Financial Reform and Liberalization in China

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Motivation

- China's financial reform lagging behind real sector reforms
- What's the consequence of financial repressive policies?
- What's the potential benefit of financial liberalization?
- What's the potential risk of such financial reforms?

Financial Development and Economic Growth

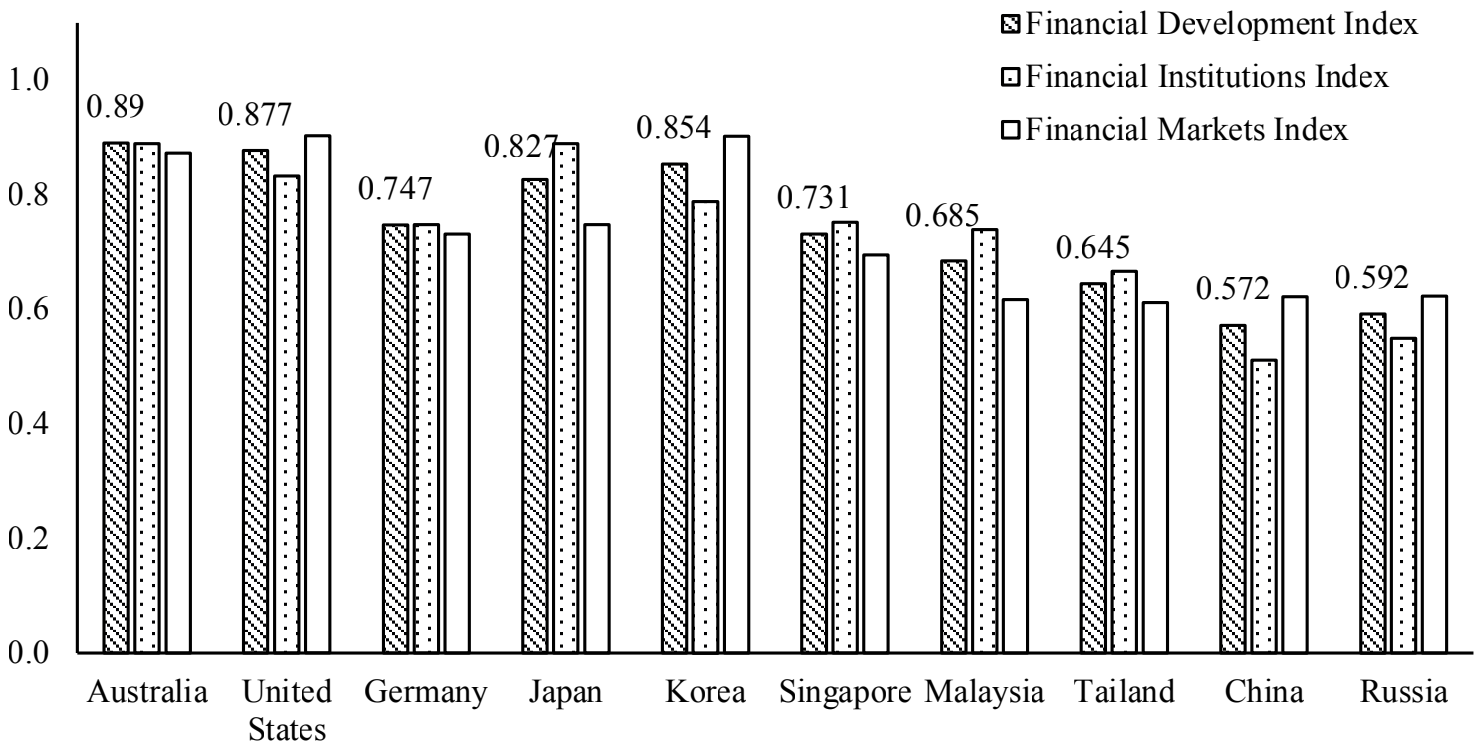
- Reduce transaction cost
- Reduce information cost
- Mobilize savings
- Allocate resources
- Facilitate liquidity
- Ameliorate risk
- Exert corporate control

Financial Restrictive Policies

- State-owned banks and enterprises
- Interest-rate controls
- Financial institution licensing
- Government designating investment
- Approval-based IPO system
- Capital account quota

Financial Repression in China

Financial Development Index

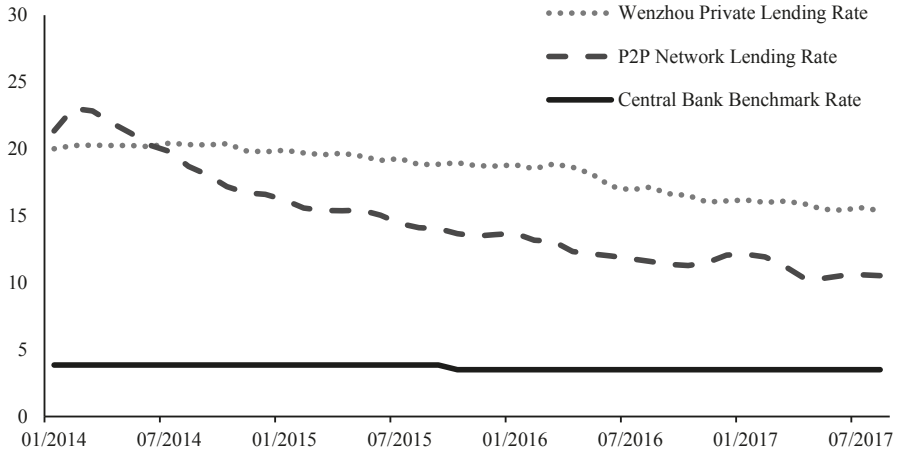


Note: The index is constructed using 33 years of annual data between 1980 and 2013 for 183 countries worldwide by measuring three dimensions – depth, access and efficiency – of both financial institutions and financial markets.
Source: Based on Svirydzenka, 2016 (IMF)[1].

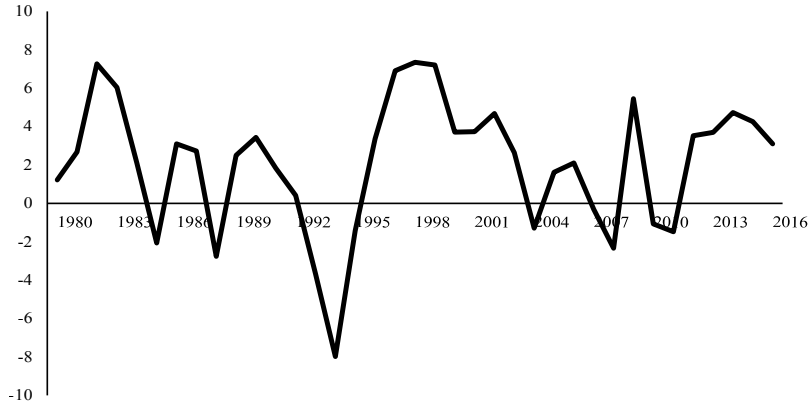
[1] Katsiaryna Svirydzenka. *Introducing a new broad-based index of financial development*. Tech. rep. IMF, 2016.

State-Owned Banking System

Interest Rate Fragmentation



(a) Various Lending Rate

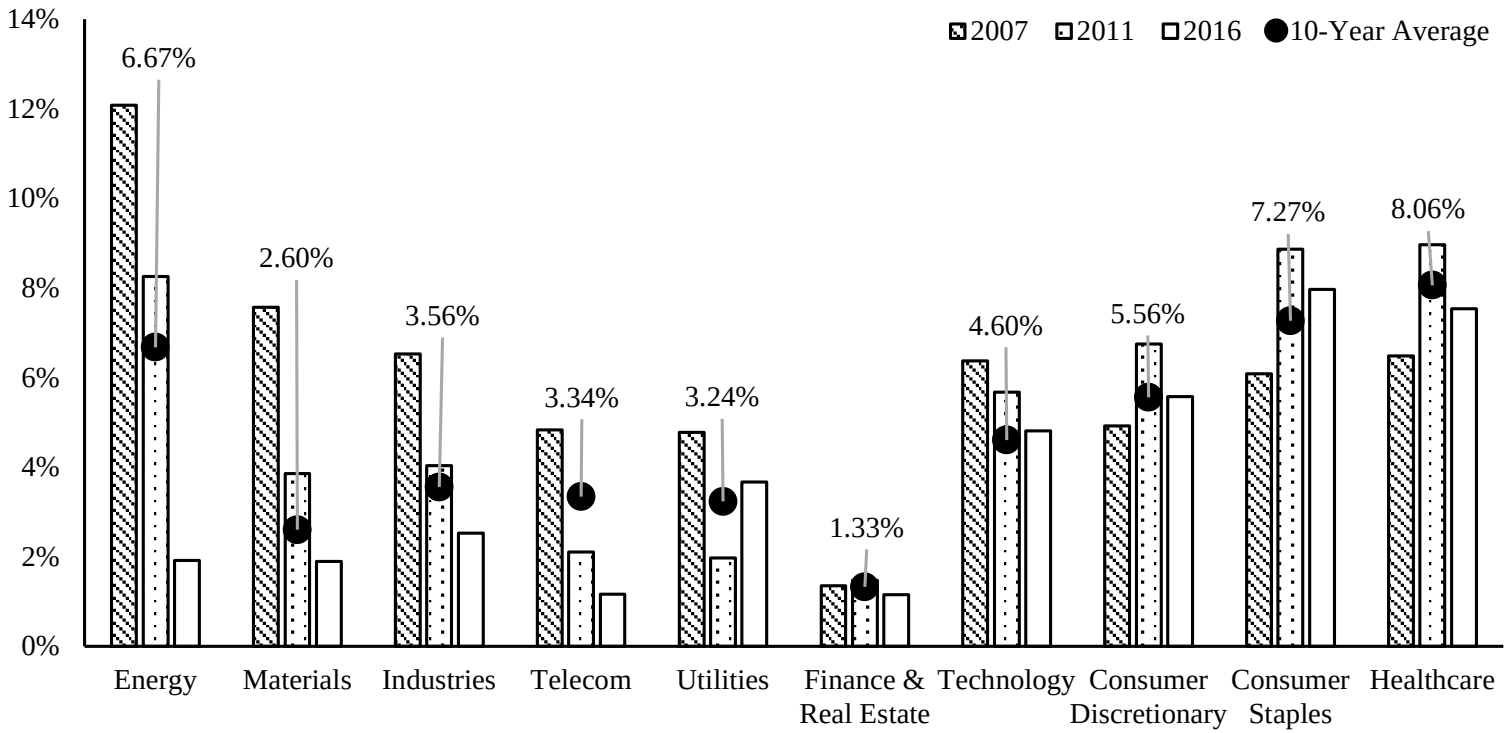


(b) Real Interest Rate

Note: Wenzhou private lending rate is based on the Wenzhou composite lending rate index, which is the private lending rate in Wenzhou and is published officially by the government of Wenzhou. P2P network lending rate is the average lending rate of online P2P platforms. Before 2015, China's central bank directly controls commercial banks' interest rate. After 2015, commercial banks can freely float their interest rate, though the central bank still sets a reference rate.
Source: CEIC, World Bank.

Inefficient Resource Allocation

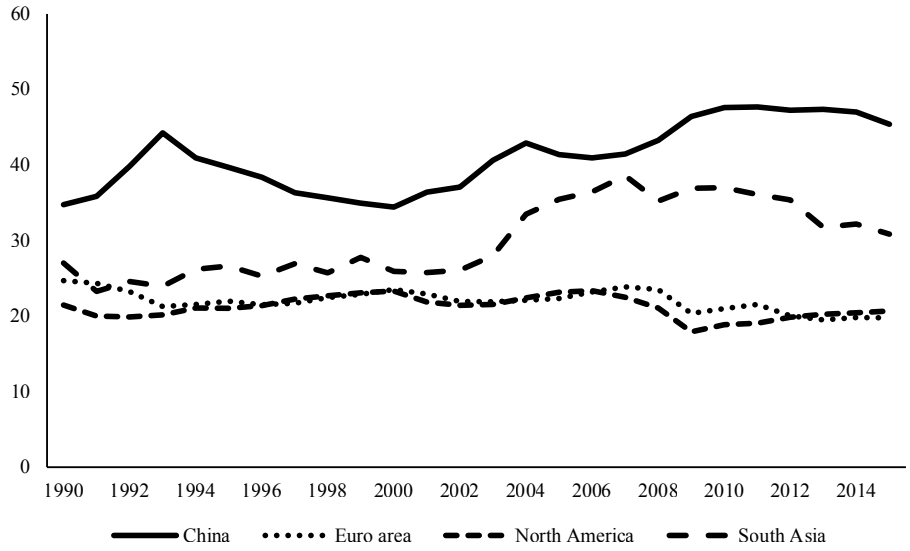
Imbalanced Sector Development



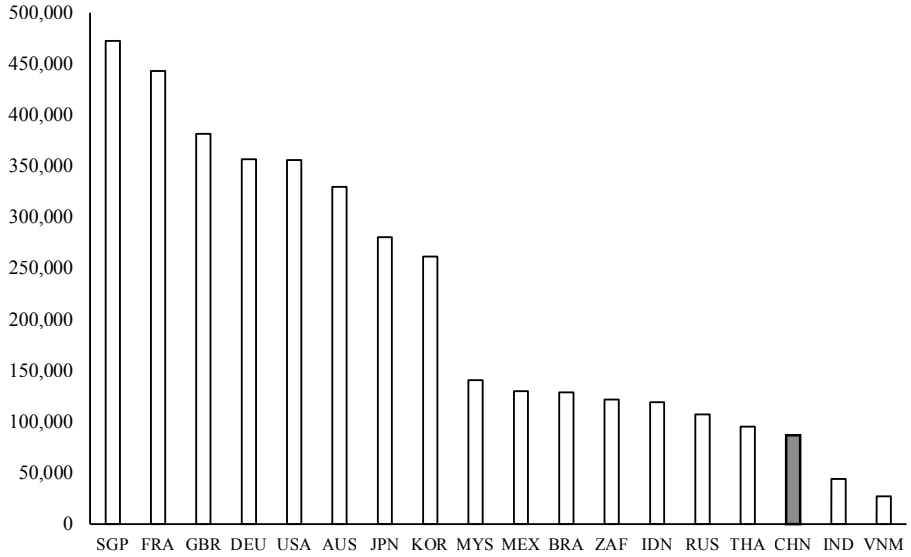
Note: The values reported here are calculated from the data of the companies listed on the stock market. The number of companies consisted in each sector are also meaningful, and are thus reported here: energy (84), materials (537), industries (810), consumer discretionary (534), consumer staples (211), health care (226), finance and real estate (224), technology (464), telecom (94), and utilities (96).
Source: Based on data from *lixinger.com*.

Capital Deepening

Still Low Capital Intensity



(a) Gross capital formation (% of GDP)



(b) Capital stock per worker (2014)

Note: Capital values are converted using purchasing power parity, and shown in 2011 US$.
Source: The World Bank, Penn World Table Version 8.0.

Financial Reform

Modelling with GTAP

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- Simulation with GTAP (Global Trade Analysis Project)
  - General equilibrium model
  - Open economy with fixed exchange rate
  - Labor mobility across industries, but not across countries

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- Simulation with GTAP (Global Trade Analysis Project)
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  - Labor mobility across industries, but not across countries
- How to model financial reform in GTAP?

Simulation I

An increase in productivity of financial services

- Financial Service Provider

$$Y = F(X_1, X_2, \ldots, X_n)$$

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- In GTAP's language:

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Simulation Result I

An increase in productivity of financial services

	Read GDP *% change*	Capital accumulation *% change*	Trade balance to income ratio
CHN	4.392	11.130	0.018
AUS	0.132	0.256	-0.003
USA	0.022	0.053	-0.002
EU	0.000	0.015	-0.002
ROW	0.033	0.041	-0.002

Note: Modelled as a uniform 1% increase in value-added augmenting technology in the financial sector change, together with a uniform 1 point increase in financial intermediate input augmenting technology for other industries that take financial services as intermediate inputs.
Source: Author estimated.

Simulation II

An increase in productivity of capital

- Firm's production function

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Simulation Result II

An increase of productivity of capital

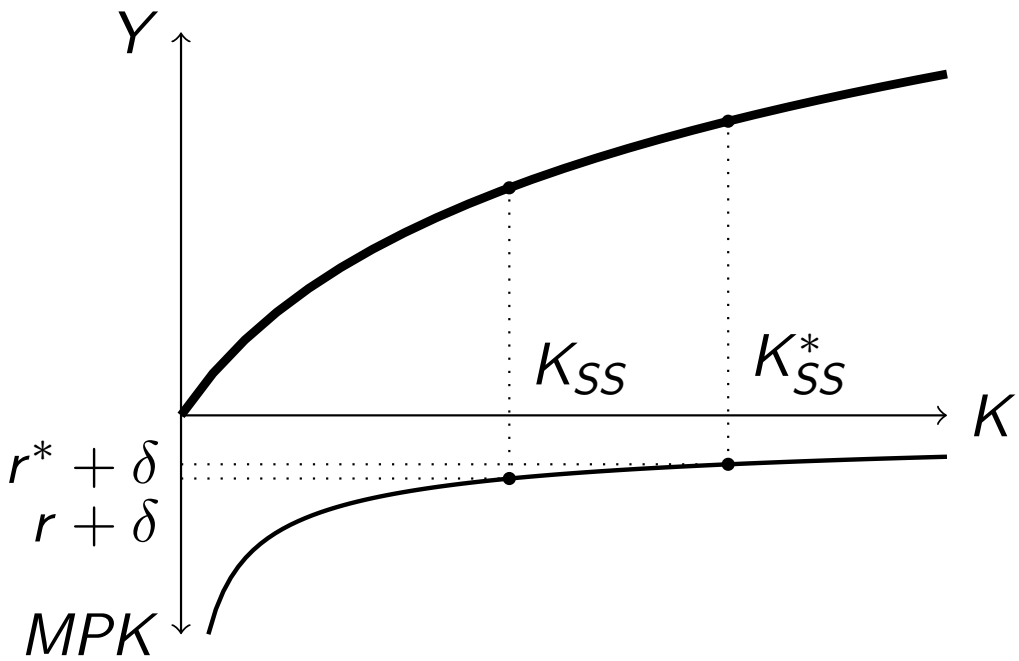
	Read GDP *% change*	Capital accumulation *% change*	Trade balance to income ratio
CHN	4.807	11.624	0.018
AUS	0.142	0.279	-0.003
USA	0.021	0.048	-0.002
EU	-0.005	0.005	-0.002
ROW	0.030	0.036	-0.002

Note: Modelled as a uniform 1% increase in primary augmenting technology for capital. The model is solved using Gragg's method; the accuracy requirement is set to that at least 99% of the variables are accurate to at least 4 figures. The extrapolation accuracy shows that we can be confident for 6 figure accuracy for most variables.
Source: Author estimated.

Simulation III

A Reduction in Required Rate of Return on Capital

- A reduction in required rate of return on capital: $r^* < r$



- In the language of GTAP:

Shock f_rorc("CHN") = -10.0 [2]

[2] The GTAP model is modefied: rorc(r)=rorc + f_rorc(r). See Gretton (2016) for more detail.[3]

Simulation Result III

A Reduction in Required Rate of Return on Capital

	Read GDP *% change*	Capital accumulation *% change*	Trade balance to income ratio
CHN	4.088	10.824	0.018
AUS	0.127	0.245	-0.003
USA	0.023	0.056	-0.002
EU	0.003	0.022	-0.002
ROW	0.035	0.046	-0.002

Note: Modelled as a 10% reduction in overall required rate of capital in China. The model is solved using Gragg's method; the accuracy requirement is set to that at least 99% of the variables are accurate to at least 4 figures. The extrapolation accuracy shows that we can be confident for 6 figure accuracy for most variables.
Source: Author estimated.

Simulation Result IV

Overall Impact

	Read GDP *% change*	Capital accumulation *% change*	Trade balance to income ratio
CHN	5.112	11.932	0.018
AUS	0.147	0.290	-0.003
USA	0.020	0.045	-0.002
EU	-0.008	-0.002	-0.002
ROW	0.028	0.031	-0.002

Note: Modelled as a 10% reduction in required rate of capital, together with a uniform 1 point increase in value-added augmenting technology, a uniform 1 point increase in financial intermediate input augmenting technology, and a uniform 1 point increase in primary augmenting technology for capital.
Source: Author estimated.

Simulation Result V

Sector Performance

	CHN	AUS	USA	EU	ROW
Grains & Crops	2.702	-0.011	0.554	0.238	0.243
Livestock & Fishing	3.124	0.716	0.127	0.205	0.093
Mining	4.188	0.717	0.328	0.692	0.502
Processed Food	2.934	-0.401	0.018	0.071	0.050
Textiles	5.619	-2.558	-0.976	-1.175	-1.413
Light Manufacturing	7.477	-1.111	-0.544	-0.773	-0.863
Heavy Manufacturing	7.477	-1.903	-0.493	-0.359	-0.813
Construction	2.734	0.980	0.783	0.813	0.760
Utilities	5.841	-0.277	-0.062	-0.117	-0.185
Transport & Communication	5.467	0.013	0.040	0.038	0.053
Financial Services	5.807	0.182	0.026	0.066	-0.003
Dwellings	6.307	0.392	0.075	-0.006	0.161

Conclusion

Simulation Summary

- Remarkably increase in GDP and capital intensity
- More balanced development and more efficient resource allocation
- Most countries in the world would also benefit indirectly