Globalization and the Geography of Capital Flows

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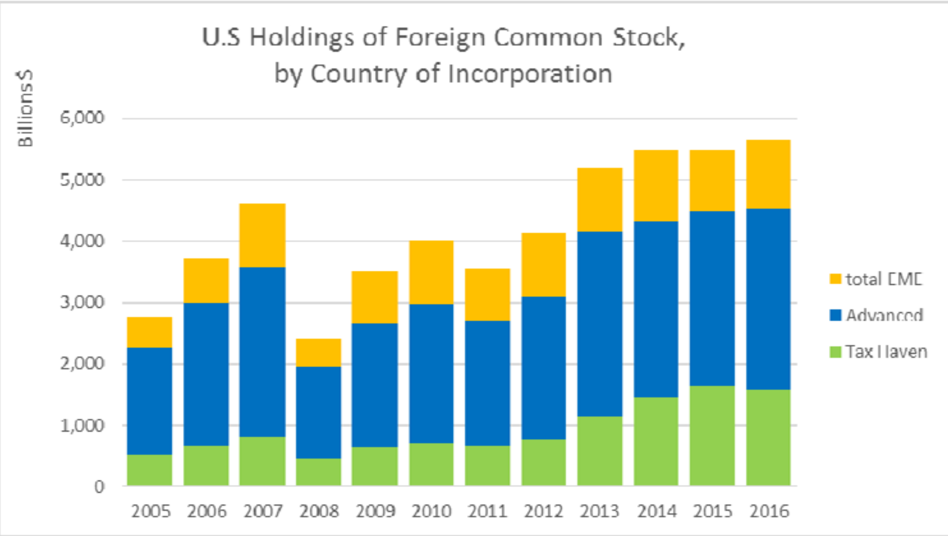
Official statistics on capital flows, portfolio holdings provide an increasingly distorted view of actual investor exposures and cross-border linkages

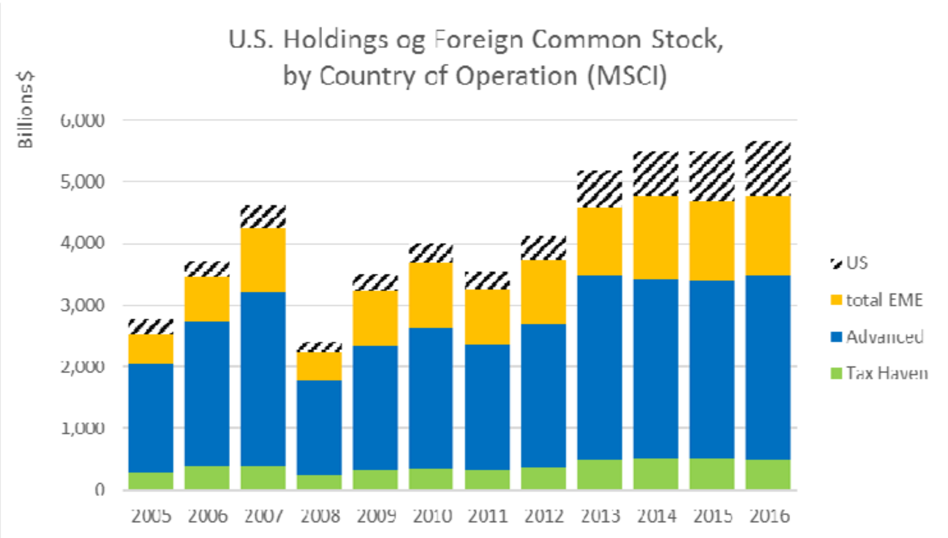
- Post-crisis initiatives for CPIS: greater participation, more granularity (issuer/holder sectors), more frequent (semi-annual)
- These data are still based on BOP framework of **legal residence**
- Country assignment may not convey useful information about investor exposures, because firms may not do any business in that residence.
  - Multinationals incorporate in tax havens, especially when intangibles important
  - Firms issue debt out of financing arms in offshore centers for improved market access
  - Mutual funds established in tax havens
- Increasing recognition of problem:
  - Lane & Milesi-Ferretti (2017): increasing distortionary effects of financial center intermediation for assessing external exposures
  - BIS banking statistics: post-crisis locational-by-nationality initiatives
  - BIS international debt securities on both residence & nationality basis

Our Study

- We combine underlying security-level data on U.S. foreign portfolio investment with a variety of commercial data sources designed for investors to monitor portfolios relative to benchmarks
  - Allows us to map U.S. investor holdings from **residence** basis to **nationality** basis (based on location of parent, or firm's center of operations)
  - Ongoing work: map holdings to fuller **exposure** basis based on where firms actually do business from firm level data on location of sales
- We find that distortions in the U.S. portfolio data just from **residence** to **nationality** are large, and growing
  - ~$3 trillion, nearly 1/3 of U.S. cross-border portfolio in 2016
- Global portfolios becoming similarly distorted
- Distortions have important consequences for researchers and policy makers:
  - drivers of portfolio allocations and capital flows
  - spillovers of monetary policy
  - resilience of different types of capital flows
  - effectiveness of capital controls
  - components of and sustainability of current account

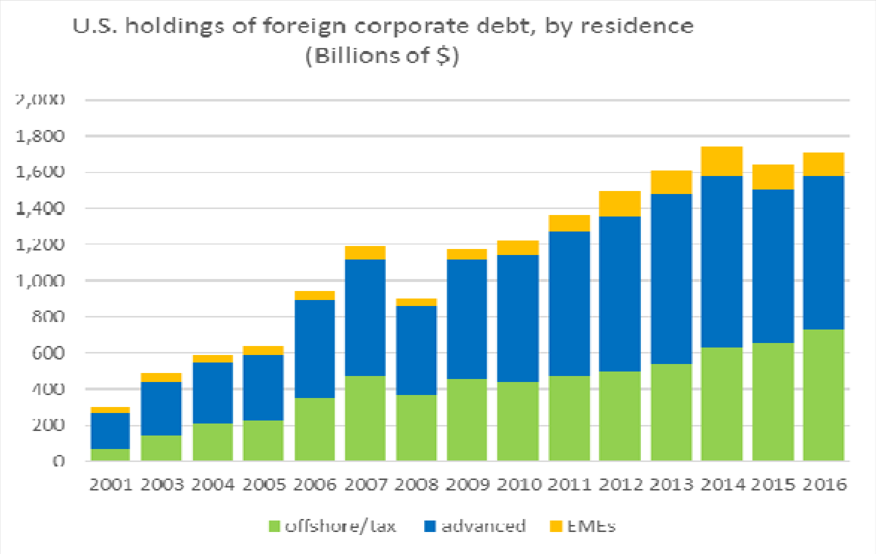
U.S. investor holdings of foreign common stock: residence versus nationality basis

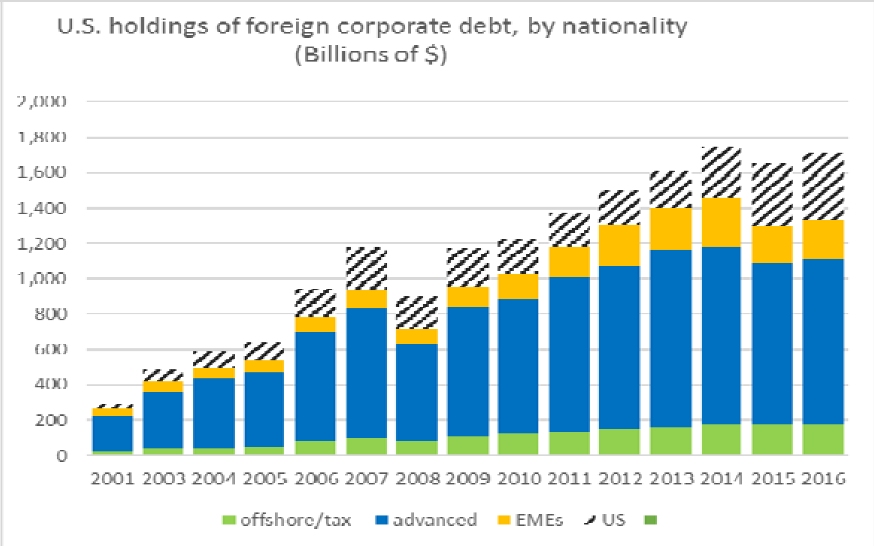




- Residence basis: $5.6 trillion in 2016
  - $1.6 trillion is in tax havens
- Use MSCI constituents to map to nationality
- $900 billon is considered U.S. by MSCI
  - U.S. multinationals incorporated in tax havens abroad
  - Recent increases: U.S. M&A/ corporate inversions in Ireland
- Within foreign: more EME holdings by nationality, especially Chinese firms incorporated in Caymans
- Only common stock holdings. Fund shares add additional layers of distortion: in terms of type of assets, in addition to country
  - Holdings disproportionally in the Cayman Islands, British Virgin Islands, Luxembourg
  - Adds another $1 trillion in distortion

U.S. investor holdings of foreign corporate bonds: Residence versus nationality





- Focus on corporate bonds because government bonds not typically affected by offshore financing arms
- Residence basis: foreign corporate debt: $1.7 trillion by 2016
- 40% is from offshore centers and tax havens
- Nationality basis: total holdings of foreign corporate bonds smaller at $1.3 trillion
- EME holdings larger because of EME firms that issue out of offshore centers
  - Especially true for Chinese, Brazilian, Russian firms

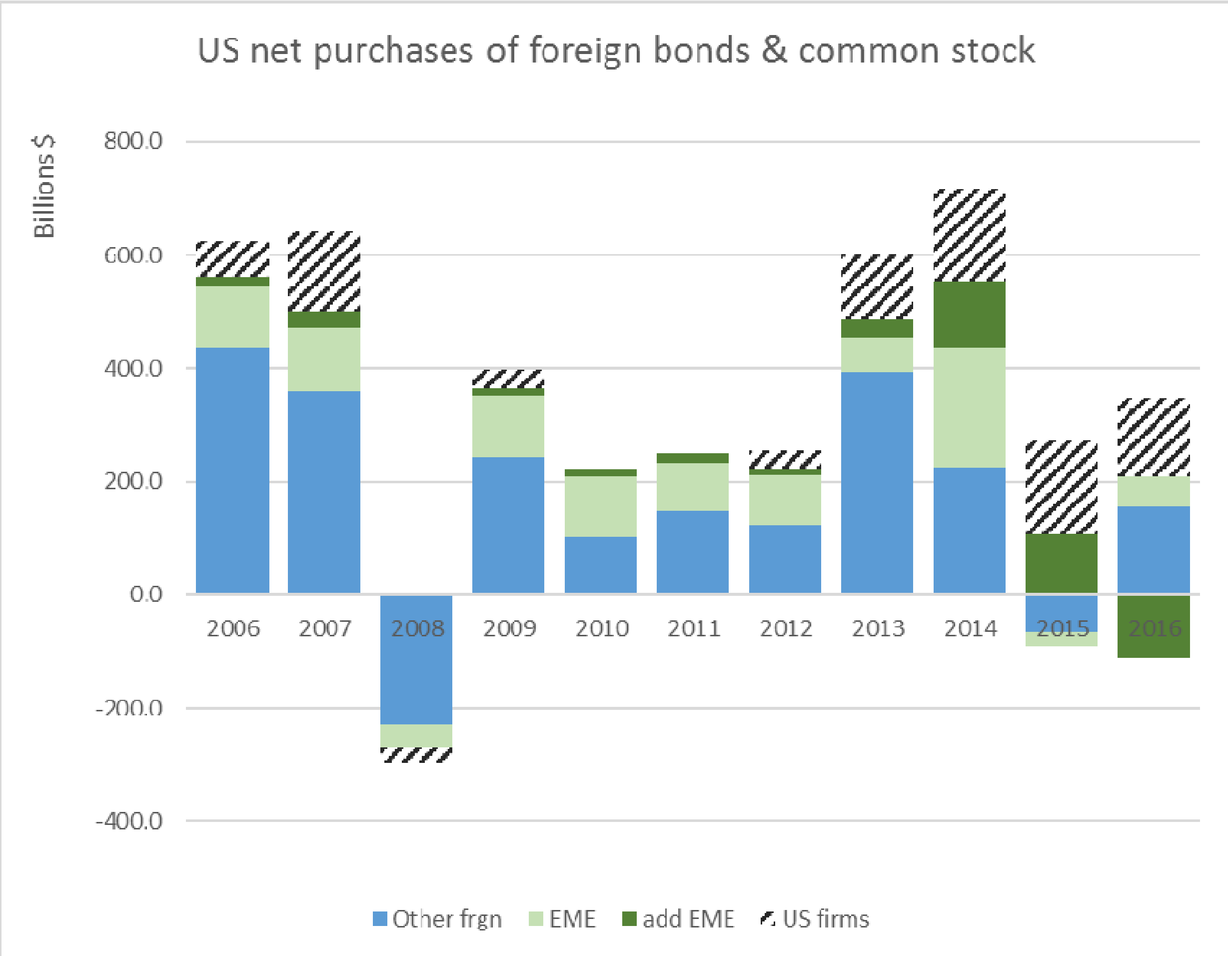
Global Distortions: $9.5 trillion in 2016 (nearly a quarter of total cross-border holdings)

Global cross-border equity and bond holdings in IMF CPIS December 2016, Trillions of US Dollars	Total	LT Debt	Equity
Total cross-border portfolio investment holdings (excluding reserves holdings)	**42.6**	**19.4**	**23.2**
Caribbean & other offshore centers	4.2	1.0	3.1
Luxembourg, Netherlands, and Ireland	5.6	1.6	4.0
Estimated holdings with a different country when reported as nationality instead of residence	**9.5**	**2.5**	**7.1**

Notes: other offshore centers include Guernsey, Jersey, Isle of Man, Liberia, Mauritius, and the Marshall Islands

Totals reported by all economies in the CPIS, excluding SEFER and SSIO holdings

Restated flows: U.S. net purchases of foreign stocks and bonds on residence versus nationality basis

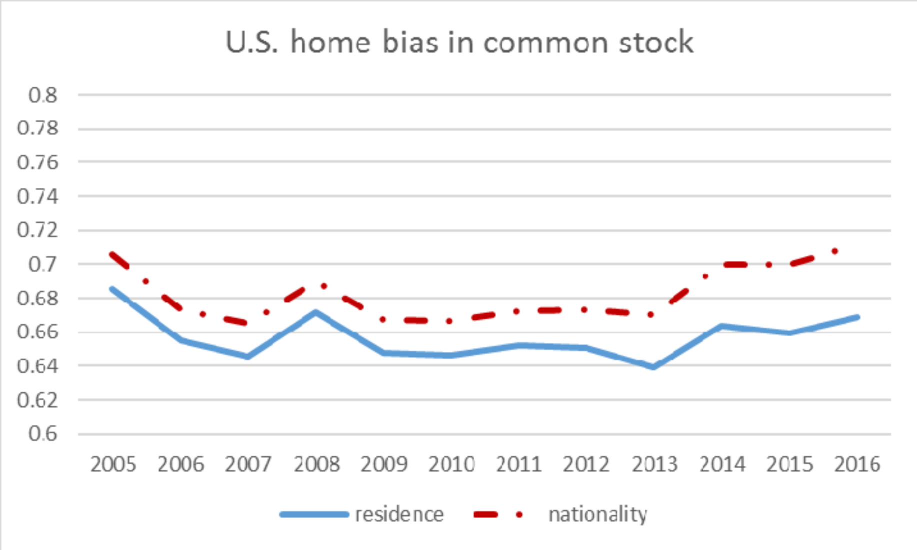


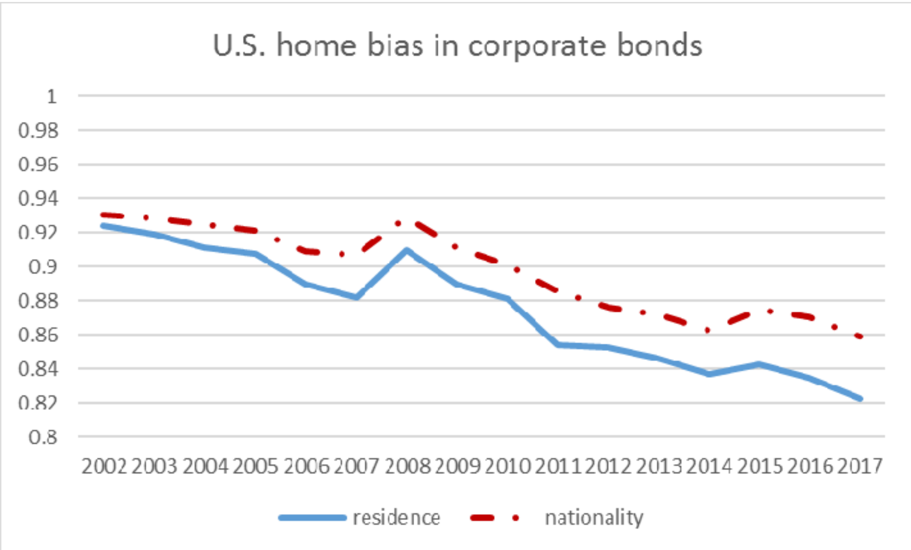
- U.S. purchases foreign assets on ***nationality*** basis are not as large as reported in lead-up to crisis, and not as large in last few years
- Differences within purchases of foreign securities: more EME purchases initially post-crisis, larger sales of EME assets last year

Implications of differences in flows (especially to EMEs)

- Spillovers of accommodative policy in advanced economies and implications for its removal:
  - Post-crisis, U.S. portfolio flows to EMEs have been larger than reported, but sales also larger in last couple years
- Purchases of bonds issued via offshore centers will result in FDI, not portfolio, inflows
  - FDI flows often considered more stable than portfolio flows, but offshore issuance means FDI increasingly “portfolio – like”
- Could misrepresent effectiveness of capital controls if focus on portfolio flows but purchases switch to offshore bonds
- More generally: Potentially gets us closer to answering Lucas paradox why doesn’t capital flow from AEs to EMEs, if EME flows understated
- Has contributed to current configuration of U.S. current account
  - Large direct investment receipts from affiliates in tax havens, but larger trade deficit because exports do not embody value of intellectual property/intangibles
  - Implications for how we think about CA sustainability

Implications for global portfolio allocations & "Home Bias"





- ICAPM: in frictionless world, global investors should hold market cap in portfolio:

$$\frac{\dfrac{(holdings\ of\ foreign\ equity)}{(total\ equity\ portfolio)}}{\dfrac{(foreign\ equity\ market\ cap)}{(world\ equity\ market\ cap)}}$$

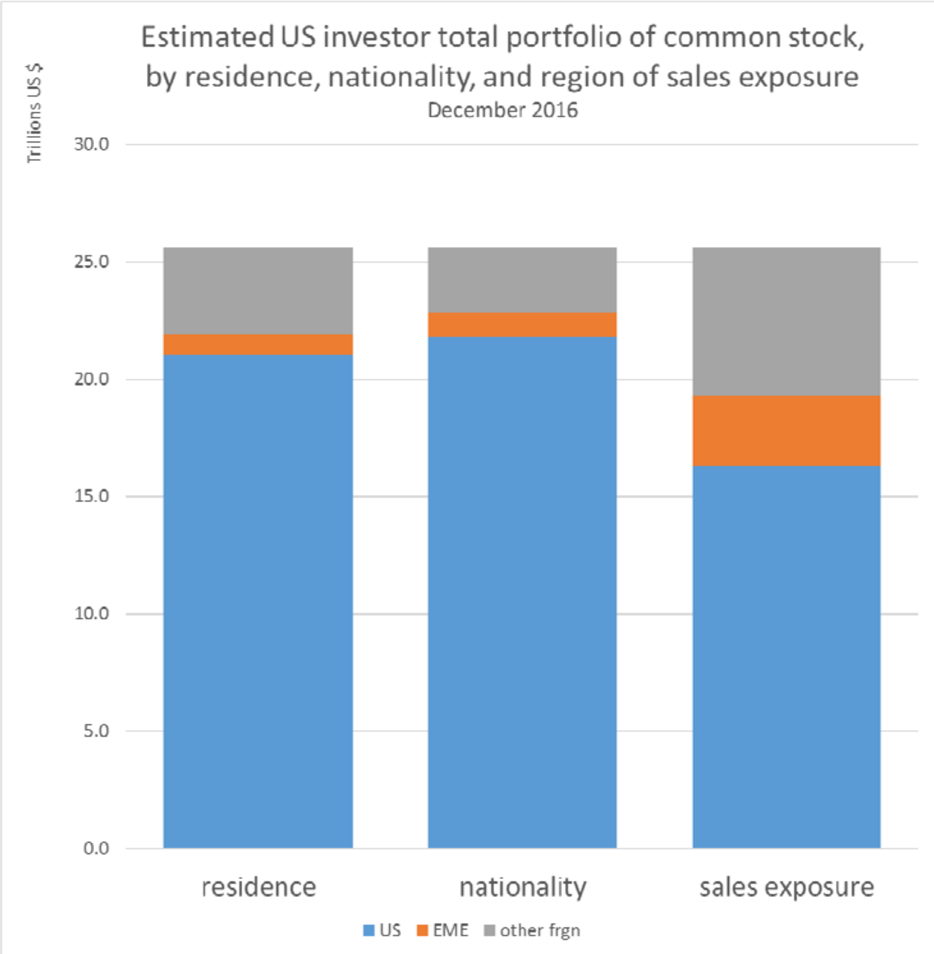
- But investors don't: widespread "home bias"
- Literature: frictions, hedging costs, market access, information advantages of home country firms
- We find U.S. measures of home bias are higher, and have come down by less in recent years, when measured by nationality
- Has implications for what drives home bias and investor allocations

Cross-country relative portfolio weights: Similar to home bias concept; shares of country *i* equity in portfolio and in market cap

	Nationality (MSCI) portfolio weight	Residence (BoP) portfolio weight
(sd) exchange_rate	0.00114	0.00607
Individuals using the internet (%)	0.00300***	0.00427**
log_listed_companies	-0.0254***	-0.0663**
log_distance	-0.0164	-0.169*
1=Common official or primary language	0.0491***	0.230***
1=Common legal origins after transition	-0.00587	0.318***
1=Destination is a EU member	0.0366*	0.445**
tax_haven	0.194***	1.270***
GDP growth in previous year (annual %)	-0.00620*	0.0488
share_of_trade	0.919***	0.0418
Monthly equity returns correlation	0.0323	-0.352**
Rolling GDP correlation	0.0352	-0.546*
Constant	0.276*	2.189**
Observations	433	433
R^2	0.572	0.458
t statistics in parentheses		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$		

- Estimate gravity model to explore differences in US investor allocations across countries
- Panel data, ~40 countries ~12 years
- LHS variable is relative weight in each country
- Create relative country weights 2 ways:
  - residence
  - nationality
- Would draw different conclusions about factors that influence portfolio decisions: ie importance of trade vs diversification variables
- Would conclude that distance, common language, legal origin matter more if used residence specification
  - These results may say more about what matters for where firm locates than what influences investor choices

But even nationality basis still doesn't address "exposures" more broadly, in terms of where multinationals actually do business



- Consider full common stock portfolio of US investors: holdings of domestic equity as well as foreign equity
- Map firm-level holdings to firm-level Worldscope data on location of revenues to determine international exposures
  - Large U.S. multinationals have considerable sales in foreign locations: U.S. investors have foreign exposure through these holdings
  - Partially offset by increased U.S. exposure from foreign multinationals that do business in the United States
- Implications for how we think about home bias