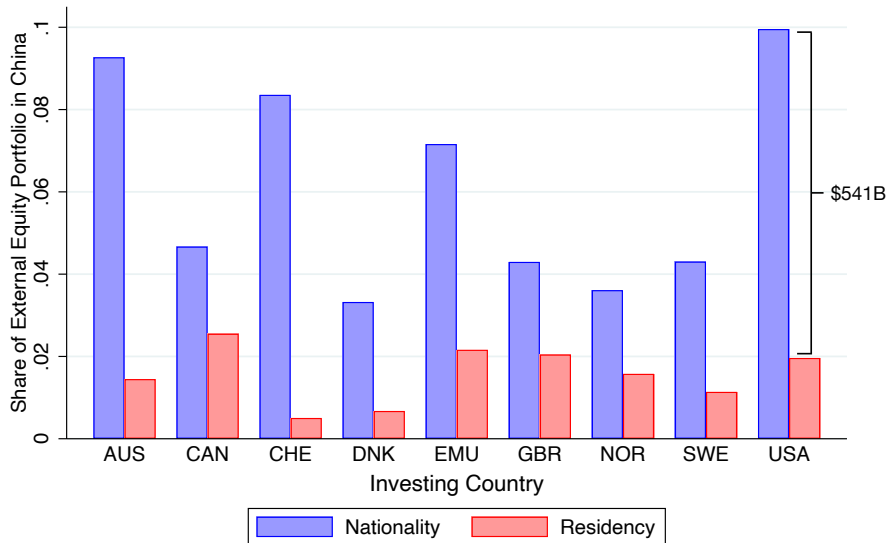
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## Restating TIC for the US: Equity

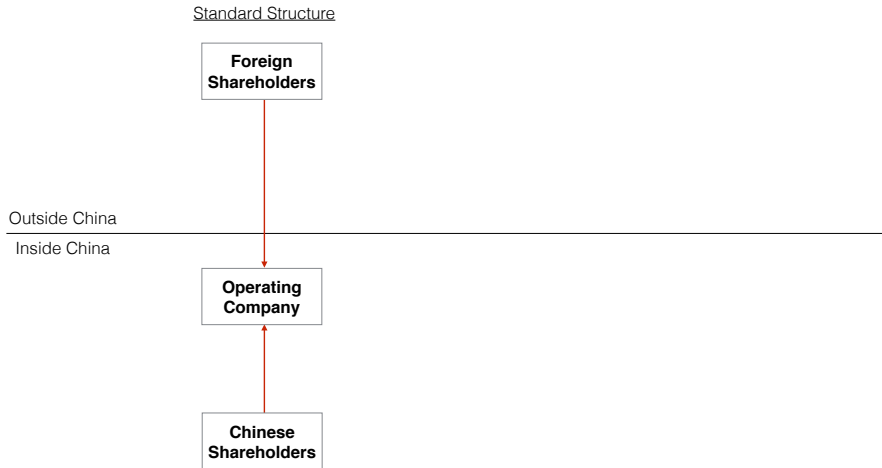
Destination	TIC	Tax Haven Only		Full Nationality	
		Position	$\Delta$	Position	$\Delta$
Brazil	119	120	1	107	-13
Bermuda	<b>195</b>	<b>1</b>	<b>-194</b>	1	-194
Cayman Islands	<b>547</b>	<b>0</b>	<b>-547</b>	0	-547
China	<b>154</b>	<b>695</b>	<b>541</b>	695	541
Hong Kong	147	134	-13	134	-12
India	179	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

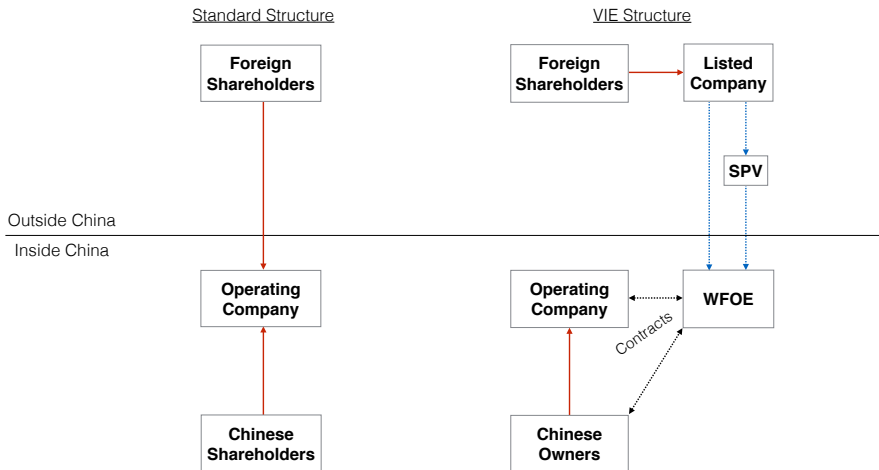




# Why Are Chinese Firms Doing This? To Get Around Capital Controls



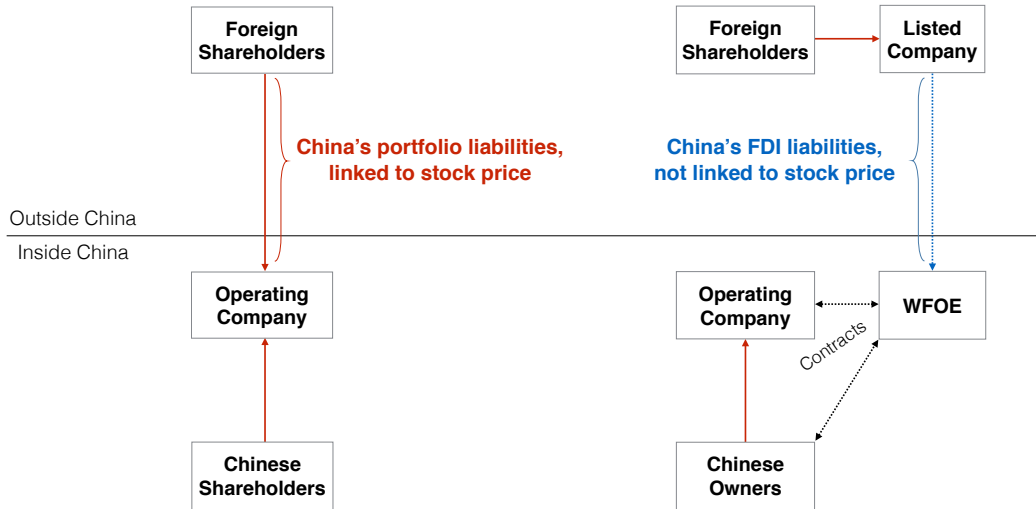
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# Implications for China's Net Foreign Assets (NFA)

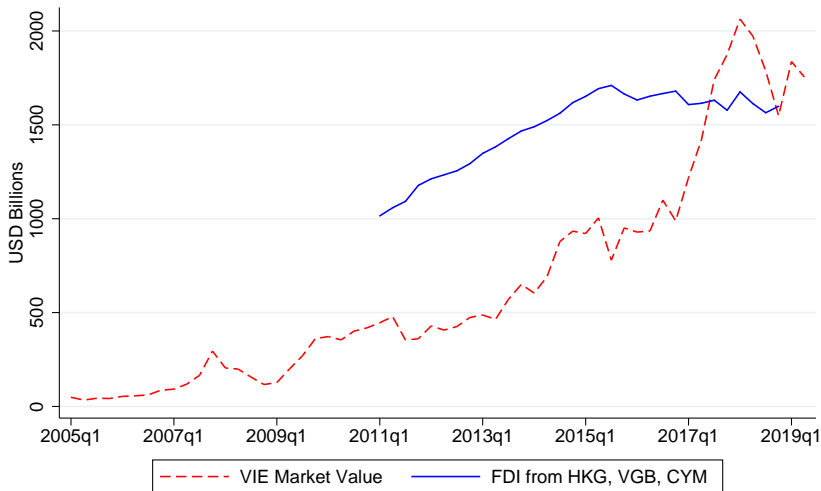
Standard Structure

VIE Structure



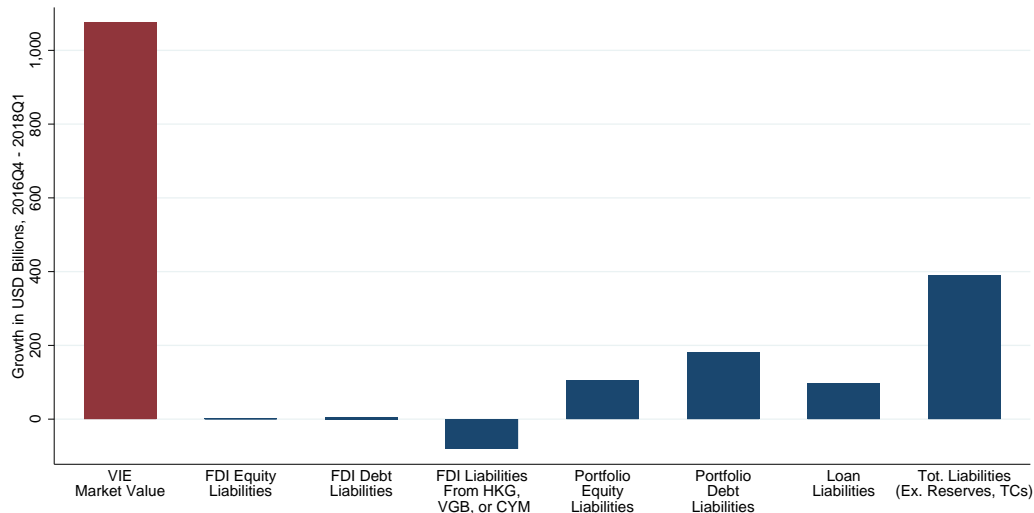
## Does VIE Structure Result in Mismeasurement of NFA?

- Unclear exactly how positions associated with VIEs are booked. But they do not appear linked to listed company market values.

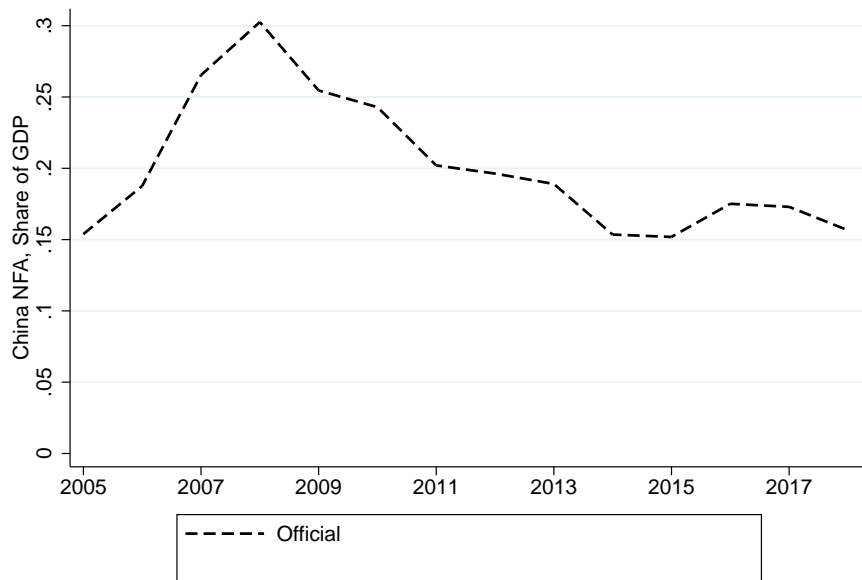


## Might the VIEs Be in Other Liabilities Categories?

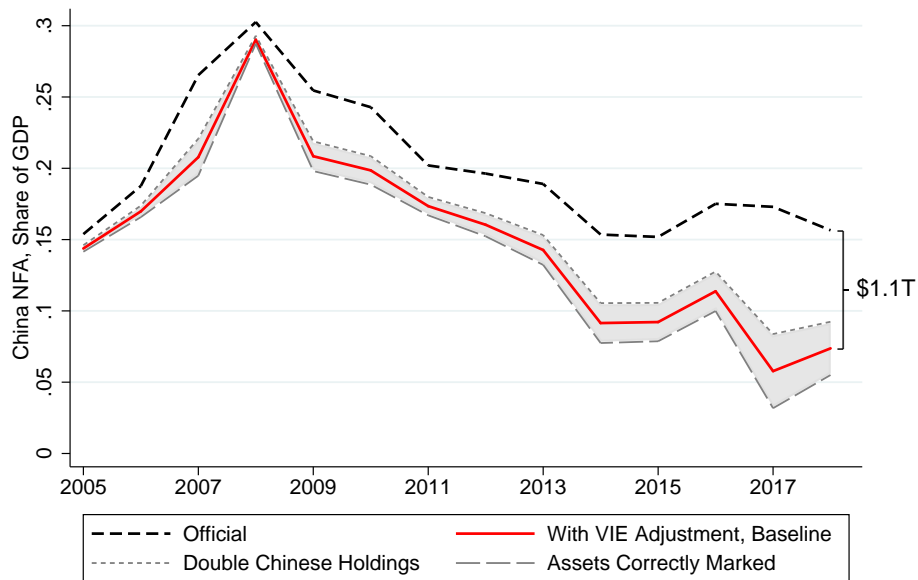
- Focusing on surge in value of VIEs from 2016:Q4 to 2018:Q1:



## NFA Mismeasurement is Large



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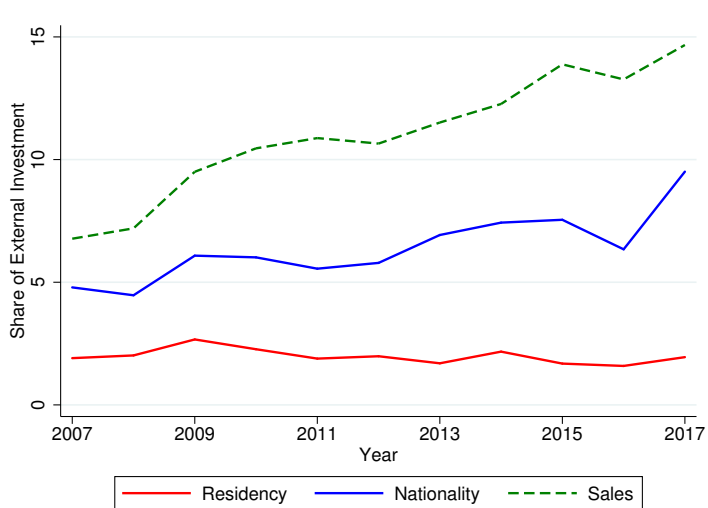


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## Comparisons with Sales-Based Restatements: China in US External Portfolio



## Downloadable Data/Statistics, Including:

- ▶ Full reallocation matrices by country, year, asset class
- ▶ Disaggregated bilateral investment data (currency, industry, etc.)
- ▶ Results based on global issuance distribution matrix for *many* more countries

# New Map of Global Capital Allocation

- ▶ We associate subsidiaries in tax havens with their parents and restate bilateral investment positions reported in TIC and CPIS
- ▶ Takeaways:
  - ▶ In many cases, official statistics poorly reflect true risk exposures
  - ▶ DMs invest much more in BRICS bonds and stocks
  - ▶ China's NFA is significantly overstated (elsewhere?)
  - ▶ Other implications: currency, spurious foreign investment, demand linkages, etc.
- ▶ Follow Global Capital Allocation Project, download data, and use codes at:  
[www.globalcapitalallocation.com](http://www.globalcapitalallocation.com)

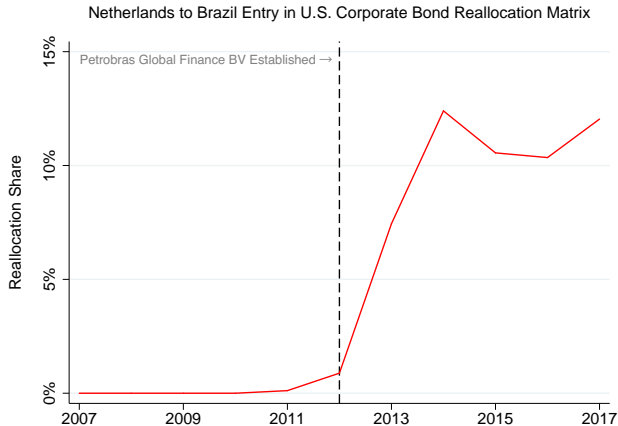
## Extra Slide

## Example: Petrobras Bond (CUSIP 71645WAR2)

- ▶ \$2.7 Billion, coupon of 5.375%, 10-year, issued January 2011
- ▶ Immediate issuer: Petrobras Int. Fin. Co., Cayman Islands
- ▶ Official statistics: bond from Cayman Islands, finance/bank
- ▶ Our procedure (downloadable): combine info from 7 commercial sources, exploit chains across datasets, majority and priority rules, and penalize tax havens
- ▶ Our restatements and analysis: Petroleo Brasileiro SA, Brazil, energy

# Reallocation Matrices

- We produce separately for each asset class, nine investor countries, and each year



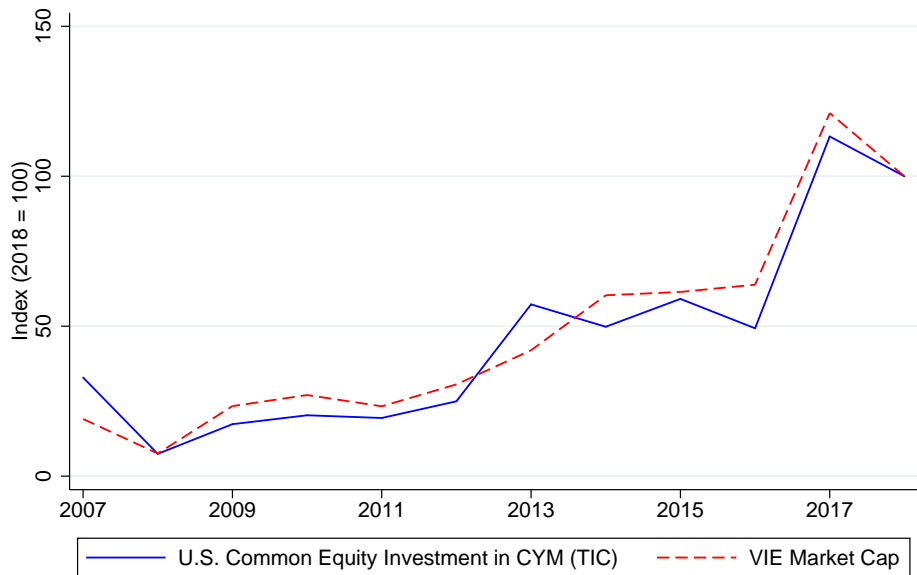
## Implication: China's Net Foreign Asset (NFA) Position Massively Overstated

- ▶ Net Foreign Asset Position (*NFA*) captures net claims on RoW:

$$NFA_t = A_t - L_t = \sum_{s=-\infty}^t (CA_s + \text{Valuation Changes}_s)$$

- ▶ VIE structure causes understatement of  $L$  because it changes liability from portfolio liability to FDI liability, which misses the valuation changes
- ▶ In 2017, VIEs gained  $> \$1$  Trillion in market capitalization. Not in China's BoP.

## Counterexample: USA Common Equity Position in CYM





## Might the VIEs Be in Other Liabilities Categories?

- Focusing on surge in value of VIEs from 2016:Q4 to 2018:Q1:

