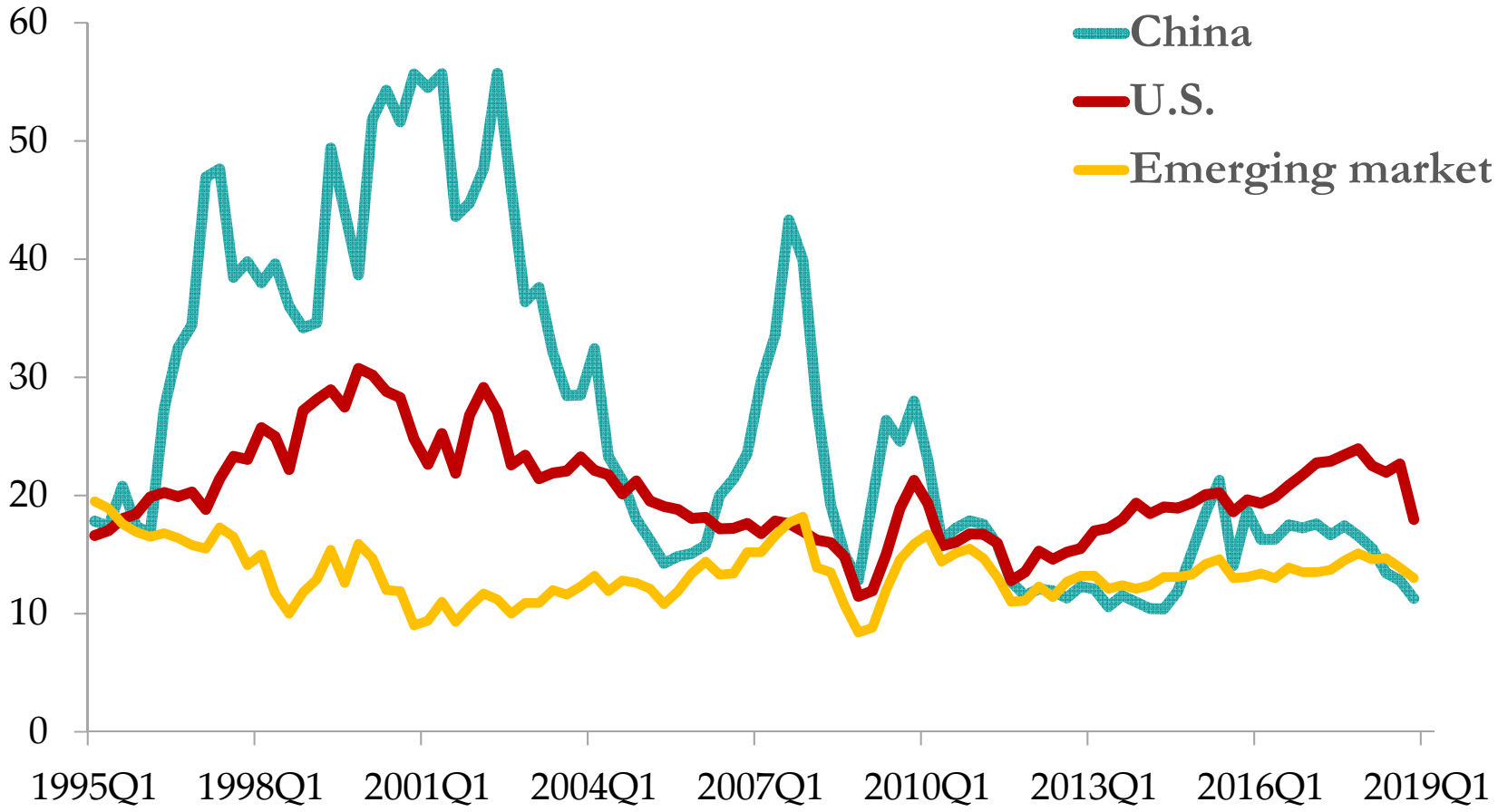
The China – U.S. Valuation Gap

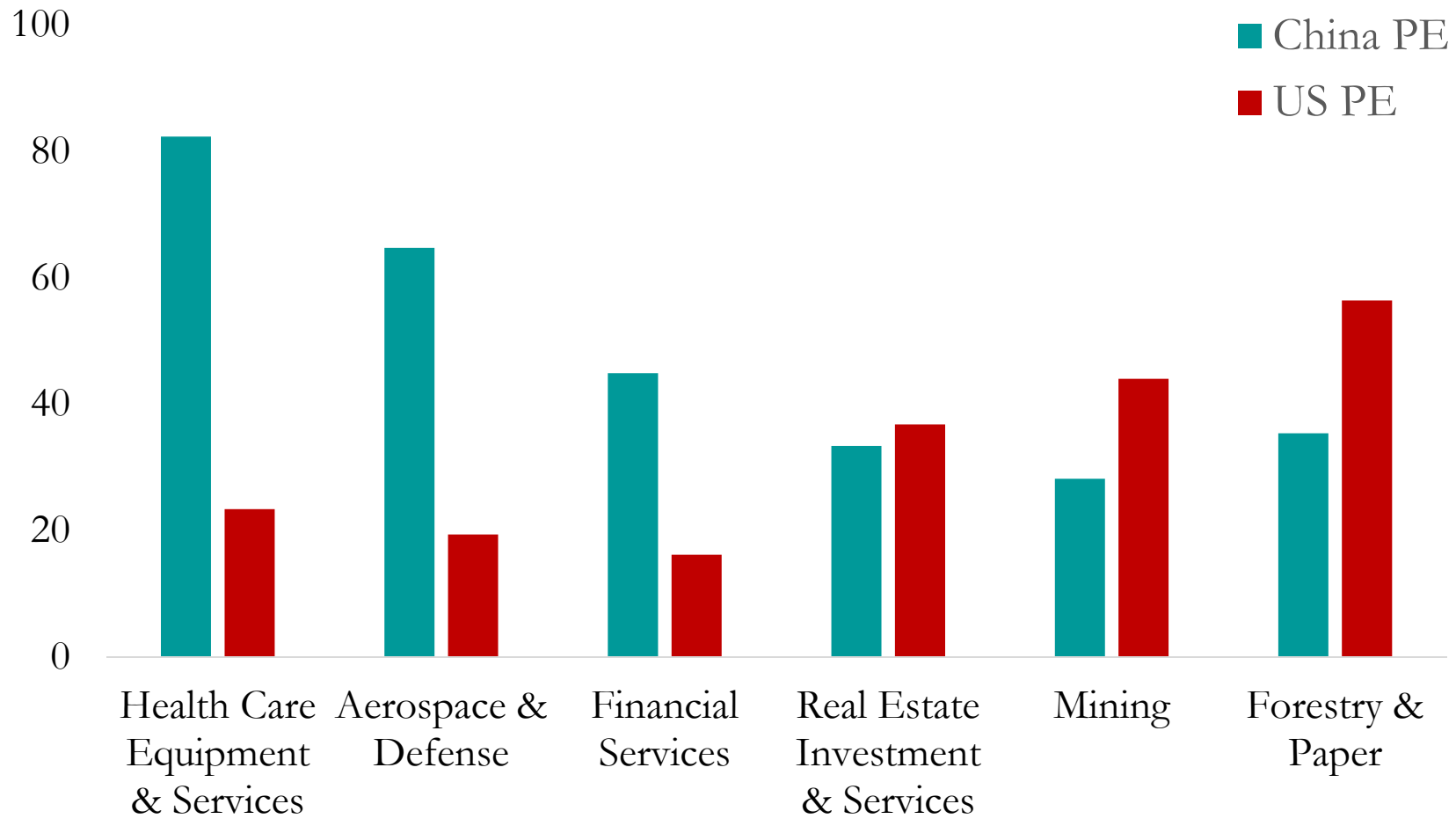
ABFER 2021

Geert Bekaert
Shuojia Ke
Xiaoyan Zhang

Valuation Gap at Market Level

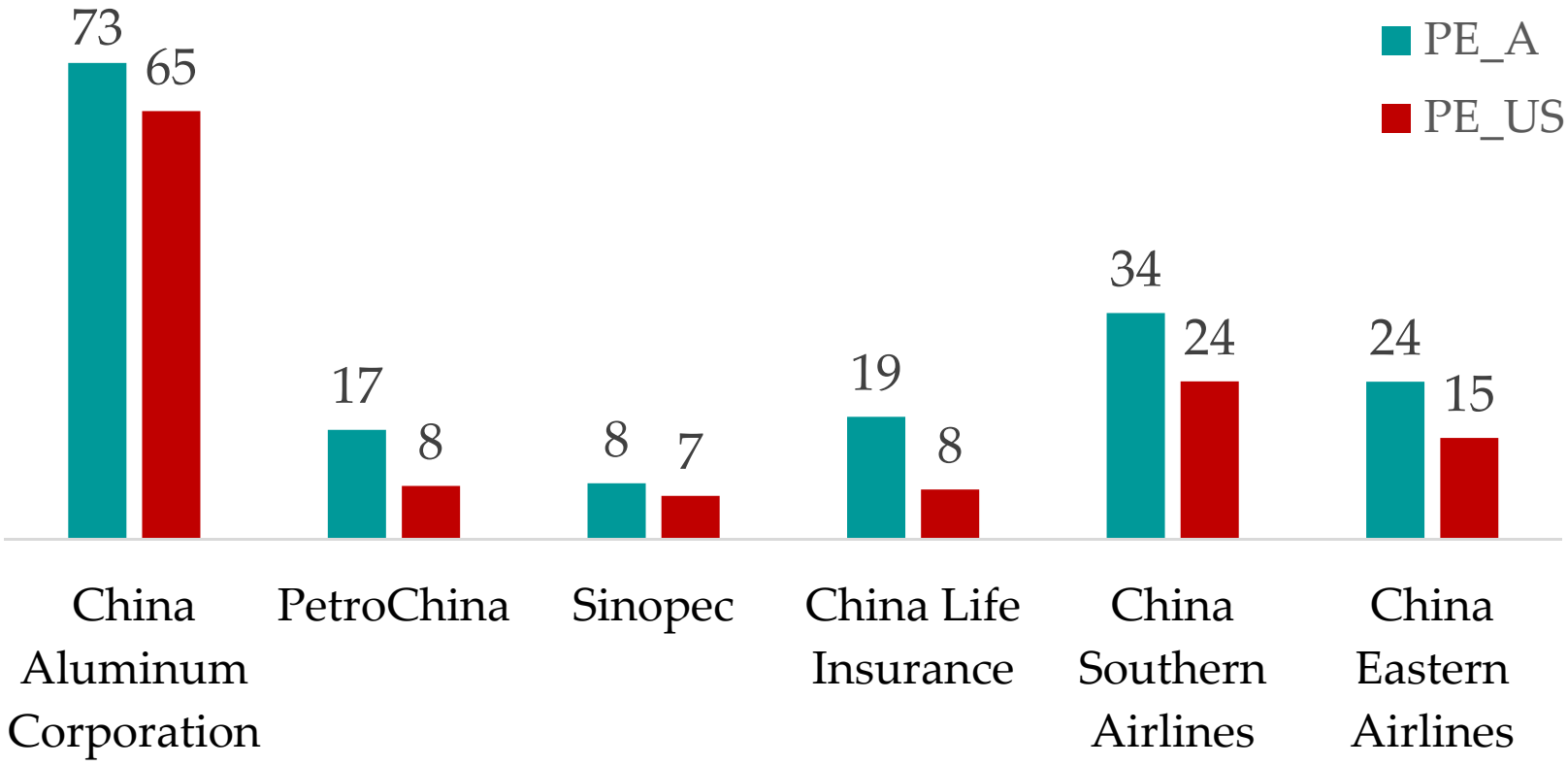


Valuation Gap at Sector Level



Valuation Gap at Firm Level
A-Share vs. China Concept Stocks

P/E ratios for the China A-share and the China Concept Stocks listed in the US, December 31, 2020



Research Question and Hypothesis

- What drives the time-series and cross-section valuation differentials between China and the U.S.?
  - Bekaert, Harvey, Lundblad and Siegel (2011): with complete economic and financial integration, valuation differences should be small for same industries.

- Hypotheses
  - A changing sector composition: the relative importance of high multiple (low multiple) industries has changed over time.
  - Changing growth opportunities in China: may explain a "China Premium" before 2009, and "China Discount" after 2009.
  - A gradual liberalization and financial development process, combined with different classes of investors, may result in the observed valuation gap variation.

Literature and Contribution

- Market integration: Errunza and Losq (1985), Bekaert and Harvey (2003), etc.
- A-B premium: Bailey, Chung and Kang (1999), Chan, Menkveld and Yang (2008)
- Valuation differentials: Erb, Harvey and Viskanta (1996), Bekaert, Harvey, Lundblad and Siegel (2011)
- Chinese equity market: Chan and Kwok (2018), Liu, Stambaugh, and Yuan (2019), Allen, Qian, Shan and Zhu (2019), Carpenter, Lu and Whitelaw (2021)

- Unique contribution:
  - Valuation differentials between the largest two economies.
  - The importance of international accessibility.

Valuation Framework

- Gordon model: with constant expected cash flow growth rates and discount rates, and full payout of earnings, the earnings yield reflects the difference between the discount rate and cash flow growth rate.

- BHLS (2011) extension:
  - Discount rate: $\delta_{c,j,t} = r_f\left(1-\beta_{c,j}\right)+\beta_{c,j}\delta_{w,t}$.
  - Growth shocks: $\Delta \ln\left(\text{Earn}_{c,j,t}\right) = GO_{w,j,t} + \epsilon_{c,j,t}$.
    - $PE_{c,j,t} = \sum_{k=1}^{\infty} exp\left(a_{c,j,k} + \boldsymbol{b_{j,k}}\delta_{w,t} + \boldsymbol{g_{j,k}}GO_{w,j,t}\right)$.

- The earnings yield, as reciprocal of PE, is a function of discount rate and growth rate.

Our Specification

- We calculate earnings yields for portfolio j as follows:

$$EY_{j,t} = \frac{\sum_{i=1}^{N_j} Total\ annualized\ net\ income_{i,j,t}}{\sum_{i=1}^{N_j} Price_{i,j,t} \times Number\ of\ common\ equity_{i,j,t}}$$

- We explain earnings yield differentials, DIFEY:

$$DIFEY_{j,t} = EY_{j,t}^{CN} - EY_{j,t}^{US} = a + b'DIFX_{j,t} + c'Control_{j,t} + e_{j,t}$$

  - $X_{j,t}$ represent our proxies for competing hypotheses;
  - $DIFX_{j,t}$ represent differences in country proxies of competing hypotheses.

A Structural Break

- With the structural break test from Bai, Lumsdaine and Stock (1998), we identify a structural break in EY differentials in 2009Q3.

- Therefore, we modify our estimation to be:

$$DIFEY_{j,t} = a + \gamma Break_t + b' DIFX_{j,t} + c' Control_{j,t} + e_{j,t} \ .$$

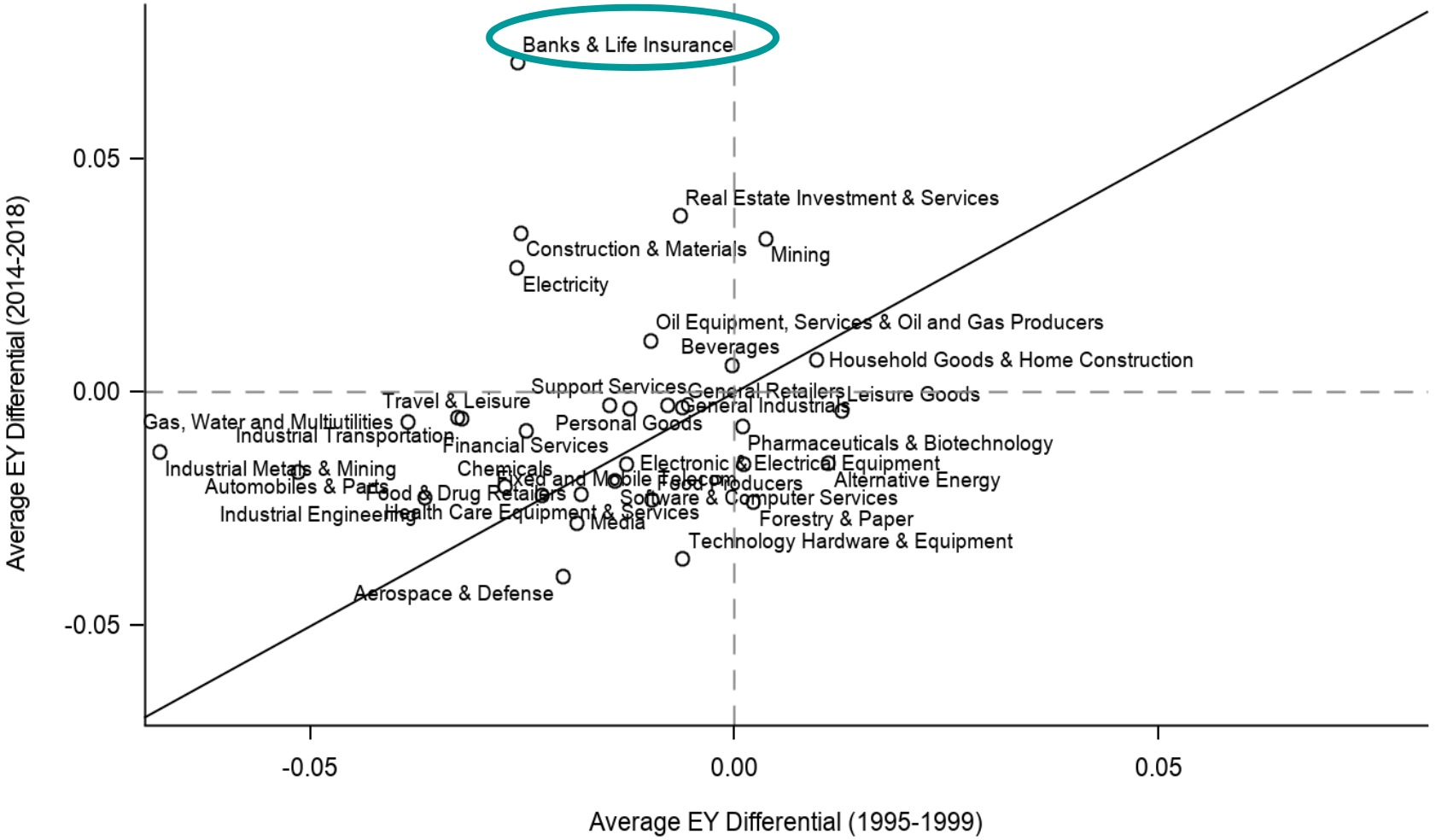
  - The break dummy is set to be 1 after 2009Q3.
  - If the competing hypothesis can fully explain the time variation in the earnings yield differential, it should also account for the break, and render the break dummy coefficient insignificant.

Data

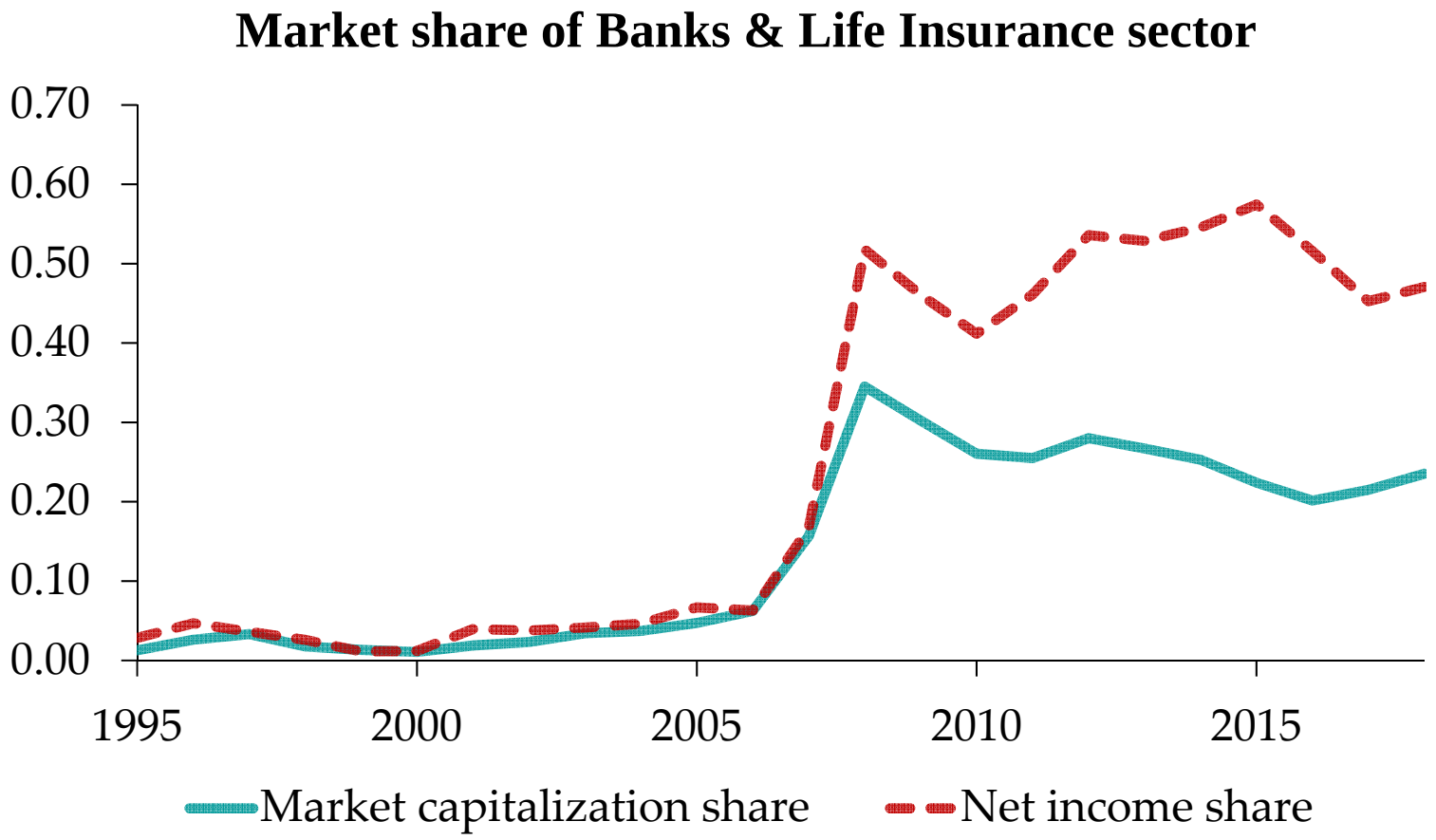
- Data Sources
  - Chinese firm-level data: CSMAR, WIND, Suntime, Factset Lionshares and Datastream
  - US firm-level data: CRSP and COMPUSTAT, IBES, Factset Lionshares and Datastream
  - GDP growth, interest rate, political ratings: Various sources

- Sample coverage
  - Time: 1995 – 2018, quarterly
  - We adopt filters from Liu, Stambaugh and Yuan (2019)

Hypothesis I: Industry Structure



Hypothesis I: Industry Structure



Hypothesis I: Industry Structure

- Consider the following decomposition:

$$DIFEY_t = \sum_{j=1}^{33} w_{j,t}^{CN}\left(EY_{j,t}^{CN} - EY_{j,t}^{US}\right) + \sum_{j=1}^{33}\left(w_{j,t}^{CN} - w_{j,t}^{US}\right)EY_{j,t}^{US}$$
$$= DIF\_VAL_t + DIF\_STRUC_t.$$

  - The first term represents a pure valuation differential;
  - The second term represents the valuation effect of a different industry structure.

	DIFEY (%)	DIF_VAL (%)	DIF_STRUC (%)
Variance Decomposition		0.99	0.01

Hypothesis II: Growth Prospects

- Growth measures
  - GDP growth rate
  - Sales growth expectations

Hypothesis III: Discount Rate Variables

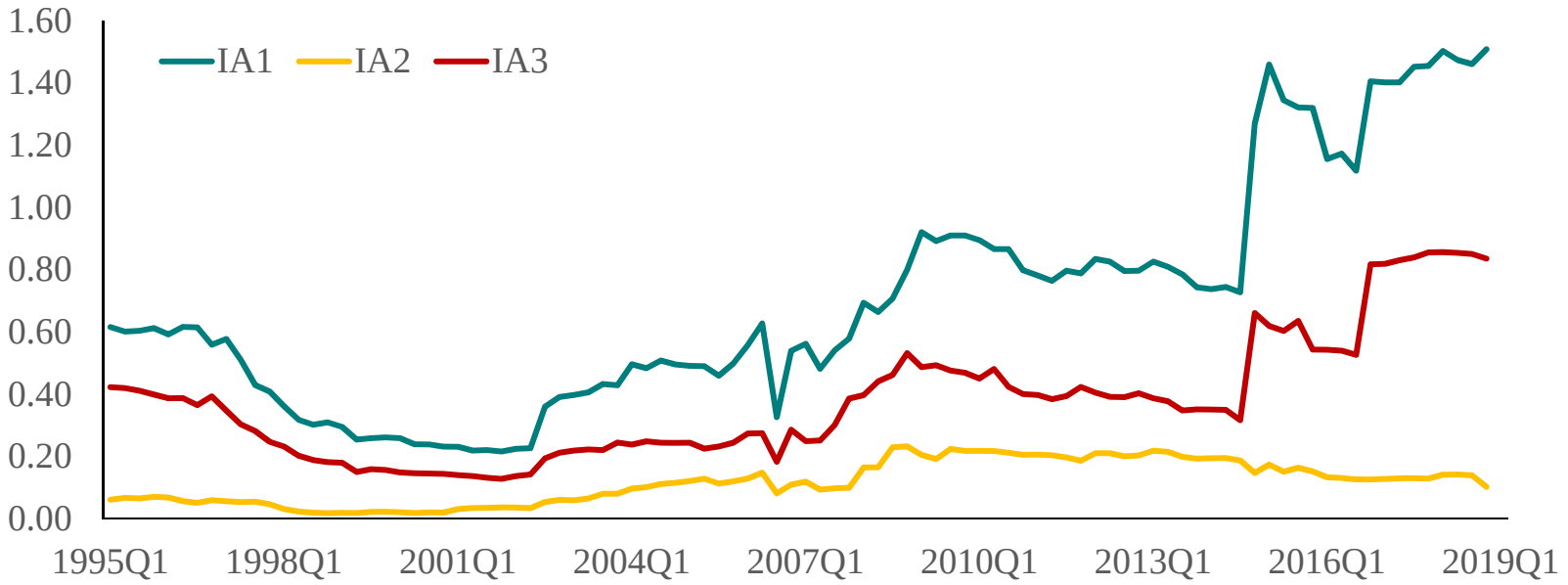
- Category I: Market Development
  - Development regulation dummy, zeros, turnover, number of public firms, adjusted market development, MYY R2, idiosyncratic volatility, industry concentration ratio.

- Category II: Financial Openness
  - Openness regulation dummy, **international accessibility**, real interest rate, political ratings, A-B premium, A-H premium.

- Category III: Investor Base
  - State ownership, institutional ownership, retail ownership, turnover, standardized number of shareholders

International Accessibility Measures

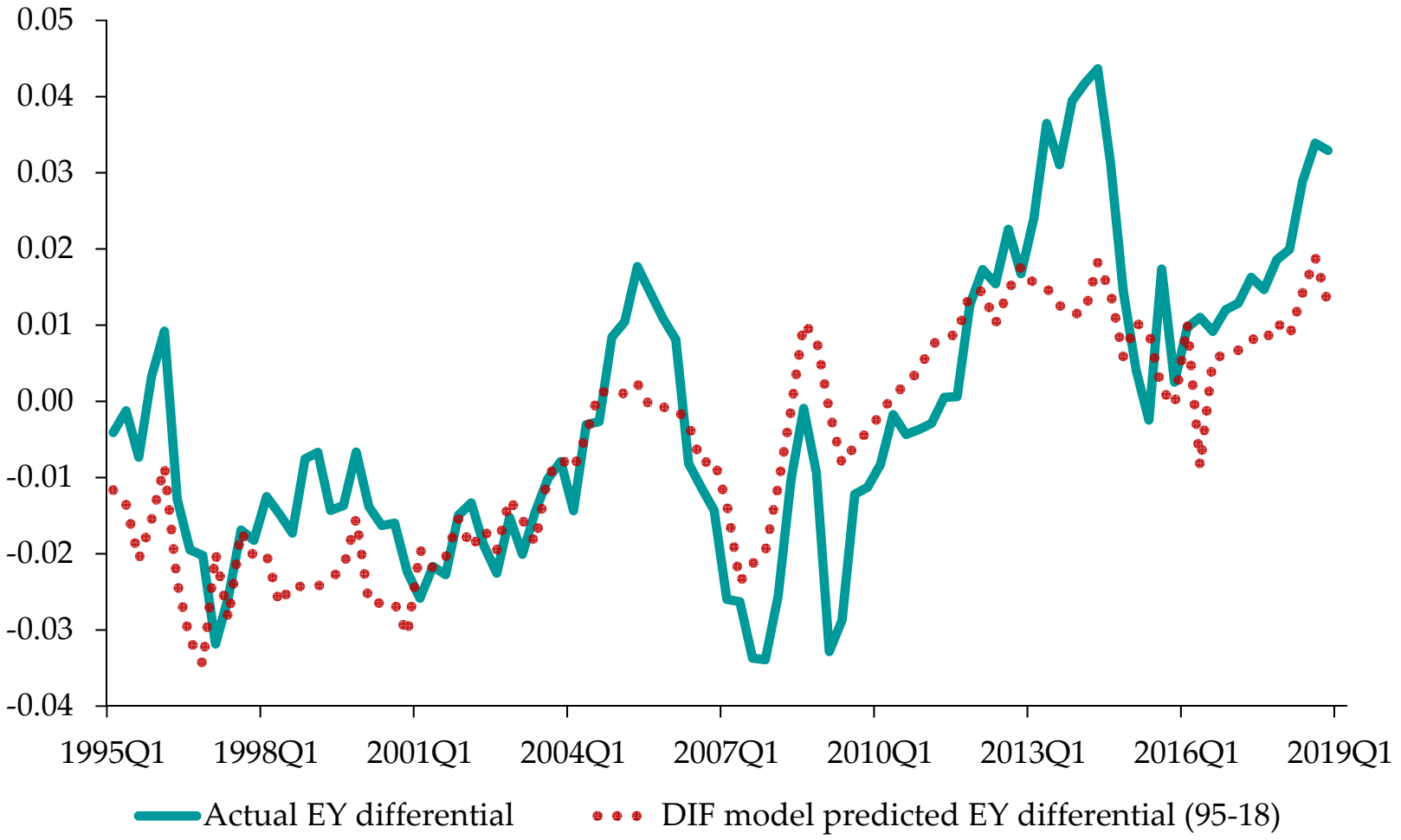
- IA1: sum of dummies for B shares, H shares, an ADR and membership of the Mainland - Hong Kong Connects
- IA2: ratio of the market capitalization of B shares, H shares and ADRs to the firm's total market capitalization
- IA3: measures the market share of firms with positive firm level IA1



The Most Important Variables: PcGets

	1995-2018	
	Coef.	Var. Decomp.
Growth Expectations		
GDP growth rate	-0.176***	4.7%
Financial Development		
Zeros	0.073***	10.0%
MYY R^2 synchronicity	0.018***	-1.3%
Adjusted market development	-0.002***	0.6%
Financial Openness		
IA2: MV(B,H and ADR)/total MV	0.118***	55.1%
Regulatory financial openness	0.002***	13.2%
A-H premium	-0.001**	5.3%
Investor base		
Turnover rate	-0.005***	12.4%
Adjusted R-square	0.330	100%

Model Fit over 1995-2018



The Most Important Variables: PcGets

	2003-2018	
	Coef.	Var. Decomp.
Growth Expectations		
GDP growth rate	-0.284***	15.80%
Sales growth expectation	-0.027***	6.40%
Forecast dispersion	-0.034***	10.80%
Financial Development		
Zeros	0.205***	12.90%
MYY R^2 synchronicity	0.017***	1.40%
Idiosyncratic volatility	0.023***	-5.70%
Financial Openness		
IA2: MV(B,H and ADR)/total MV	0.101***	42.50%
Investor base		
Turnover rate	-0.007***	15.90%
Adjusted R-square	0.418	100%

Robustness Checks

- Without assumption of integration:
  - Explain single country (Chinese) valuation ratios
  - Full segmentation, partial segmentation model for discount rates

- Without assumption of unit betas:
  - Cross-sectional differences
  - Time-variation in betas
  - Unconditional vs. conditional betas

- Our main results stay.

Conclusions

- Using data from 1995 to 2018, we examine the dynamics and sources of valuation differentials between comparable Chinese and U.S. firms.
- Before 2009, the market average PE of Chinese firms is higher than that of the U.S. firms, while after 2009, the valuation gap reverses.
- Growth expectations, financial openness, financial development, and the investor base, all contribute to the cross-sector and time-series variation of the valuation differentials
  - Financial openness and changing growth expectations are the most important contributors.