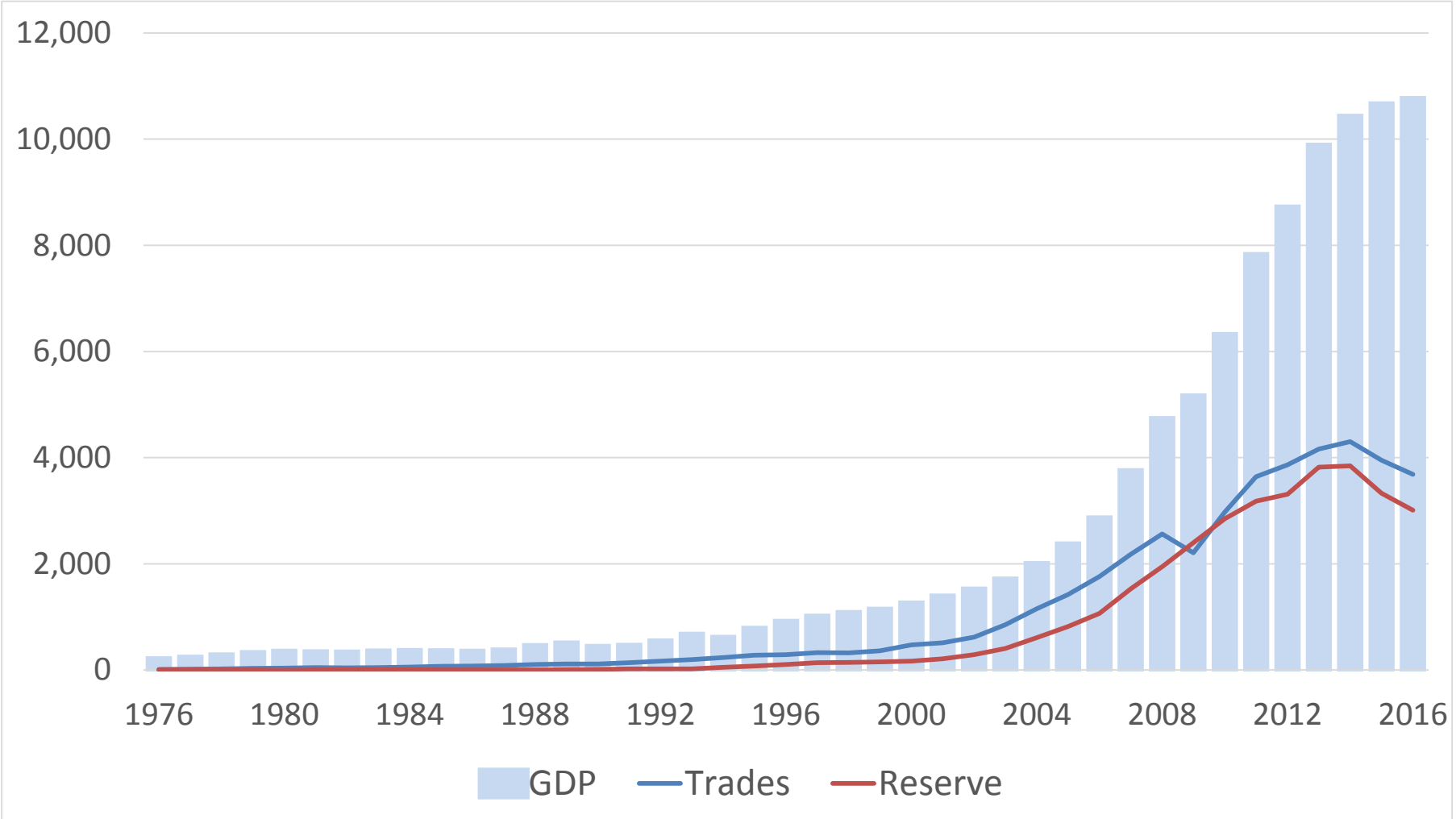


China's Financial System: Developments and Challenges

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MIT

China's GDP, International Trade and FX Reserve (USD Billion)



China's Economy in Comparison (2016.12)

USD Trillion	US	China	Japan	Germany	India
GDP	18.57	11.20	4.94	3.47	2.26
International Trade	4.92	3.69	1.36	2.39	0.63
Trade Surplus	-0.50	0.51	0.04	0.28	-0.10
Foreign Reserve	0.12	3.01	1.25	0.20	0.40
Population (million)	323	1,379	127	83	1,324
GDP per capita (USD)	57,467	8,123	38,894	41,936	1,709

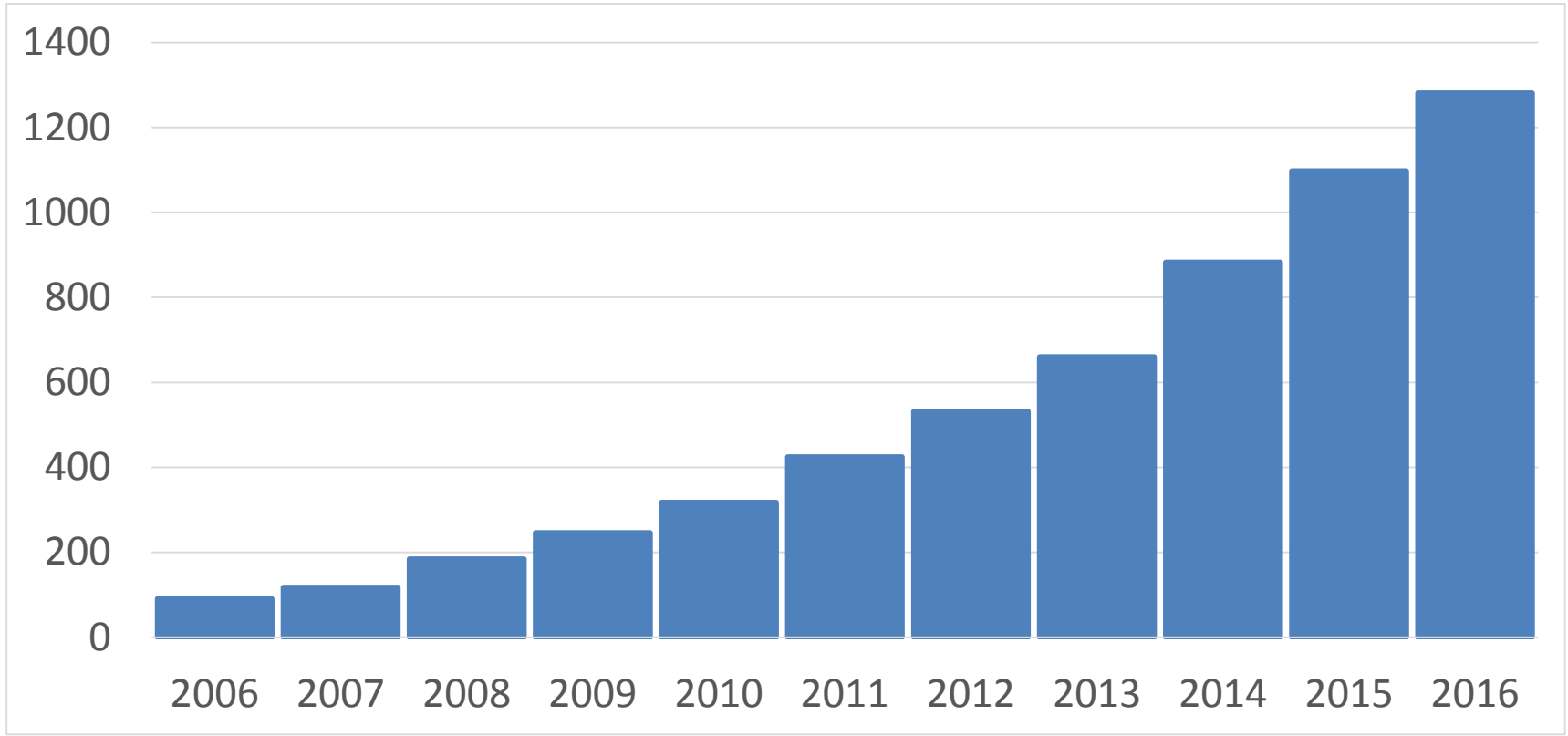
Financial Development: China and US (USD Trillion)
(2016.12)

Sector	Bank Credit	Stock	Fixed Income	Insurance	Investment Funds
Size (China)	15.45	7.32	10.43	2.19	1.32
Size (US)	12.44	27.35	39.36	8.46	19.20
% GDP (China)	137.95%	64.30%	93.12%	19.55%	11.76%
% GDP (US)	67.00%	147.40%	211.95%	45.56%	103.39%

The Size of Capital Markets of Major Economies (USD Trillion)
(2016.12)

	US	China	Japan	Germany	UK	France
Stocks	27.35	7.32	5.06	1.73	3.50	3.49
Gov't Bonds	13.91	3.28	9.11	1.22	1.78	1.77
Corporate Bonds	20.73	2.99	0.67	2.19	2.09	1.67
Total	61.99	13.59	14.84	5.14	7.37	6.93
% of GDP	331.8%	121.3%	313.7%	146.9%	278.1%	278.3%
GDP	18.56	11.20	4.73	3.50	2.65	2.49

China's Total Foreign Direct Investment (USD Billion)



- ❑ For the US, the total FDI reached USD 5.6 trillion in 2016 (at historic cost).
- ❑ Average around USD 200 billion per year between 1990-2016.

- ❖ China has made long strides in its financial development
- ❖ In certain areas, the progress is very fast

- ❖ However, the development often lacks clear goals
 - Is market a goal or a tool?
 - Opaque, segmented and fast changing plans/rules
- ❖ The development is uneven across different areas
- ❖ The pace of progress is not consistent, words often exceed reality
- ❖ Many distortions still remain (although improving)
 - Government implicit guarantees and direct interventions
 - Biased prices: interest rates and stock prices
 - Missing/constrained markets
 - Segmentation from global financial markets
- ❖ Many fundamental/structural reforms have yet to occur
 - Boundaries of the government, property rights, legal system, ...

1. Government's dominance in the economic/financial landscape
 - 1) political, social, legal
 - 2) economic and financial
2. Main objectives of the government (central and local)/officials
 - 1) political/social stability
 - 2) economic growth and "fair" distribution
 - 3) economic efficiency (long vs. short term goals)
 - 4) career
3. Legacy of the planned economy/socialist sentiment
4. Existing political/social/legal environment

1. Banking

- 1) opening of the banking sector
- 2) interest rate liberalization
- 3) “new finance” (mobile payment and banking)

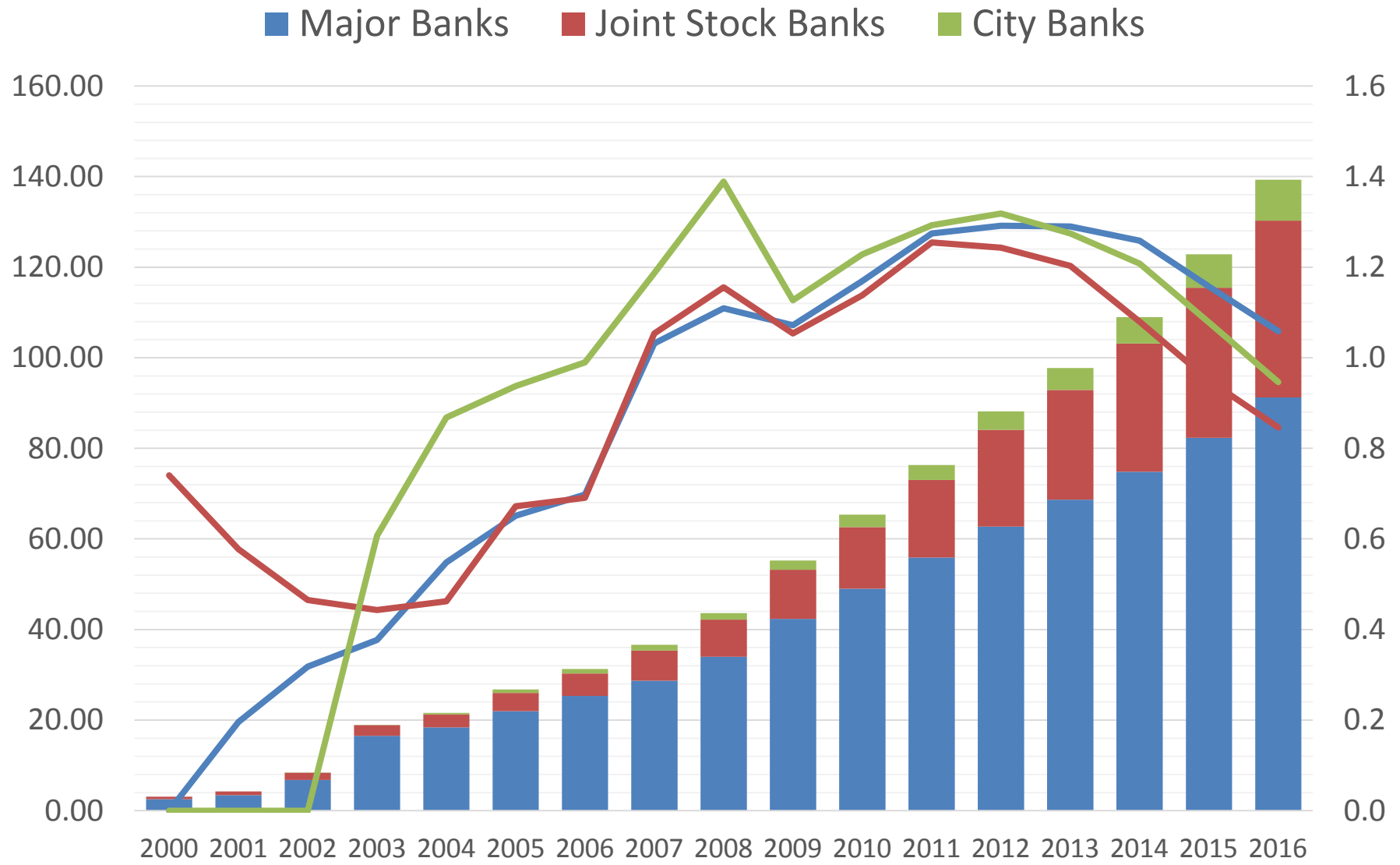
2. Capital market

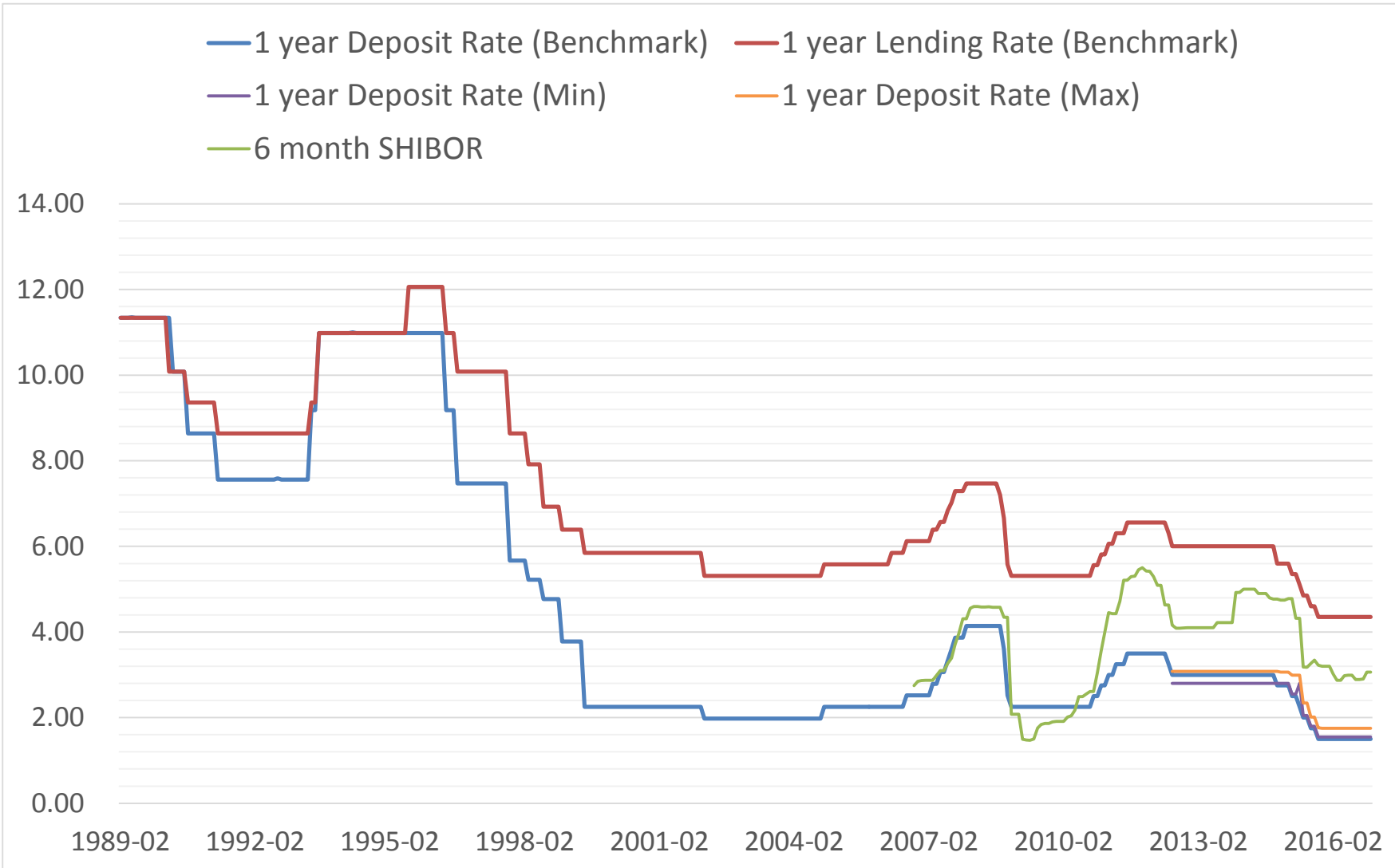
- 1) stocks
- 2) corporate bonds
- 3) derivatives

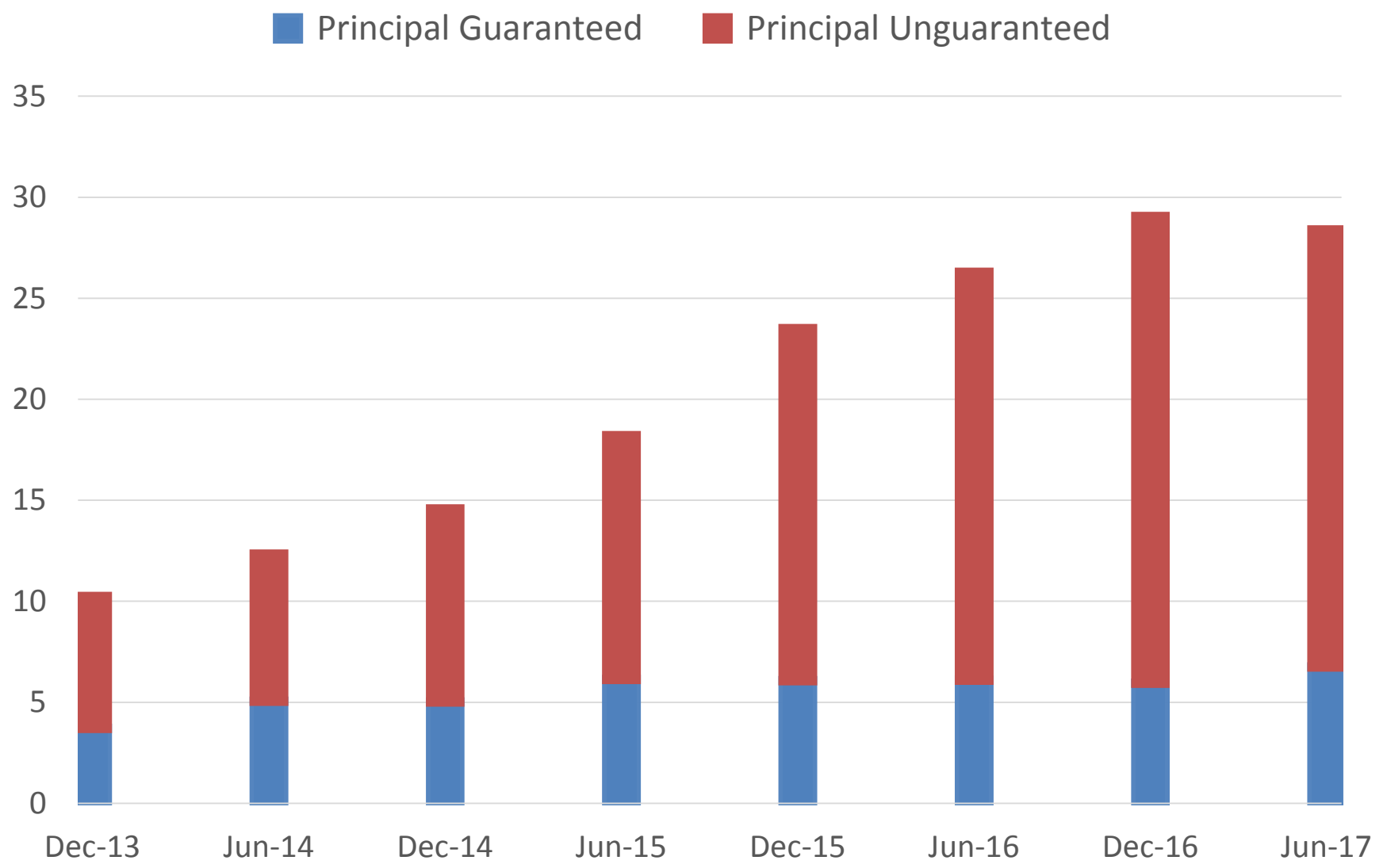
3. Globalization

- 1) capital account liberalization/RMB convertibility
- 2) capital market opening
- 3) investment management

- ❑ 1976: End of the cultural revolution, beginning of the economic reform
- ❑ 1984: Four state owned banks were spun off from the central bank (PBOC); first issuance of stock shares and enterprise bonds
- ❑ 1986: First stock share bank established (now 12)
- ❑ 1995: First city bank established (now 134)
- ❑ 1996: RMB convertible under current accounts
- ❑ 2001: Joining of WTO
- ❑ 2002: Union Pay established (credit card)
- ❑ 2004: The big four banks began the process of becoming listed (on/off shore)
- ❑ 2013: Bank lending rates liberalized
- ❑ 2015: Deposit insurance established; cap on deposit rates abolished; private banks approved
- ❑ 2017: Establishment of Financial Stability and Development Council; centralized payment clearing system



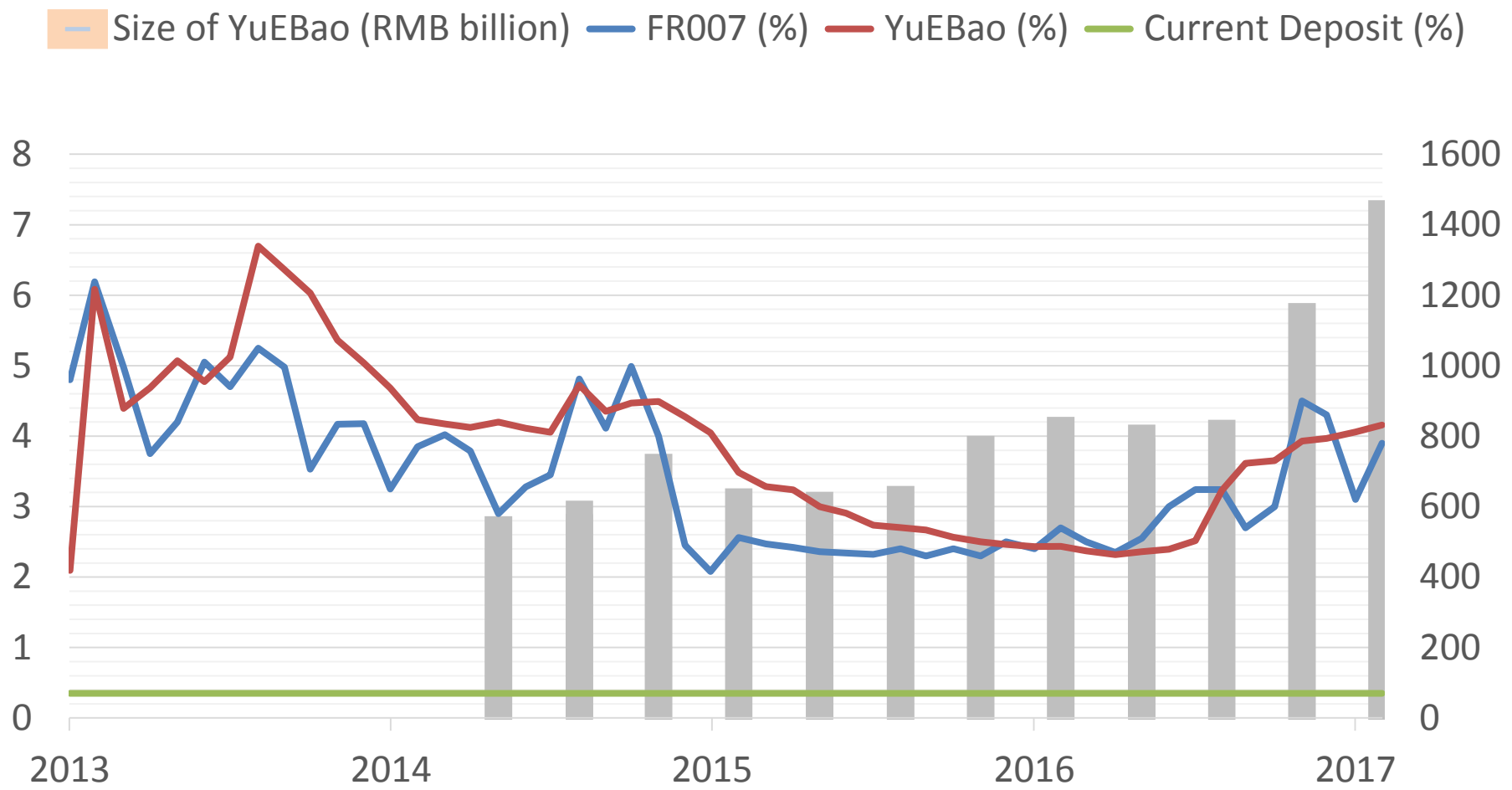




Mobile Payment (2016.12)

Transaction volume (USD trillion)	2.78
Annual growth	22%
Number of mobile pay accounts (million)	469
Annual growth	31%

❑ Third-party payment license first granted in 2011.

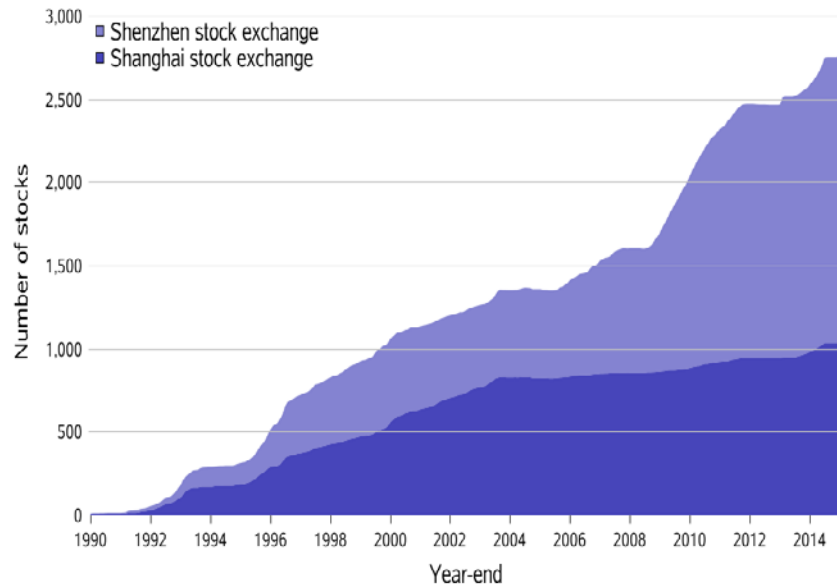


- ☐ YuEBao’s size reached USD 211.5 billion by 2017.6.30.
- ☐ Vanguard’s Prime Money Market Fund is ~USD 97 billion.

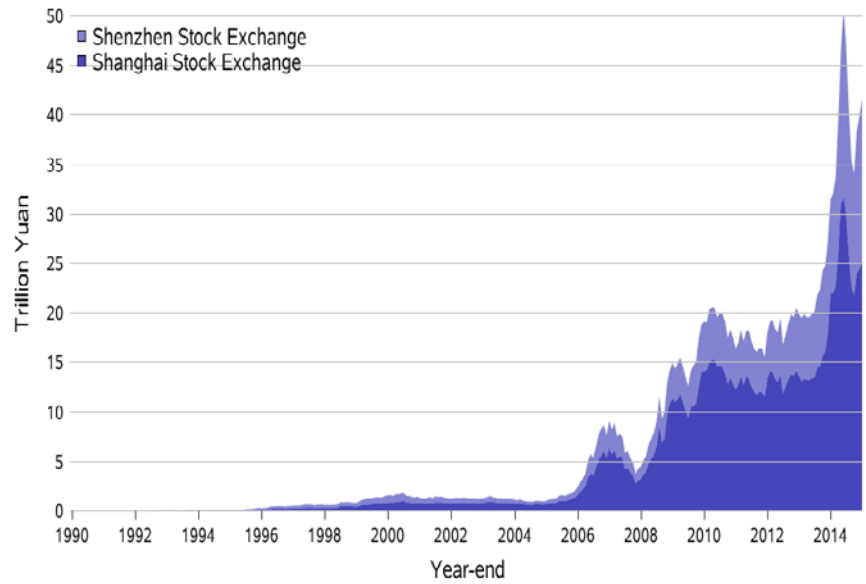
- ❑ 1981: Issuance of the first central government bond
- ❑ 1990: Establishment of Shanghai and Shenzhen stock exchanges
- ❑ 1998: Emergence of many trust, investment corporations and closed-end funds
- ❑ 2001: First open-end mutual fund established
- ❑ 2005: Split share structure reform
- ❑ 2010: Opening of China Financial Futures Exchange (stock index futures)
- ❑ 2014: Shanghai-Hong Kong connect established
- ❑ 2015: Corporate bond registration system implemented
- ❑ 2017: Fidelity's license for on shore RMB funds granted

Stock Market Capitalization – Floating Shares (1990.12 – 2015.12)

No. of Listed Stocks



Market Cap (RMB Trillion)

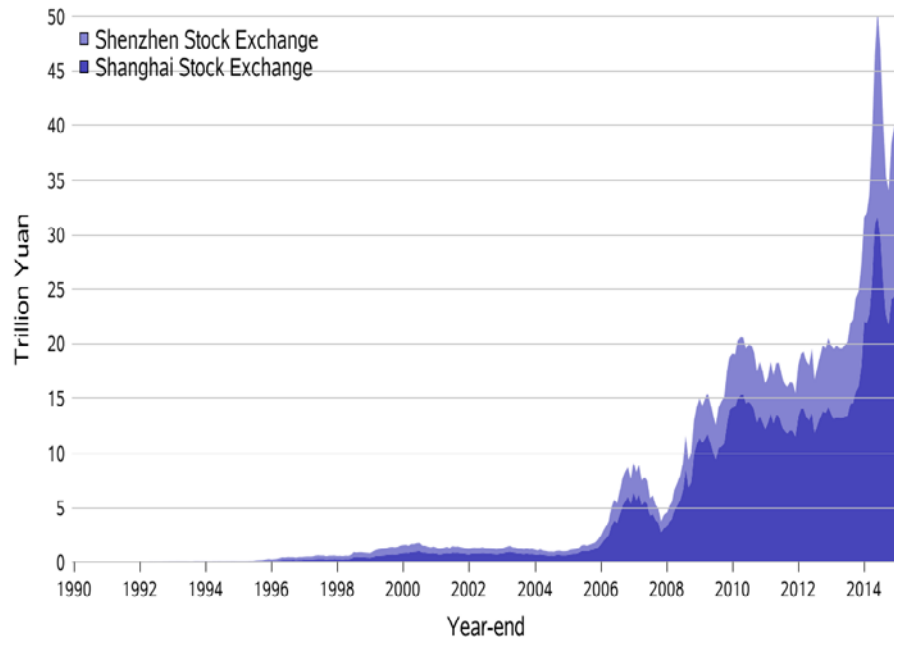


❑ Number of listed stocks: 8 (1990.12) – 2,774 (2015.12)

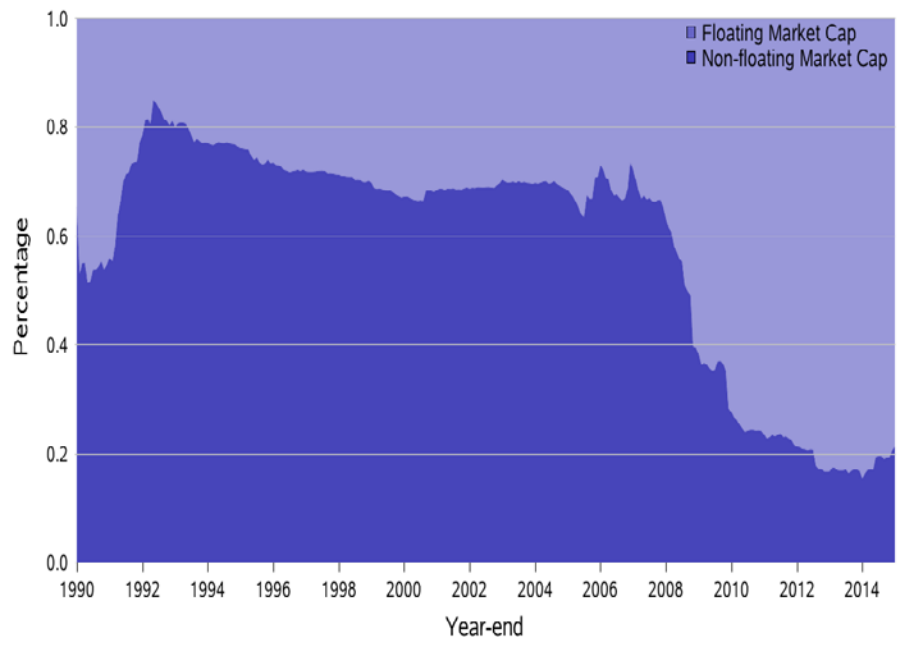
❑ Market cap (RMB trillion): 0.0006 (1990.12) – 41.5 (2015.12)

Floating vs. Non-Floating Shares (1990.12 – 2015.12)

Market Cap (RMB Trillion)



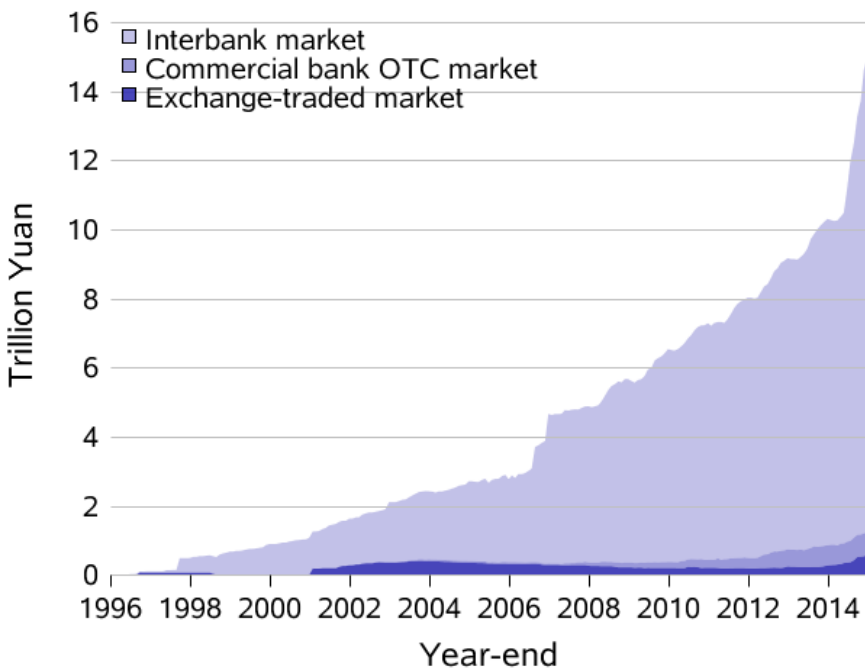
Percentage



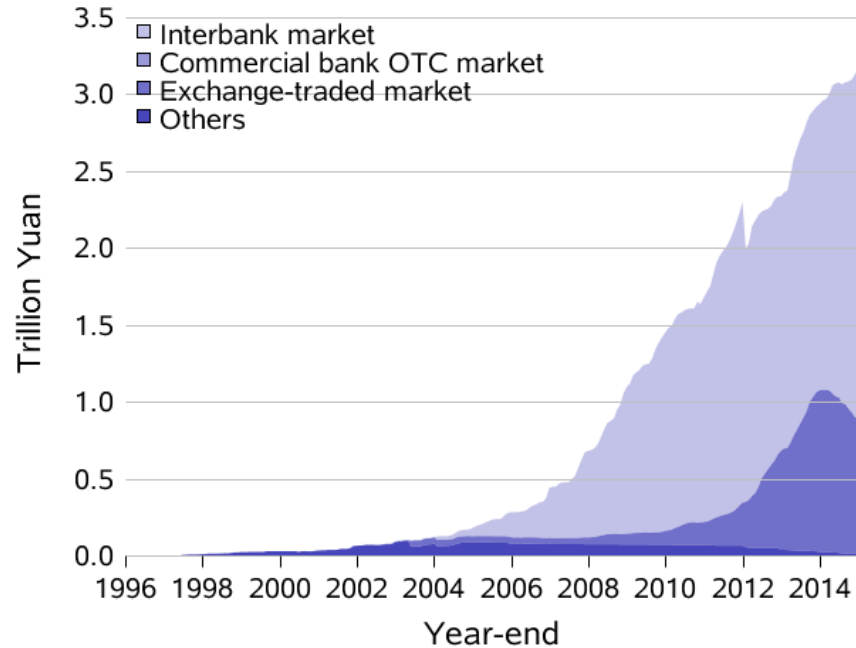
- ❑ Market cap (RMB trillion): Floating: 0.0006 – 41.5; Non-floating: 0.0012 – 11.2
- ❑ Percentage (%): Floating: 35 (1990.12) – 79 (2015.12); Non-floating: 65 – 21

Government and Enterprise Bonds Outstanding (RMB Trillion) (1997.01 – 2015.12)

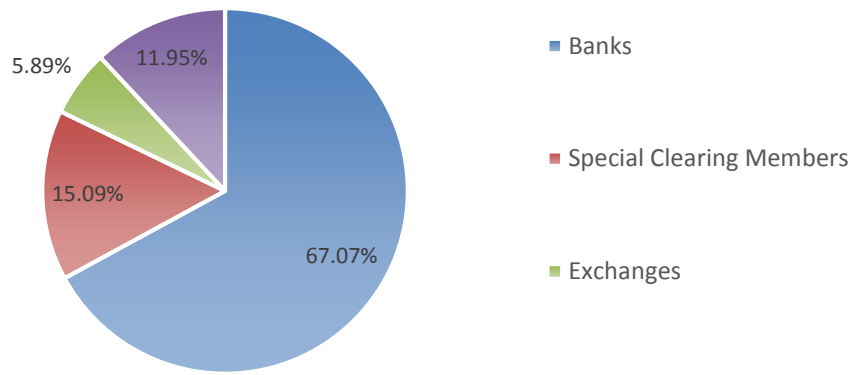
Government Bonds



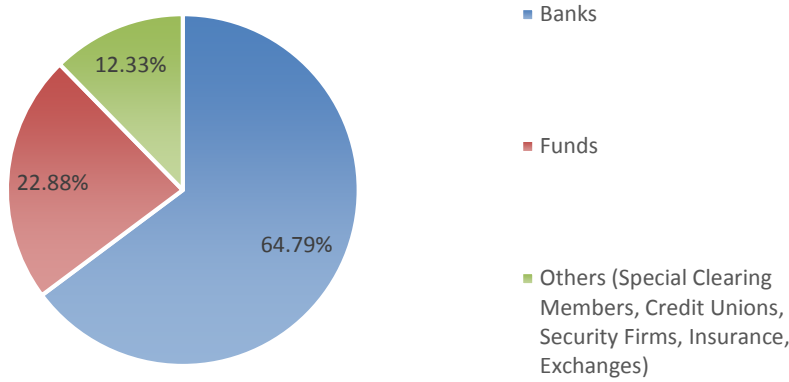
Enterprise Bonds



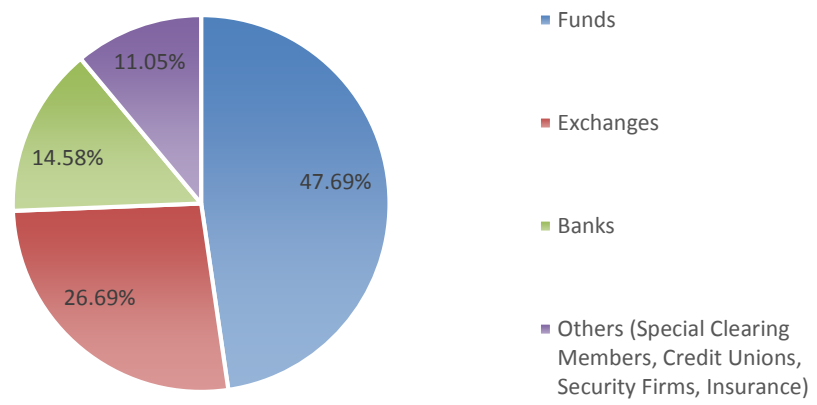
Government Bonds



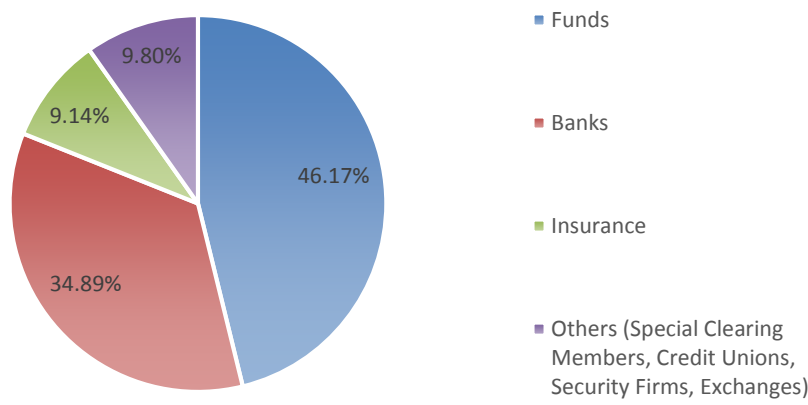
Policy Bank Bonds



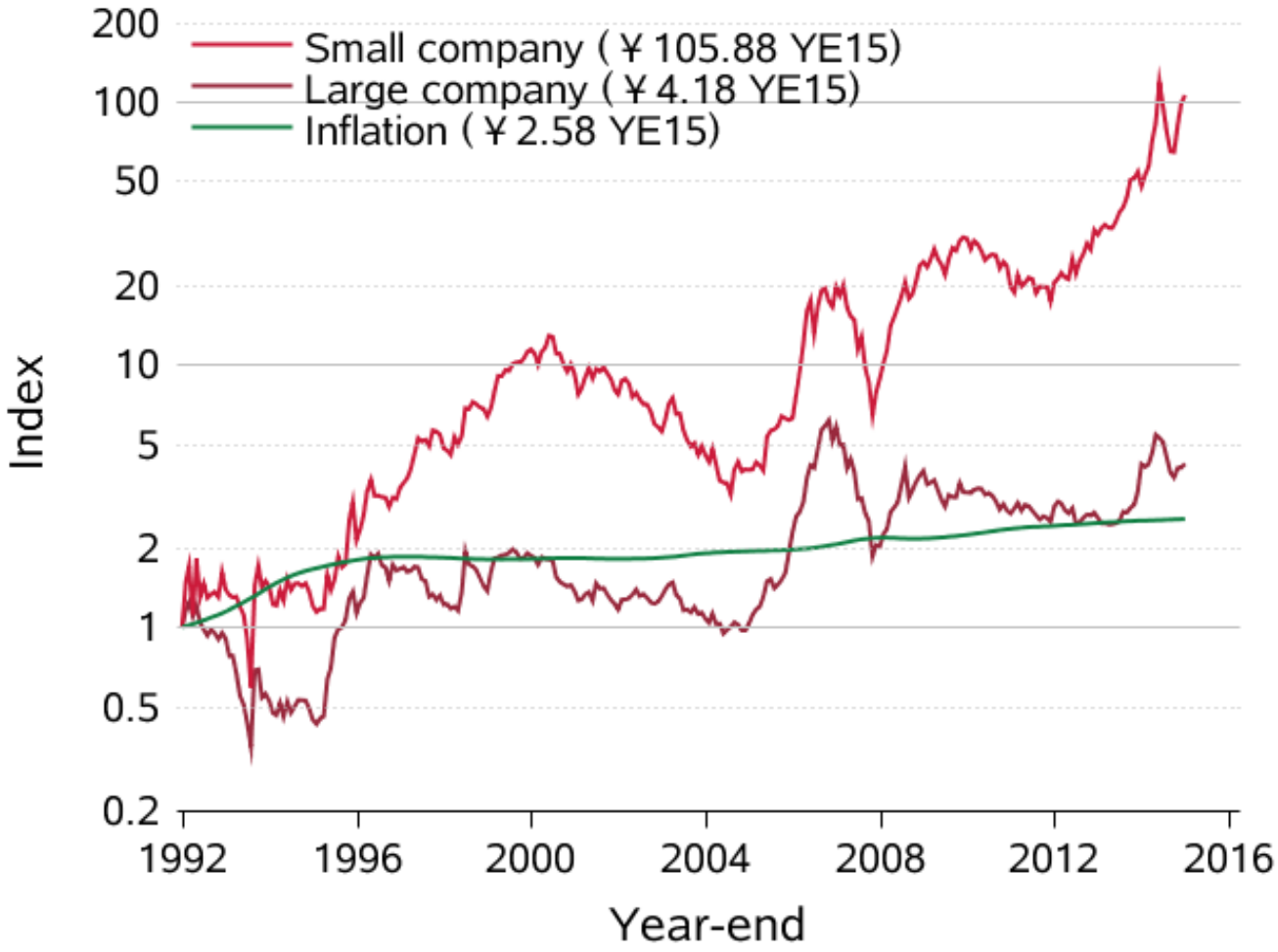
Enterprise Bonds



Medium Term Notes



Wealth Indices of Investments in the Chinese Capital Market - Stocks (Year-End 1992 = ¥ 1.00)



Summary Statistics of Yearly Returns -- China (%)
(1993.01 – 2015.12)

	Geometric Mean	Arithmetic Mean	Standard Deviation
Large Company Stocks	6.4	18.8	60.0
Small Company Stocks	22.5	36.4	67.0
Long-Term Corporate Bonds	5.3	5.7	9.1
Long-Term Government Bonds	6.5	6.9	10.1
Short-Term Government Bonds	4.0	4.0	3.5
Inflation	4.2	4.4	6.3

Summary Statistics of Yearly Returns – US (%)
(1926.01 – 2015.12)

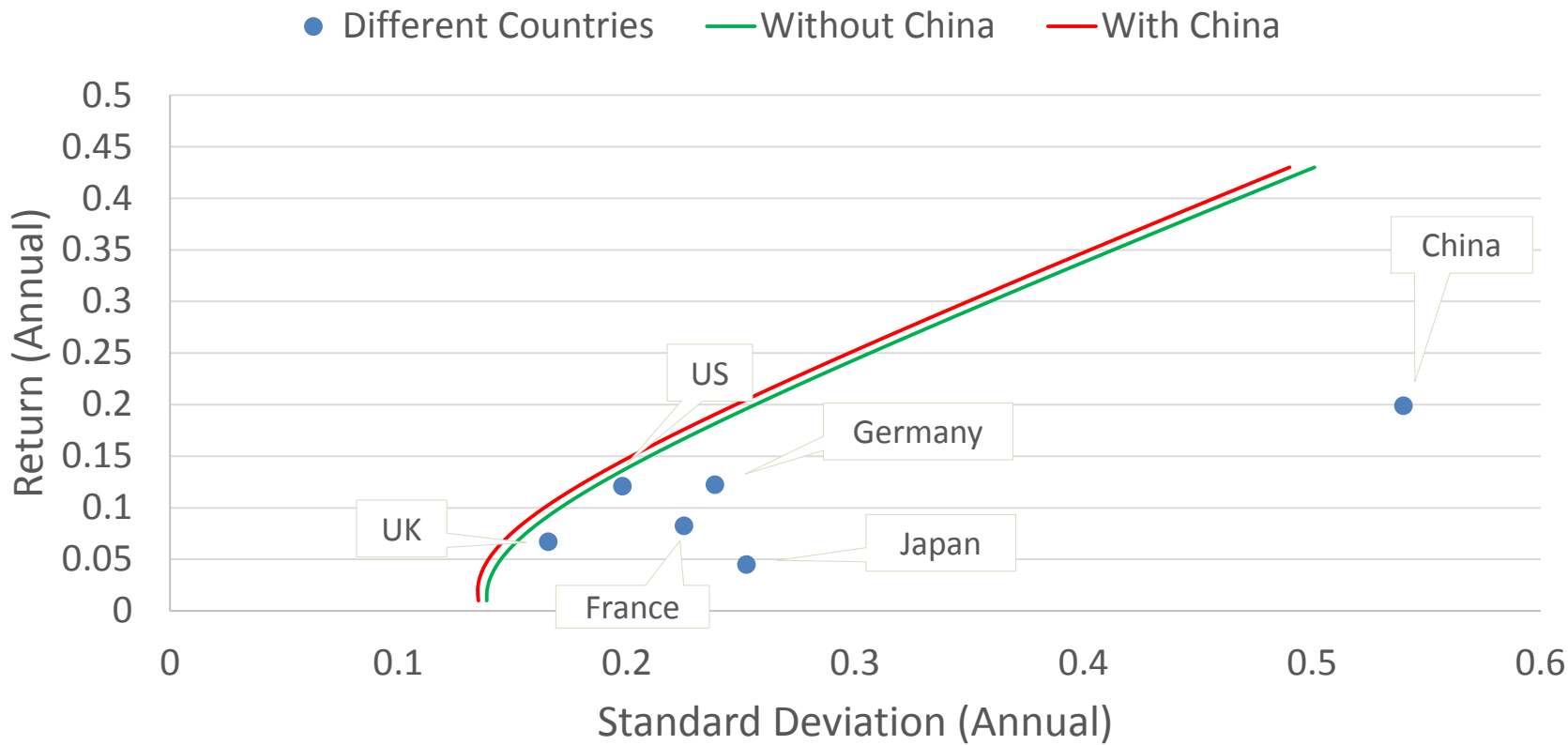
	Geometric Mean	Arithmetic Mean	Standard Deviation
Large Company Stocks	10.1	12.0	20.0
Small Company Stocks	12.2	16.5	32.0
Long-Term Corporate Bonds	6.1	6.3	8.4
Long-Term Government Bonds	5.7	6.0	10.0
Short-Term Government Bonds	3.5	3.5	3.1
Inflation	2.9	3.0	4.1

Dollar Returns on Major Stock Markets (1993 – 2016)

	Geometric Mean	Arithmetic Mean	Std. Dev.	US	Japan	UK	Germany	France	China
US	0.10	0.12	0.20	1.000	0.544	0.878	0.788	0.799	0.291
Japan	0.01	0.04	0.25		1.000	0.656	0.654	0.666	0.013
UK	0.05	0.07	0.17			1.000	0.913	0.835	0.304
Germany	0.09	0.12	0.24				1.000	0.820	0.382
France	0.06	0.08	0.23					1.000	0.382
China	0.10	0.20	0.54						1.000

Return (Arithmetic Mean) and Risk of Major Stock Markets – USD (1993-2016)

Return and Risk Characteristics of Main Stock Markets (in USD) (1993-2016)



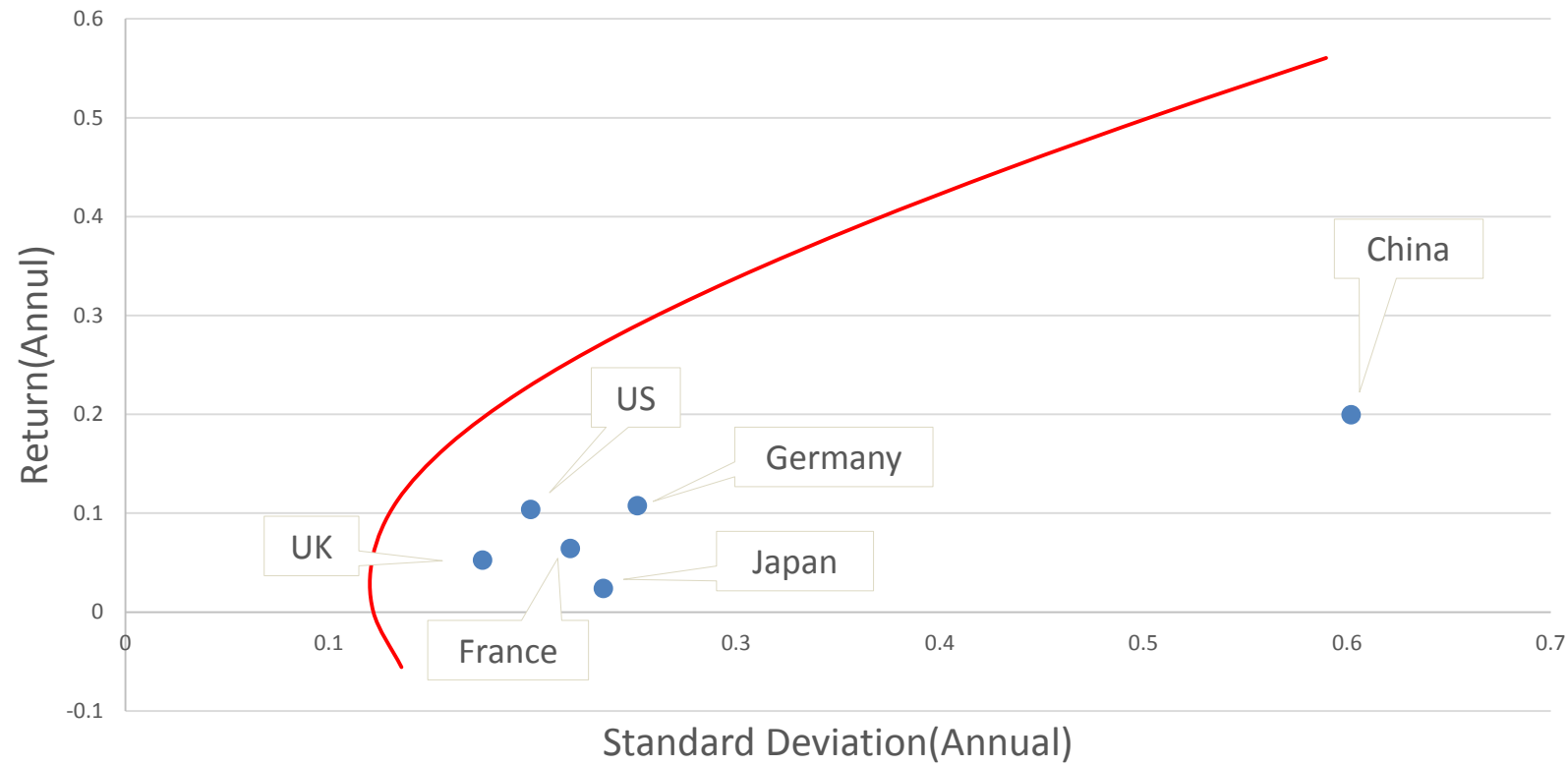
Data Source: BLOOMBERG, CCM, WRDS

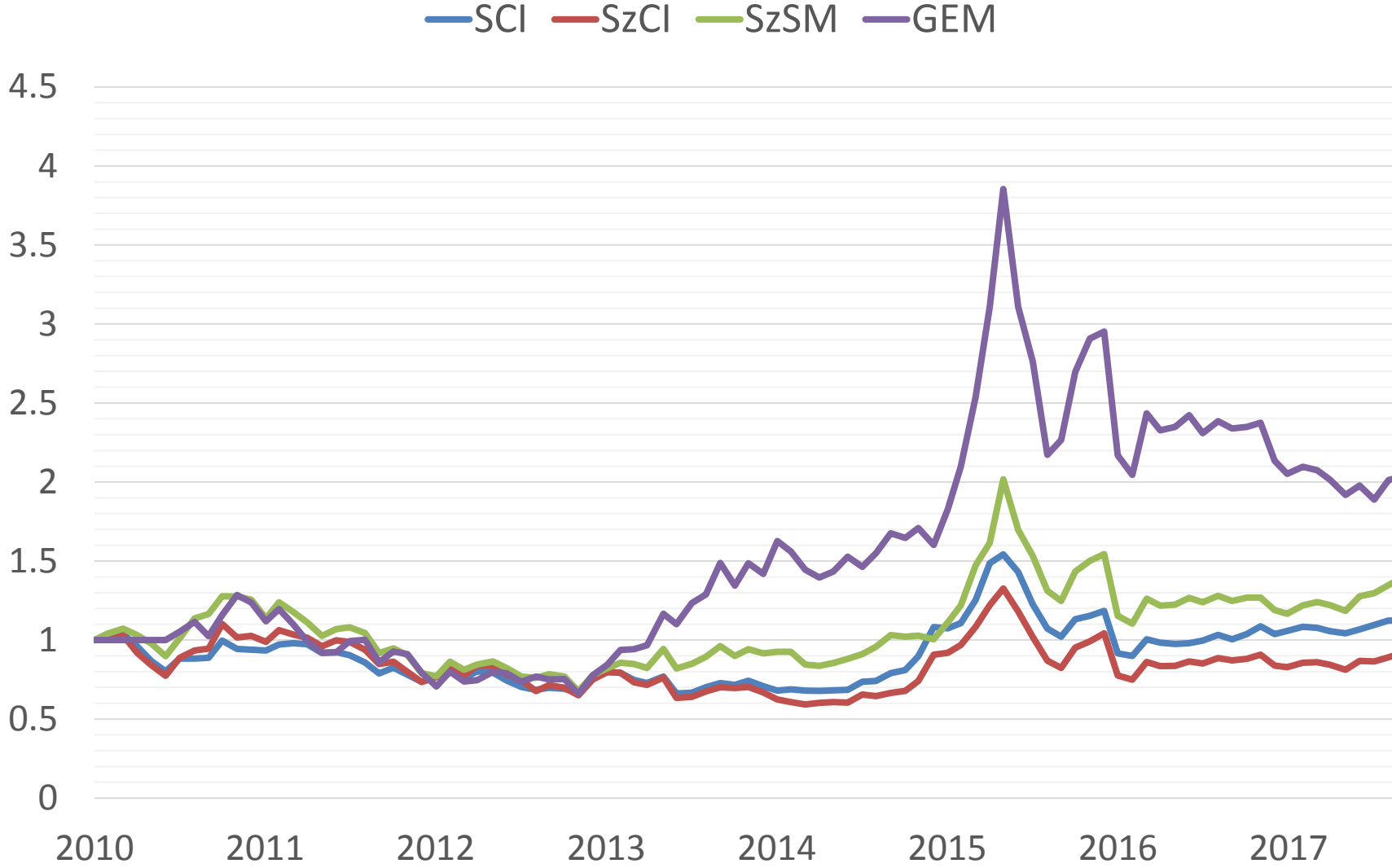
RMB Returns on Major Stock Markets
(1993-2016)

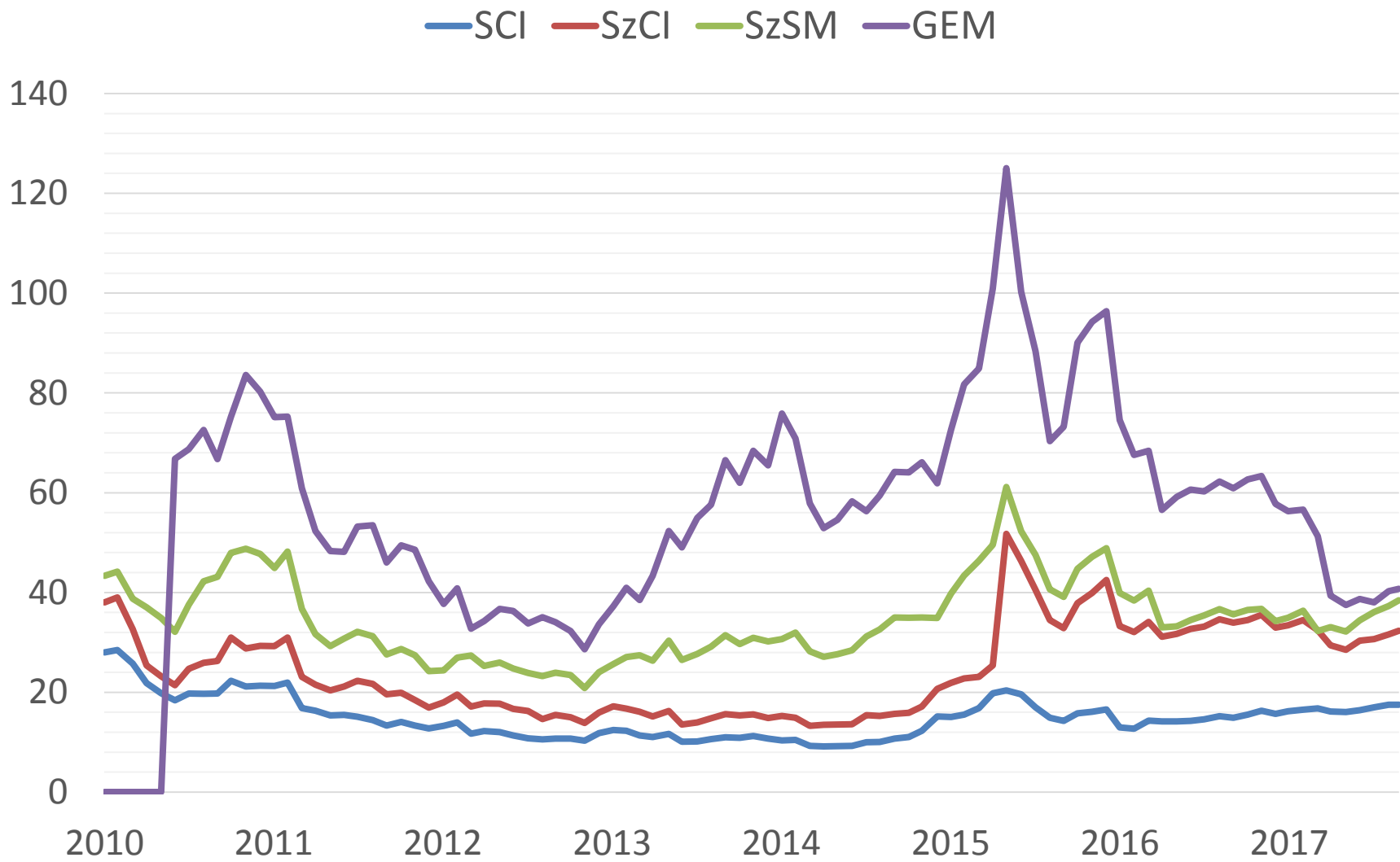
	Geometric Mean	Arithmetic Mean	Std. Dev.	US	Japan	UK	Germany	France	China
US	0.08	0.10	0.20	1.000	0.588	0.901	0.819	0.821	0.374
Japan	-0.01	0.02	0.23		1.000	0.693	0.693	0.694	0.010
UK	0.04	0.05	0.18			1.000	0.920	0.854	0.389
Germany	0.08	0.11	0.25				1.000	0.846	0.448
France	0.04	0.06	0.22					1.000	0.449
China	0.08	0.20	0.60						1.000

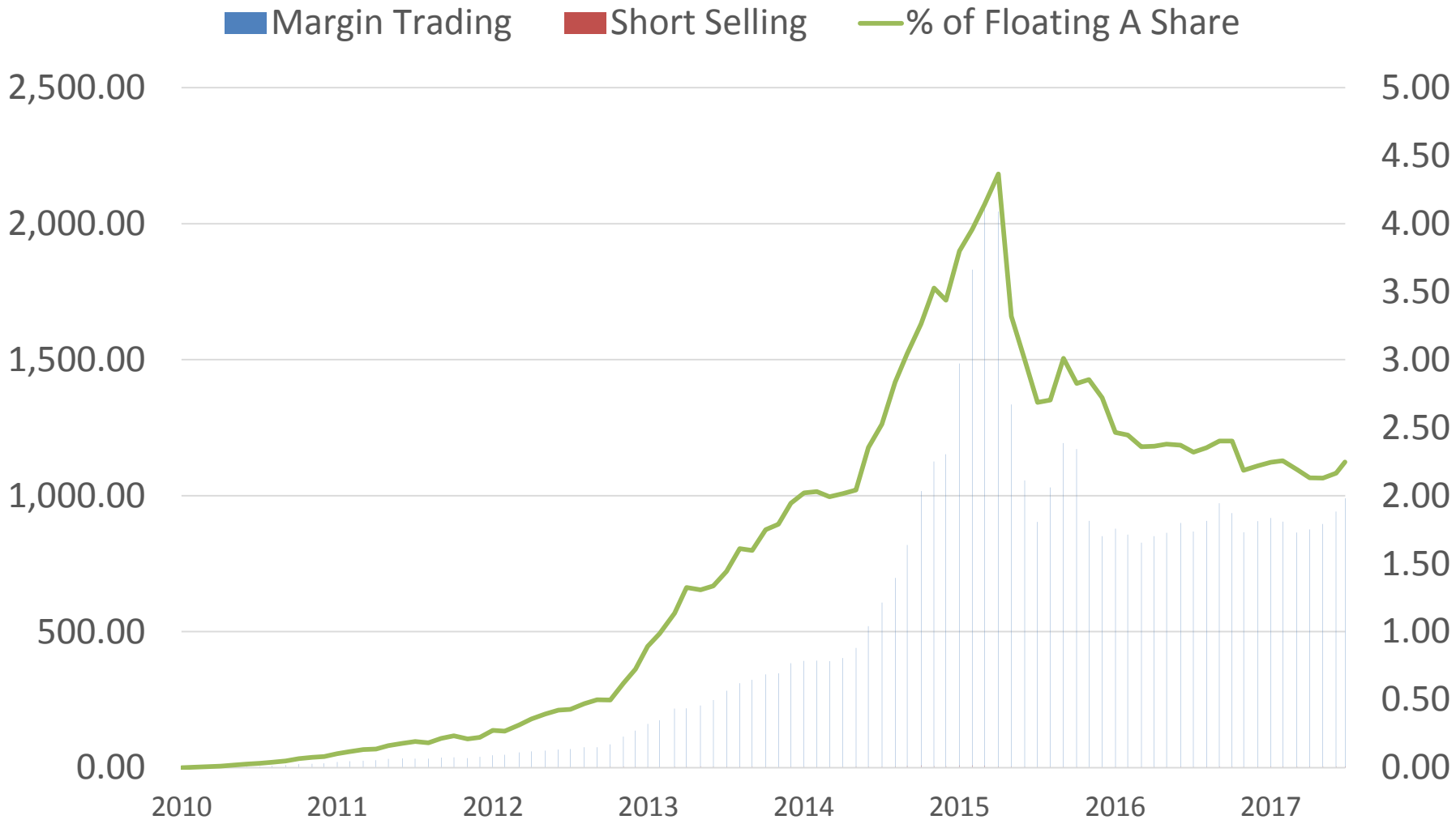
Return (Arithmetic Mean) and Risk on Major Stock Markets – RMB (1993-2016)

Return and Risk Characteristics of Main Stock Markets (in RMB) 1993-2016

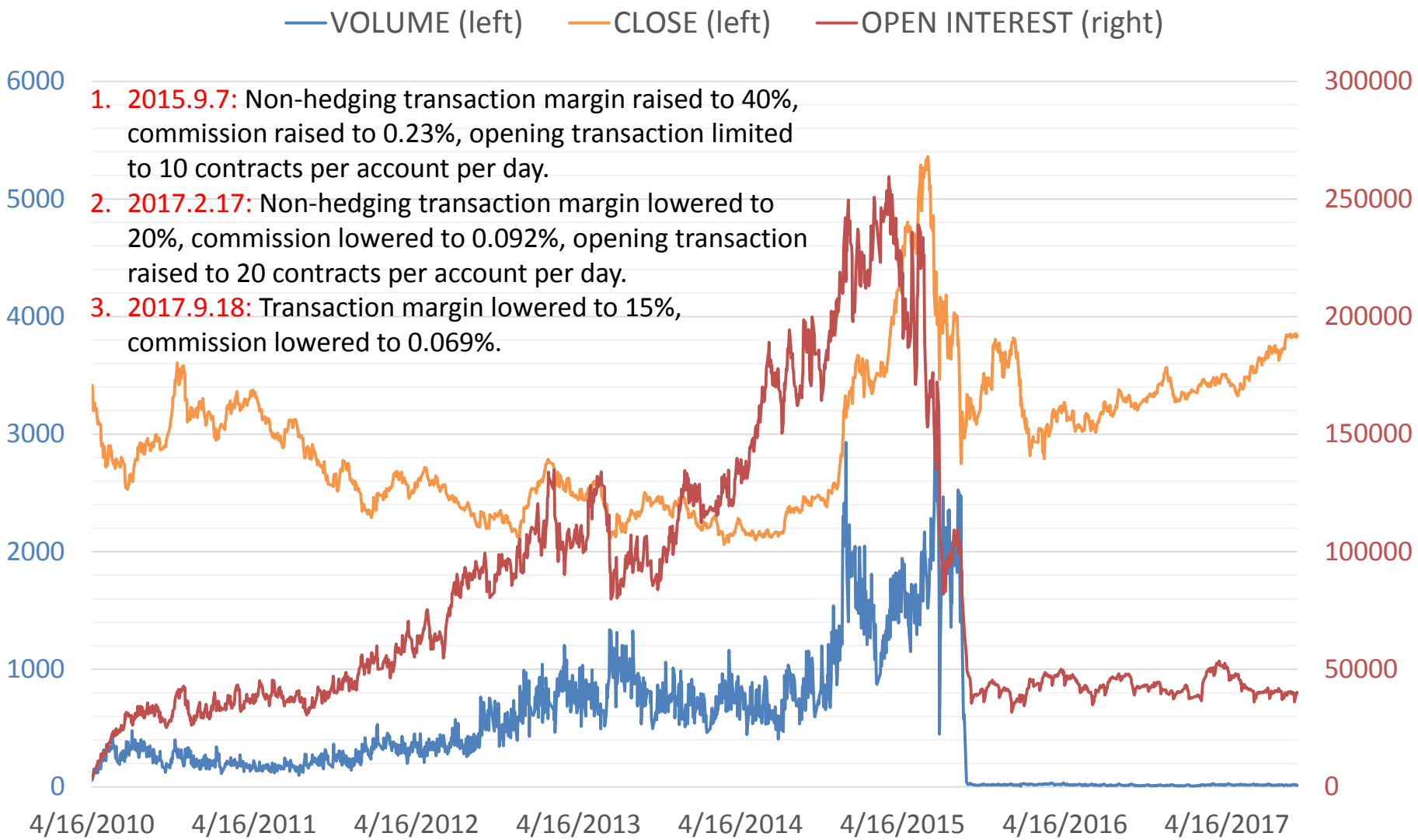








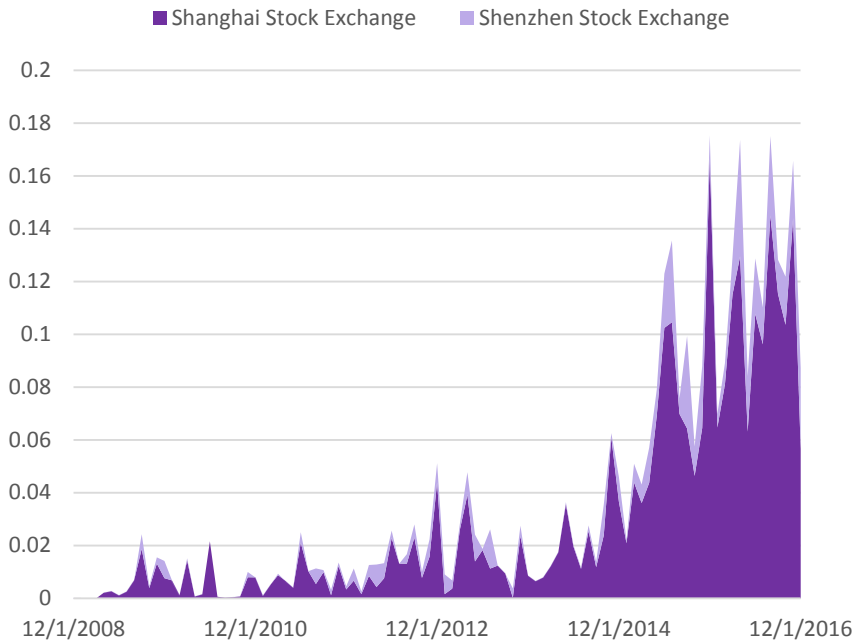
Note: Average shorting was RMB 2.71 billion and max was 8.85 billion.



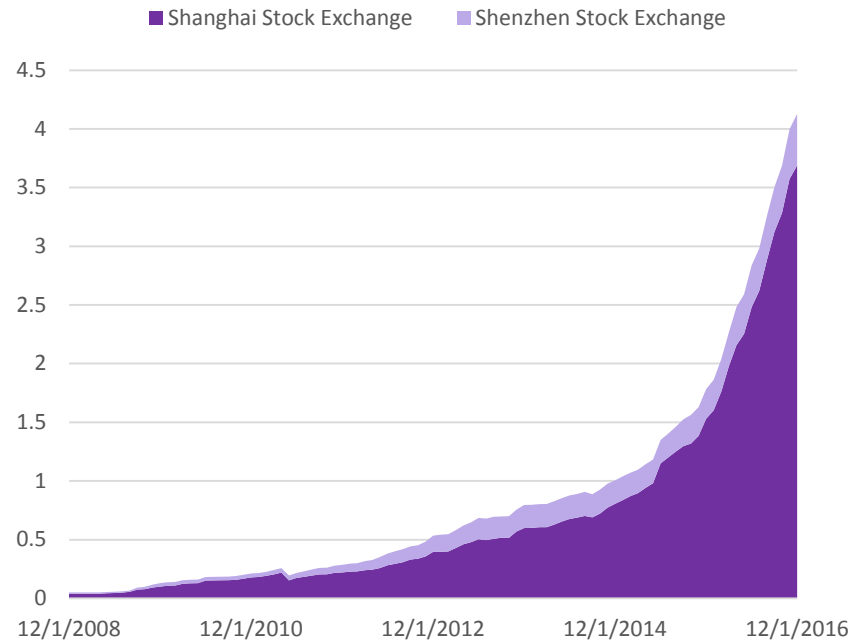
Data Source: WIND. Peak daily volume exceeded USD 600 billion.

Corporate Bonds: Issuance and Outstanding (RMB Trillion) (2008.12 -- 2016.12)

Monthly Issuance



Total Amount Outstanding



□ Outstanding: Exchange: 0.051 (2008.12) – 4.128 (2016.12)

(Only register-form corporate bonds. Source: CSDC)

1. Chinese financial system has experienced a rapid growth
2. More is needed (quantity and quality)
 - 1) To improve allocation efficiency and social welfare
 - 2) To facilitate the transition to a more sustainable grow model
3. Challenges
 - 1) Clear development goals
 - 2) Boundaries between government and market
 - 3) Fundamental reforms: property rights, legal system
 - 4) More coherent regulatory framework
 - 5) Well functioning financial markets
 - 6) Integration into the global financial system
4. Research
 - 1) More data to shed light on existing paradigms
 - 2) Unique problems, important in their own rights
 - 3) Meaningful cross-section for new paradigms (e.g., role of government)