

China Economics

Challenges and Responses

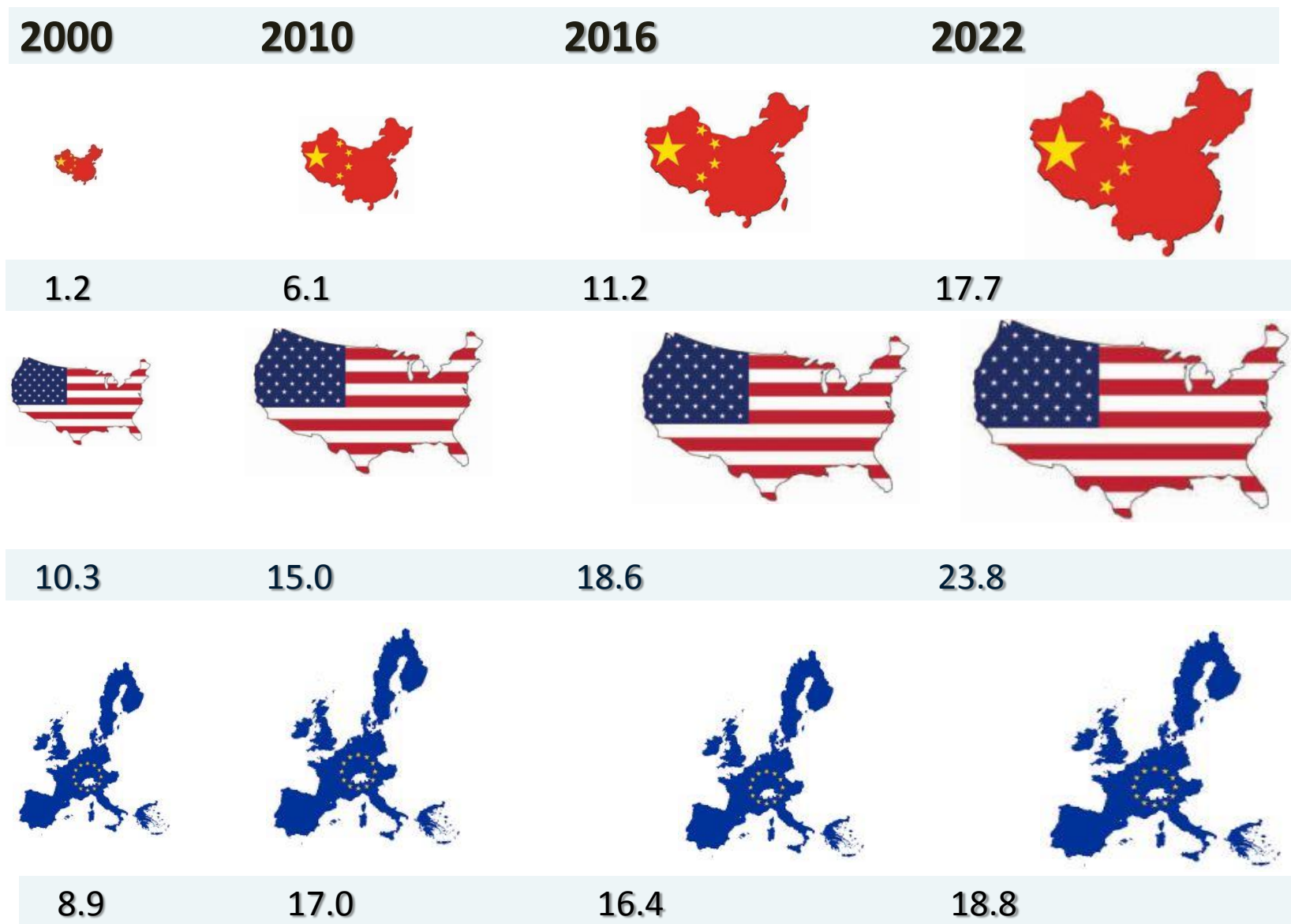
Vincent Chan

Research Analyst, +852 2101 6568, vincent.chan@credit-suisse.com

September 2017

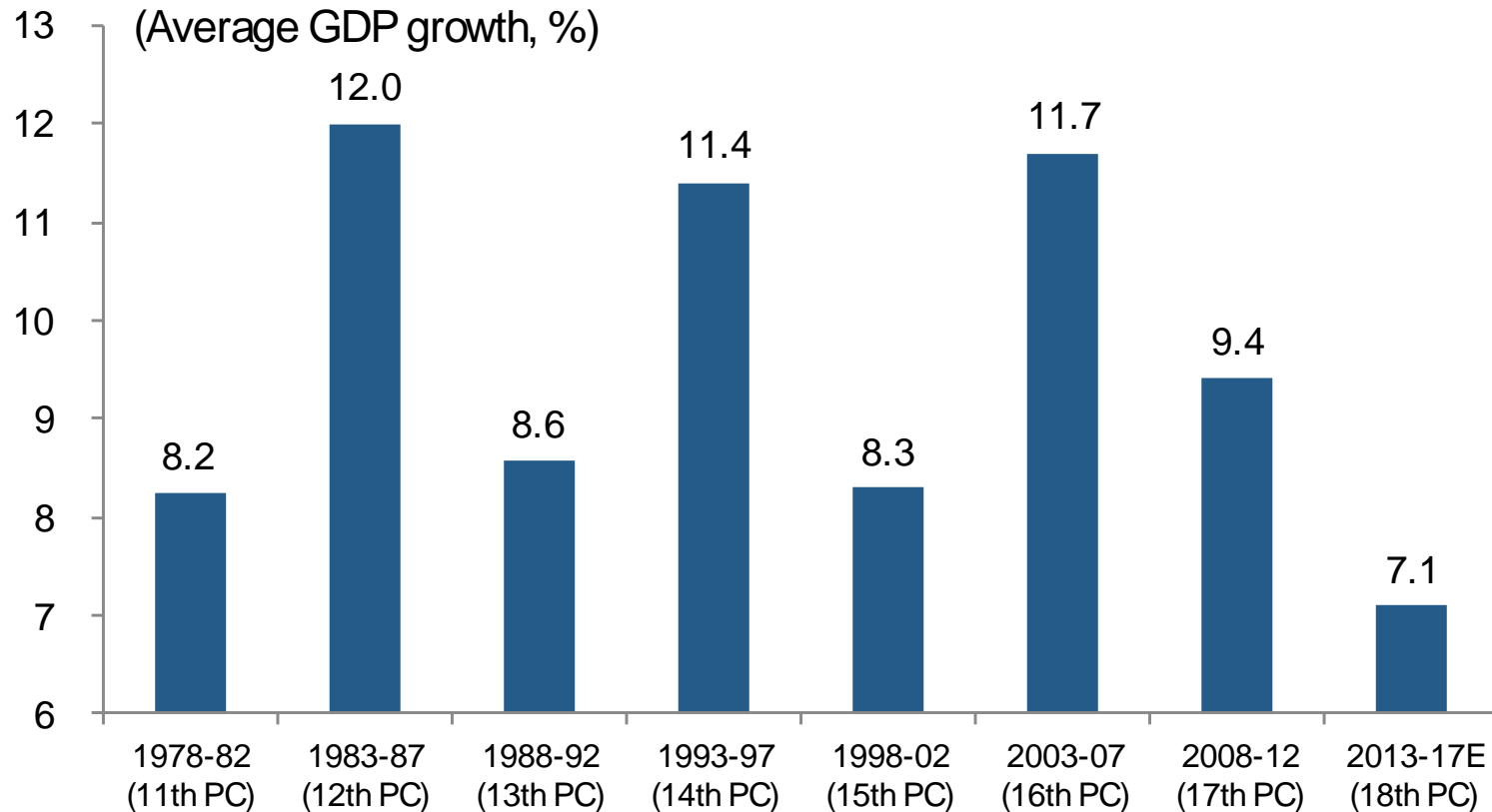
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The Big Picture – GDP (USD trillion)



Challenges

Chinese economic growth in last 5 years the slowest from the start of economic reform

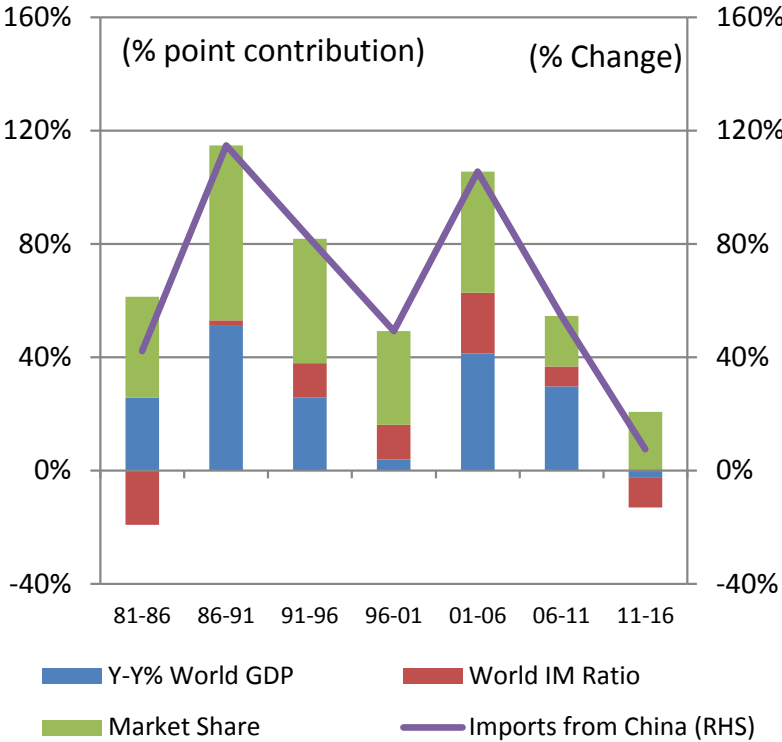


... despite it is still faster than most countries ... and the slowdown trend will continue

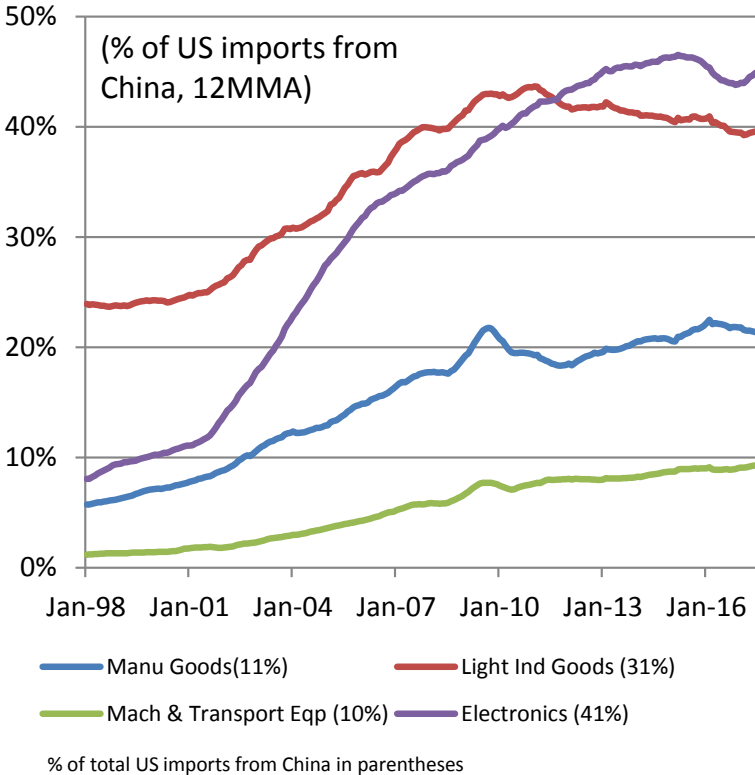
Source: CEIC, Credit Suisse estimates

Exports was once an important growth driver

Deteriorating global environment



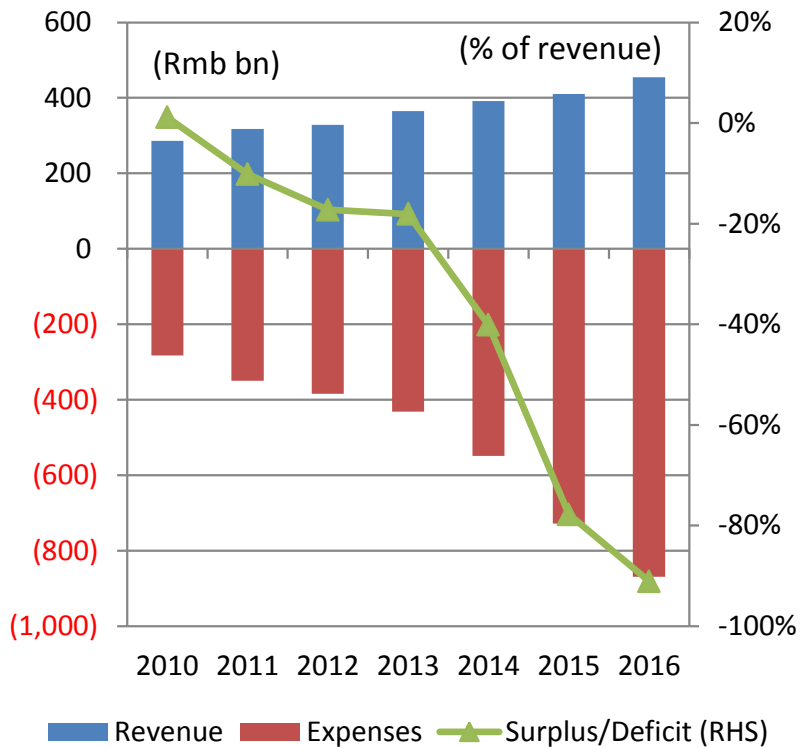
More difficult to gain market share



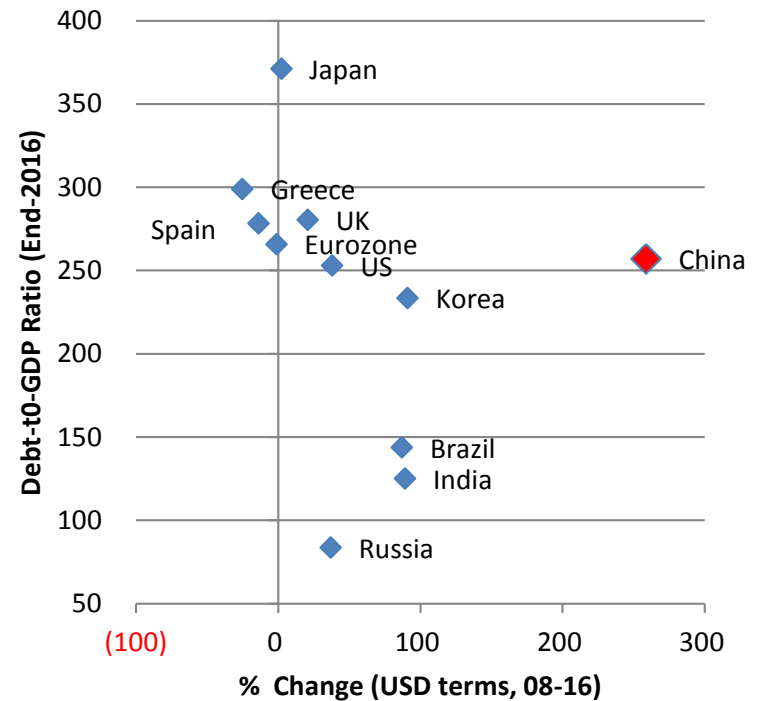
Source: CEIC, DataStream

Infrastructure investment was the key growth driver in last few years ...

Huge financial loss of highway companies



China's high leverage is a big problem

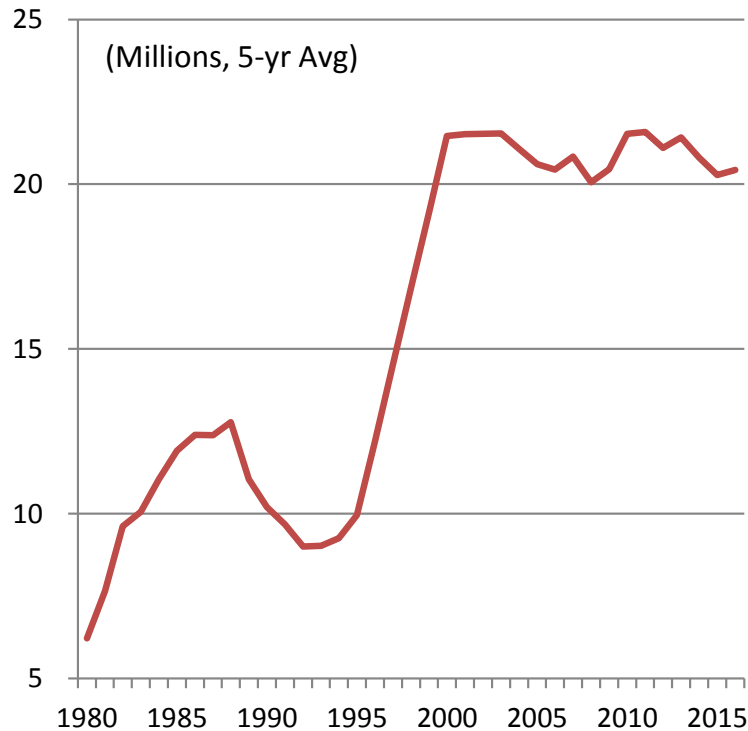


... but may not be sustainable

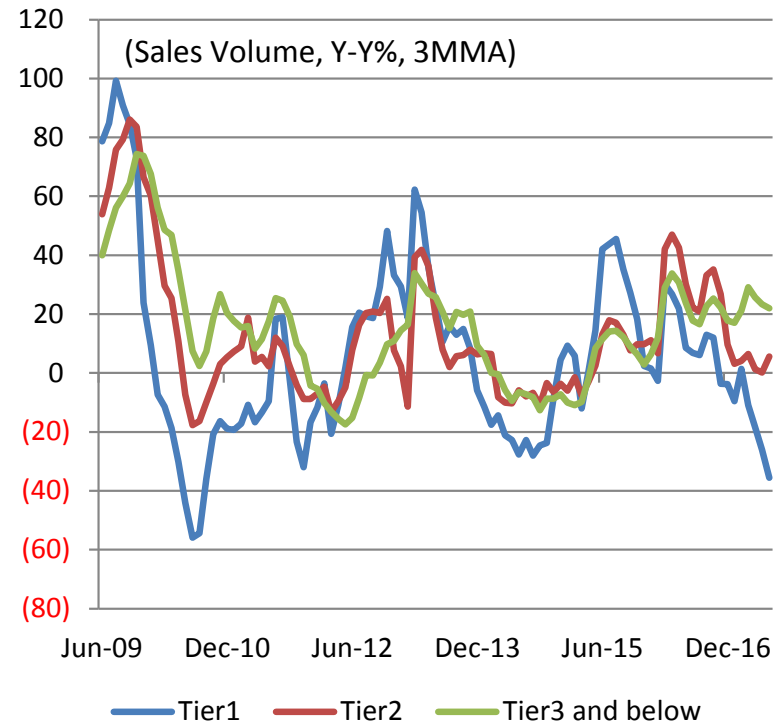
Source: www.gov.cn, BIS

Property will still be a driver near term ...

Annual increase in urban population



Sales volume by city tiers



... but it is susceptible to policy changes and the economic growth outlook of lower-tiered cities

Source: CEIC, WIND

China already did very well in economic growth ...

% Contribution (11-16)	Labour	Capital	Productivity	GDP growth %
China (91-00)	0.9	4.0	5.0	10.0
China (01-10)	0.7	4.6	5.0	10.3
China	0.5	3.7	3.6	7.9
US	1.3	1.0	(0.1)	2.1
Germany	0.5	0.8	0.4	1.6
Japan	0.3	0.7	0.1	1.1
India	1.4	3.8	1.3	6.5
Indonesia	1.4	3.3	0.6	5.3
Brazil	0.8	2.1	(2.6)	0.3
Russia	0.4	0.9	(0.2)	1.0
South Africa	1.4	1.8	(1.3)	1.9

... but difficult to keep up as

- 1) slow growth in labour supply,
- 2) capital contribution will be constrained by high leverage,
- 3) limitation on productivity gain

Source: The Conference Board Total Economy Database™ (Adjusted version), May 2017

GDP growth during and after the take-off period

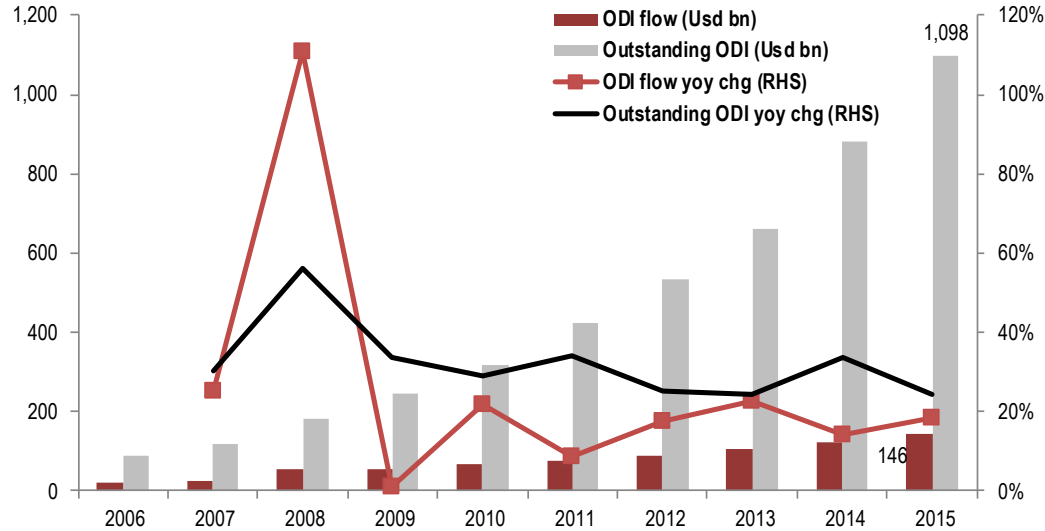
(% p.a., 1990 Int'l GK dollar)	GDP before take-off (USD per capita)	Take-off Period	Afterwards		
			0-10 years	10-20 years	20-30 years
East Asia after WWII					
China (1981-2010)	1,061	7.0			
Japan (1951-1980)	1,921	6.8	3.4	0.9	0.7
Korea (1961-1990)	1,226	6.8	5.7	3.8	
Taiwan (1961-1990)	1,353	6.9	5.3	3.5	
HK (1961-1990)	3,134	6.0	2.4	3.9	
Singapore (1961-1990)	2,310	6.3	4.2	3.3	
<hr style="border-top: 1px dashed black;"/>					
Second Industrial Revolution					
Germany (1860-1913)	1,639	1.5	(2.3)	2.9	5.2
US (1860-1913)	2,241	1.7	1.7	(2.3)	9.4
Argentina (1876-1913)	1,635	2.6	0.6	(0.6)	1.5

- China's economic take-off started around 1980, following the same export-investment driven model as Japan (1950) and Korea (1960).
- During the 30-year take-off period, per-capita USD GDP (PPP adj. at constant exchange rates) of the three economies rose around 7% per annum (similar to China).
- After the take-off period, the growth of Japan and Korea slowed and the trend continued. We see no difference for China.

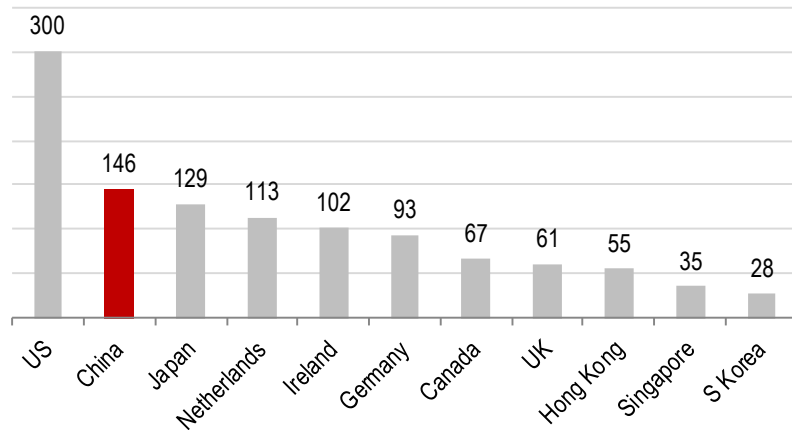
Source: The Maddison-Project, 2013 version

Responses

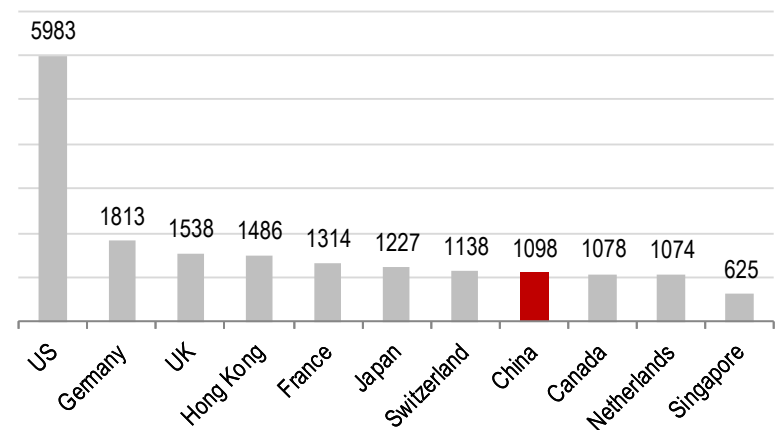
China is a capital exporting country since 2015



2015 ODI flow (Usd bn)

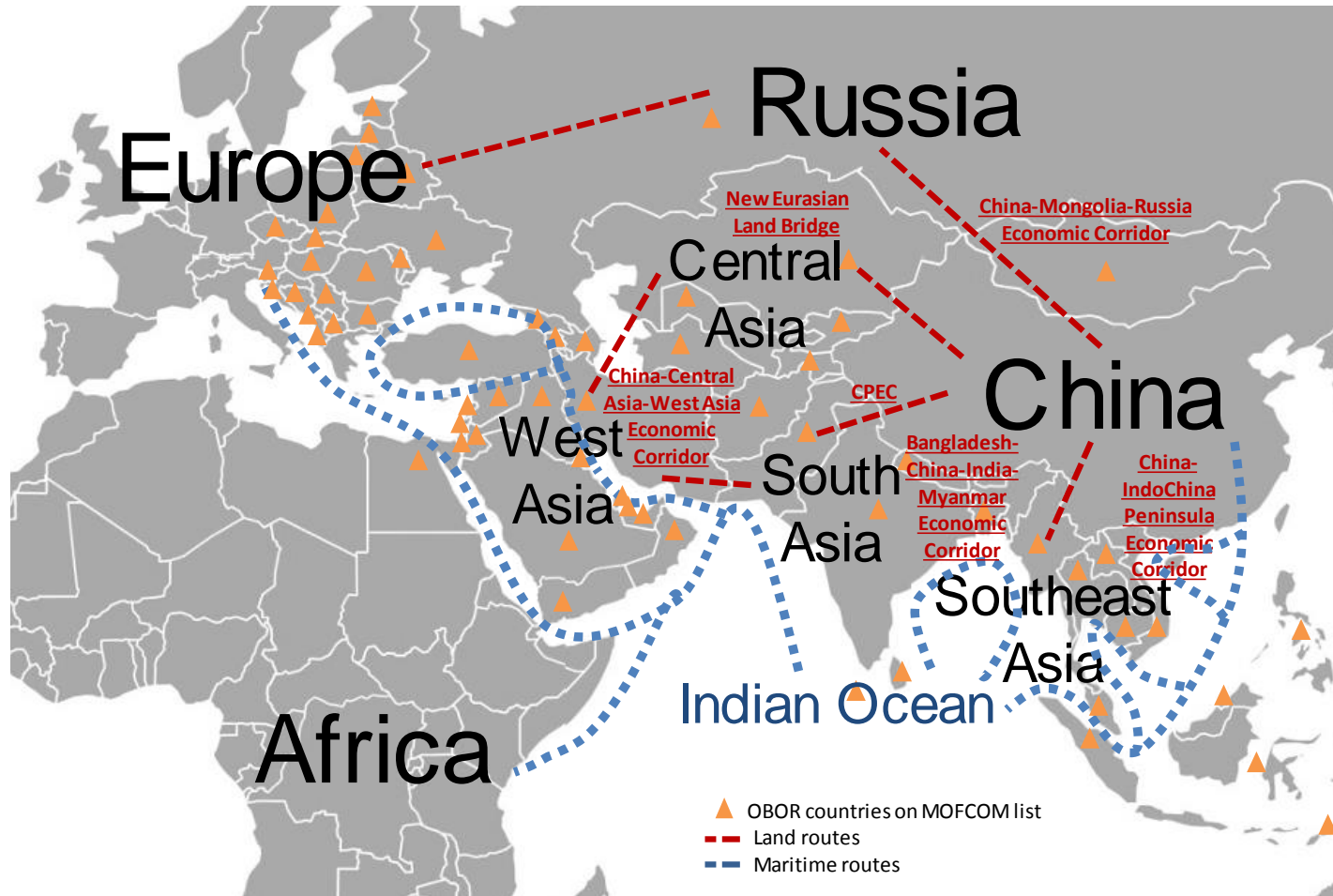


ODI balance by 2015 (Usd bn)



Source: Wind, UNCTAD World Investment Report 2016

OBOR reaches southwestward into Europe and Africa



Source: MOFCOM, Credit Suisse

Scale of OBOR and African investment is large in absolute terms, but small relative to China's economic scale

Potential OBOR investment over the next five years

Country	Demand score	Willingness score	Final score	Class	Estimated inv (High end, Usd bn)	2015 GDP (Usd bn)	ODI balance from China (Usd bn, 2015)
India	0.5	1.0	0.8	A	125.7	2095	3.8
Russia	0.7	1.0	0.9	A	79.9	1331	14.0
Indonesia	0.8	0.8	0.8	A	51.7	862	8.1
Iran	1.0	0.8	0.9	A	25.5	425	2.9
Egypt	0.5	0.8	0.6	A	19.8	331	0.7
Saudi Arabia	0.4	0.8	0.6	B	19.4	646	2.4
Philippines	0.8	0.5	0.7	A	17.5	292	0.7
Pakistan	1.0	1.0	1.0	A	16.3	271	4.0
Thailand	0.3	0.5	0.4	B	11.9	395	3.4
Bangladesh	0.8	0.5	0.7	A	11.7	195	0.2
Vietnam	1.0	1.0	1.0	A	11.6	194	3.4
UAE	0.2	0.5	0.4	B	11.1	370	4.6
Kazakhstan	0.9	0.5	0.7	A	11.1	184	5.1
Iraq	0.8	0.8	0.8	A	10.8	180	0.4
Romania	0.9	0.8	0.8	A	10.7	178	0.4
Others					78.9	3923	61.5
Total					514	11874	116

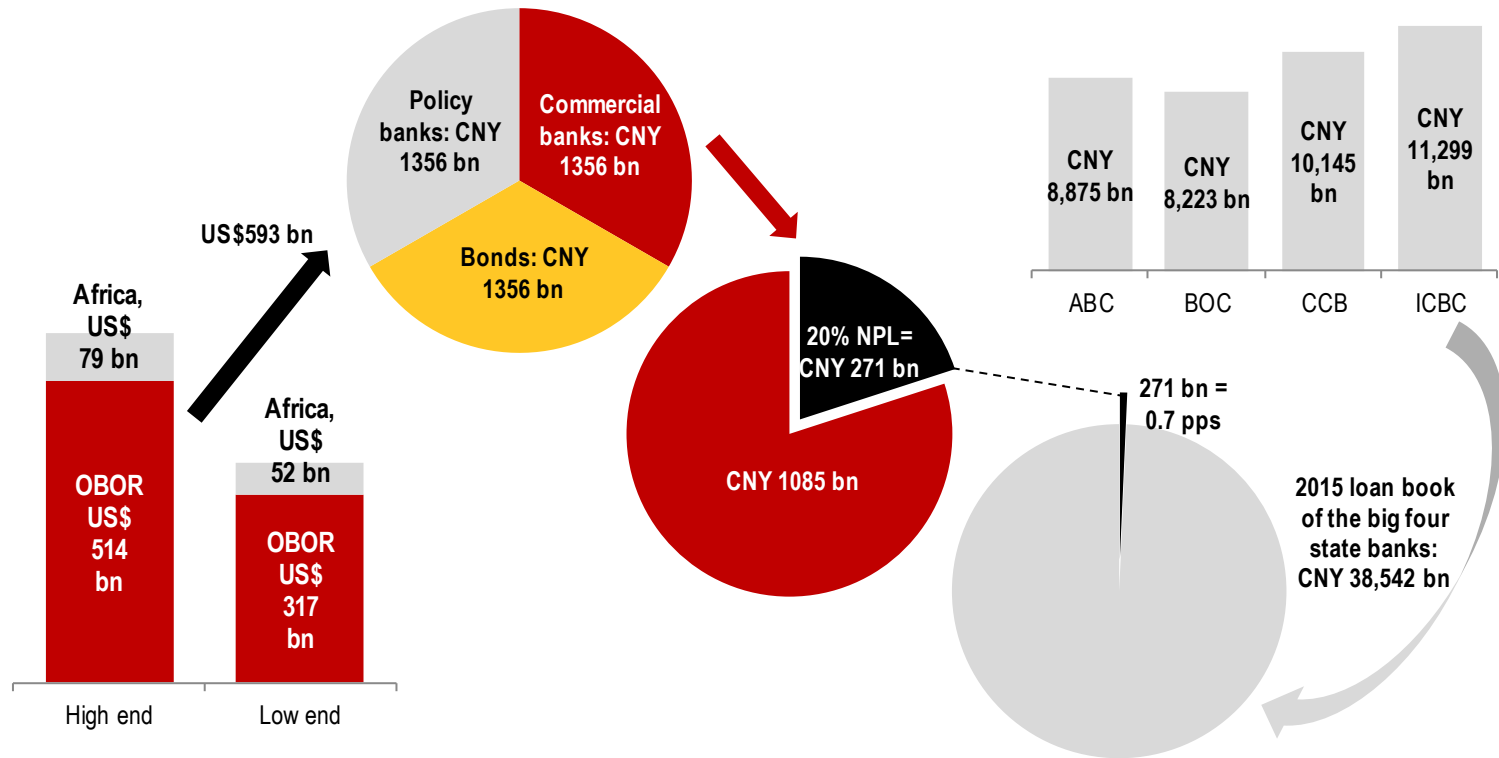
Potential African investment over the next five years

Country	Demand score	Willingness score	Final score	Class	Estimated inv (High end, Usd bn)	2015 GDP (Usd bn)	ODI balance from China (Usd bn, 2015)
Nigeria	1.0	1.0	1.0	A	28.9	481	2.4
South Africa	0.5	1.0	0.8	A	18.9	315	4.7
Algeria	0.8	0.8	0.8	A	10.0	167	2.5
Angola	1.0	1.0	1.0	A	6.2	103	1.3
Sudan	1.0	0.3	0.6	A	5.8	97	1.8
Others					8.9	150	4.4
Total					79	1312	17

In 2016, China's GDP was US\$11,207bn, Fixed Asset Investment US\$8,983bn and Infrastructure Investment US\$3,184bn

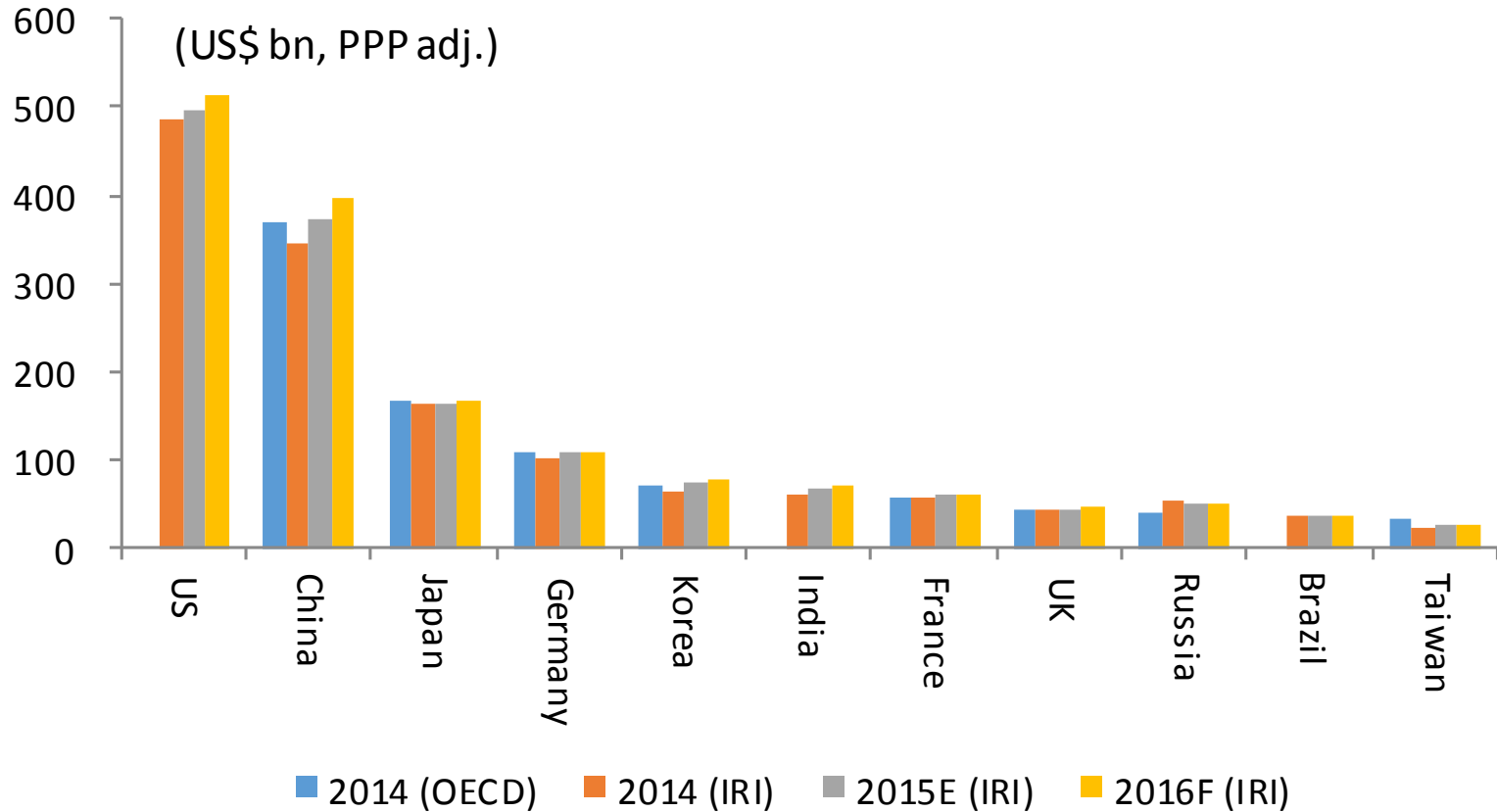
Source: MOFCOM, World Bank, Wind, Credit Suisse estimate

Impact on commercial banks' credit quality will be small, even if things gone really bad



Source: CEIC, Credit Suisse estimate

Total R&D of major economies



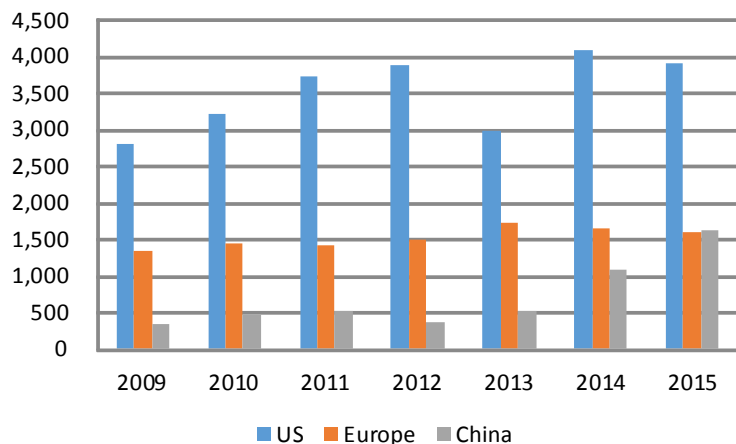
Source: OECD, "2016 Global R&D Funding Forecast" published by US IRI and R&D Magazine.

Surging venture capital activities in China

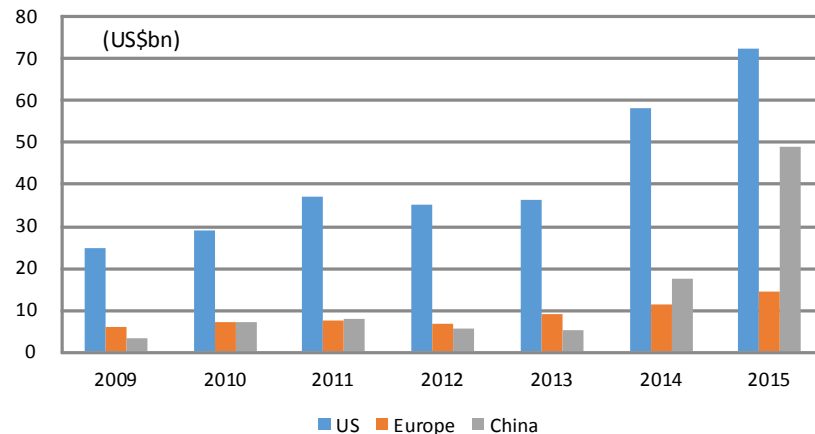
Global VC hot spot

2009	US\$bn	2011	US\$bn	2013	US\$bn	2014	US\$bn	2015	US\$bn
Bay Area	8.8	Bay Area	14.2	Bay Area	13.9	Bay Area	24.8	Bay Area	33.4
New England	3.3	S. California	4.0	New England	3.8	Beijing	7.7	Beijing	20.0
S. California	2.3	New England	3.9	NY Metro	3.6	NY Metro	5.3	Shanghai	12.2
NY Metro	1.8	NY Metro	3.3	S. California	3.3	New England	4.8	NY Metro	8.2
UK	1.5	Beijing	2.9	UK	2.4	S. California	4.1	New England	7.2
Germany	1.0	UK	2.0	Beijing	2.3	Germany	2.9	S. California	7.1
France	1.0	Israel	2.0	Germany	2.0	UK	2.7	UK	4.8
Beijing	0.9	Potomac	1.6	Israel	1.8	Bengaluru	2.2	Germany	2.9
Israel	0.9	France	1.3	Potomac	1.2	Shanghai	2.1	Israel	2.6
Potomac	0.7	Canada	1.2	France	1.2	Israel	1.9	France	1.9
Canada	0.6	Shanghai	1.2	Canada	1.1	Canada	1.4	Canada	1.5
Shanghai	0.4	Germany	0.8	Shanghai	0.8	France	1.3	Sweden	0.8
Illinois	0.4	Illinois	0.8	Bengaluru	0.6	Illinois	0.9	Japan	0.8
Switzerland	0.4	Switzerland	0.4	Illinois	0.5	Potomac	0.8	Switzerland	0.7
Bengaluru	0.1	Bengaluru	0.3	Switzerland	0.4	Switzerland	0.5		

Number of VC deals



Funds raised from VCs



Source: Ernest & Young Global Venture Capital Trends, 2015

Investing in human capital

Natural Science & Engineering doctoral degrees

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
United States	17.2	17.0	16.3	17.3	18.3	20.0	21.9	23.7	24.5	24.7	24.6	25.5	26.5
Germany	9.5	9.0	8.3	8.0	8.0	8.9	8.4	8.6	9.2	9.1	9.9	10.6	10.8
China	7.3	7.5	8.7	11.0	13.5	16.0	20.9	24.4	26.2	29.0	29.0	29.8	30.0
United Kingdom	5.9	6.9	6.8	7.0	6.7	6.8	7.1	7.4	6.7	7.2	7.7	8.0	8.1
Japan	6.5	6.8	6.8	6.8	7.1	6.7	7.2	7.0	6.7	6.4	6.5	6.1	NA
South Korea	2.4	2.3	2.6	2.5	2.9	3.1	3.2	3.0	3.1	3.2	3.4	4.3	4.5
India	NA	5.5	5.6	6.5	7.6	7.5	8.0	NA	NA	NA	NA	9.6	NA

Estimated number of researchers

('000)	US	EU	Japan	Korea	China	Russia
2000	983	1,118	648	108	695	506
2001	1,013	1,160	653	136	743	506
2002	1,047	1,212	623	142	811	492
2003	1,126	1,257	652	151	862	488
2004	1,105	1,309	654	156	926	478
2005	1,101	1,375	681	180	1,119	465
2006	1,130	1,423	685	200	1,224	464
2007	1,134	1,458	684	222	1,423	469
2008	1,191	1,522	657	236	1,592	451
2009	1,251	1,554	656	244	1,152	442
2010	1,198	1,601	656	264	1,211	442
2011	1,253	1,627	657	289	1,318	448
2012	1,265	1,680	646	316	1,404	443
2013	NA	1,730	661	322	1,484	441

Source: Science and Engineering Indicators 2016, National Science Foundation

China's academic output

Rise in top-1% cited articles

	US	China	Germany	UK	Japan	France	Australia	Korea	India	Brazil	Russia	South Africa
2002-07												
% Share	49.72	4.00	6.55	7.10	4.67	3.42	1.53	1.23	0.66	0.32	0.37	0.09
Ranking	1	5	3	2	4	6	12	13	18	24	23	36
2004-09												
% Share	45.82	5.59	6.82	6.92	4.02	3.85	1.45	1.27	0.69	0.31	0.32	0.10
Ranking	1	4	3	2	5	6	12	13	19	26	25	40
2006-11												
% Share	41.60	7.53	6.89	6.80	3.89	3.52	2.23	1.36	1.09	0.34	0.30	0.16
Ranking	1	2	3	4	5	6	10	13	15	25	28	37
2008-13												
% Share	37.23	10.79	6.46	6.25	3.72	3.42	2.61	1.73	0.81	0.32	0.20	0.19
Ranking	1	2	3	4	5	6	8	13	20	27	33	35
% share increase of Core Papers	-25%	170%	-1%	-12%	-20%	0%	71%	41%	23%	0%	-46%	111%
Change in Ranking	0	3	0	(2)	(1)	0	4	0	(2)	(3)	(10)	1

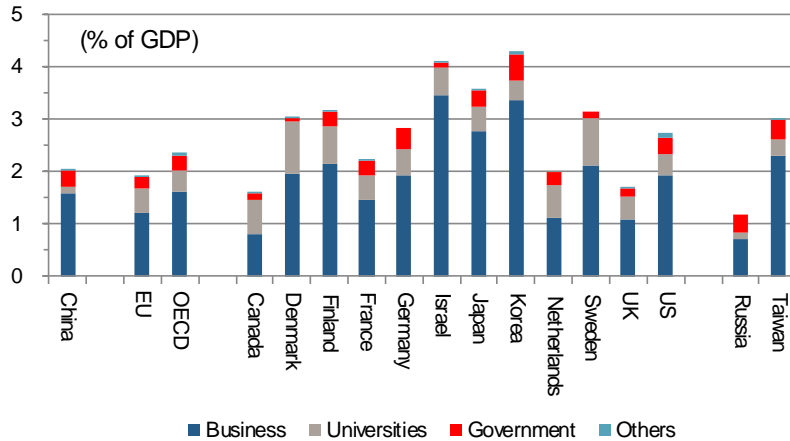
Distribution of Science & Engineering articles by disciplines

Field	World	US	EU	China	Japan	India
All articles (n)	2,199,704	412,542	605,536	401,435	103,377	93,349
Engineering	19.8%	12.4%	13.9%	37.7%	19.3%	20.6%
Astronomy	0.6%	0.9%	0.9%	0.2%	0.5%	0.4%
Chemistry	7.9%	5.6%	7.0%	10.6%	9.7%	12.5%
Physics	9.2%	7.9%	9.4%	9.9%	14.0%	8.5%
Geosciences	5.3%	4.8%	5.3%	6.1%	3.7%	4.7%
Mathematics	2.5%	2.0%	2.7%	2.5%	1.7%	2.1%
Computer sciences	8.1%	6.2%	8.8%	9.3%	8.0%	10.4%
Agricultural sciences	2.2%	1.2%	2.0%	1.9%	1.7%	2.9%
Biological sciences	15.8%	19.2%	15.4%	12.1%	14.8%	19.6%
Medical sciences	21.2%	27.2%	24.2%	8.7%	24.5%	16.4%
Other life sciences	1.2%	2.3%	1.2%	0.1%	0.3%	0.2%
Psychology	1.7%	3.5%	2.1%	0.2%	0.5%	0.1%
Social sciences	4.5%	6.7%	6.9%	0.7%	1.2%	1.5%

Source: "Mapping Science Structure 2015" published by Science Press, Science and Engineering Indicators 2016, National Science Foundation

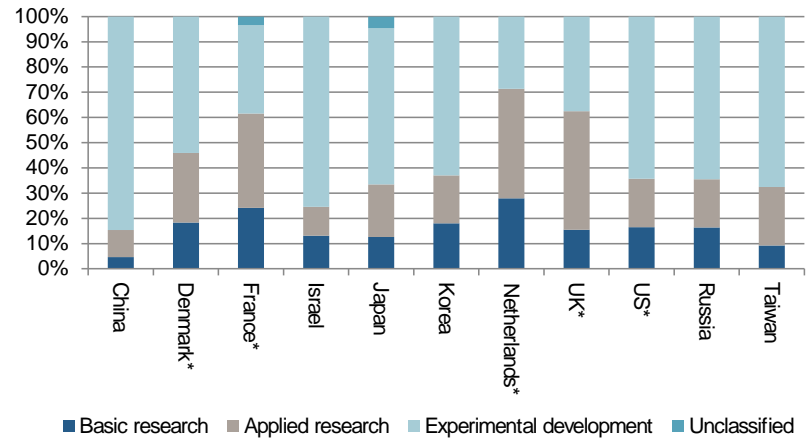
Small basic research spending and focus on top-down key state projects the major problems

Most R&D in China are conducted by enterprises



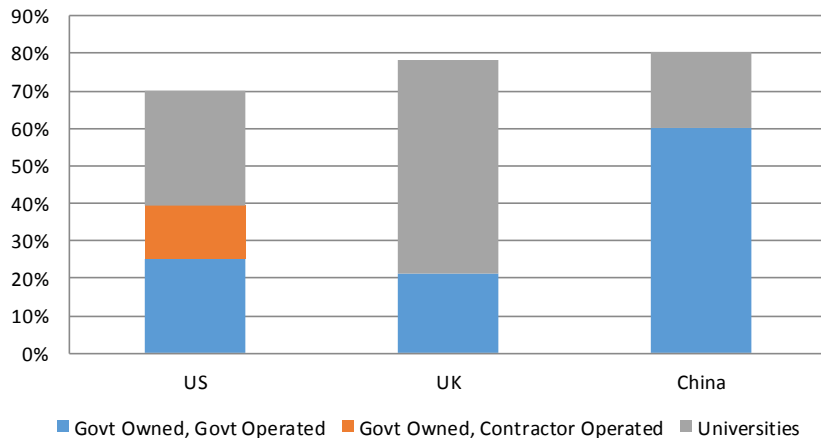
* 2014 data for all countries except US, which only has 2013 data.

Spending on basic research is very limited

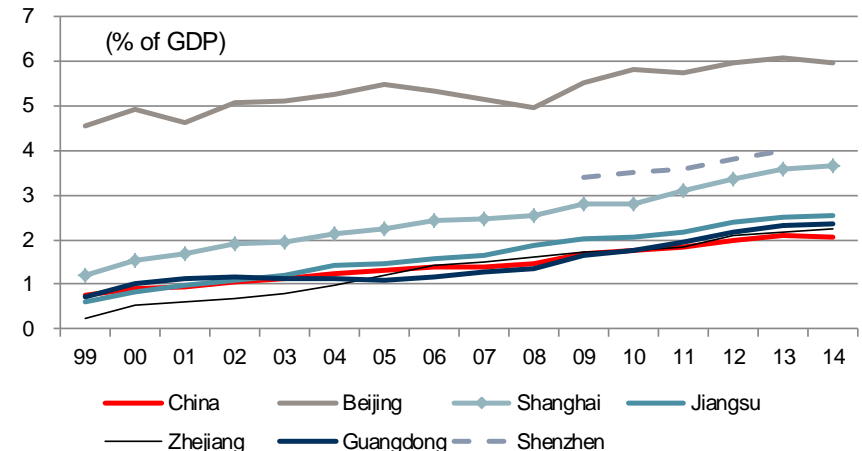


* 2012 data for Denmark, France, Netherlands, US and UK. 2013 data for the others.

Public R&D by performing entities



5 provinces accounted for about half of total R&D



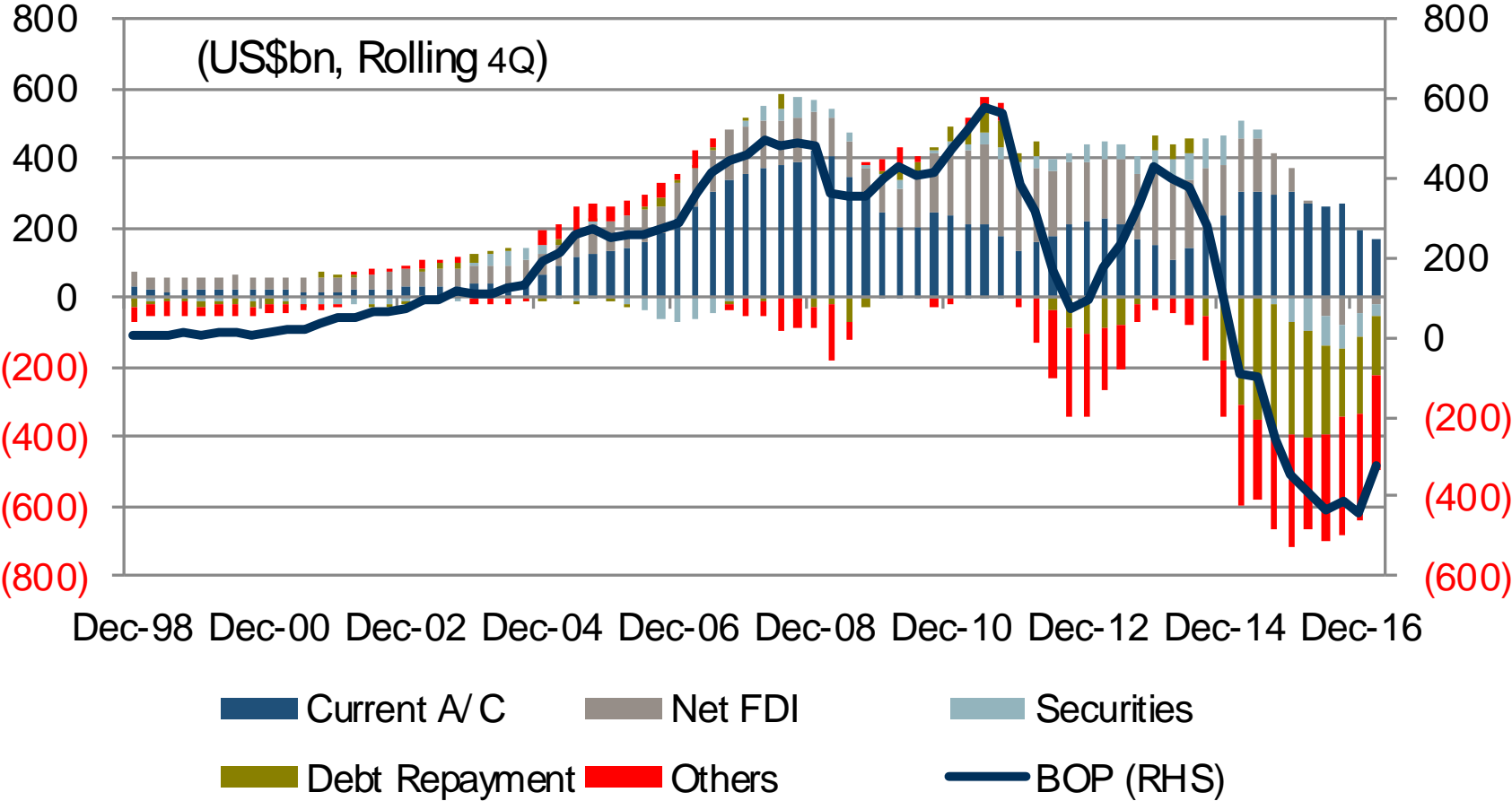
Source: OECD, CEIC, Shenzhen Statistical Yearbook

Chinese get rich ... seriously

(Rmb tn)	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bank Deposits	22.6	26.9	31.2	35.2	41.0	46.5	50.8	54.6	60.7
Bank WMP	0.7	1.5	2.4	3.7	5.7	7.7	11.3	16.5	20.3
Equity/Bond & Mutual Funds	6.0	10.4	12.5	11.1	11.7	12.9	18.9	27.2	26.3
Insurance	2.8	3.4	3.8	4.6	5.5	6.2	7.5	9.1	10.9
<u>Other Financial Assets</u>	<u>0.4</u>	<u>0.6</u>	<u>1.0</u>	<u>2.0</u>	<u>2.7</u>	<u>4.0</u>	<u>7.4</u>	<u>12.0</u>	<u>17.8</u>
Gross Financial Assets	32.4	42.7	50.9	56.6	66.7	77.3	95.8	119.3	135.9
Property	61.6	79.4	87.3	95.2	106.6	118.3	121.9	133.6	149.5
<u>Other Non-Financial Assets</u>	<u>3.3</u>	<u>3.3</u>	<u>3.3</u>	<u>3.3</u>	<u>3.5</u>	<u>3.6</u>	<u>3.8</u>	<u>4.0</u>	<u>4.3</u>
Gross Non-Financial Assets	64.9	82.7	90.6	98.5	110.1	121.9	125.7	137.7	153.8
Gross Household Wealth	97.3	125.3	141.5	155.0	176.8	199.2	221.5	257.0	289.7
Mortgage	(3.0)	(4.2)	(5.3)	(6.6)	(7.4)	(9.0)	(10.6)	(13.1)	(17.9)
<u>Other Household Debt</u>	<u>(2.7)</u>	<u>(4.0)</u>	<u>(6.0)</u>	<u>(7.0)</u>	<u>(8.8)</u>	<u>(10.8)</u>	<u>(12.6)</u>	<u>(13.9)</u>	<u>(15.5)</u>
Total Household Debt	(5.7)	(8.2)	(11.3)	(13.6)	(16.1)	(19.9)	(23.2)	(27.0)	(33.4)
Net Household Wealth	91.5	117.1	130.2	141.4	160.6	179.3	198.3	229.9	256.3
% of GDP	287%	336%	315%	289%	297%	301%	308%	334%	345%

Source: CBRC, CSRC, CIRC, China Bond, AMAC, SAC, CTA, WIND, CEIC, Credit Suisse estimates.

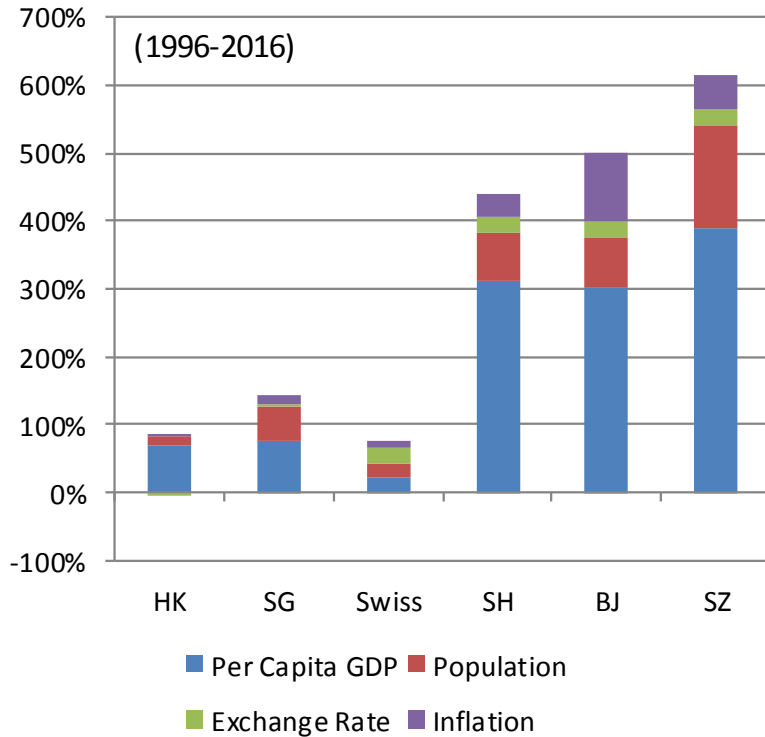
Large capital outflow would be a long-term phenomenon



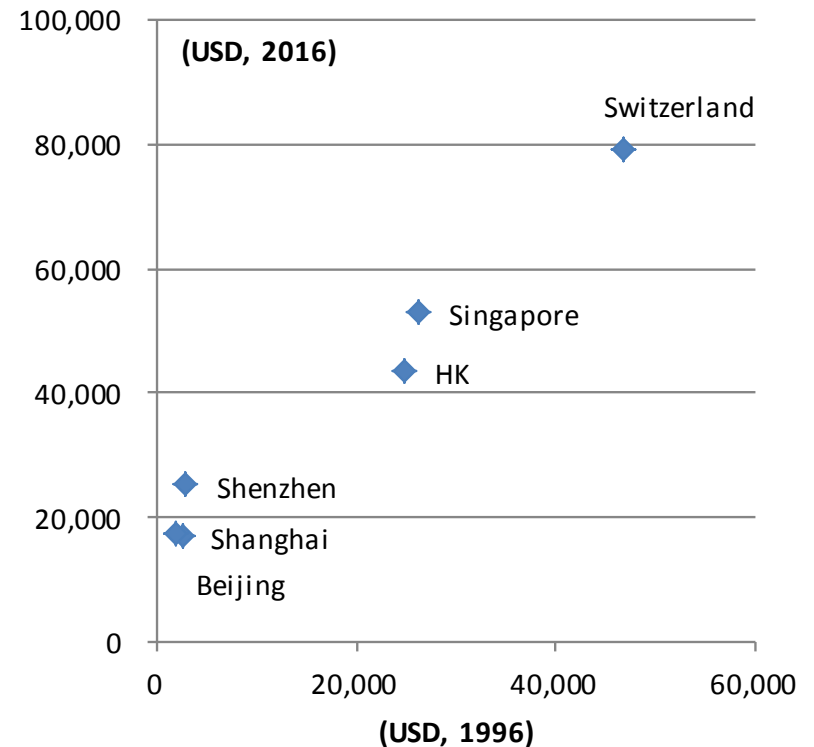
Source: CEIC

How HK should go forward?

Breakdown of GDP growth



Different Stage of Development



Source: IMF World Economic Outlook Database April 2017, CEIC

HK's macro structure a bigger problem than GDP growth

% of GDP	HK	SG	Swiss	SH	BJ	SZ
Agriculture	0.1	0.0	0.8	0.4	0.6	0.0
Industrial	3.0	22.2	19.9	28.5	16.1	38.5
Construction	5.3	5.4	5.5	3.4	4.2	2.7
Transport	7.2	7.7	8.4	4.5	4.3	3.1
Wholesale/ Retail/ Trade	25.4	16.3	14.4	15.2	10.2	11.6
Accomodation/ Catering	3.8	2.2	1.7	1.5	1.7	1.9
Finance	19.7	13.2	9.6	16.6	17.1	14.3
Real Estate	5.5			6.8	6.3	8.9
Others	30.1	32.9	39.6	23.1	39.6	18.9

Source: Swiss Federal Statistical Office, CEIC

Companies Mentioned *(Price as of 14-Sep-2017)*

AAC Technologies Holdings Inc (2018.HK, HK\$142.0)
AIA Group (1299.HK, HK\$59.1)
ASM Pacific Technology Ltd (0522.HK, HK\$111.7)
Alibaba Group Holding Limited (BABA.N, \$178.97)
Anta Sports Products Limited (2020.HK, HK\$33.15)
Bank of China Ltd (3988.HK, HK\$3.99)
Bank of China Ltd (601988.SS, Rmb4.12)
CK Hutchison Holdings Limited (0001.HK, HK\$100.6)
CNOOC (0883.HK, HK\$9.24)
China Communications Construction Co Ltd (601800.SS, Rmb15.58)
China Communications Construction Co Ltd (1800.HK, HK\$10.06)
China Construction Bank (601939.SS, Rmb6.84)
China Construction Bank (0939.HK, HK\$6.65)
China Gas Holdings Ltd (0384.HK, HK\$21.5)
China Mobile Limited (0941.HK, HK\$30.85)
China Resources Land (1109.HK, HK\$25.0)
China Telecom (0728.HK, HK\$3.98)
China Vanke H (2202.HK, HK\$27.6)
Datang International Power Generation (601991.SS, Rmb4.57)
Datang International Power Generation (0991.HK, HK\$2.48)
Galaxy Entertainment Group (0027.HK, HK\$52.55)
Great Electric Appliances Inc of Zhuhai (000651.SZ, Rmb37.5)
Guangzhou Automobile Group (2238.HK, HK\$16.86)
Guangzhou Automobile Group (601238.SS, Rmb26.01)
Hangzhou Hikvision Digital Technology Co., Ltd. (002415.SZ, Rmb32.45)
Huanguang Renewables Corporation (0958.HK, HK\$2.47)
Huatai Securities (6886.HK, HK\$17.42)
Huatai Securities (601688.SS, Rmb22.31)
Hysan Development (0014.HK, HK\$37.55)
Industrial & Commercial Bank of China (601398.SS, Rmb5.88)
Industrial & Commercial Bank of China (1398.HK, HK\$5.73)
Lonking Holdings Limited (3339.HK, HK\$3.38)
New World Development (0017.HK, HK\$11.24)
Ping An (601318.SS, Rmb54.02)
Ping An (2318.HK, HK\$61.75)
Sinopec (0386.HK, HK\$5.93)
Sinopec (600028.SS, Rmb5.95)
Tencent Holdings (0700.HK, HK\$337.0)
Wuliangye Yibin Co., Ltd (000858.SZ, Rmb54.8)
Xinjiang Goldwind Science & Technology Co., Ltd. (2208.HK, HK\$8.99)
Xinjiang Goldwind Science & Technology Co., Ltd. (002202.SZ, Rmb12.39)
Yunnan Baiyao Group Co Ltd. (000538.SZ, Rmb85.76)

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