The Global (Mis)Allocation of Capital

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Two (seemingly Unrelated) Stylized Facts

- **Excess returns** on US net foreign assets: (Gourinchas and Rey 2007, Curcuru, Dvorak, and Warnock 2008) with top down approach (BEA) or indices: positive, but volatile and imprecisely estimated due to data issues
    - Recent evidence of erosion due to U.S. asset overvaluation (Atkeson, Heathcote, and Perri 2022) with top down approach
- Literature on **mis-allocation within countries** (see Hsieh and Klenow 2009) due to wedge dispersion, and reallocation to the top (see Baqaee and Farhi 2020b)

What This Paper Does

- Connects the two, highlights allocative role of capital flows
- Best possible security data, US cross border portfolio securities: **official reporting**, all investors/issuers, returns and asset characteristics (Global Capital Market, Morningstar proprietary data)
  - It settles the question on excess returns and recent trends comparing to other methods
- Link cross border asset holdings to firm wedges (MPK, TFP, market and financial wedges), find reallocation (mostly between firm) to the **top**, relatively to domestic flows: capital flows alleviate misallocation

Related Literature

- U.S. Excess returns: Gourinchas and Rey 2007, Lane and Milesi-Ferretti 2007, Curcuru, Dvorak, and Warnock 2008, Atkeson, Heathcote, and Perri 2022

- **Mis-allocation, Reallocation to the Top, Superstars**: Hsieh and Klenow 2009, Autor et al. 2020, Baqaee and Farhi 2020b, Gopinath et al. 2017

    - Structural estimates of **wedges**: Olley and Pakes 1996, Levinsohn and Petrin 2003, Loecker, Eeckhout, and Unger 2020, Bau and Matray 2023

- Allocative role of capital flows: **macro** (Lucas 1990, Caselli and Feyer 2007, Gourinchas and Jeanne 2006, Alfaro, Kalemli-Ozcan, and Volosovych 2008, Gourinchas and Jeanne 2013): our paper shifts the focus from countries to firms

Results

- Excess return: **positive at 1.8 for all methods, due claims equity composition of 80%** Bond liabilities lower than sovereign distressed ones
  - Divergence of BEA and security method in post-crisis
- International equity claims (**contrary to domestic ones**) allocate to the top (with meaningful magnitudes) of MPK, TFP, Sharpe and intangible distributions (even controlling for fixed effects), more so for Asia and BioTech
  - Firms at the top grew more: ex. in IT/BioTech growth went from 14.9% to 17,2%
  - Between-firm component (Melitz and Polanec 2015) accounts for at least 80%; horse race (Fair and Shiller 1990) shows predictive power of firm measures

Data and Returns

- **Universe** claims/liabilities, all asset type, all investors, all issuers. **Official reporting**
- Bring back to 1995 matching with Refinitiv and FactSet
- **Security-based returns, compare to BEA- and index methods**:

$$r_t^p = \sum_{j=1}^{N} w_{j,t-1}^p r_{j,t}^p \tag{1}$$

- **Short-run and trends** (moving averages, HP and Hamilton 2018)
- Corrected for **nationality** of firms

Average Portfolio Returns: Security versus BEA

Excess return positive (across methods), equity returns comparable claims/liabs, bond liabs lower

Security-Level	2005-2009	2010-2014	2015-2020	Total
Equity return claims	10.27	17.39	10.13	9.32
Equity return liabilities	0.69	17.44	10.80	9.71
Bond return claims	4.89	5.03	4.26	4.70
Bond return liabilities	3.94	5.07	3.29	4.05
Total return differential	5.23	-1.93	1.97	1.77
BEA	2005-2009	2010-2014	2015-2020	Total
Equity return claims	8.42	7.96	8.43	8.28
Equity return liabilities	1.47	13.26	10.73	8.63
Bond return claims	5.16	5.82	6.40	5.83
Bond return liabilities	4.22	3.74	3.45	3.78
Total return differential	4.18	0.09	1.33	1.83

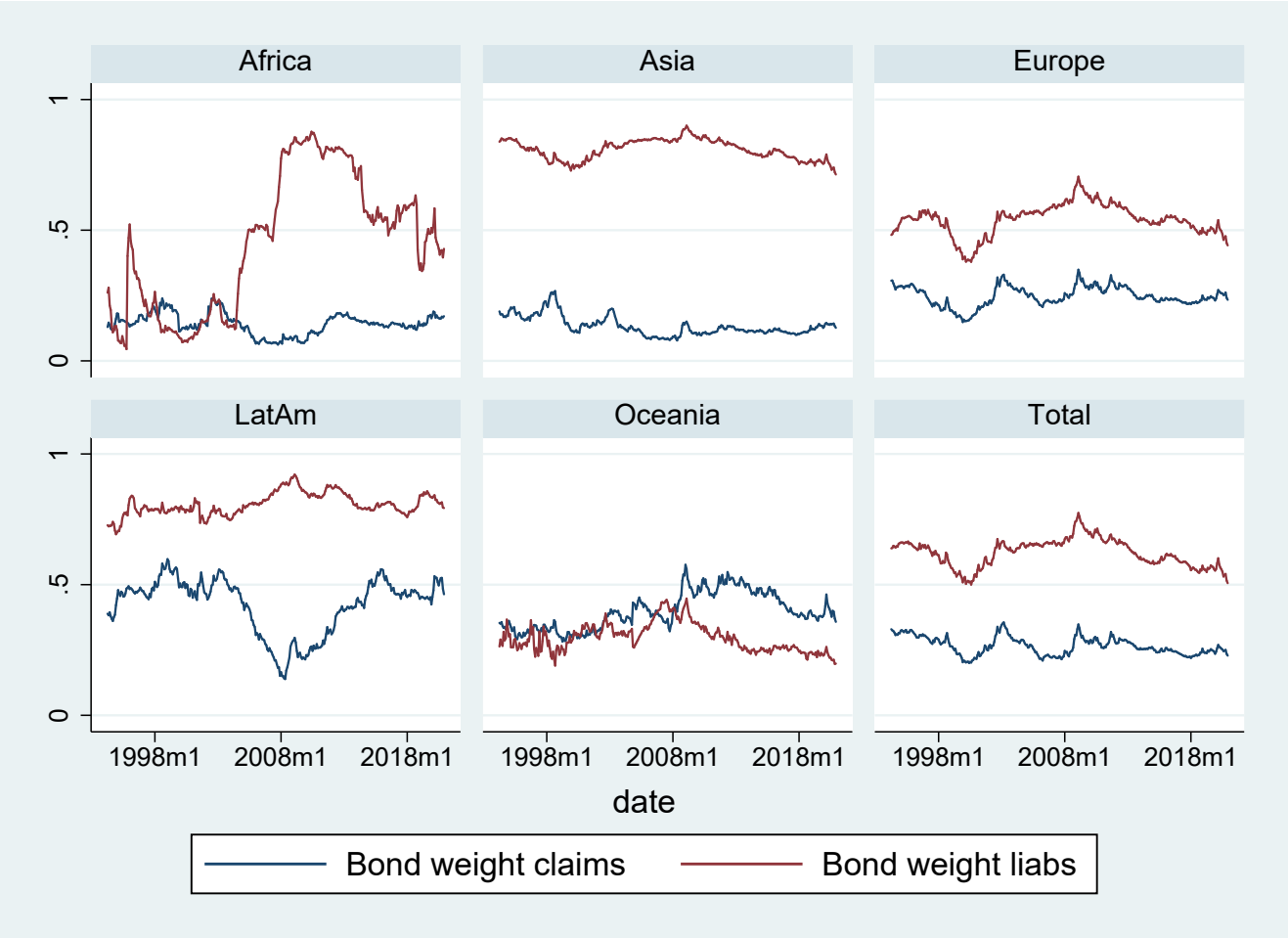
Average Portfolio Returns: Security versus Index

Same in comparison with index

Security-Level	2005-2009	2010-2014	2015-2020	Total
Equity return claims	10.27	7.39	10.13	9.32
Equity return liabilities	0.69	17.44	10.80	9.71
Bond return claims	4.89	5.03	4.26	4.70
Bond return liabilities	3.94	5.07	3.29	4.05
Total return differential	5.23	-1.93	1.97	1.77
Index	2005-2009	2010-2014	2015-2020	Total
Equity return claims	11.66	7.22	8.76	9.18
Equity return liabilities	-0.47	19.30	10.33	9.76
Bond return claims	5.62	4.42	3.60	4.49
Bond return liabilities	4.37	4.29	3.29	3.94
Total return differential	6.35	-2.19	1.01	1.68

Role of Asset Composition

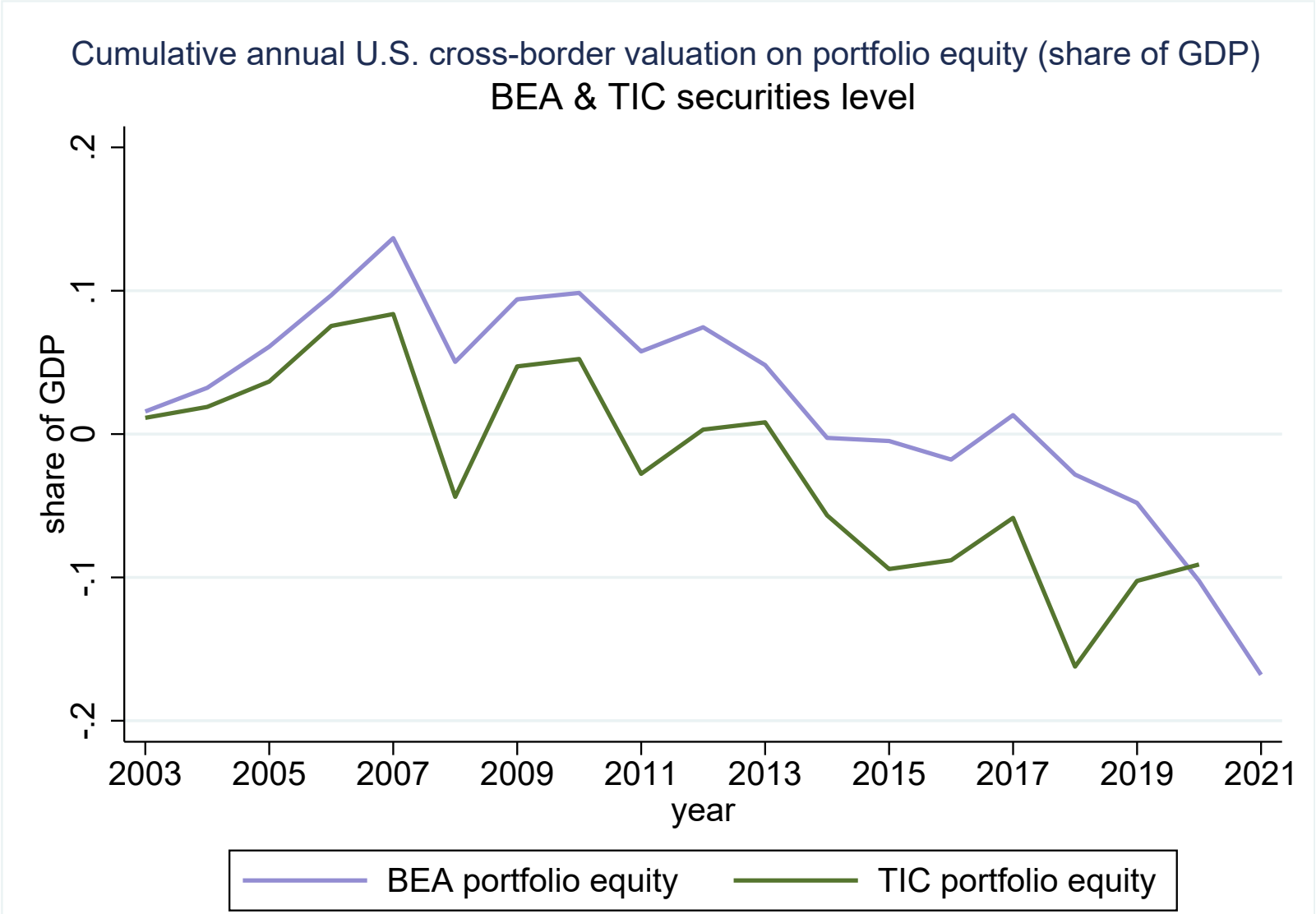
Privilege due to claims tilted toward equities (75%), liabilities tilted toward bonds (Asia roughly 75%)



Summary of Return Results

- Divergence across methods mainly on liabilities post-crisis
  ▸ divergence
- Rise in cost of debt liabilities, though still smaller than for sovereign distressed countries ▸ cost
- Rise in trends of all returns ▸ trends

Equity Valuations from BEA to TIC



Nationality of Firms Adjustment

- To correctly identify the allocation of the excess return (see Bertaut, Bressler, and Curcuru 2019)
- Security-by-security: info on constituent from MSCI, textual analysis or manually (Tecent and Baidu do not show in indices, reassigned manually) ▸ Nationality top, ▸ Nationality graphs

Firms' Wedges: Structural Estimation

- **Method**: productivity: Olley and Pakes 1996, Levinsohn and Petrin 2003, market wedges: Baqaee and Farhi 2020a and Doraszelski and Jaumandreu 2018; intangibility: Peters and Taylor 2017,Crouzet and Eberly 2021

- **Elasticity**: $\beta_{Xjt} = \frac{X_{jt}\partial Q_{jt}}{Q_{jt}\partial X_{jt}}$ elasticity of production to each input X_{jt}

- **Mark-ups** Given $\mu_{jt} = \frac{P_{jt}}{MC_{jt}}$ and β_{Xjt}:

$$\mu_{jt} = \frac{\beta_{Xjt}}{S^*_{Xjt}} \tag{2}$$

  where $S_{Xjt} = \frac{W_{Xjt}X_{jt}}{P_{jt}Q_{jt}}$ is the share of revenues on any given input.

- Compustat matches better than Worldscope; Significant (Kolmogorov Smirnov) shifts in all distributions ▸ Kernel US ▸ Kernel Foreign

Allocation of Shares along the Firm Distribution

Univariate Firm Level Specification, in Diff and Diff:

$$\tilde{s}_{i,t} = \frac{s_{i,t}}{\overline{s}_{i,t}} = \gamma + \alpha x_{i,t} + \epsilon_{i,t} \tag{3}$$

$\tilde{s_{i,t}}$ portfolio share, $s_{i,t}$ holdings, $\overline{s}_{i,t}$ firm market cap, $x_{i,t}$ wedge of firm i

Panel specification:

$$\tilde{s}_{i,t} = \gamma + \sum_i \alpha_i x_{i,t} + f_i + f_t + \epsilon_{i,t} \tag{4}$$

Horse Race:

$$\tilde{s}_{i,t} - \tilde{s}_{i,t-1} = \alpha + \beta_1(\hat{s}^1_{i,t} - \hat{s}^1_{i,t}) + \beta_2(\hat{s}^2_{i,t} - \hat{s}^2_{i,t}) + \epsilon_t \tag{5}$$

Dynamic Reallocation: Within-Between Decomposition

$$FM_t = \sum_i s_{i,t}^{net} \omega_{i,t} \tag{6}$$

where $s_{i,t}^{net} = s_{i,t} - \overline{s}_t$

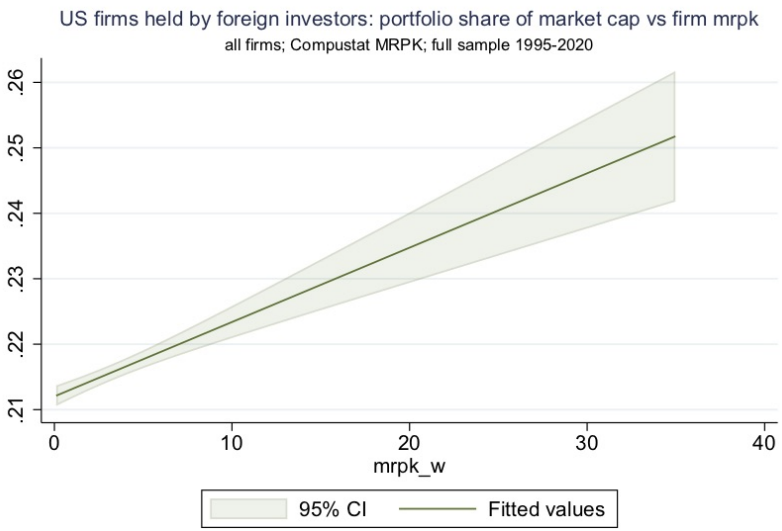
$$FM_t - FM_{t-1} = \sum_i s_{i,t}^{net} \omega_{i,t} - \sum_i s_{i,t}^{net} \omega_{i,t} = \tag{7}$$

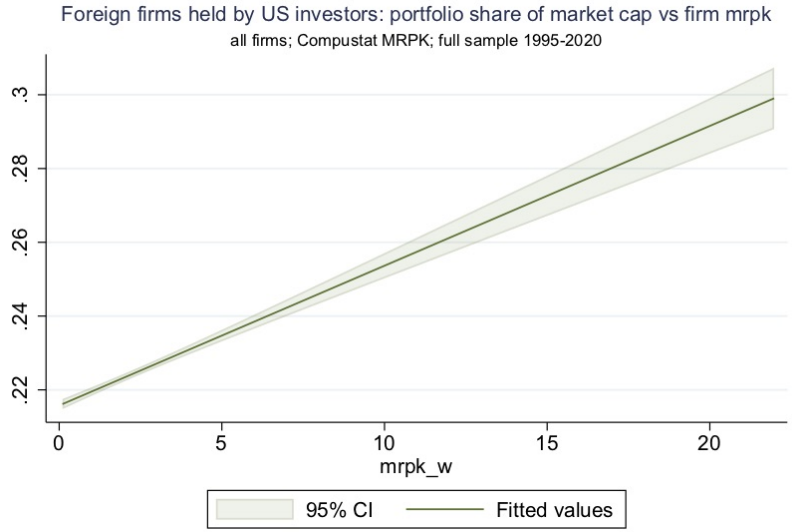
$$= \underbrace{\sum_i s_{i,t-1}^{net} (\omega_{i,t} - \omega_{i,t-1})}_{\text{within term}} + \underbrace{\sum_i (s_{i,t}^{net} - s_{i,t-1}^{net}) \omega_{i,t-1}}_{\text{between term}} +$$

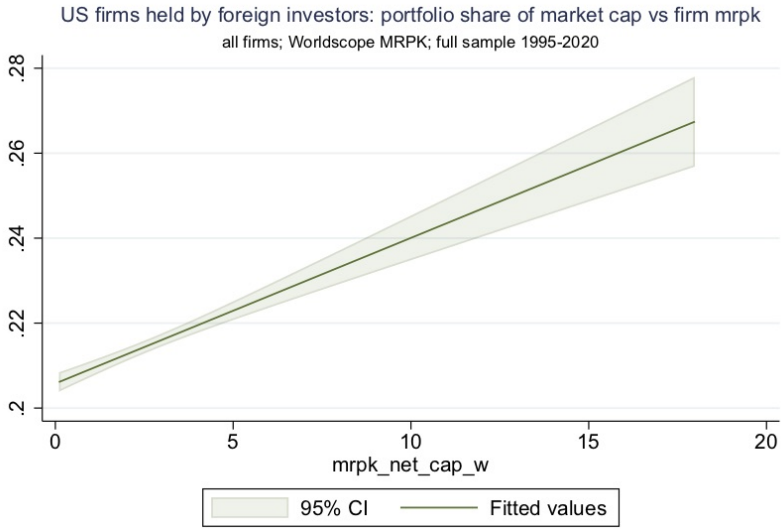
$$+ \underbrace{\sum_i (s_{i,t}^{net} - s_{i,t-1}^{net})(\omega_{i,t} - \omega_{i,t-1})}_{\text{cross-term}}$$

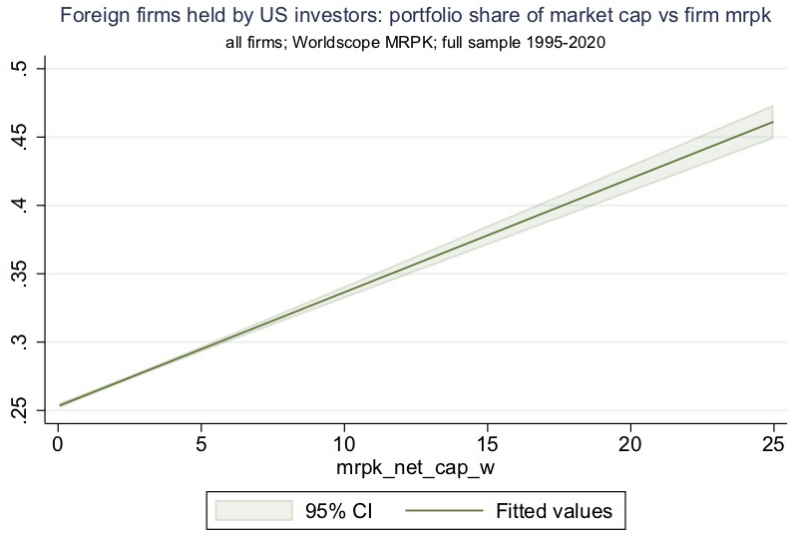
Allocation to the Top: MPK

Allocation to the Top of the Distribution of MPK

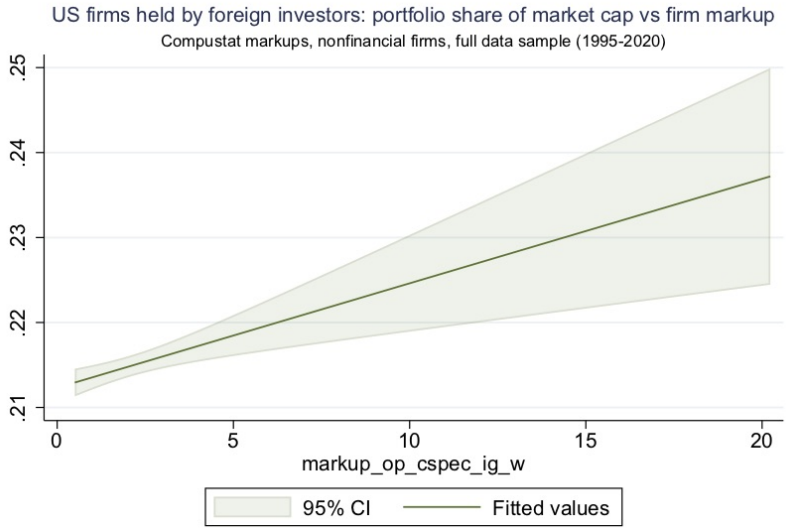


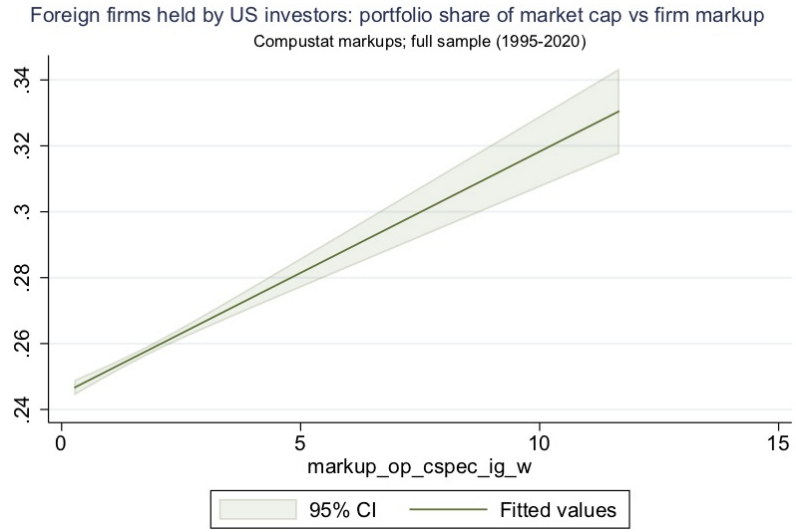


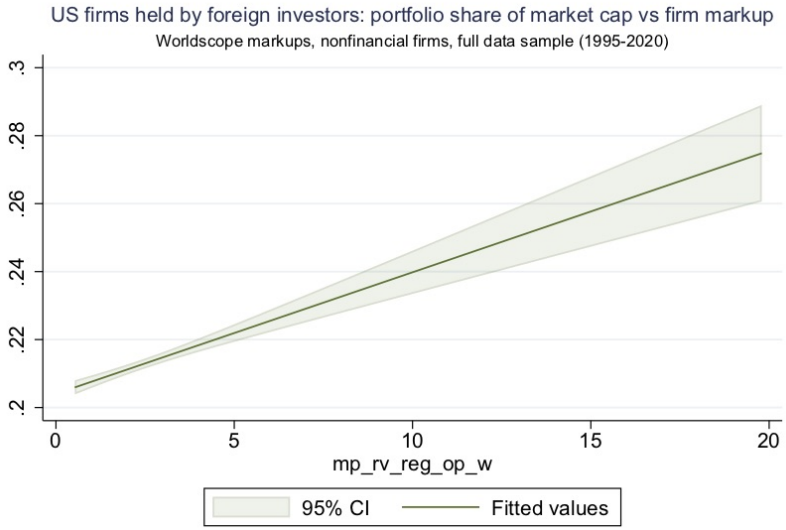


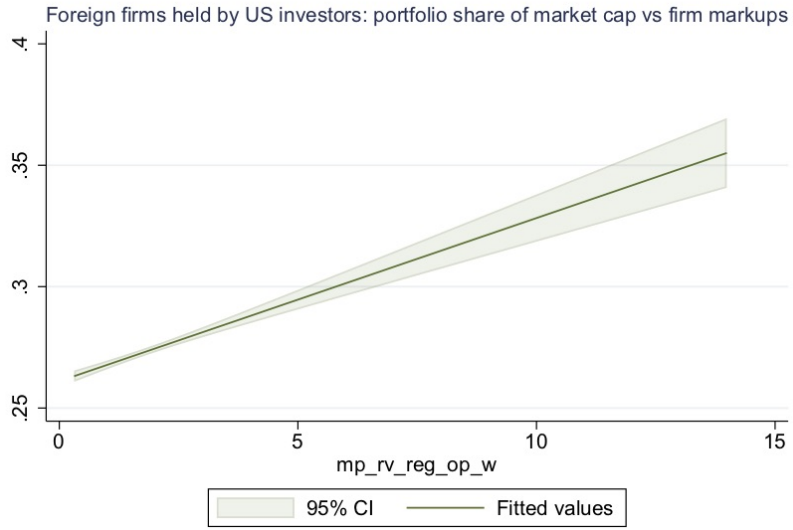


Allocation to the Top: Mark-ups



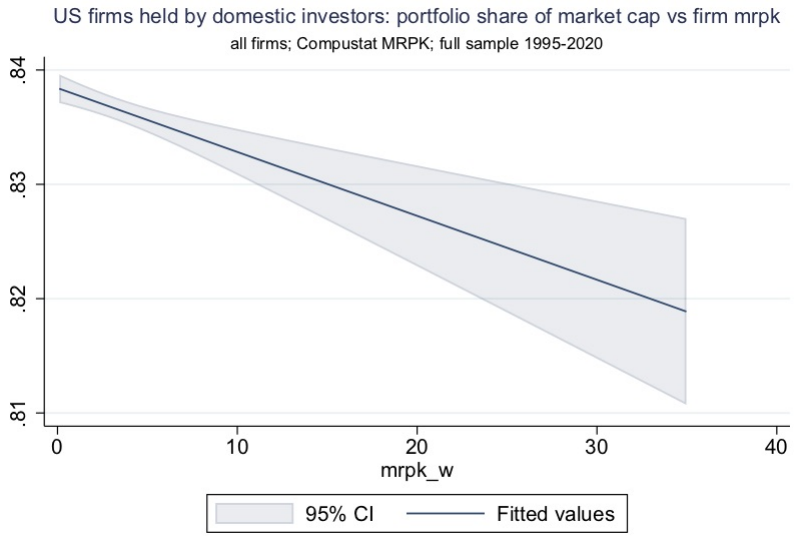


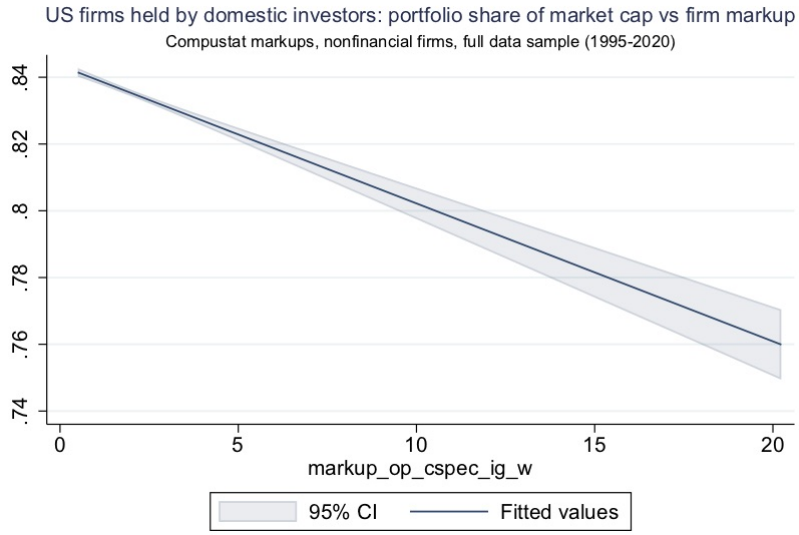




Allocation Domestic Equity Share

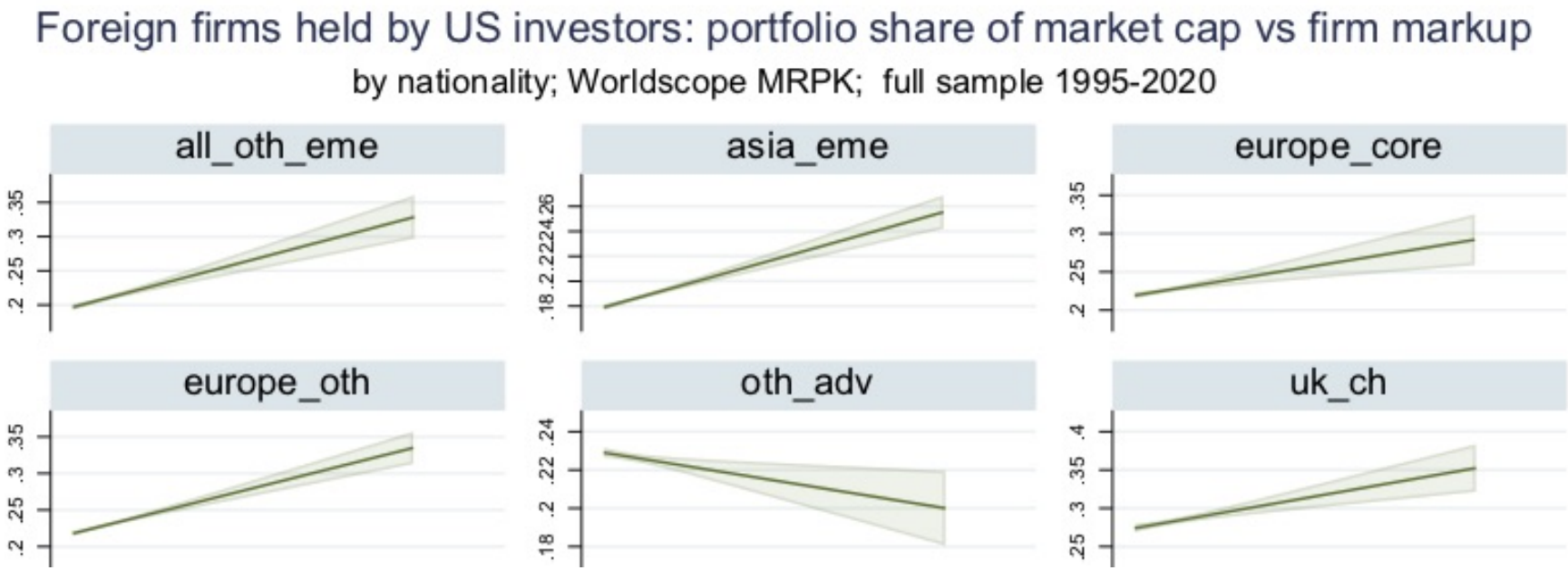
Allocation to the Top only for International Securities





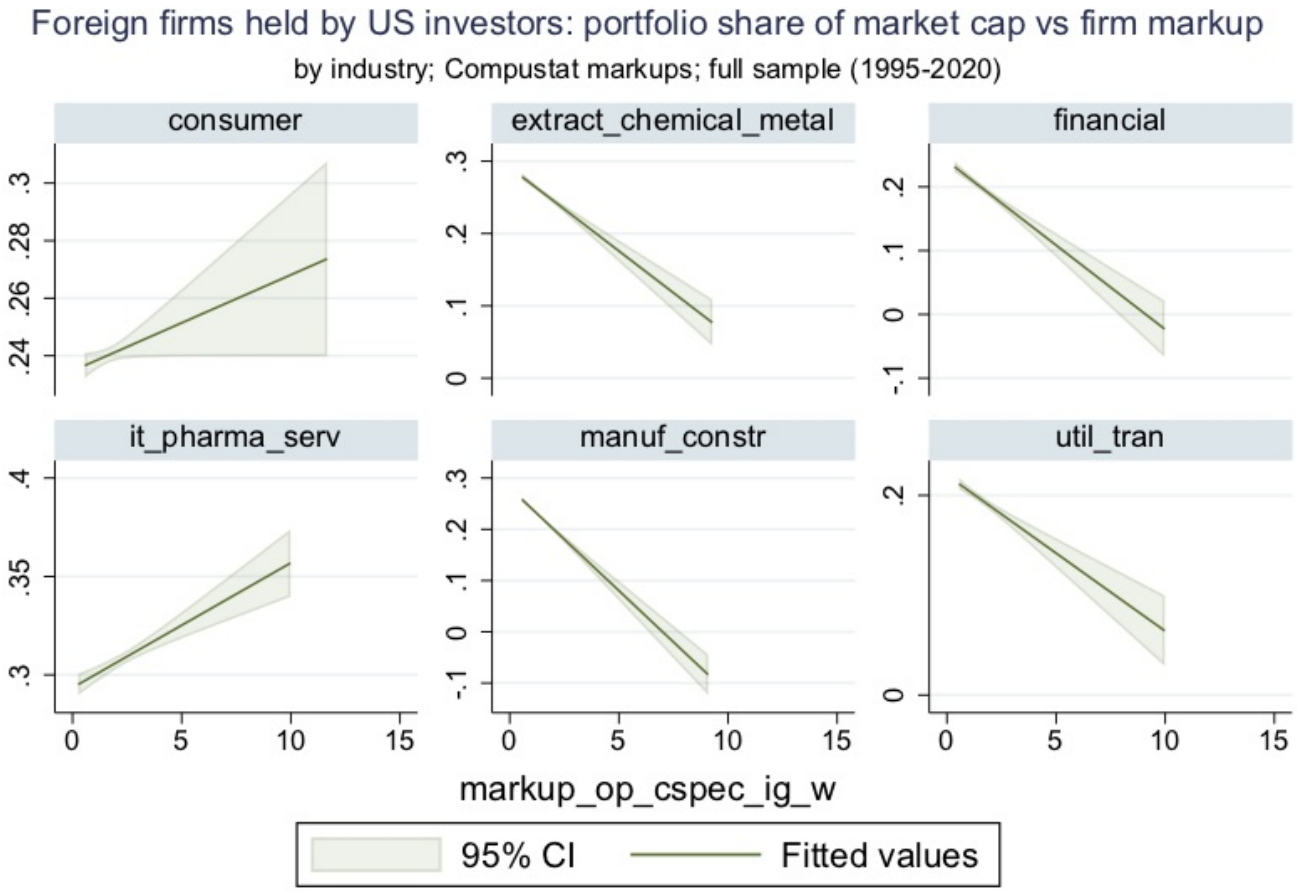
Allocation to the Top: By Region

U.S. shares of Asian firms have higher MPK than other regions

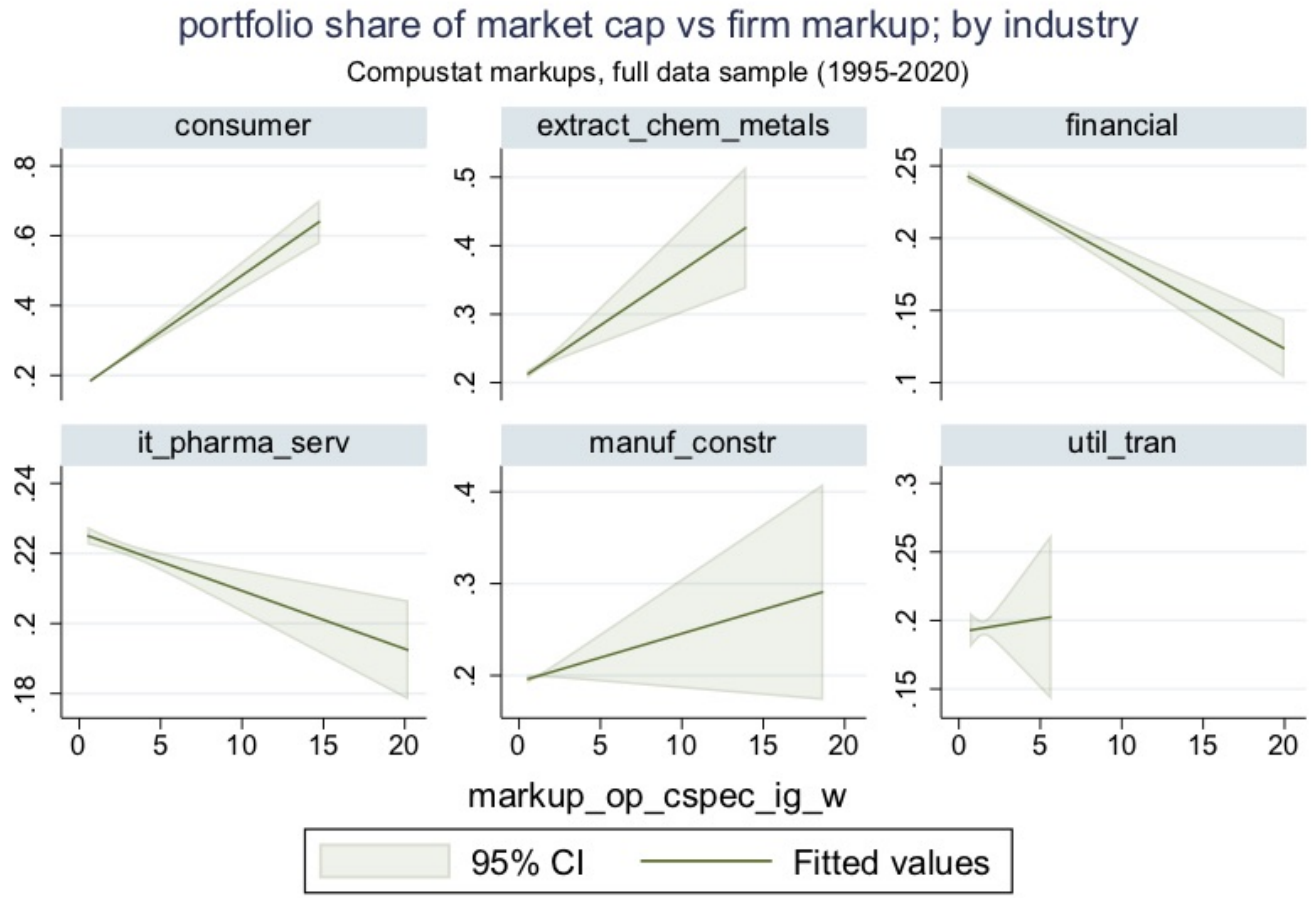


Allocation to the Top: Foreign Firms By Sector

U.S. invests more to top in BioTech

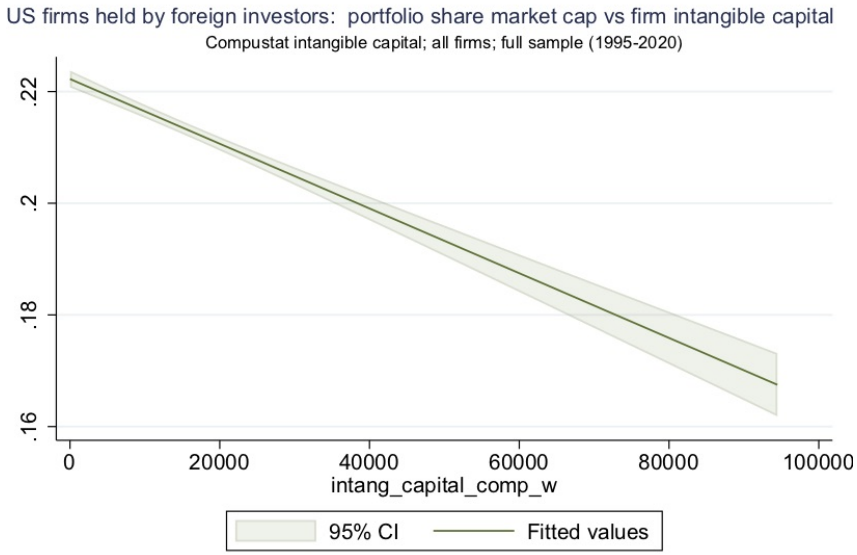


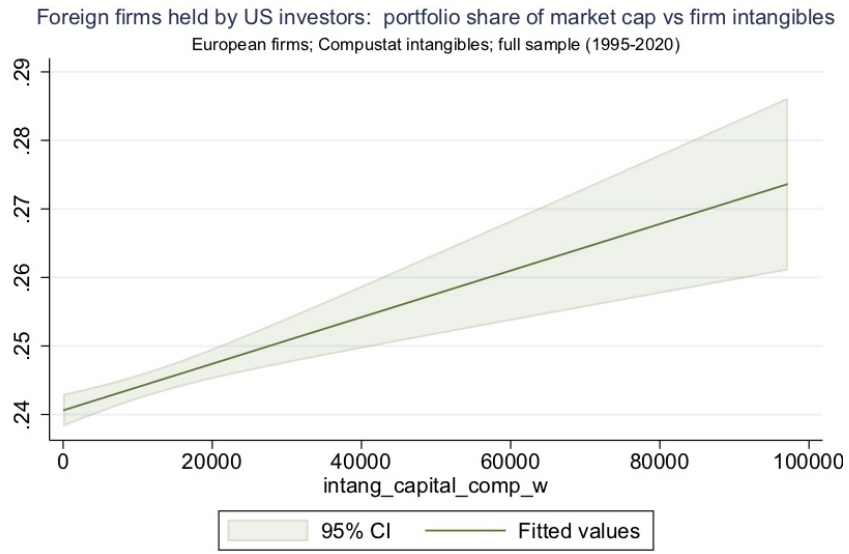
Allocation to the Top: U.S. Firms By Sector



The Role of Intangibles

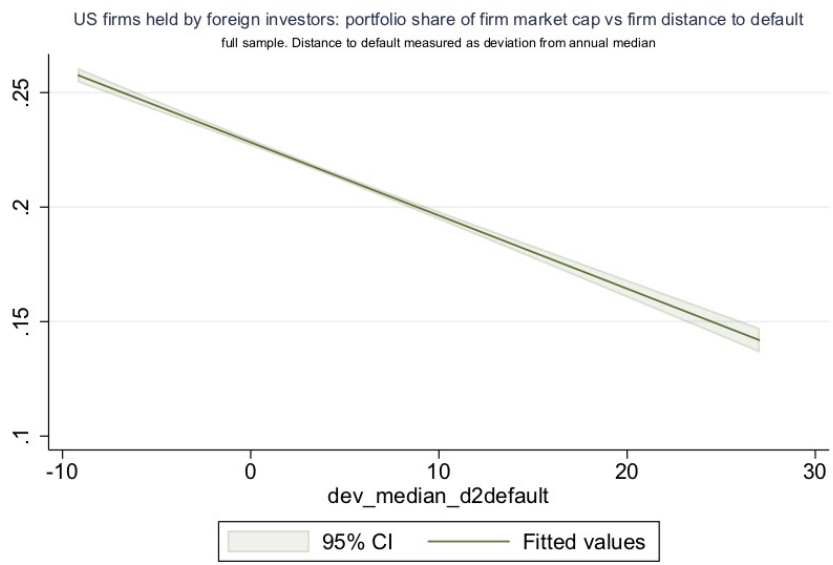
Claims allocate to firms with high intangibles

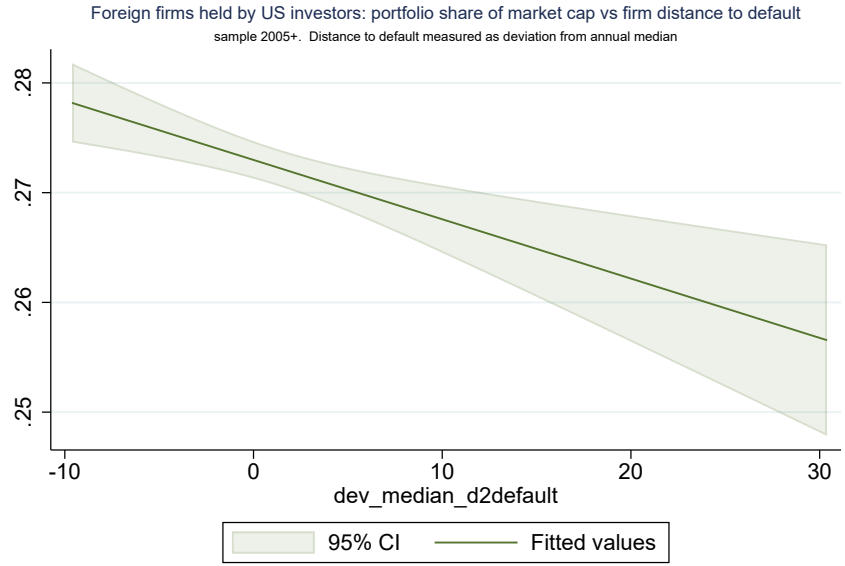




The Role of Credit Frictions

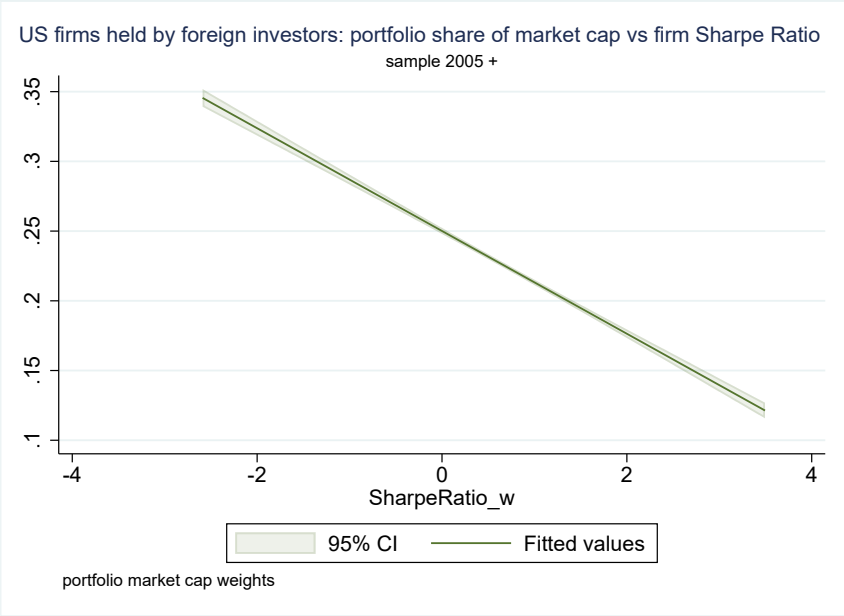
Allocate to firms with higher probability of default

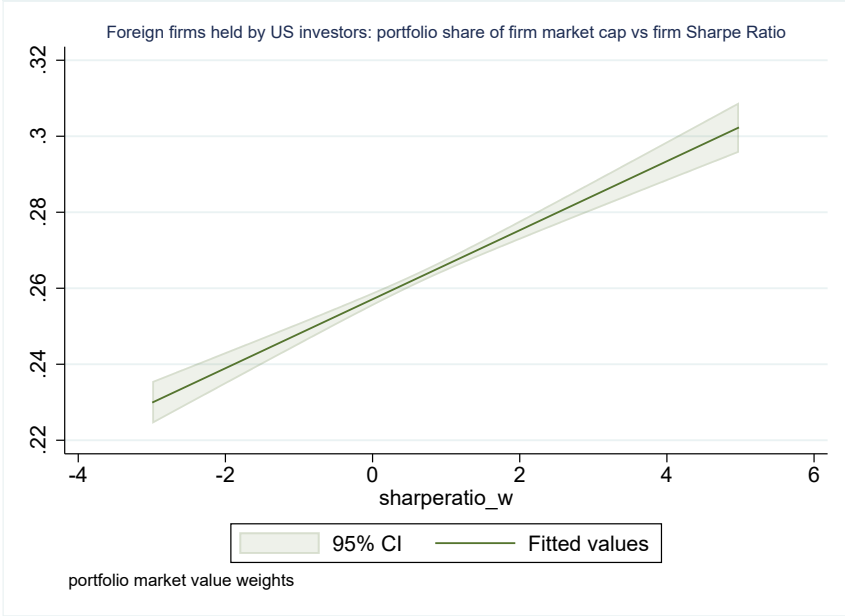




Allocation to Sharpe Ratio

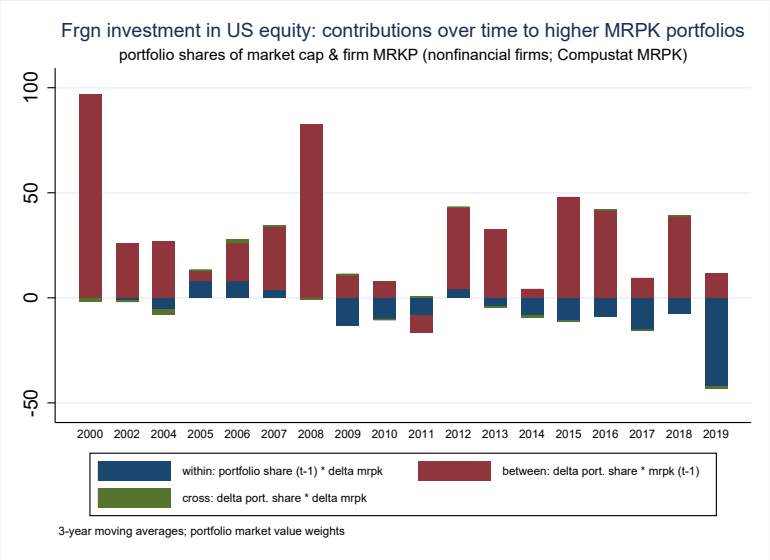
But U.S. investors get compensated for that, foreign do not

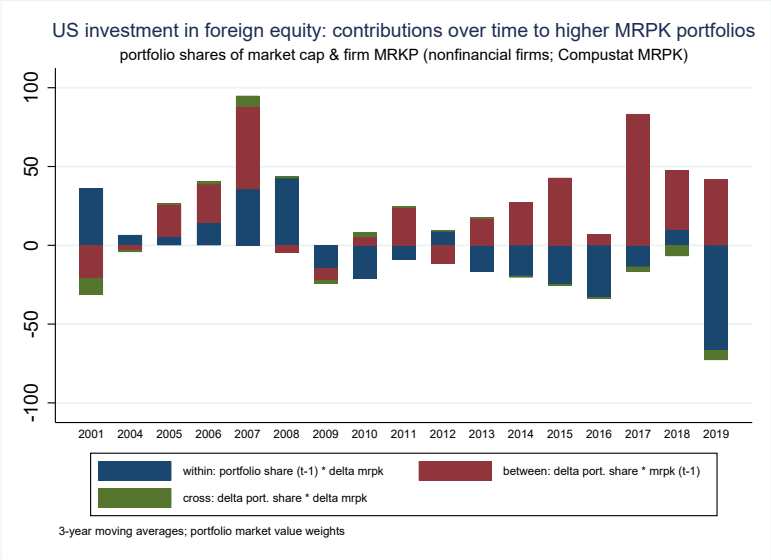


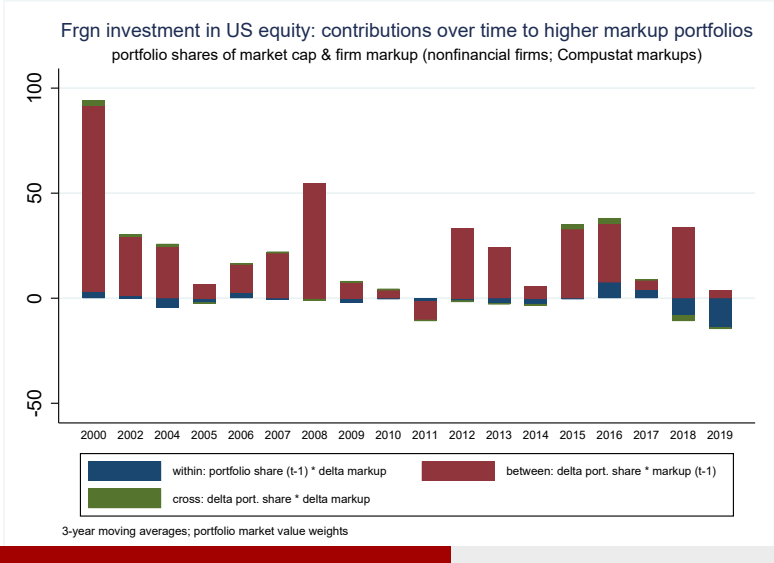


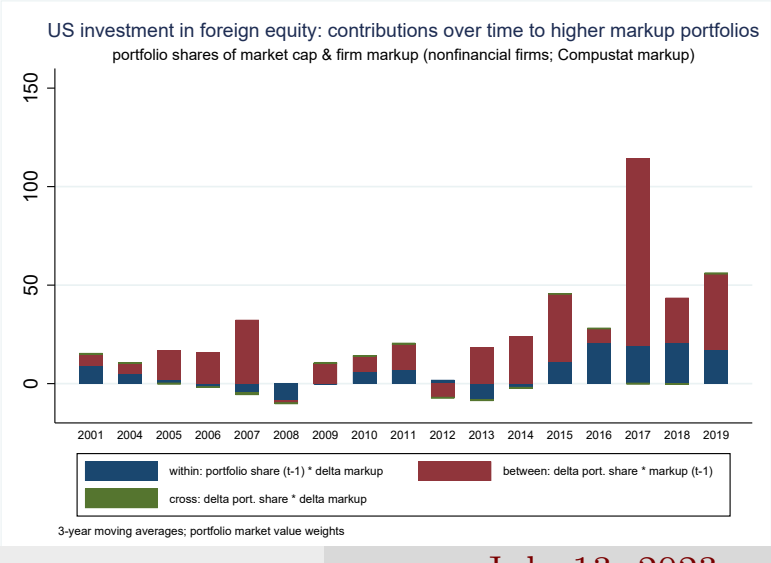
Rising Reallocation to the Top

Between Firm component larger









Horse Race

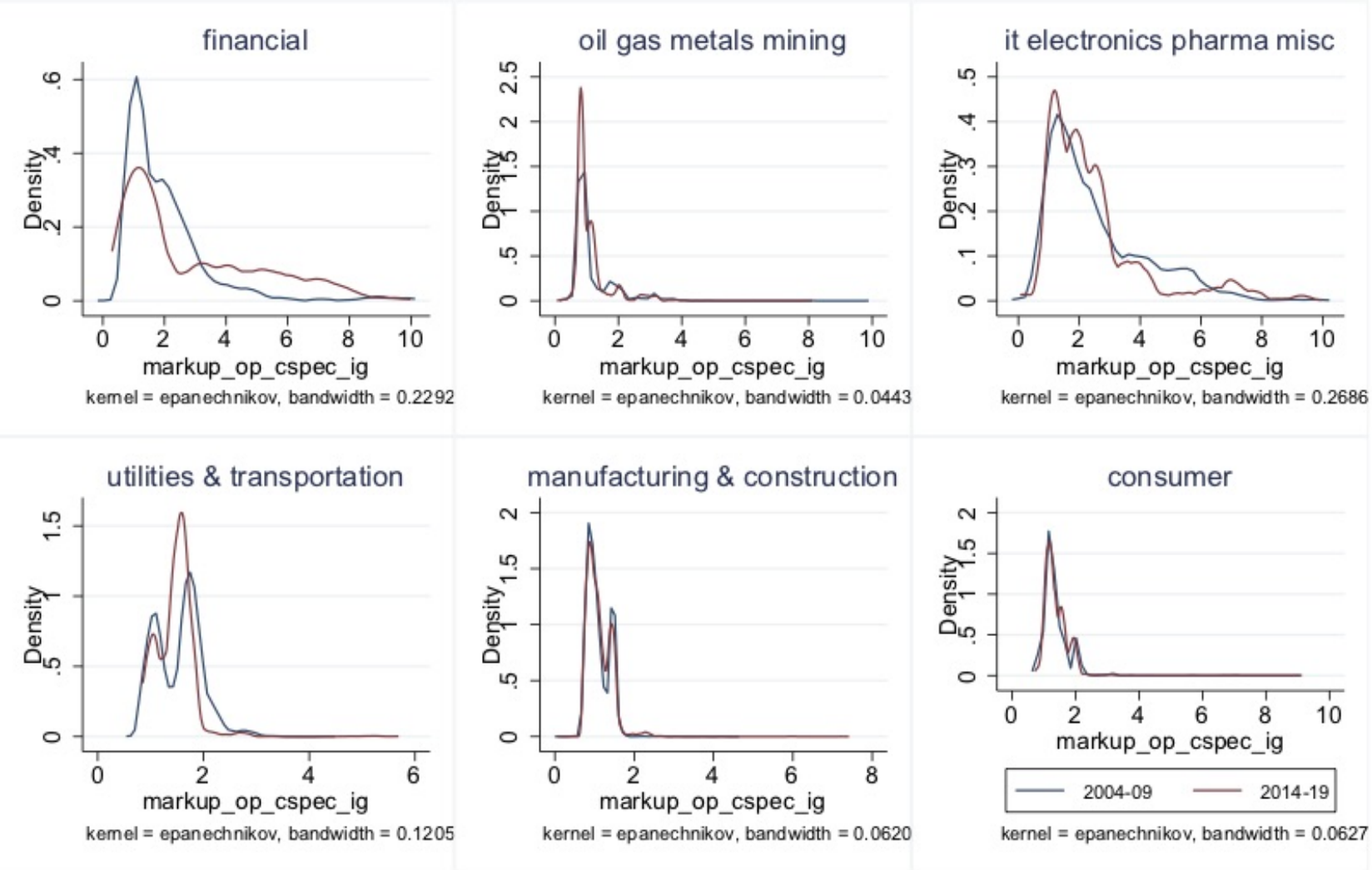
R^2 for prediction with all 5 variables: 0.3643

	MPK	Intangibles	TFP	Default
Mark-up	0.3456	0.3317	**0.3567**	0.3353
MPK		0.340	0.3587	0.3423
Intangibles			0.3579	0.3358
TFP				**0.3582**

Conclusions

- Portfolio Returns are positive, stable: **composition of portfolio differs across countries**
- **Allocation of Shares at the Top of MPK**, contrary to domestic equity: allocative role of capital flows
- U.S. investors allocate to firms **high in intangibles**
- Foreign investors channel capital to U.S. firms with **credit frictions**
- **Reallocation increased over time**

Mark-ups Kernels in TIC: US Firms



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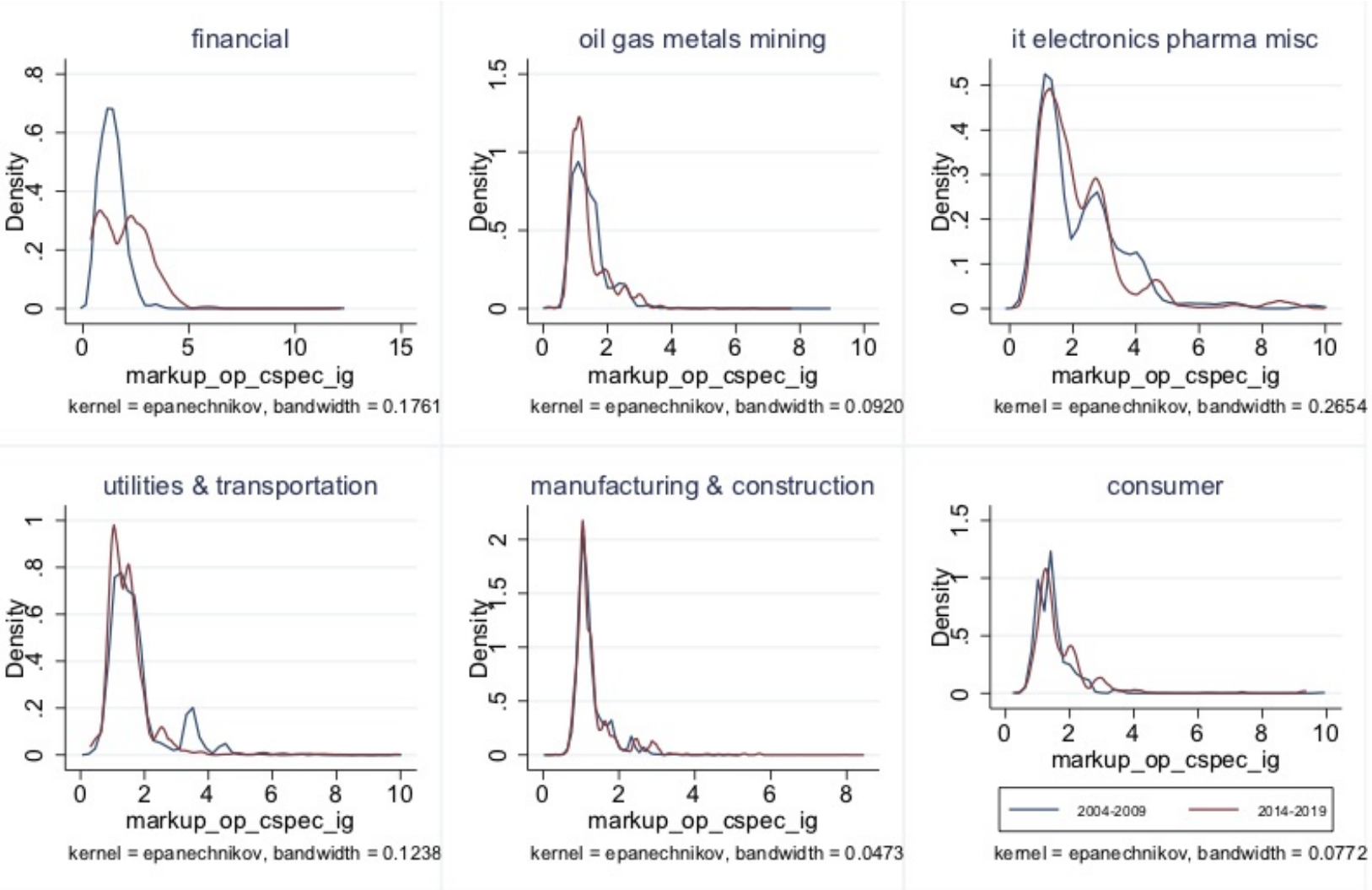
Mark-ups Kernels in TIC: Foreign Firms



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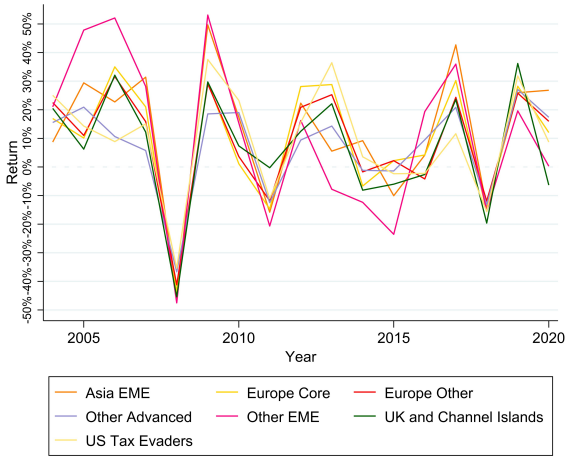
Example of Importance

Table: List of top countries based on nationality reassignment of equities and bonds for 2020. Units are million of dollars

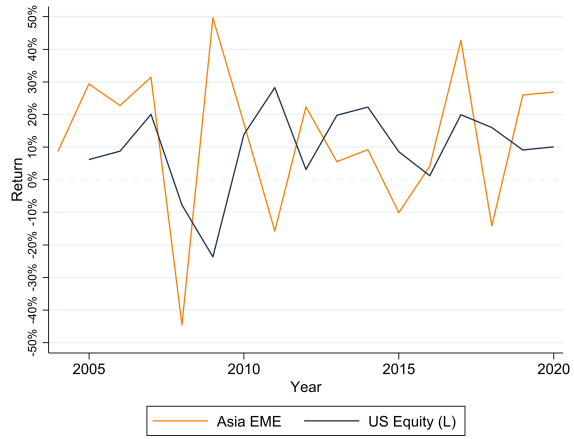
Top countries	Equity reassignment	Top countries	Bonds reassignment
United States	995618	United States	529363
China	766978	China	34040
France	48849	Brazil	26944
Italy	33398	Switzerland	24143
Sweden	30036	Germany	23317
Hong Kong	40954	U. K.	23065
Brazil	23413		

Under nationality correction U.S. investors earn returns in Asia and tax havens back

Regional Returns: Asia and Tax Havens

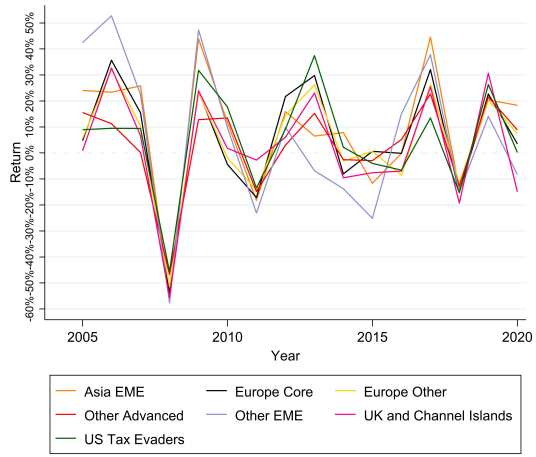


Nationality Equity Returns



Nationality Equity Asia-US

Nationality Equity US-Tax Havens



Nationality Privilege

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The Divergence in the Liabilities

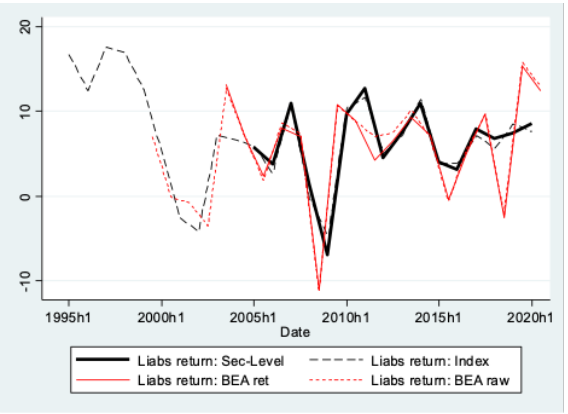

Figure: Liability Dynamic

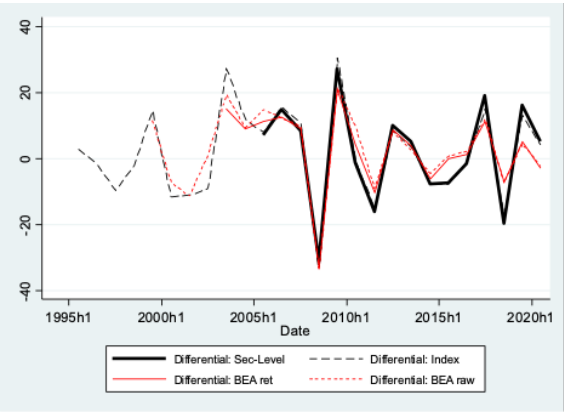

Figure: Differential

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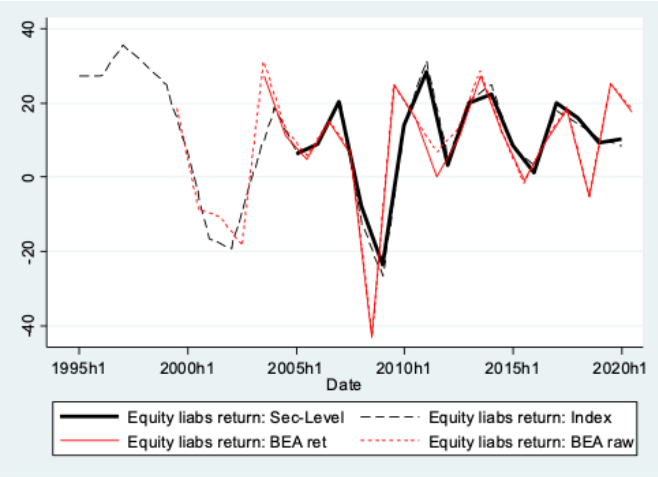
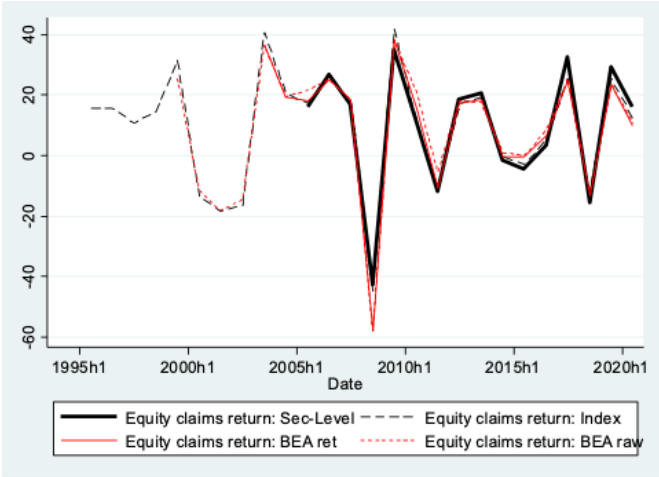
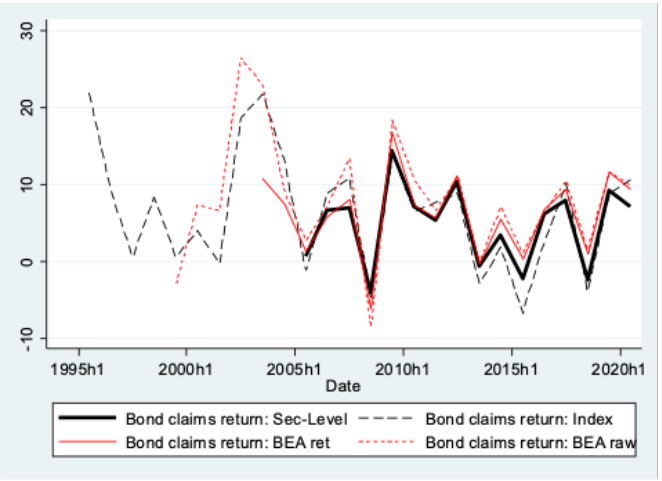
Some Erosion: The Rise in the Cost of Bonds



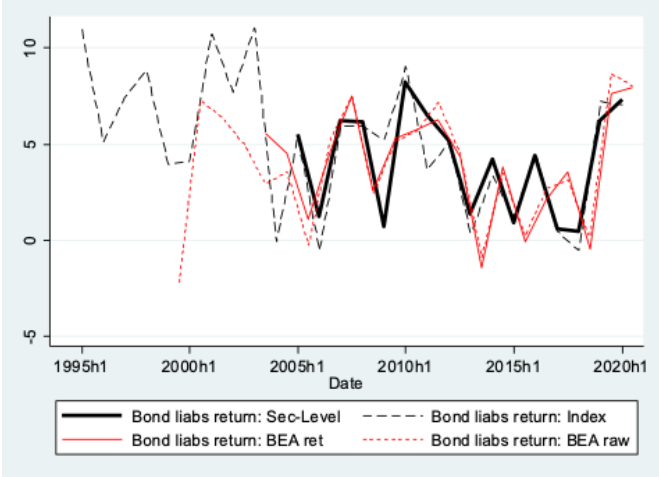
Liability Equity



Claims Equity



Liability Bonds



Claims Bonds

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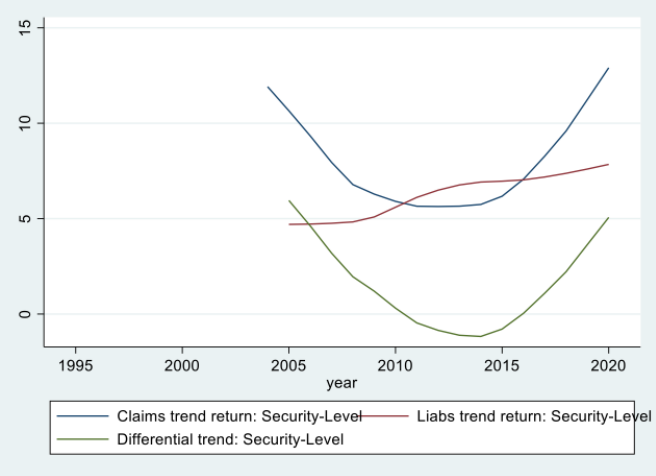
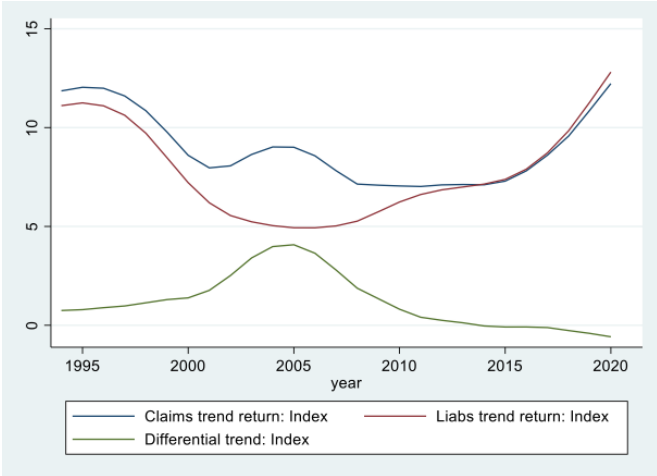
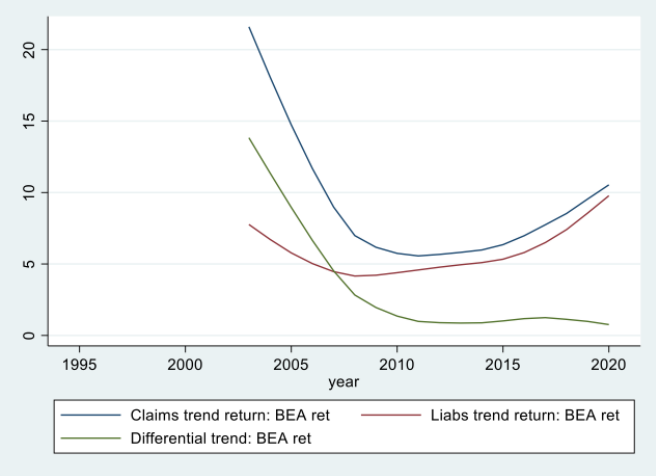
Rising Trends



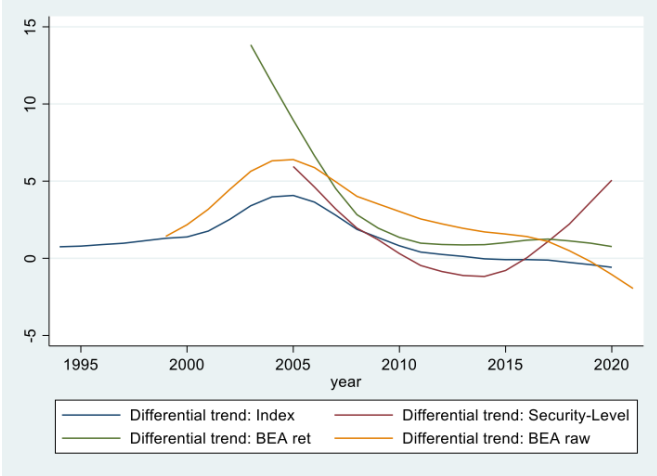
Differential Securities



Differential Index



Differential BEA



Across Methods

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