Investor Advisory Committee on Financial Markets - IACFM

July 17, 2019

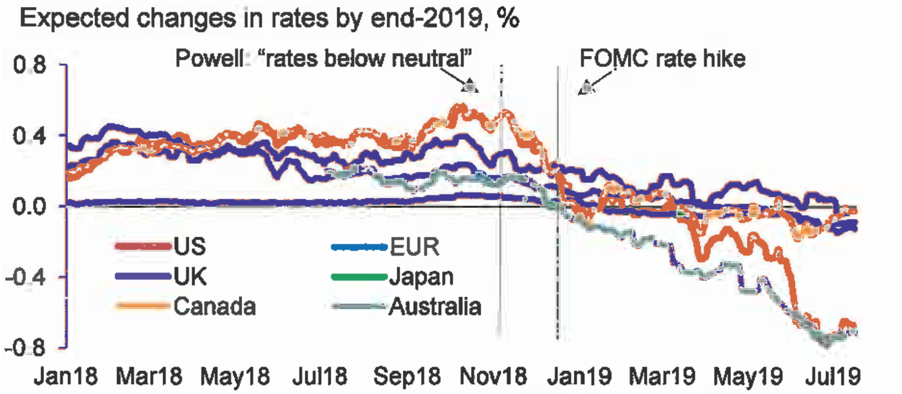
Mary Erdoes

J.P.Morgan
Asset Management

Market and survey based measures of inflation expectations remain weak even as expectations for easing by major central banks continue to build

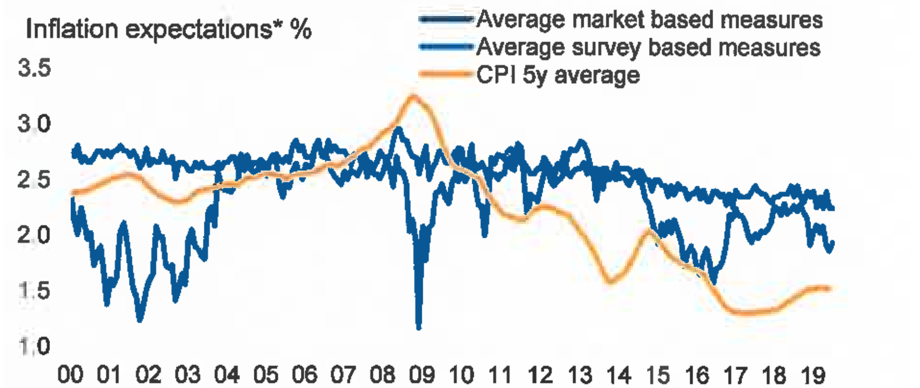
- In many countries, expected rate hikes for 2019 have given way to expected (realized in the case of Australia) rate cuts
- The market is now expecting up to 3 x 25 basis points of rate cuts from the FOMC by the end of this year
- Central banks with near zero or negative interest rates are expected to restart QE
- The stock of negative yielding bonds has now risen to above $12 trillion
- Central banks have communicated that their inflation targets are symmetric. In many major countries, inflation has typically failed to rise above their targets
- Market based measures of longer term inflation expectations have not turned up in the U.S. and have continued to fall in the Eurozone. Survey measures of inflation expectations have been more stable but have also weakened

Central banks globally are expected to ease



Source: Bloomberg, JPMAM *Australia pricing includes 50bps of cuts delivered by RBA

Market and survey based inflation measures in the U.S. still point towards lower inflation expectations

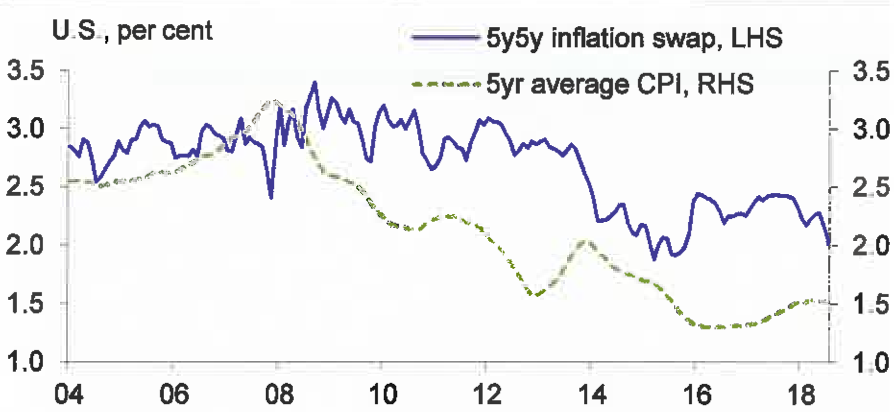


Source: Bloomberg. *Survey based measures include UoM and Philly Fed inflation forecasts. Market based measures include 5y5y inflation swap, 10y breakeven, St. Louis Fed 5y5y inflation expectations

Inflation expectations in the U.S. are correlated with recent inflation as well as with oil prices

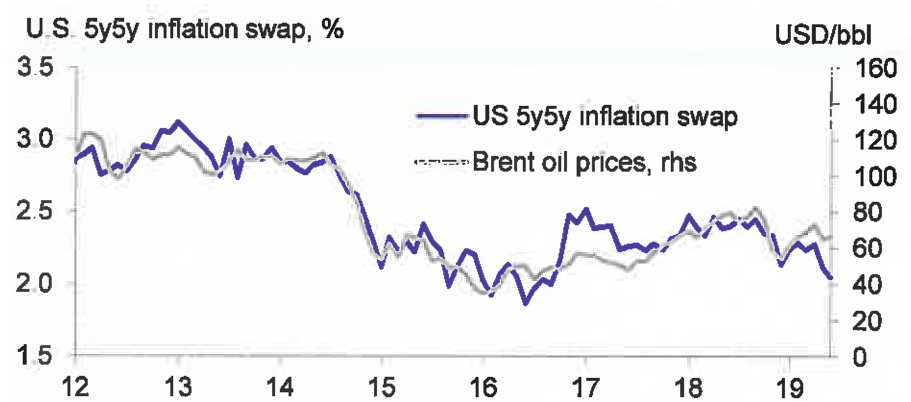
- The recent rate of inflation is a key factor in the determination of expected inflation (measured by inflation swaps) and both have been trending down
- U.S. inflation expectations, measured by the 5y5y inflation swap, remains close to the Fed's target but has shifted down during the past few years
- With increasing downside risks to growth, the possibility of a U.S. recession in the medium term may be a consideration that is being priced in inflation forwards
- Structural changes in oil, especially technology's impact on shale production costs, have pushed down both inflation and inflation expectations in the U.S. There has historically been a strong relationship between oil prices and inflation expectations

U.S. inflation expectations have fallen a lot but are still broadly around the Fed's target



Source: Bloomberg, JPMAM

Inflation expectations in the U.S. are clearly correlated with oil prices



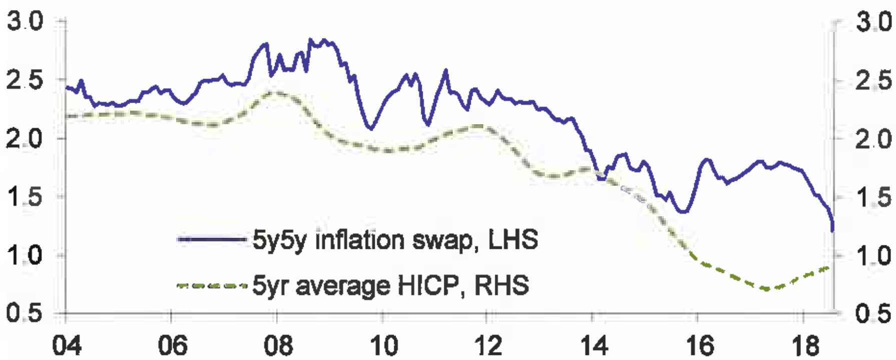
Source: Bloomberg, JPMAM

Inflation expectations in the Eurozone are at risk of becoming de-anchored

- Eurozone inflation has been low since the peripherals crisis. Countries such as Greece or Italy are forced to have low inflation to increase competitiveness. With Germany reluctant to accept inflation above 2%, the average inflation rate for the Eurozone has been well below 2%
- With unemployment still above pre-crisis levels, some slack remains within the Eurozone keeping inflation low
- Inflation expectations in the Eurozone have shifted down to alarmingly low levels and the 5y5y inflation swap recently touched a low of around 1.1%
- ECB projections for Eurozone inflation in the medium term have not been at or above 2% since the crisis. The market therefore questions whether the ECB believes it can achieve its inflation target
- The ECB is perceived by the markets as running out of effective monetary options to raise inflation
- After confirmation and appointment, Christine Lagarde's ECB is likely to foster greater co-ordination between fiscal and monetary stimulus

Persistently low inflation has led to very low inflation expectations in the Eurozone which may be de-anchoring

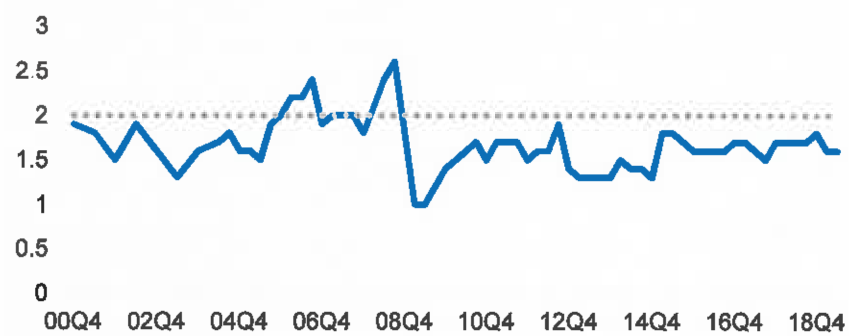
Eurozone HICP inflation, per cent



Source: Bloomberg, JPMAM. HICP = Harmonized Index of Consumer Prices

ECB medium term inflation projections remain well below target and market participants question whether the ECB believes it can attain its 2% target

ECB Eurozone medium term inflation projections, %

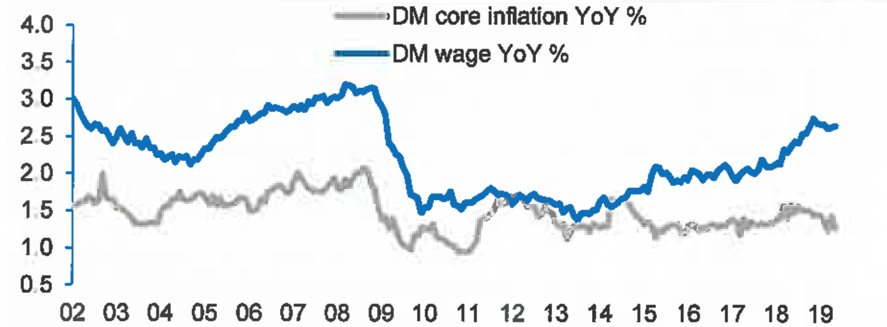


Source: ECB

Structural forces may keep inflation low: Globalization

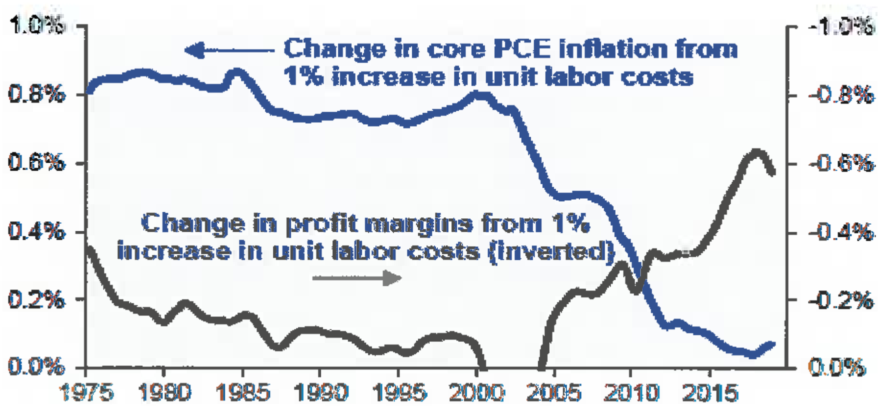
- Labor markets are strong and wages are rising. The relationship between lower unemployment and stronger wages has weakened and competition also means that higher wages can get absorbed into leaner margins
- Since the crisis, U.S. inflation has been higher than in other G10 due to earlier and more forceful policy but the deviation has been limited due to global competition. Currency may be another channel holding U.S. inflation down. President Trump recently voiced frustration that some currencies appear undervalued
- Global trade tensions have raised uncertainty and weighed on economic activity. In the medium term "America First" and tariffs may undercut gains from globalisation and raise prices

Although wages are clearly rising, the pass through from growth in wages to higher inflation has been weaker



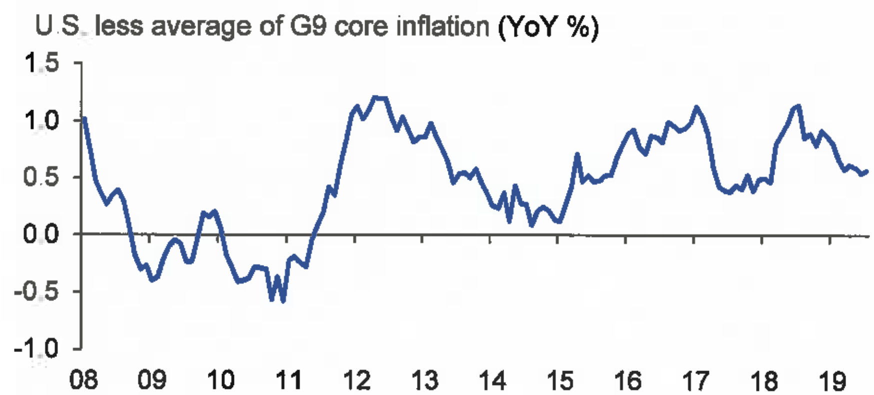
Source: Bloomberg, JPMAM. DM includes 5 major DM countries and Eurozone, GDP weighted

Higher wages squeeze profit margins



Source: JPMAM (Eye on the Market), JPMSI

U.S. inflation has not deviated by far from global inflation

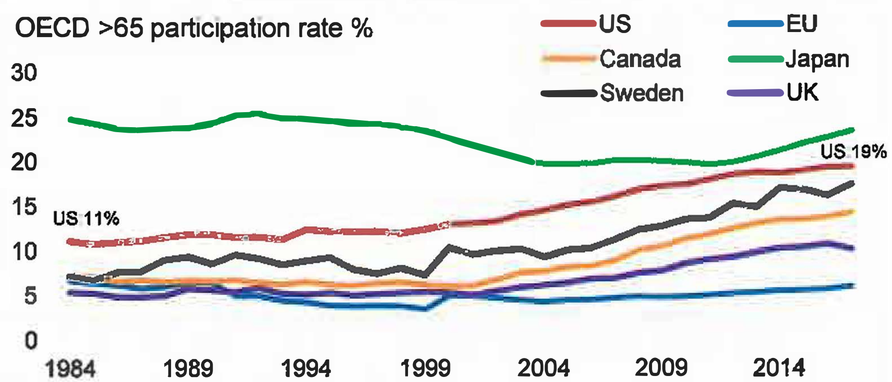


Source: Bloomberg, JPMAM

Structural forces may keep inflation low: Demographics

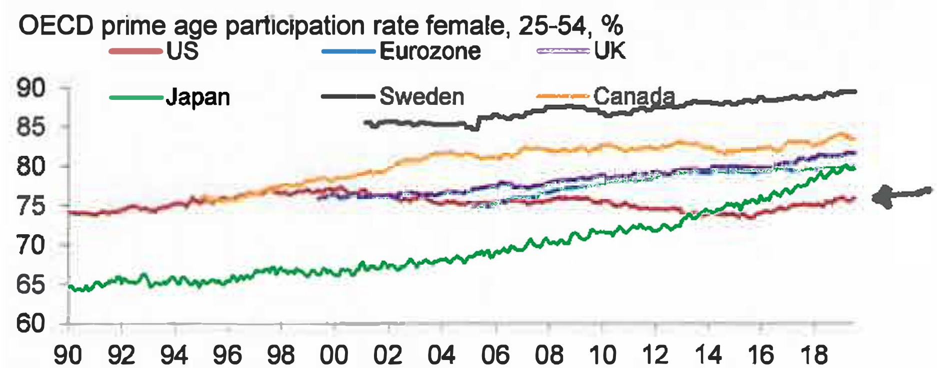
- Demographics may act as a structural drag on inflation. Baby boomers become savers and not spenders; the pool of excess savings seeking a home rises and consumers' spending propensity falls
- Longer life expectancy allows some older workers to choose to remain in the labor force. Low growth and low interest rates may also force some older employees to keep working due to a combination of weaker wages growth, lower pension contributions and the difficulty of generating non-employment income
- In some countries (such as Japan) with more significant or earlier demographic shifts, there may be a preference amongst older cohorts for lower inflation to protect the real value of savings
- The combination of higher participation rates from older workers or prime age female workers may mean that labor markets can remain strong with continued muted transmission into higher wages
- The unemployment rate may drop to very low levels in some countries without raising inflation as NAIRU may now be lower than pre-crisis

LFPR for older age group is rising structurally



Source: OECD

Female prime age participation rate has been rising in many countries but only gradually in the U.S.



Source: OECD

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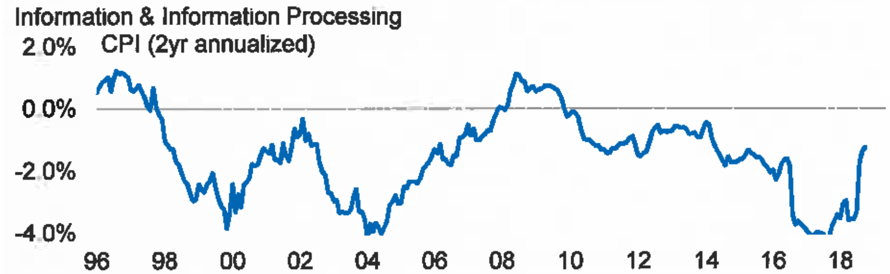
Structural forces may keep inflation low: Technology

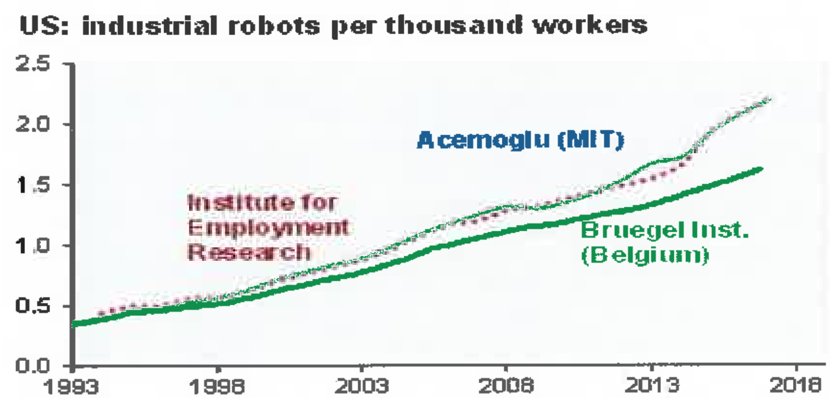
- The *Sharing Economy* has capped firms' capability to raise prices. Increasing online purchases have also made the price discovery process easier and more transparent
- The speed of development in shale production is another example of how technology changes the landscape of traditional industries such as energy. The structural rise in U.S. oil production has put a ceiling on oil prices and downward pressure on inflation expectations
- The impact of technological progress on measured inflation depends on both the speed of this progress, and on statisticians' ability to capture the impact on (quality-adjusted) prices

Technology heavy sectors have spent most of the time in deflationary territory



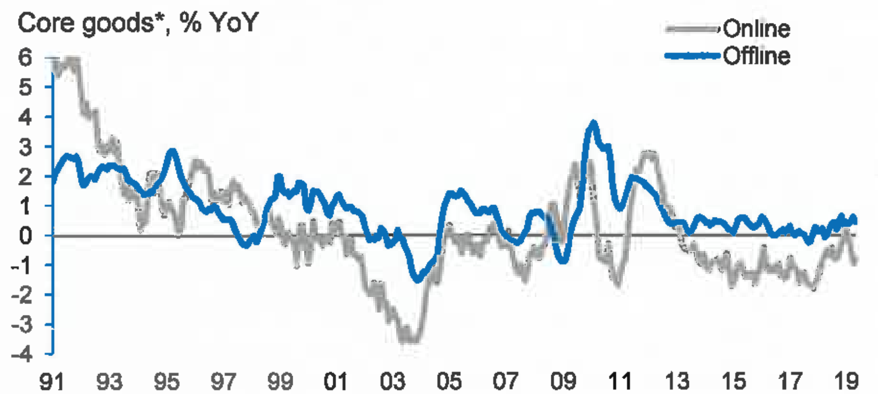
Source: BLS

Internet usage and technology continue to disrupt business models



Source: MIT, IAB, Bruegel Inst. 2018, JPMAM (Eye on the Market)

Prices of goods that can be traded online tend to rise more slowly than those typically traded offline

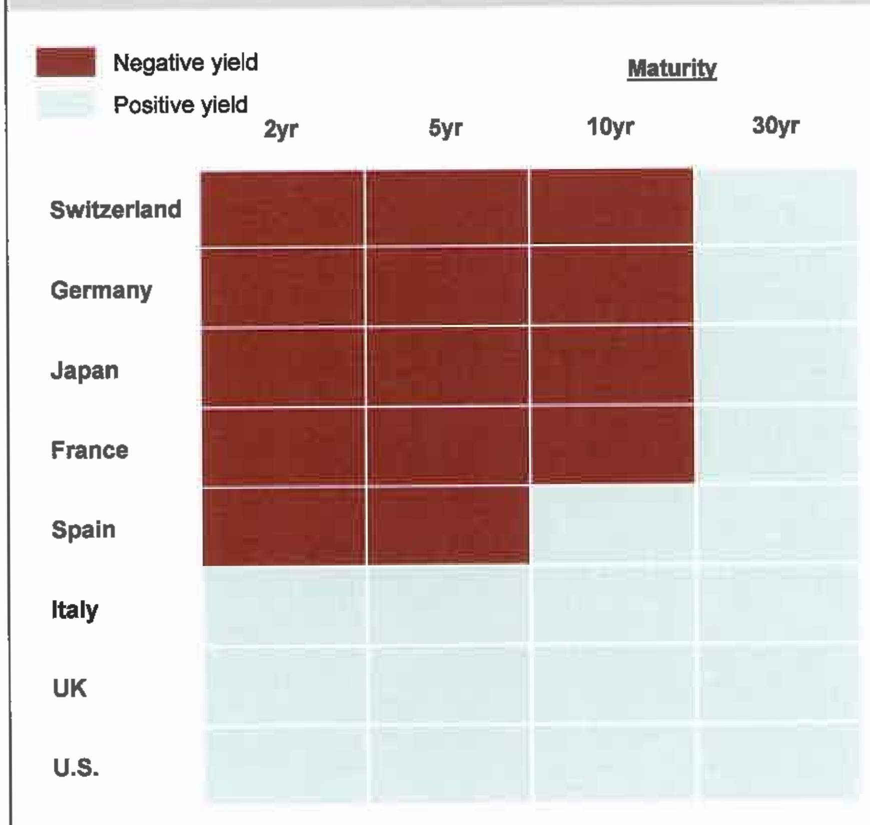


Source: JPMAM, U.S. Census Bureau. *CPI baskets are categorized by intensity of online and offline sales

The global bond environment is starving for yield

Lack of supply and an uncertain macro environment have driven global yields lower

NEARLY 25% OF THE BARCLAYS GLOBAL AGGREGATE INDEX IS NEGATIVE YIELDING



Sources: Barclays, Bloomberg. Data is as of June 30, 2019.

Negative interest rates seem to be back with a vengeance.

- Since interest rates peaked in October of 2018, the amount of negative yielding debt has doubled (11% vs. 24% today) in the Barclays Global Bond Index.
- Over $12T in sovereign debt has a negative yield, spanning across the yield curve.
- The combination of lower central bank policy rates, low growth and inflation expectations, and scarcity of bond supply are all pressuring yields lower.

Nearly 25% of all IG debt has a negative yield

% of Bloomberg Barclays Global Agg index with negative yield

Source: Bloomberg, Barclays. June 2019.

For illustrative purposes only. This information does not reflect the performance of any specific investment scenario.

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BRIDGEWATER

China Outlook

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July 2019

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China's Development Since 1978

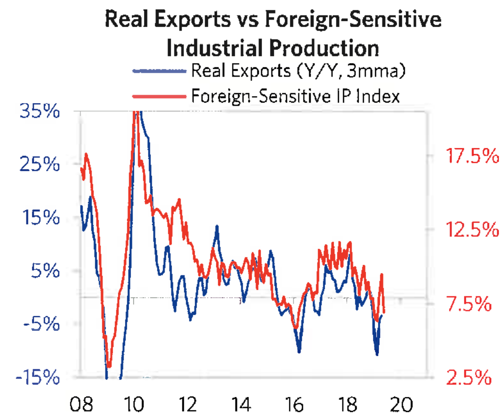
	1978	1998	Now	Δ Since 1978
RGDP Per Capita*	613	2,636	16,184	**26x**
Share of World GDP	2%	6%	22%	**11x**
Population Below the Poverty Line ($1.90/day)	88%	41%	1%	**-88%**
Life Expectancy	66	71	76	**+10 Yrs**
Infant Mortality Rate (per 1000 births)	53	33	8	**-85%**
Urbanization	18%	34%	57%	**+39%**
Literacy	70%	93%	96%	**+26%**
Avg Yrs of Education	4.4	6.6	7.7	**+74%**

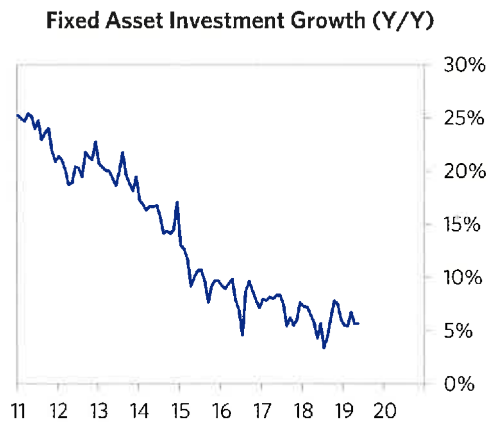
**Thous, USD 2011, PPP-adjusted*

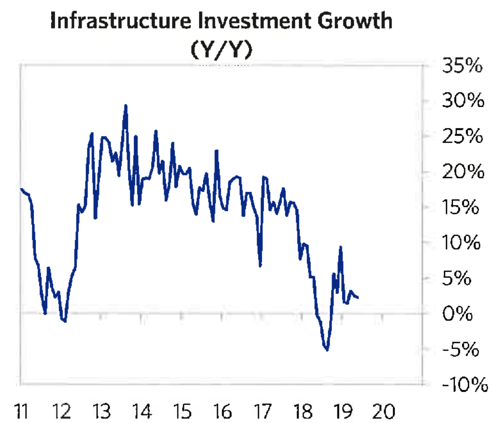
The Growth of China's Domestic Capital Markets

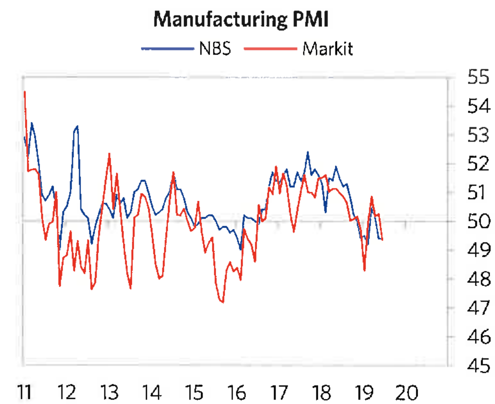
		2009	2014	Now	Δ Since 1978
Equities (A-Shares)	Mkt Cap (USD, Bln)	1,767	3,922	7,556	**4x**
	As a % of GDP	37%	39%	54%	**+17%**
	As a % of World Mkt Cap	4%	6%	9%	**+5%**
Govt Bonds	Mkt Cap (USD, Bln)	1,388	3,025	7,218	**5x**
	As a % of GDP	29%	30%	52%	**+23%**
	As a % of World Mkt Cap	4%	5%	10%	**+6%**
Corp Bonds	Mkt Cap (USD, Bln)	49	935	2,310	**47x**
	As a % of GDP	1%	9%	17%	**17x**
	As a % of World Mkt Cap	0%	3%	6%	**31x**
Access to Foreigners (Across All Mkts)	Mkt Cap (USD, Bln)	17	133	11,136	**655x**
	As a % of GDP	0%	1%	80%	**+80%**
	As a % of Total	0%	2%	62%	**+62%**

CHINA'S ECONOMY



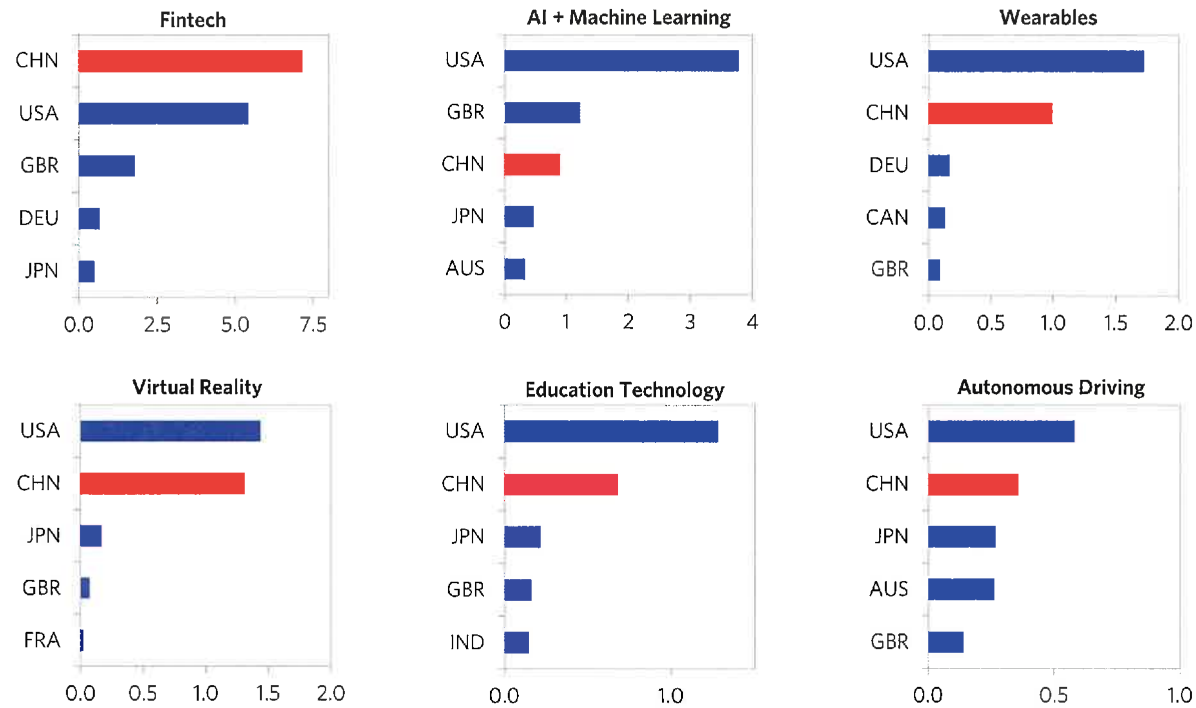


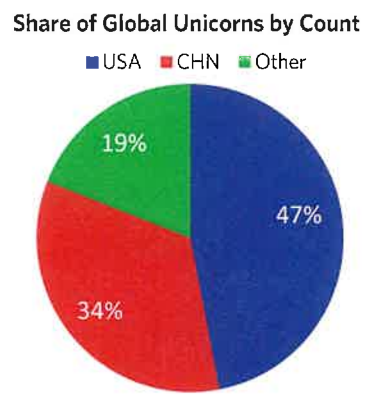


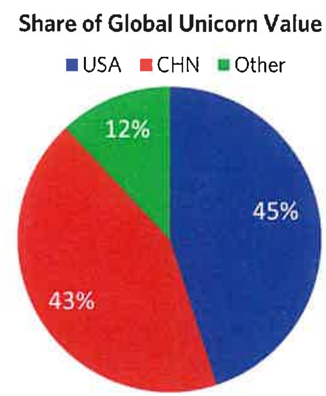


THE ECONOMIC RESTRUCTURING

Global Venture Capital Investment in Leading Technologies (USD, Bln)



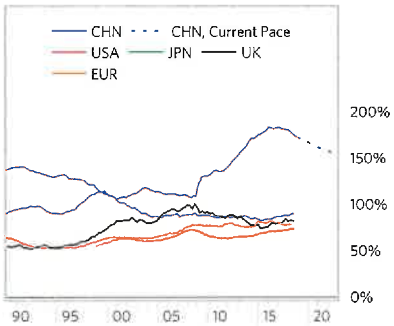




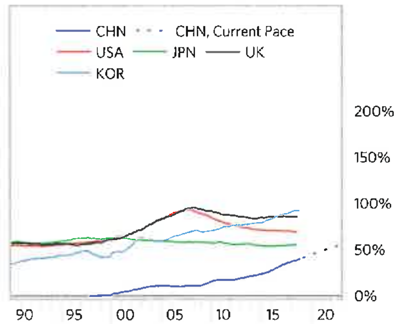
Source: McKinsey Global Institute, "China's Digital Economy: A Leading Global Force," December 2017

DEBT AND DEBT SERVICE BY SECTORS

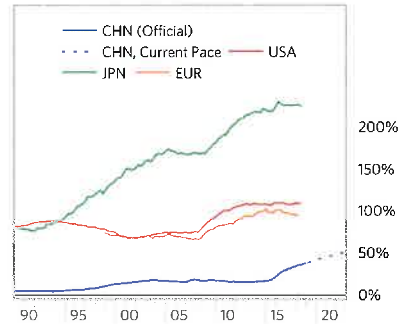
Corp & LGFV: Debt as %GDP



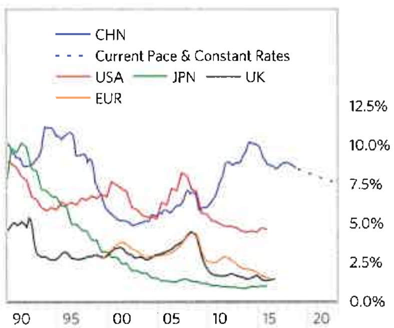
Household: Debt as %GDP



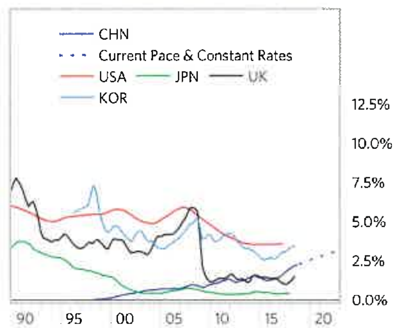
Official Govt: Debt as %GDP



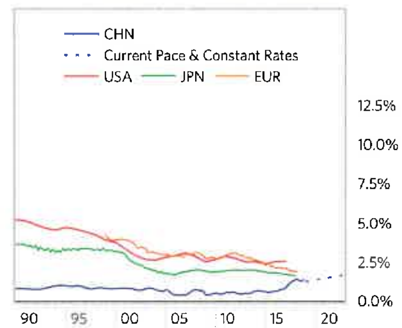
Corp & LGFV: Int Exp as %GDP



Household: Int Exp as %GDP



Official Govt: Int Exp as %GDP



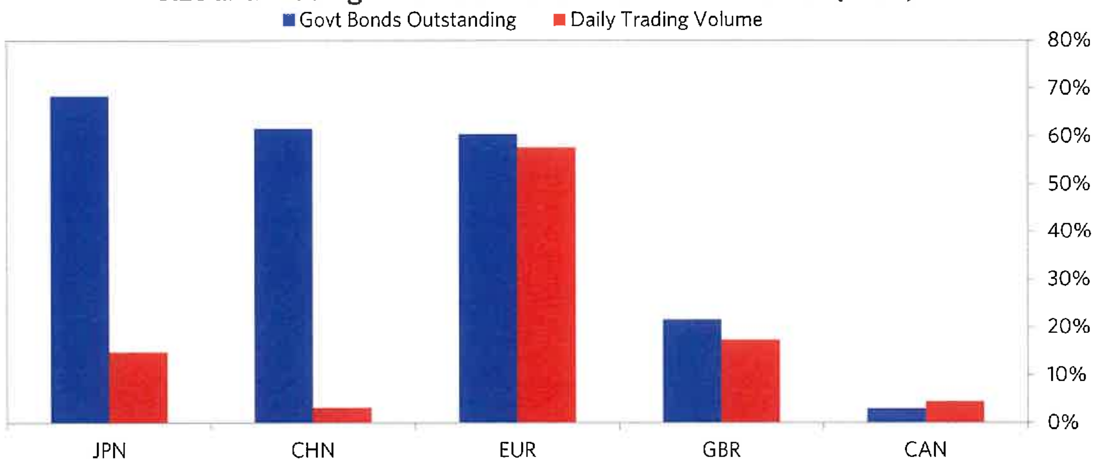
CHINA'S MARKETS

Global Rankings of Economies and Asset Markets (USD, Bln)

Rank	*Nominal GDP*		*Govt Bonds Outstanding*		*Corp Bonds Outstanding*		*Total Equity Market Cap*	
1	United States	$21,049	United States	$12,152	United States	$6,860	United States	$31,881
2	China	$13,974	Japan	$8,311	China	$2,310	China	$9,359
3	Japan	$5,000	China*	$7,478	France	$1,078	Japan	$5,587
4	Germany	$3,867	United Kingdom	$2,619	Germany	$1,019	United Kingdom	$2,918
5	United Kingdom	$2,822	France	$2,105	United Kingdom	$955	Canada	$2,249
6	India	$2,688	Italy	$1,790	Canada	$745	India	$2,146
7	France	$2,687	Germany	$1,286	Japan	$613	Switzerland	$1,727
8	Italy	$1.984	Spain	$1,071	Netherlands	$450	Australia	$1,459
9	Brazil	$1,783	India	$750	Italy	$245	Korea	$1,434
10	Canada	$1,686	Korea	$549	Australia	$227	Taiwan	$1,051

*Includes policy bank bonds and local government bonds

Size and Trading Volume of Government Bond Market (%US)



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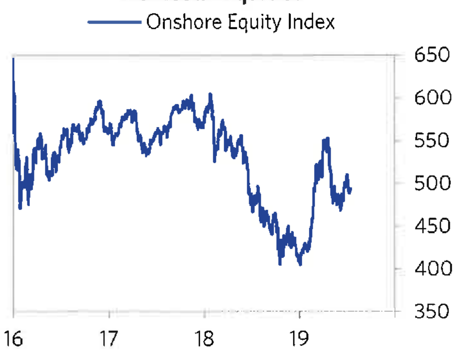
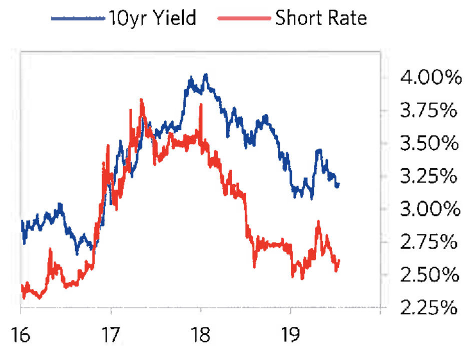
CHINA'S MARKETS

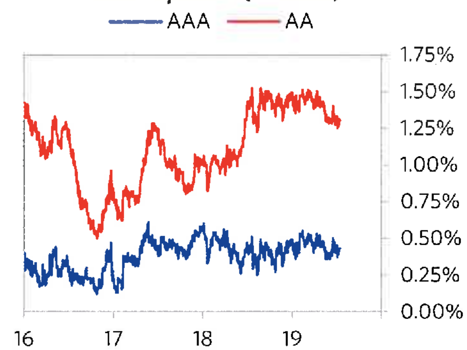
Domestic Equities



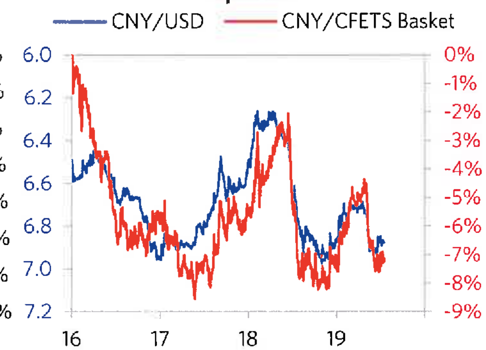
Interest Rates



Credit Spreads (to CGBs)

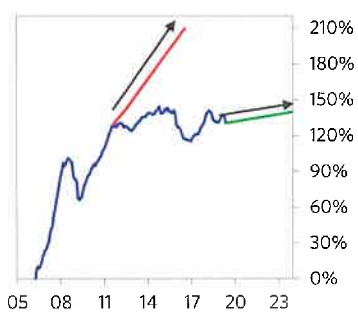


Spot FX

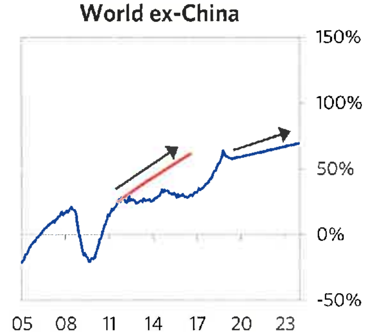


Actual and Discounted EPS Growth

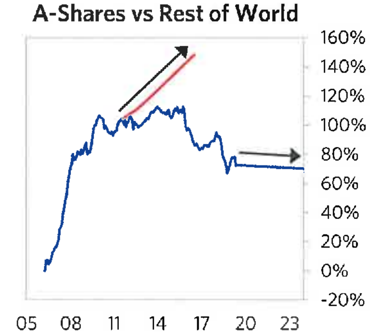
A-Shares



World ex-China



A-Shares vs Rest of World



KEY CHINESE DEPENDENCIES ON NON-CHINESE TECHNOLOGY

US Commerce Dept. List ("14 technologies")	"Made in China 2025" Industry impacted	Largest Chinese Companies in these Vulnerable Sectors	Some Key Foreign Inputs Dependencies	Key Providers Today	Vulnerability
1. Microprocessors 2. Advanced Computing 3. Advanced Surveillance Technologies 4. Brain-Computer Interfaces	Information Technology (Hardware)	Huawei, ZTE, Xiaomi, Hikvision, SMIC, Dahua Sugon, Higon, Chengdu Haiguang Integrated Circuit, chengdu Haiguang Microelectronics, Wxi Jiangnan Institute of Computing Technology (Research Institute)	Chip Design	Intel, AMD, Samsung, Micron, ARM	Very high in near term, could take several year for China to catch up fully
			Chip Assembly	Taiwan Semiconductor, Intel, Samsung, SK Hynix	High. Some domestic manufacturers, but new plants take years, billions of dollars, and advanced equipment from US and Europe
5. Data Analytics 6. Artificial Intelligence and Machine Learning 7. Quantum Information and Sensing Technology	Information Technology (Software)	Tencent, Alibaba, Baidu, JD.com, Meiya Pico, Megvii, iFlyTek	High-Powered Computing	All Imported, see above	Similar to above
			Operating System	Microsoft, Alphabet, Apple	US dominant right now
			Enterprise Database Software	Oracle, SAP	Oracle/SAP are dominant. Not easy to replace given the dependencies.
8. Position, Navigation, and Timing Technology 9. Logistics Technology 10. Robotics 11. Additive Manufacturing 12. Hypersonics	- Aerospace Equipment - High Tech Ships - Power Equipment - Railway Equipment - Robotics - Advanced Manufacturing	AICC, COMAC, CSIC, CSSC, CRRC, Harbin Electric, Dongfan Electric, Shanghai Electric, Jaten, Midea	Process Simulation Software	Siemens	Siemens is dominant player, could take few years to replace/recreate at similar quality
			Advanced Process Control Software	Siemens, Alstrom, some limited domestic alternatives	European companies are dominant players. For some areas there are Chinese alternatives already available
			Advanced Insustrial Robots	Japan, Korea, some domestic	Most robots used in China are imported today
13. Advanced Materials	New materials				
14. Biotechnology	Medicine and Medical Devices				
	Green Energy	Suntech, LDK	Polycrystalline Silicon	Domestic, some imported from Japan, Korea	Low, lots of domestic production
	Green Vehicles	Every Chinese carmaker	Lithium, Cobalt for batteries	DR Congo	Low, China has a lot of influence in Africa
	Agricultural Machinery				

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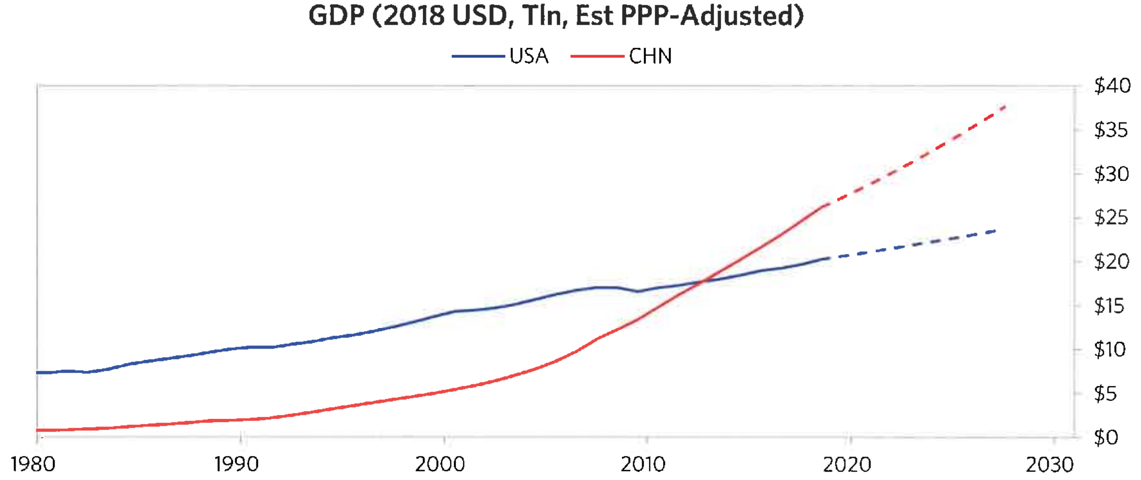
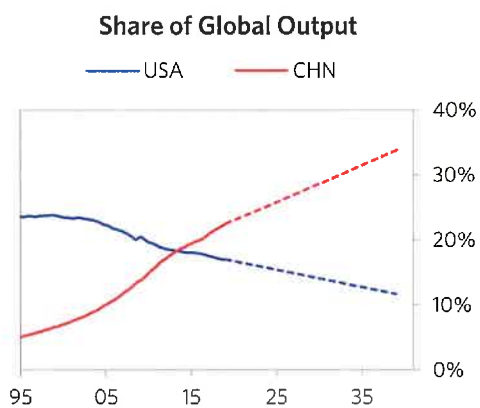
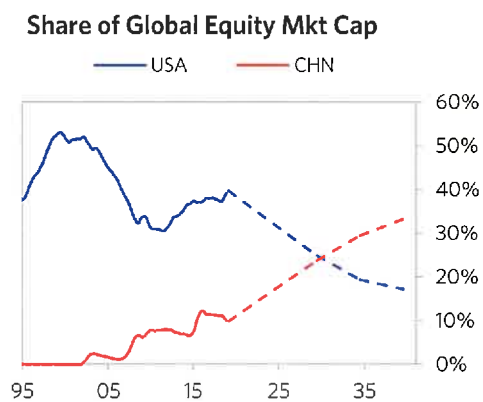
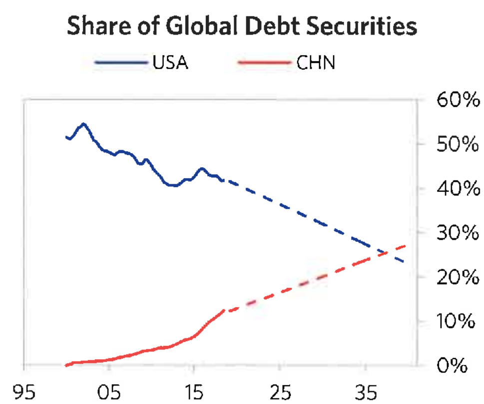
THE EMERGENCE OF CHINA









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