Looking into the future of business – the decade after COVID-19

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Refer to important disclosures on page 76-82. Analyst Certification on page 75.

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The decade after COVID19…

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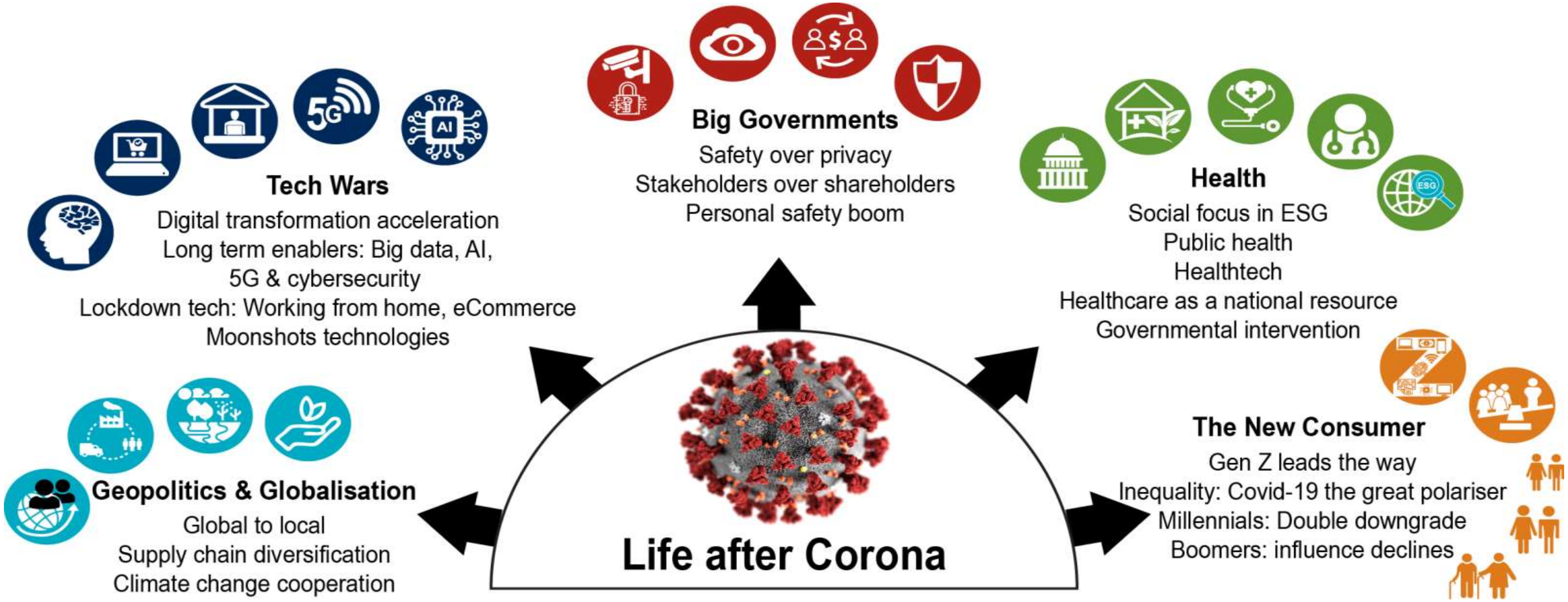
2020, the year the earth stood still- enhance the prior macro-social long-term trends

- De-globalization, Localization, Automations, Social instability, Populist policies, Economic nationalism – protectionism, Limit of monetary policy, Surveillance
- Covid-19's influence will extend beyond the current lockdown peak. We expect this pandemic to accelerate many macro trends that would have taken five or more years to play out before, from peak globalization, to renewed tech wars and a reappraisal of healthcare systems and gov't influence. Consumer behavior change will also accelerate

5 themes and best/worst placed after great isolation

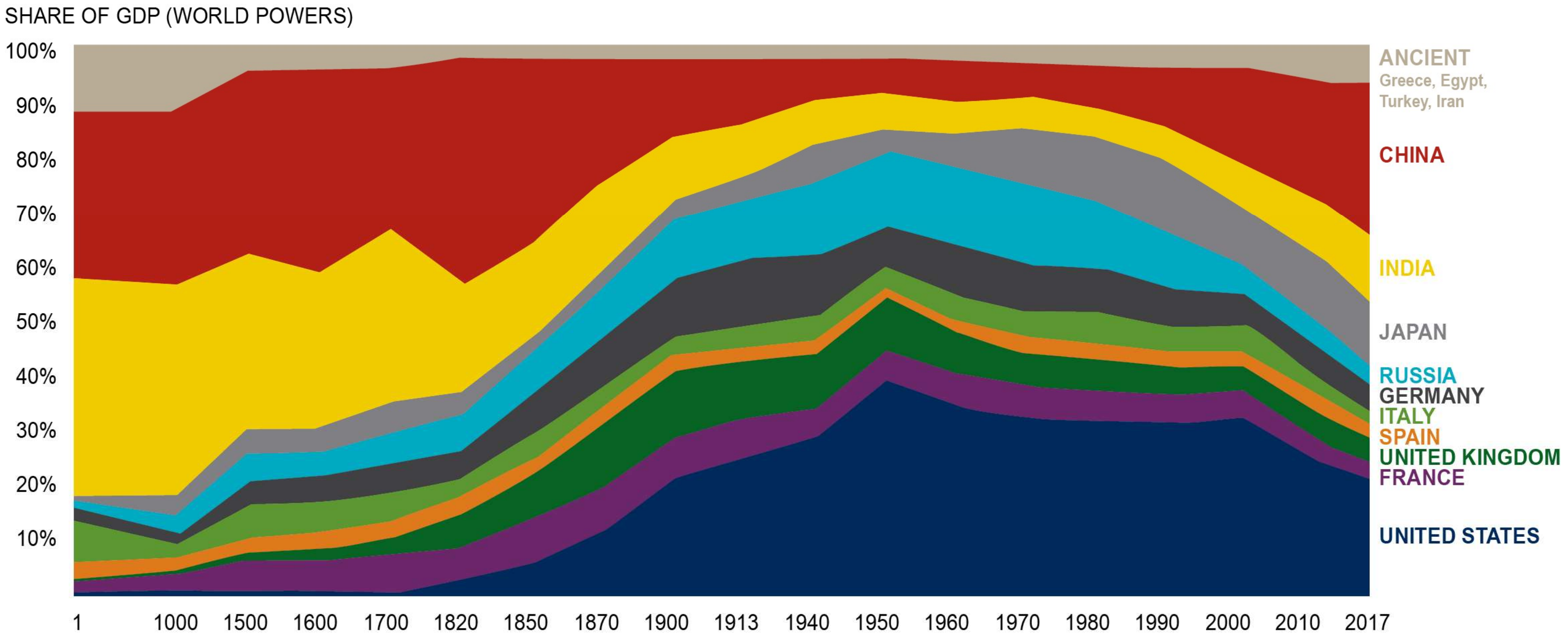


Source: BofA Global Research

1. Geopolitics & Globalization: enter the dragon, cometh the eagle

- The most significant legacy of Covid-19 could be a reshaping of world order in manufacturing, sourcing, trade, tariffs, sanctions and tech, driven by geopolitics. Along with ESG, it is likely to drive much faster shift in manufacturing away from China
- Beneficiaries: Automation, Industrial Software, Cleantech;
- Challenged: Shipping, Materials, Fast Fashion, Fossil Energy

The past 2,000 years of economic history ; share of GDP by country over time

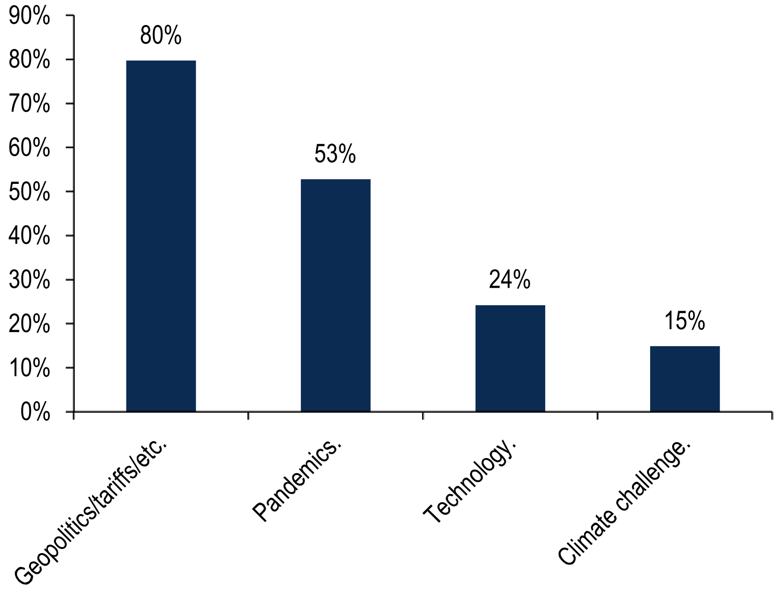


Source: Visual Capitalist

Geopolitics most impactful in globalization trend

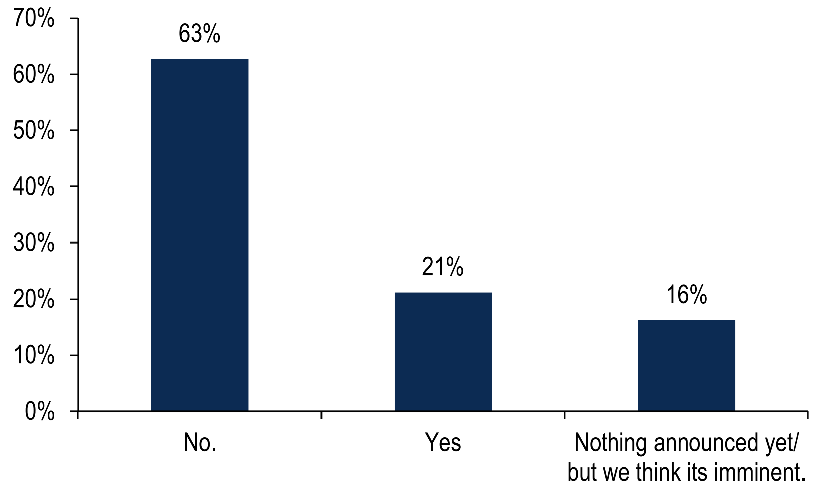
- Our survey tells us that 80% of our BofA analysts see geopolitics/tariffs as the key de-globalization driver (pandemics 53%, technology 24%).
- Over a third of analysts have seen or are expecting reshoring or diversification in supply chains while half of analysts expect climate-friendly investments to increase post Covid-19

What will be the key driver(s) for decline in globalization?*



Source: BofA Global Research *Analysts were able to select more than one response

Has the Covid-19 pandemic affected plans for re-shoring supply chains for companies in your coverage group?

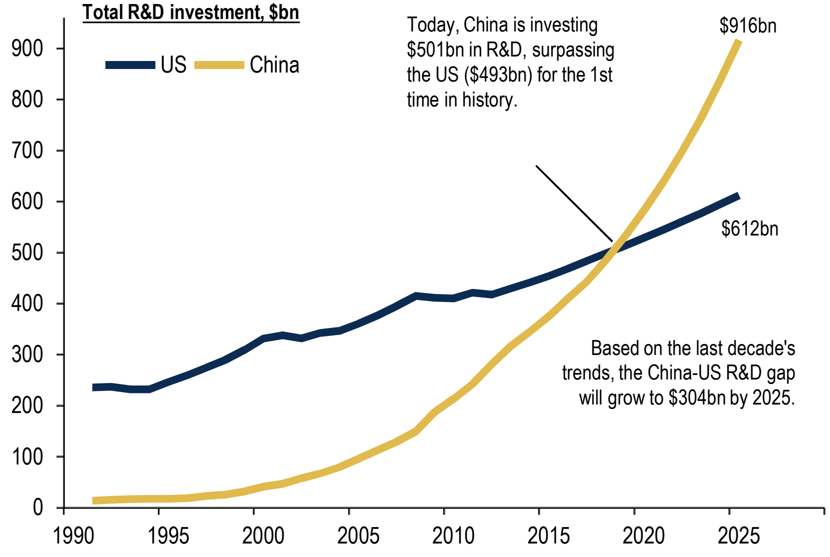


Source: BofA Global Research

2. Tech Wars: The race for supremacy to spark a new wave of investments

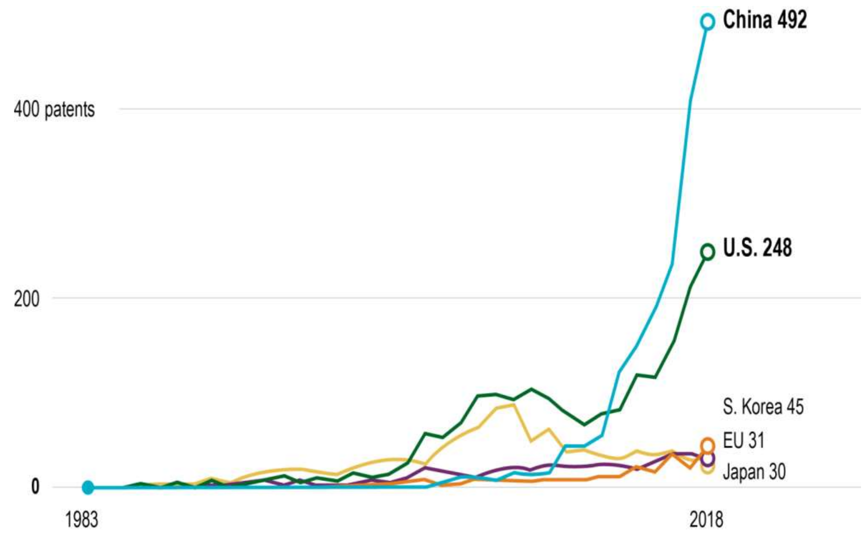
- Race for tech supremacy could pull forward commercialization of Moonshot technologies such as autonomous vehicles, quantum computing, and vertical farming. Nearer-term, trends like WFH, eCommerce, and stay-at-home activities (e.g. streaming and eSports) could see increasing long-term adoption.
- Beneficiaries: Cloud, 5G, Processing Power, Robotics; Autonomous Vehicles. Challenged: Privacy, Old Media, Bricks & Mortar, Sharing Economy.

China overtaken US in R&D spending



Source: BofA Research Investment Committee, OECD

Quantum Computing patent filings by country. China 2x US, 13x Europe…

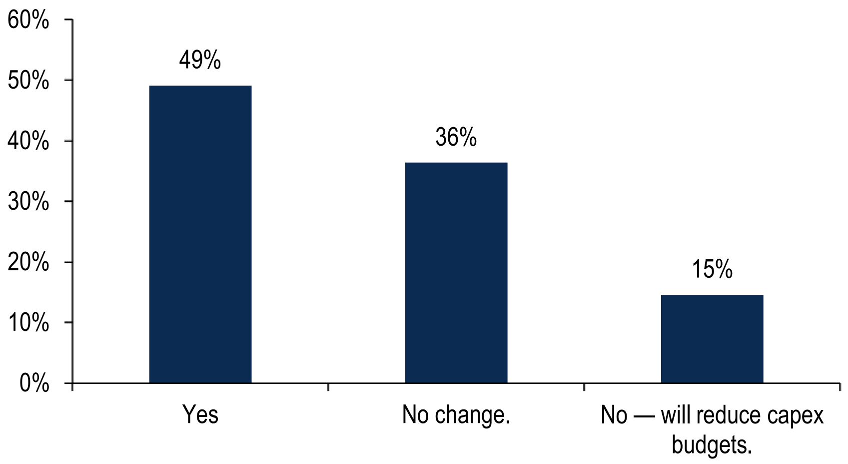


Source: Patinformatics

Tech remains a spending priority for almost all

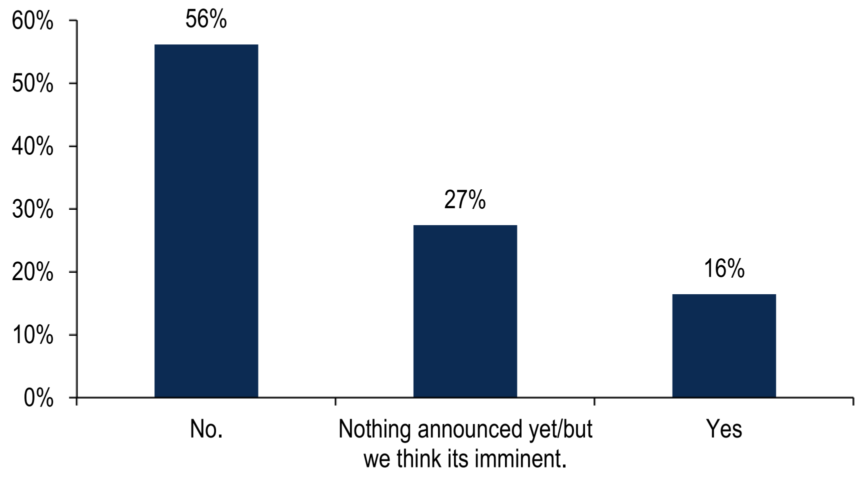
- Our survey tells us that half of sector analysts expect technology investments in their sectors to increase, with 44% expecting more robots & automation.

Are your companies planning to increase capex spending on tech?



Source: BofA Global Research

Has the Covid-19 pandemic affected plans for deploying robotics or automated processes for companies in your coverage group?



Source: BofA Global Research

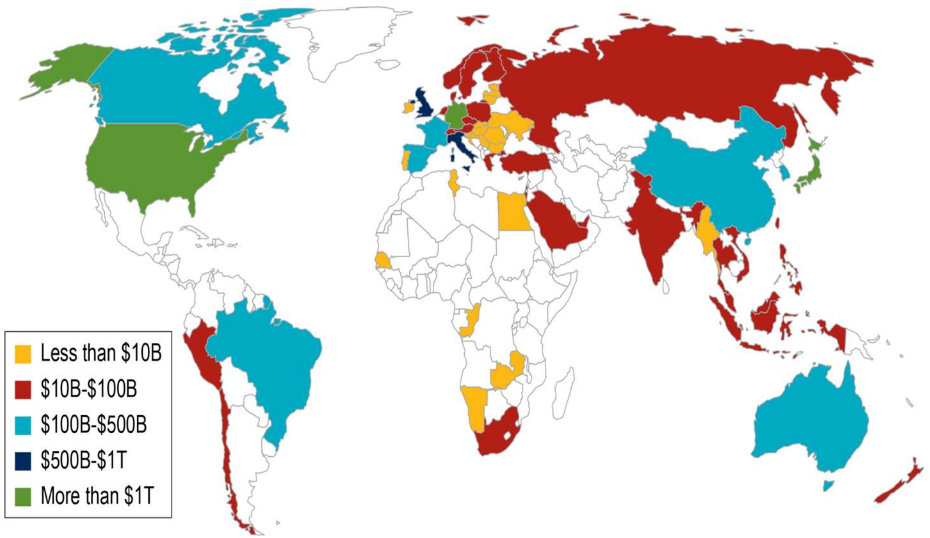
3. Big Government: a new social contract

- Covid-19 has handed governments a new social mandate to protect their citizens. Governments will exert greater influence on businesses with shareholder supremacy potentially eroding in favour of stakeholders. Tech is also more useful for gov't power.
- Beneficiaries: Stakeholders, Tech, Safety, ESG; Challenged: Privacy, Debt, Shareholders

Over 30 countries have openly implemented tracking techniques on their citizens

Source: OneZero, Medium

Surging stimulus - Governments worldwide pledge more than $8 trillion in fiscal support

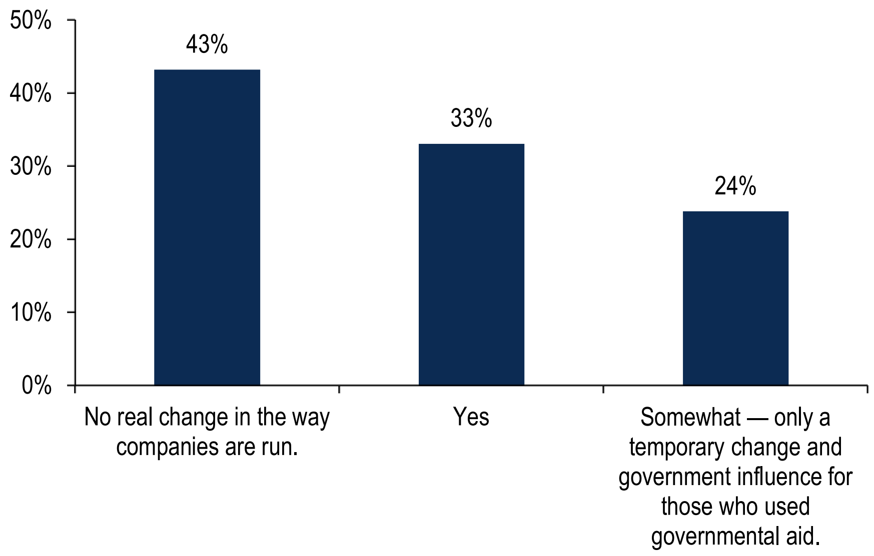


Source: Government data, Bloomberg, updated April 22, 2020

Big Government: Safety over privacy

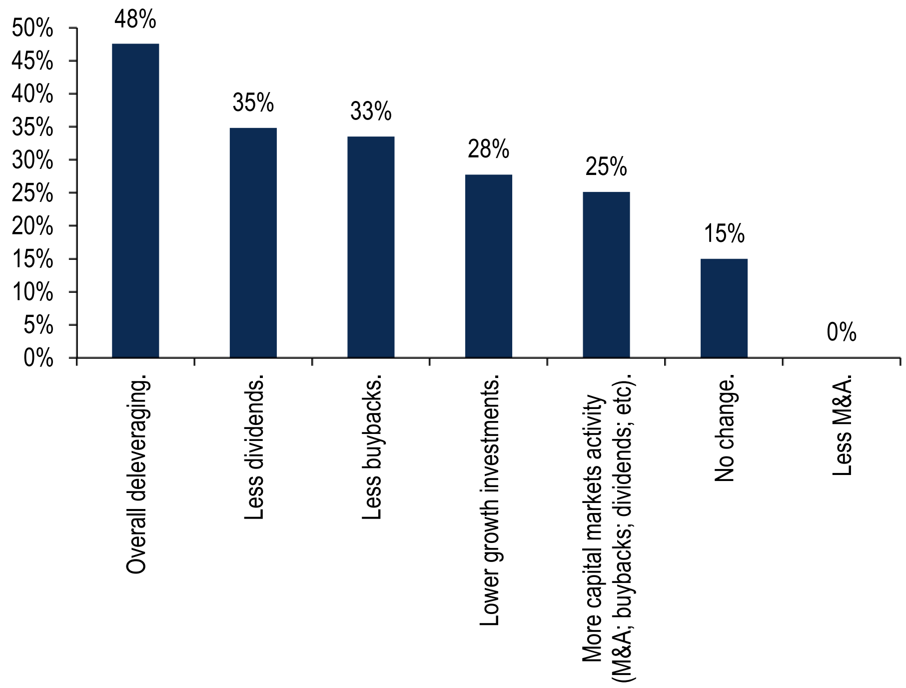
- Our survey tells us that 33% of BofA analysts expect shareholder rights to be eroded either through government intervention or changing priorities within companies beyond temporary erosion from companies taking government aid.

Are shareholder rights/voice being eroded?



Source: BofA Global Research

In the next 2-5 years, how do you expect the current crisis to impact capital structure?*

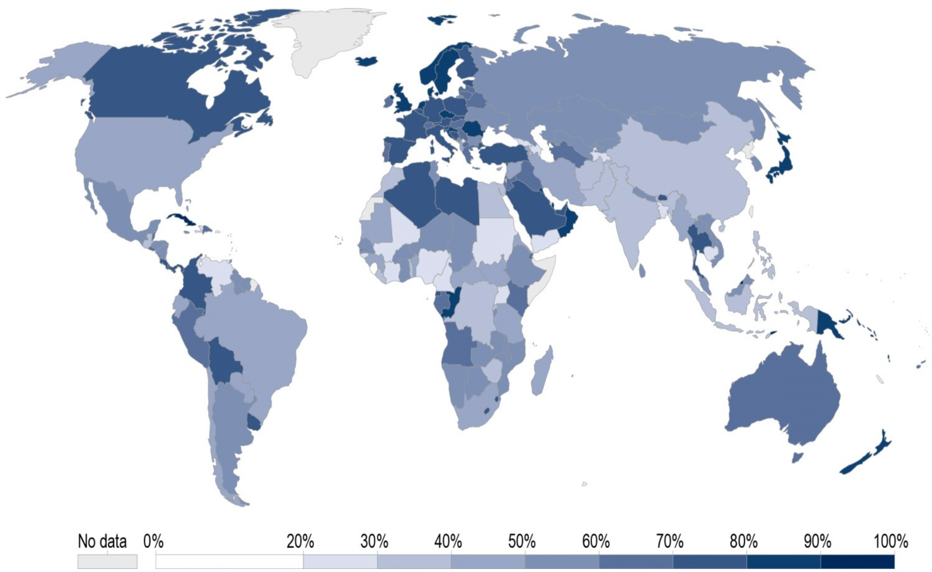


Source: BofA Global Research *Analysts were able to select more than one response

4. Health: the new wealth and focus for ESG

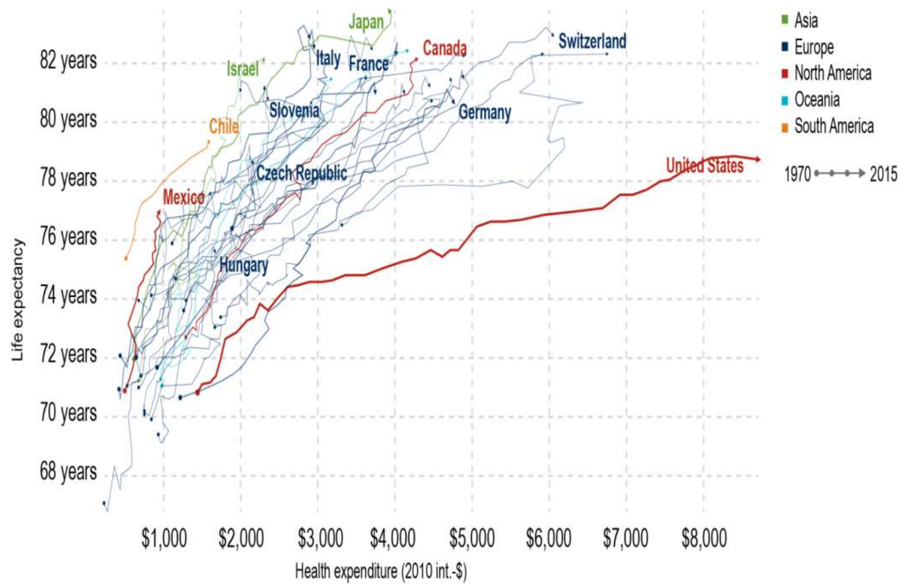
- However, Covid-19 will amplify the importance of healthcare and its social role and accelerate other pressing global public health issues such as drug pricing, antibiotics resistance, future pandemics prevention, universal vaccines for all, etc.
- Beneficiaries: Social in ESG, HealthTech; Challenged: Traditional Healthcare Model, Data Privacy.

Public expenditure as % of total healthcare expenditure



Source: World Bank + WDI, Our World in Data

Life expectancy vs. health expenditure, 1970 to 2015

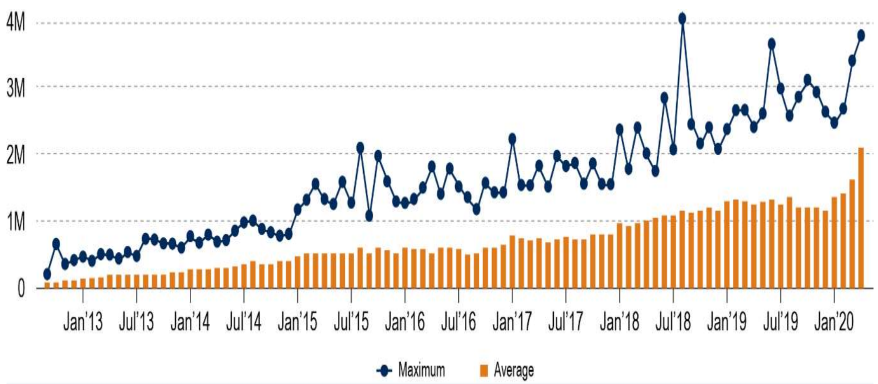


Source: Our World in Data

5. The Classes, Polarization, New Consumer: "OK, Zoomer"

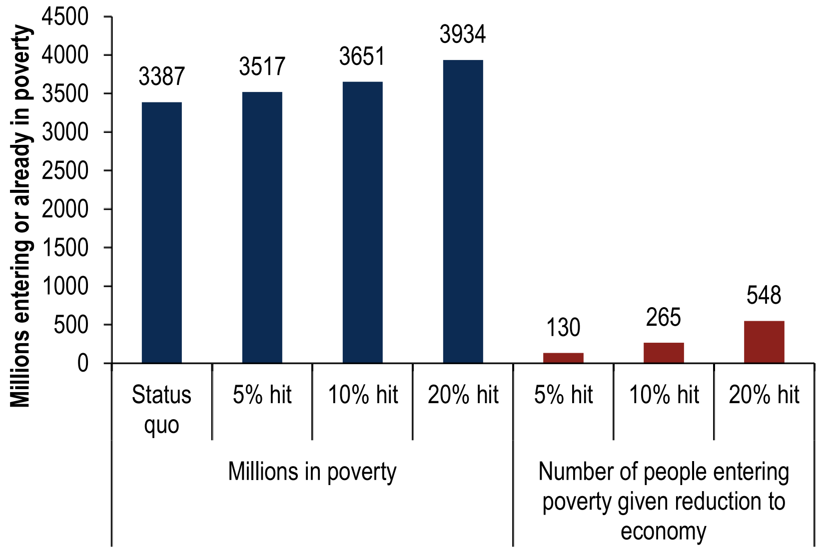
- Gen Z may be uniquely prepared for the new era of interactions following Covid-19 – other generations will need quickly to learn and change their consumer habits. Further, this global pandemic could result in a slowdown or reversal of the decades-long march to pull billions out of poverty
- Beneficiaries: Gen Z, New Media, Payments, ESG;
- Challenged: Millennials, Baby boomers, Bottom Billions, Traditional Consumer

Number of concurrent viewer for Amazon's Twitch gaming platform doubles in 4 months



Source: Twitch

Number of people below the US$5.50/day poverty line given 5%, 10% , 20% cut to economy (millions)



Source: Sumner et al UNU-Wider 2020

Tectonic shifts in global supply chains

Started even before the outbreak of COVID-19

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Mapping shifts in global supply chains

- The past three decades have witnessed a dramatic expansion in international trade and the globalization of supply chains
- However, starting as early as 2008, globalization has first paused and is now starting to reverse on persistent factors such as automation, national security, nationalism, tariffs, etc.

The evolution of globalization

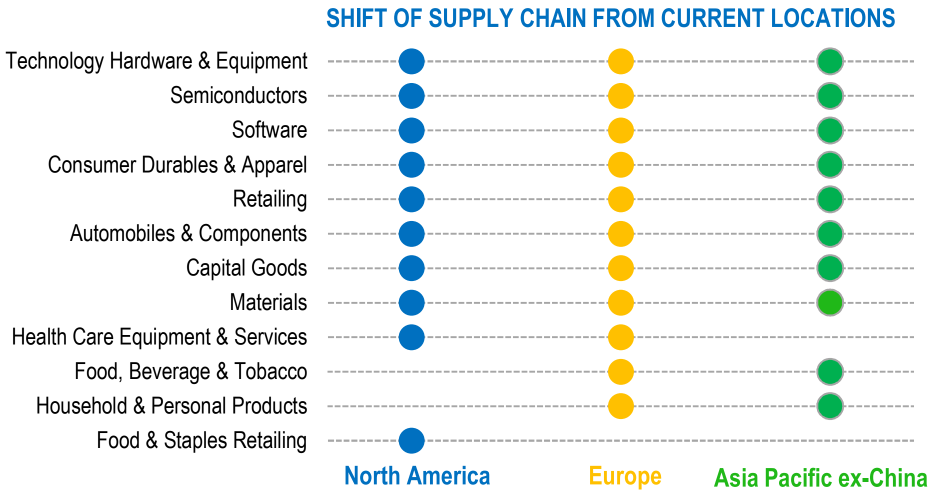
Globalization Era	Age of Discovery (15th – 18th century)	Globalization 1.0 (19th century – 1914)	Globalization 2.0 (1945 - 1989)	Globalization 3.0 (1989 – 2008)	Globalization 4.0
Leading Exports	Raw Materials / Basic Goods	Textiles / Industrial Goods	Factories	Global Supply Chains	Digital Goods / Services
Leading Nations					
Exports as % World GDP	<5%	6 -> 14%	5 -> 15%	15 -> >20%	?
Enabling Era	Scientific Revolution (15th – 17th century)	1st Industrial Revolution (1780s – mid 19th century)	2nd Industrial Revolution (1870s – 1910s)	3rd Industrial Revolution (19600s – 1990s)	4th Industrial Revolution (2000s – 2010s)
Enabling Innovations	Maritime Exploration Nautical Compass	Modern Factory Steam Engine	Automobile Aeroplane	Computer Internet	Cloud Computing Artificial Intelligence
Characterizing GDP Trend	Europe	Britain	World	United States	China

Source: World Economic Forum

Supply chains are moving…

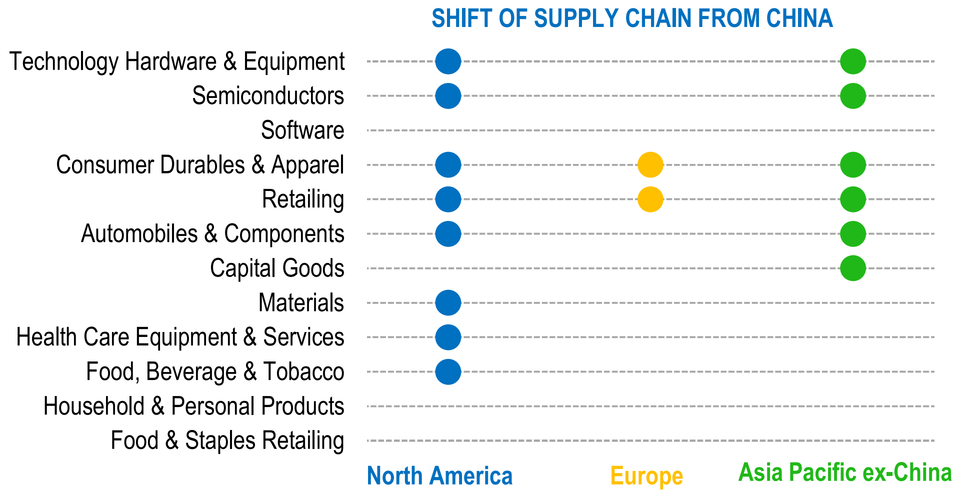
- According to a survey of BofA analysts, firms in 83% of global sectors in N. America and in Asia Pac (ex. China) have either implemented or discussed plans to shift portions of their supply chains from current locations, while 90% of sectors in EU are doing so
- N. American firms are ahead in moving out of China, on tariff and security concerns

Supply Chain Shifts from their Current Locations –.



Source: BofA Global Research

N. American ahead of Asia (ex-China) & EU in moving supply chains out of China

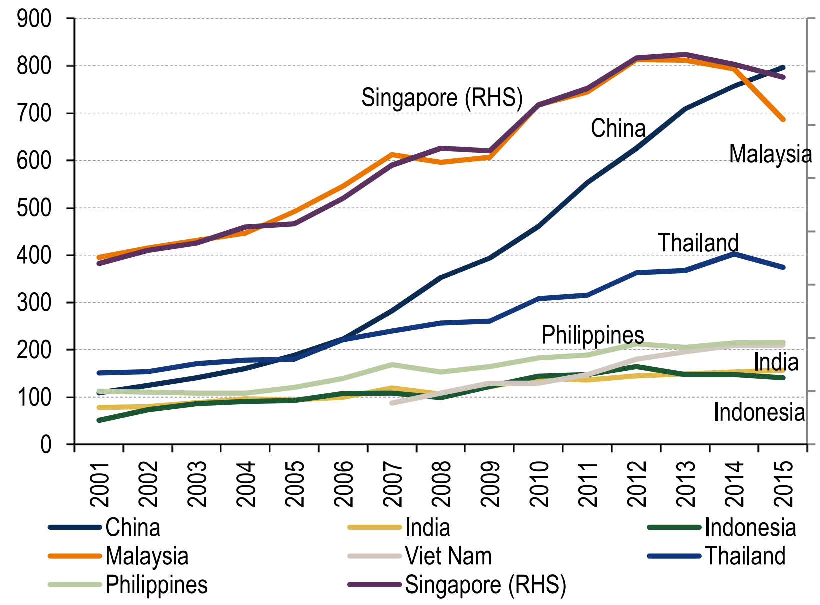


Source: BofA Global Research

…out of China…

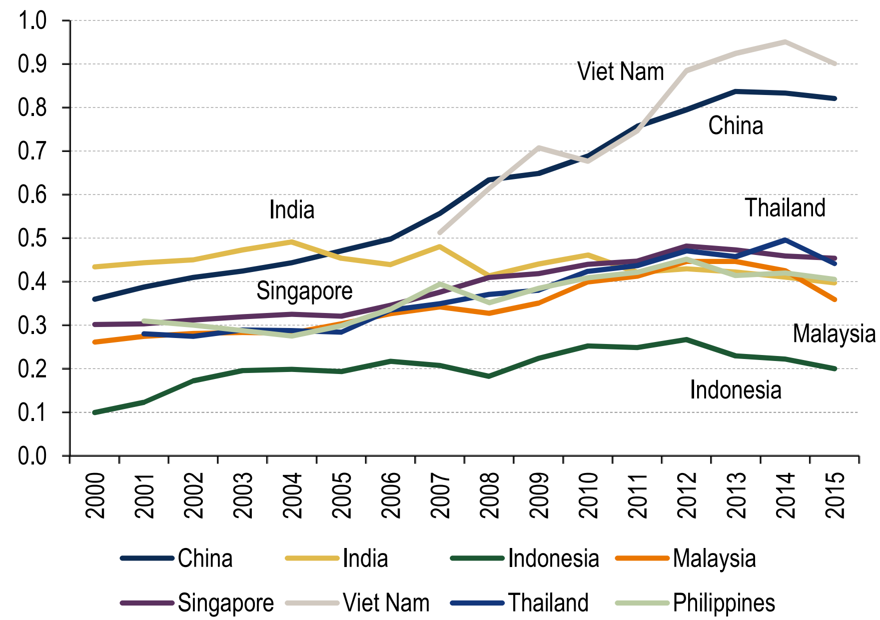
- Chinese labor costs (in USD terms per worker) were comparable to the rest of Asia in 2001, but are now a multiple of those in other large Asian countries
- Even when adjusted for productivity, labor costs in China are well above other Emerging Asia markets (even Singapore). So, the imposition of punitive tariffs only exacerbated the exodus, not triggered it.

Average monthly nominal wages in USD



Source: ILO

Avg monthly wages (USD), adjusted for output per worker



Source: ILO

…and bound homeward and closer to the consumer

- According to BofA analysts survey, half of sectors for N. America plan to relocate supply chains back home, if not already. S.E. Asia is also popular choice . In EU, only 2 of 12 sectors are homebound, but eight plan to move to their epicenters of consumption.
- Similarly, in the Asia (excluding China), barring Healthcare, F&B, retail, all sectors have or plan to move their supply chains back home or their consumption centers. About 60% prefer S.E. Asia as their destination for relocation, followed by India (33%).

Companies are inclined to move their supply chains to Asia South and North America

Source: BofA Global Research

South East Asia – the preferred destination

- S.E. Asia is greatest destination given lower labor costs. Vietnam will benefit most on export composition overlap with China (thus having solid capacity, tech and ecosystem) on top of low labor costs
- Despite low labor costs, India/Indonesia are unlikely to benefit significantly, on no meaningful export merchandise to US. These countries would need to create supply chains/logistics from scratch, to benefit from relocation from China.

Companies Country comparative analysis – emerging countries score well on labor while developed countries have existing manufacturing and export base

Country	Avg. daily wages ($)	Regulatory Quality	Logistics Performance Index	Manufacturing, value added (% of GDP)	Goods exports (% of GDP)	Country credit rating
Bangladesh	1	12	11	8	10	11
China	10	8	3	1	8	3
Indonesia	3	7	8	5	9	9
India	4	9	7	11	11	7
Korea, Rep.	11	2	2	2	5	2
Mexico	8	4	9	9	6	4
Malaysia	9	3	6	4	3	5
Pakistan	2	11	12	12	12	12
Philippines	6	6	10	6	7	8
Singapore	12	1	1	7	1	1
Thailand	7	5	4	3	4	6
Vietnam	5	10	5	10	2	10

Source: BofA Global Research

Re-shoring to North America

- Manufacturing is moving back to North America after a hiatus of three decades, as evident from the number of job vacancies in the US.
- About 400,000 US factory jobs are unfilled – close to highest level in nearly two decades – as companies compete for skilled labor in the midst of record-low unemployment.

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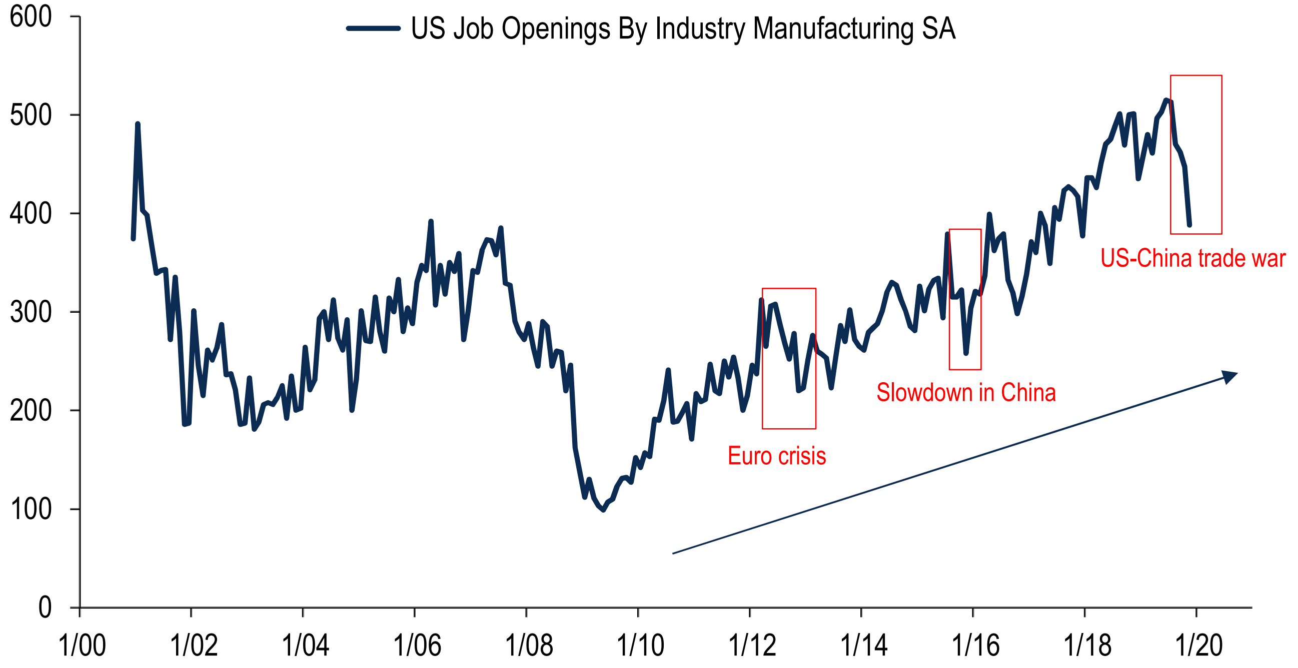
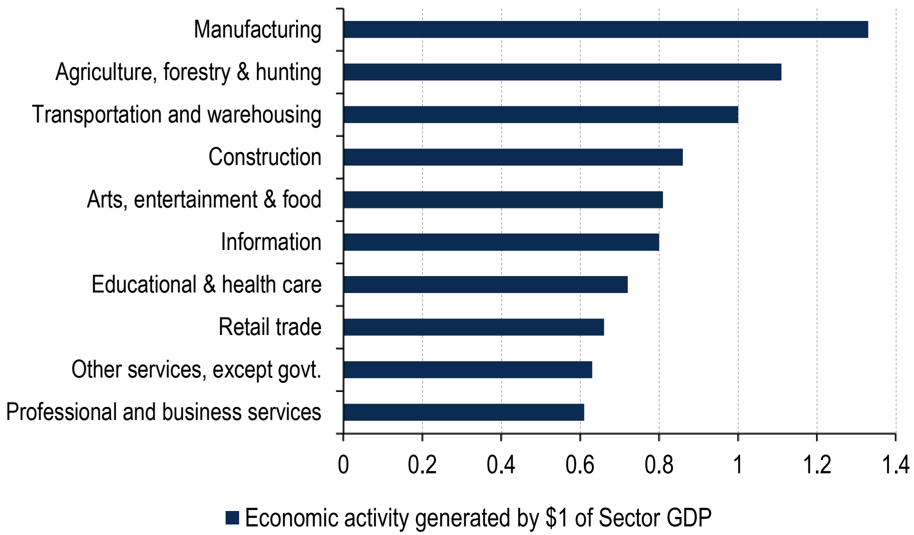


Source: BofA Global Research, Bloomberg

Manufacturing industries have the highest multiplier effects on the economy

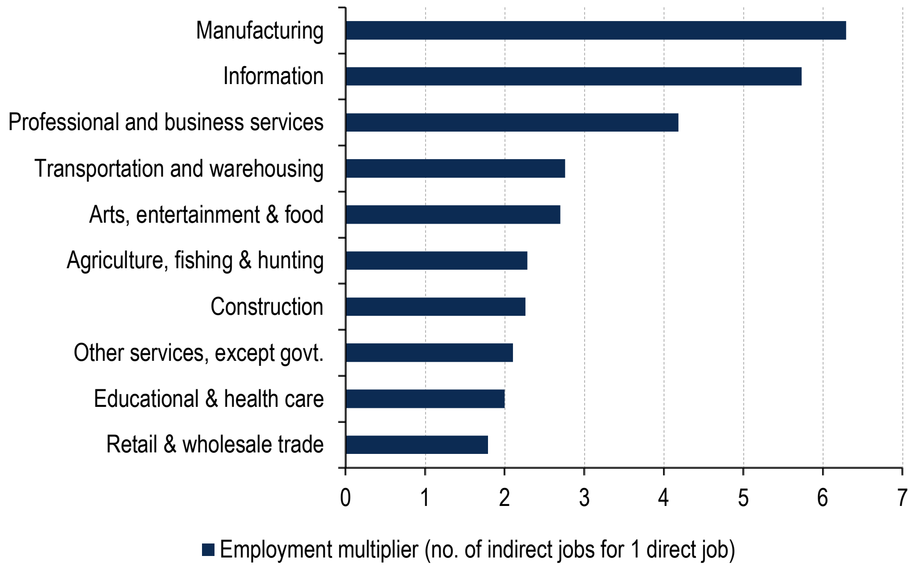
- Analysis suggests a dollar spent on a manufacturing facility generates the highest economic activity and employment multiplier among all sectors.
- Every dollar in final sales of manufactured products supports USD1.33 in output from other sectors, while six indirect jobs are created for every new job in manufacturing

Every dollar in final sales of manufactured products supports USD1.33 in output from other sectors



Source: Bureau of Economic Analysis

Indirect employment generated by different sectors

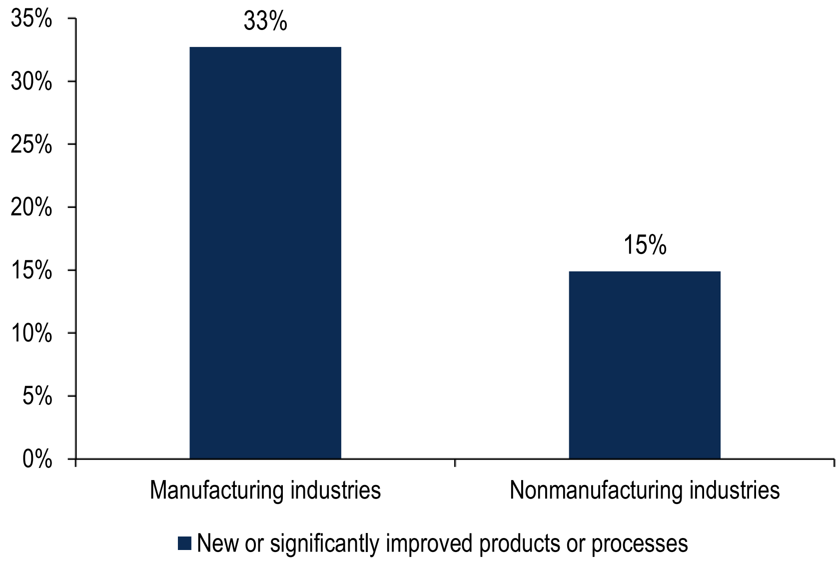


Source: Economic Policy Institute

Manufacturing industries drive innovation through R&D and industrial clusters

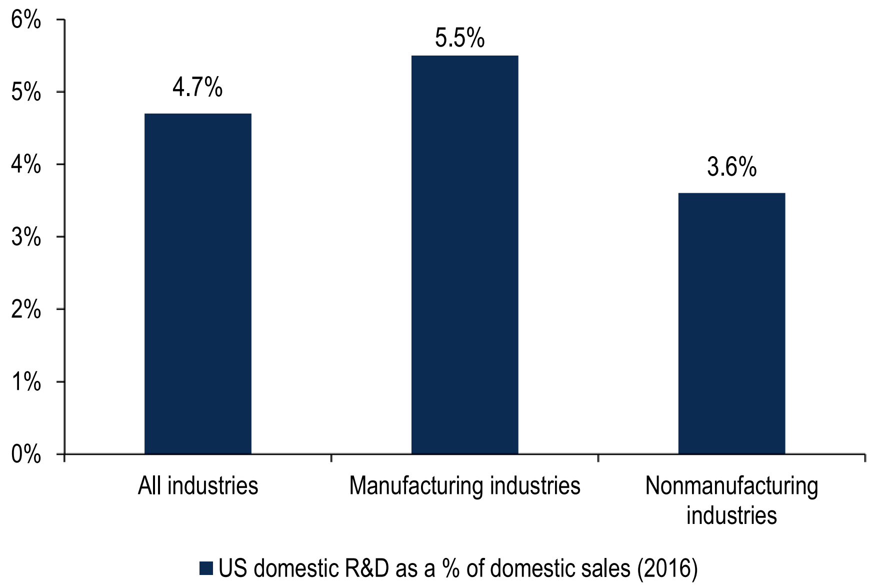
- Domestic R&D spend-to-sales (%) is much higher for manufacturing (5.5%) than non-manufacturing (3.6%), leading to much higher intensity of product/service launches.
- Further, establishment of a manufacturing facility generally leads to the development of an industrial cluster which has benefits of high productivity and innovation.

Only 15% of non-manufacturing firms introduced new product or service in 2014-16 vs 33% for manufacturing



Source: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey

Domestic R&D as a % of domestic net sales is higher for manufacturing vs non-manufacturing

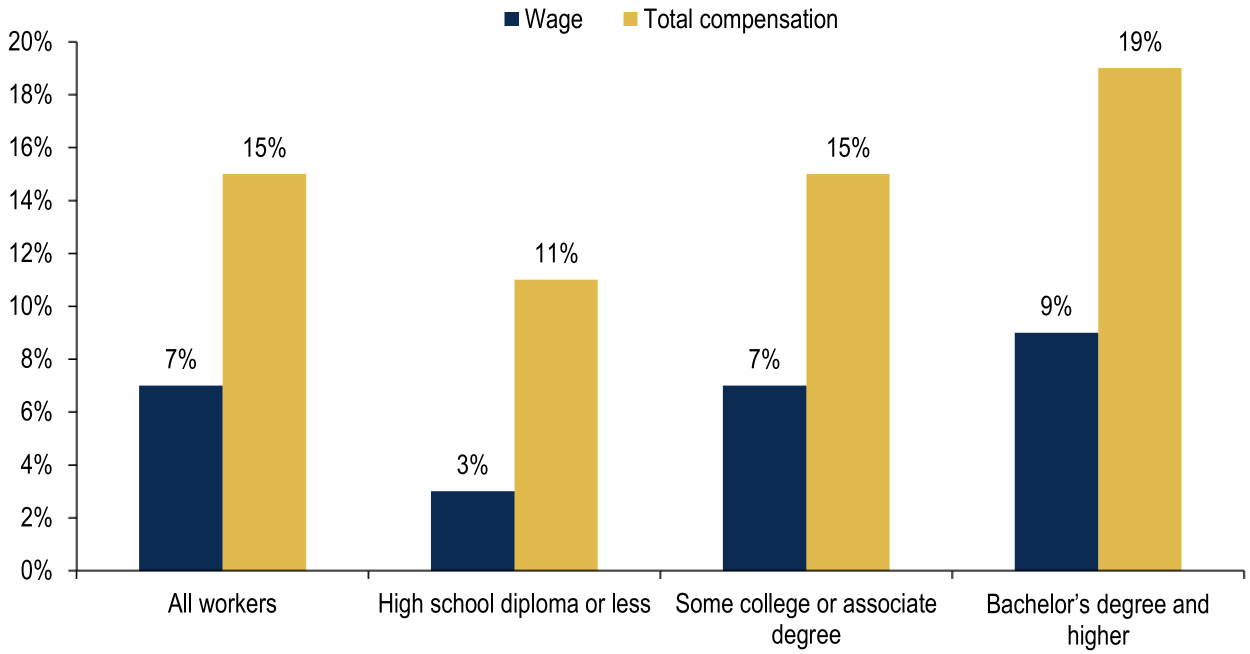


Source: National Science Foundation, National Center for Science and Engineering Statistics

Manufacturing industries improve wages of skilled workers

- US manufacturing workers typically see a significant wage premium over peers in the non-manufacturing sectors.
- The wage and compensation premium for a manufacturing worker in the US ranges from 3% to as high as 19% relative to a comparable nonmanufacturing workers.

Manufacturing premium (how much more a manufacturing worker in the US makes per hour than a comparable nonmanufacturing worker in the private sector)



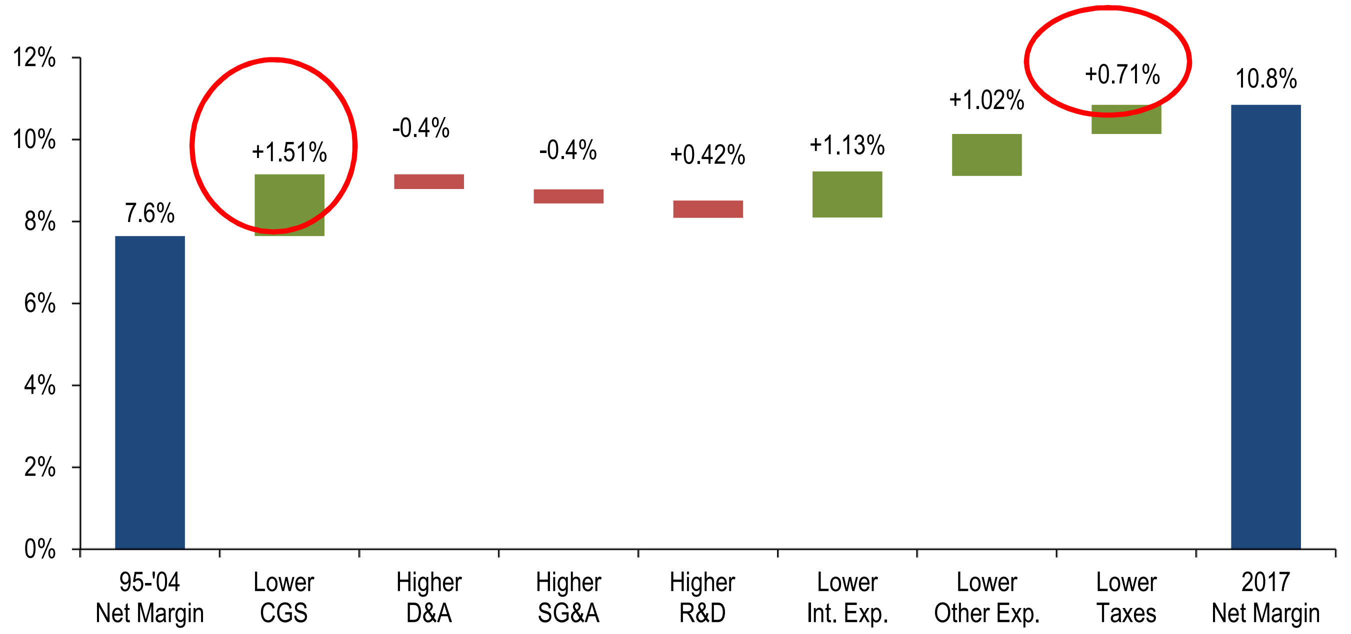
Source: Economic Policy Institute (Adapted from Langdon and Lehrman 2012, Figure 9)

Note: Data is for workers aged 25 and older. Data is regression-adjusted manufacturing wage and compensation premium, 2011

Ricardo's theory of comparative advantage : Works well under the globalization

- By our estimates, globalization has contributed to net margin expansion of about 2.2ppt through lower cost of goods sold and lower taxes in 2004-17. A reversal of these benefits will be costly.
- The costs are particularly high during the transition to the new supply chain when old capital is "stranded" in the wrong place and hence is no longer productive.

Globalization has been a big contributor to S&P 500 net margin expansion since 2004

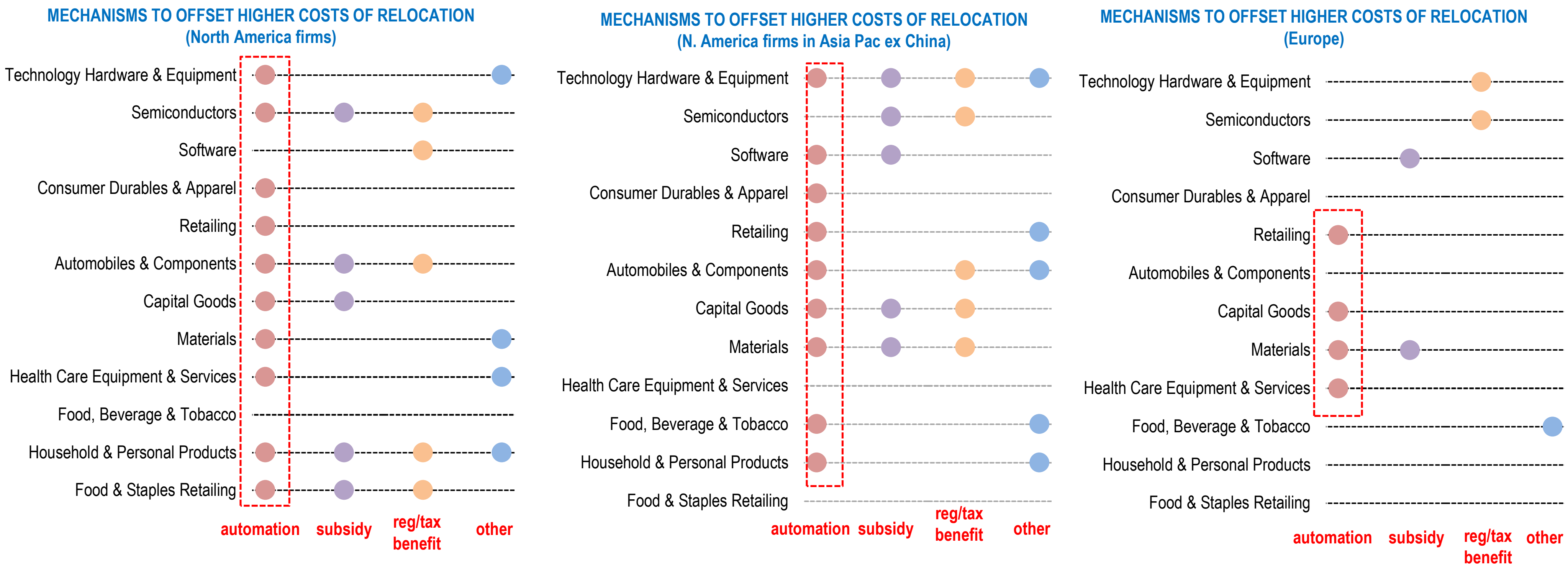


Source: FactSet, BofA US Equity & Quant Strategy

Automation is almost automatic

- According to a survey of BofA analysts, the unanimous (almost) weapon to combat rising costs seems to be automation in North America and Asia Pac (excluding China)
- However, in Europe, much less automation and regulatory / tax benefits are expected

Mechanisms to offset higher costs associated with relocation for each region

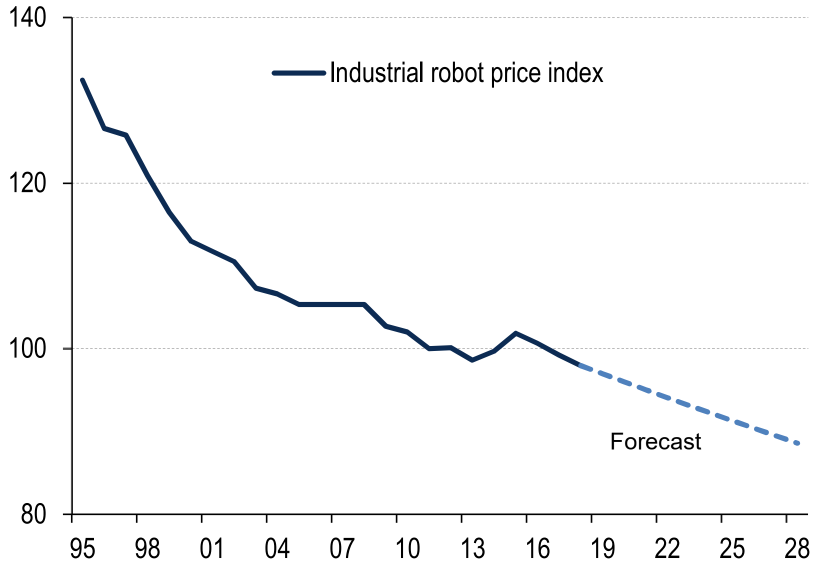


Source: BofA Global Research

Note: "reg" is short for regulatory

Automation and Robotics: Validating the case for reshoring

Industrial robot prices – expect to keep falling



Source: BoJ, BofA Global Research, BCG. Price indexed to 100 in 2011

- We believe the global installed base can hit 5mn units by 2025, doubling 2019 levels, as they become more affordable, and more flexible and autonomous by virtue of artificial intelligence. This will accelerate and validate the case for reshoring.
- The Boston Consulting Group estimates 1% reduction in robot prices and 5% improvement in productivity annually over the next decade.

Life in China after COVID-19

The long term implications

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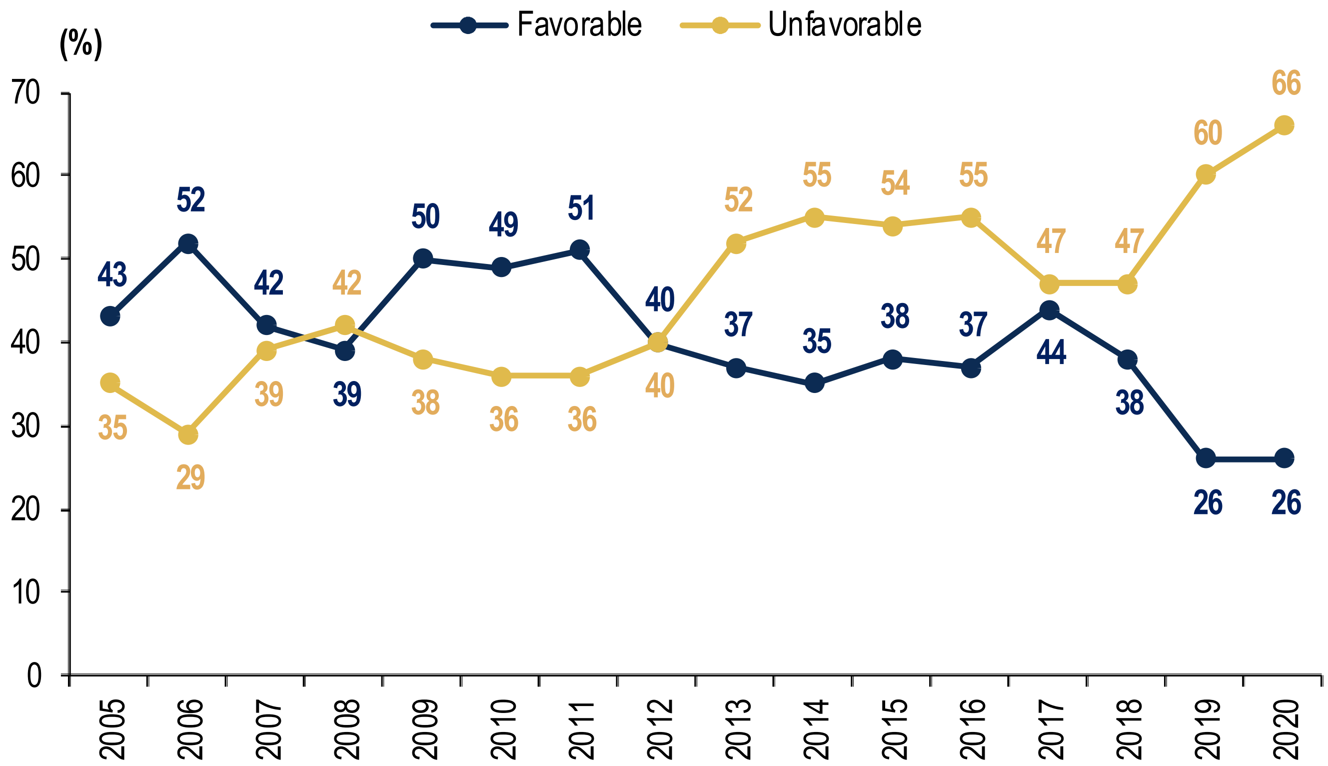
Americans have less favorable view of China

- We are seeing growing percentage of the population in the US becoming unfavorable towards China post-COVID-19, as 66% of US adults had an unfavorable opinion of China in a recent survey (up from 60%)

% of US adults who say they have favorable/unfavorable opinion of China



Source: Pew research center

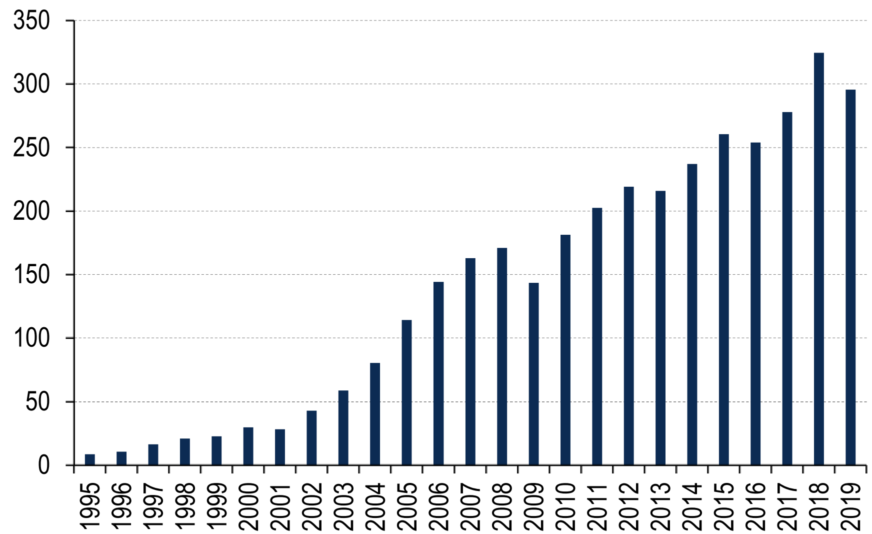
Rising China-US tensions

- COVID-19 could lead to reduced trust and goodwill between China and the US. Although we expect Phase 1 trade deals to hold, risks may grow as the US election nears.
- In the long run, we expect heightened geopolitical tensions and rising market risk premium, as China seeks to raise its global influence

Trend of China-US trade

Source: Wind

China's trade surplus with the US, US$bn

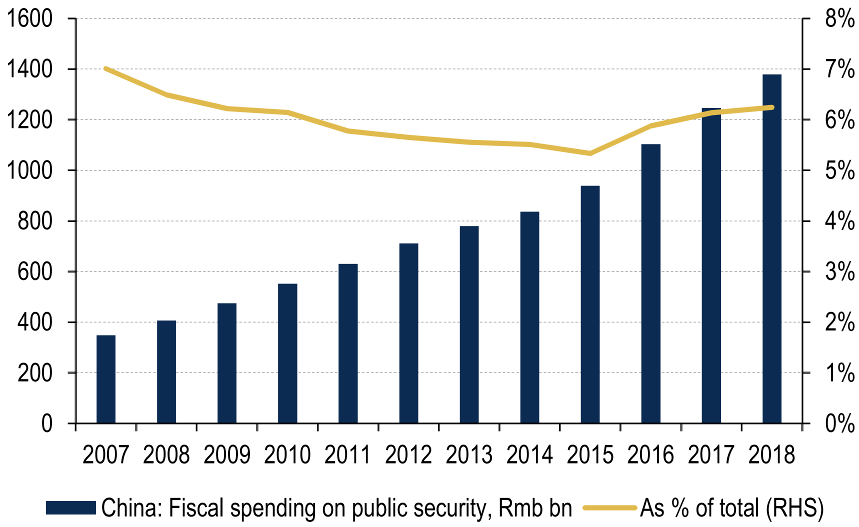


Source: Wind

A more centralized and powerful Chinese government

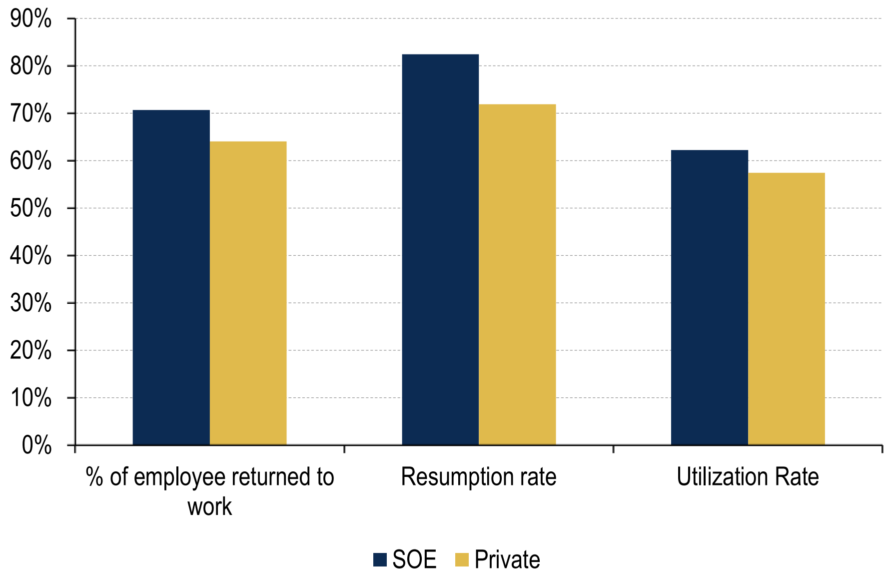
- Post-COVID-19, people in China could be more willing to forgo privacy and to bear government's close surveillance for personal safety. This should benefit related sectors including surveillance equipment, face recognition software, AI, cloud, big data, etc
- We expect SOEs' position to strengthen in areas of strategic importance to the gov't, since SOEs helped cushion the negative shock to the economy from the pandemic.

China: fiscal spending on public security, as a % of total



Source: Wind

Rate of work resumption as of Feb 20: SOEs vs. private

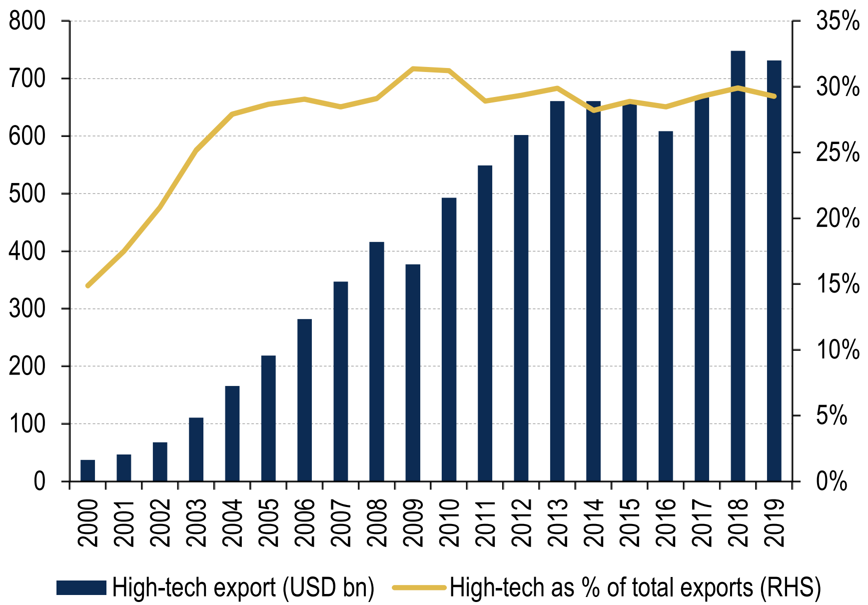


Source: China Enterprise Confederation

Note: For top 500 manufacturers

Digital infrastructure & a technology race

China's high-tech export as a % of total export



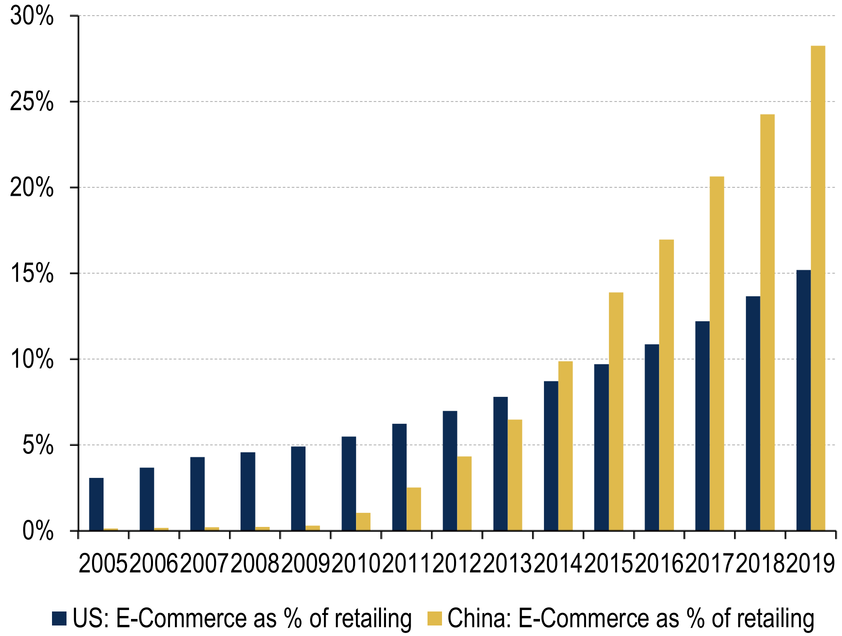
Source: CEIC

- The outbreak has made the Chinese government more determined to develop the country's technology sector, especially in digital technology, which is at the forefront of the technology curve
- The disruption caused by the virus in many countries may also give Chinese players an opening to advance their market share
- <u>Digital Infrastructure</u>
  1. Regulatory framework – IP protection, privacy, data security, data sharing
  2. Foundational frameworks – semi, 5G, AI, Big data, quantum computing, cloud
  3. Network content layer – fiber optic, RF, software
-

Offline – online migration

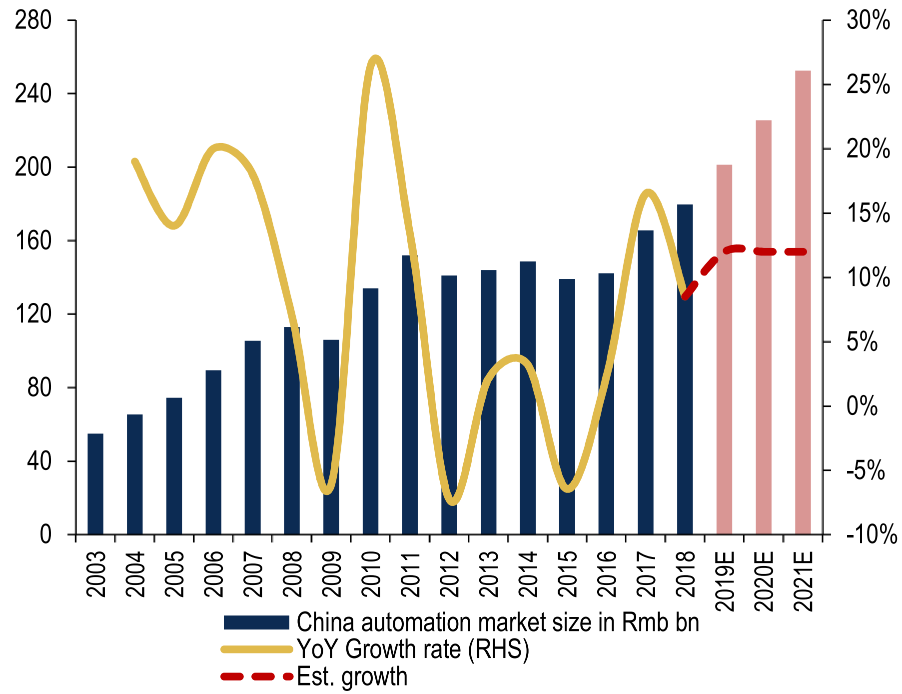
- The pandemic has clearly demonstrated the advantage of ecommerce vs. offline retailing. As a result, we expect online sales to continue to gain market share.
- Given importance of delivery in e-commerce, e-commerce and logistics companies may develop low-human-touch delivery, e.g., robots, drones, self-driven vehicles
- Ecommerce, remote working, online education, e-doctors, online entertainments

Ecommerce market share, China vs. the US



Source: Euro monitor

Automation market size – China

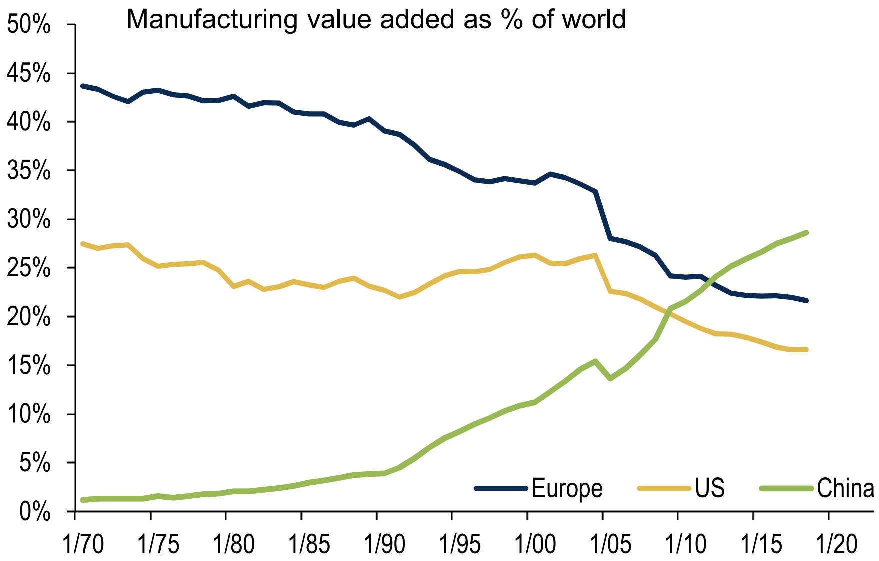


Source: Gongkong, CCID

Leaving China is not easy / Rome was not built in a day!

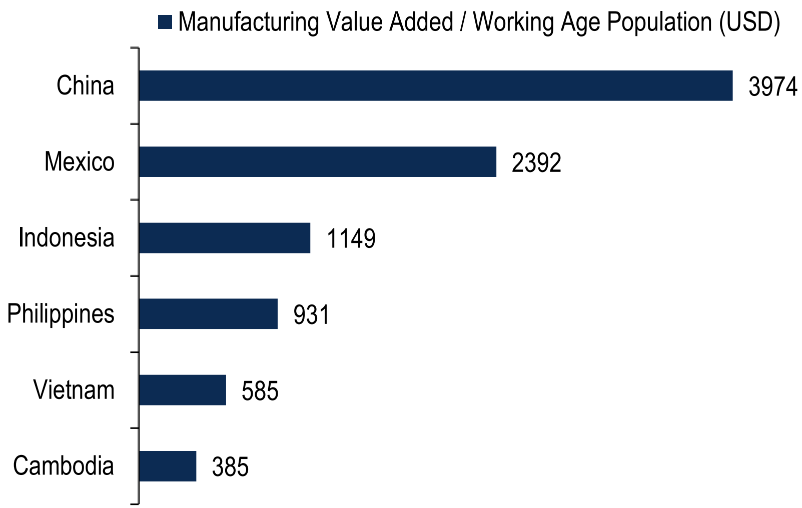
- China offered optimal mix of costs, quality, efficiency, manpower and infrastructure for 30 years leading it to account for 25%+ of world's manufacturing value added.
- One Chinese worker can manufacture about the same value of goods as four from ASEAN. Also, the lead time to hit the shelves in US stores can take up to 40 days from Thailand, almost twice as long as from China.

Manufacturing – a 30-year shift from the US and Europe to China, are we at a pivotal point today?



Source: United Nations

Labor productivity - one Chinese worker can manufacture about the same value of goods as four from ASEAN



Source: United Nations Population Database, World Bank

Are we ready to face new reality?

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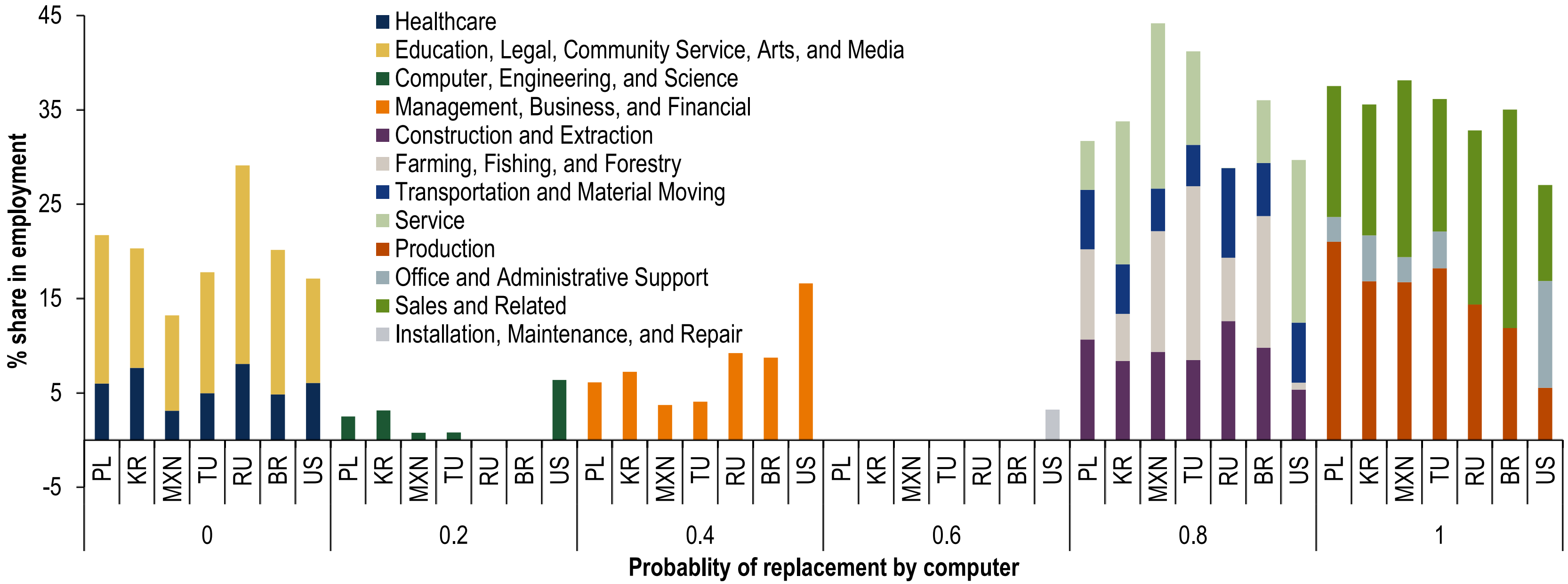
75% of jobs at risk from automation

- We estimate about 75% of jobs in EM are highly susceptible to replacement by robots, an even greater share than in DM. This is because many EM have a much higher share of manufacturing in GDP than DM, as high as 30% in Korea, Mexico and Poland.
- China substitutes = ASEAN, CEE/Turkey, Korea, Mexico

75% of jobs in EM are at risk of replacement by automation – most in Mexico, least in Russia

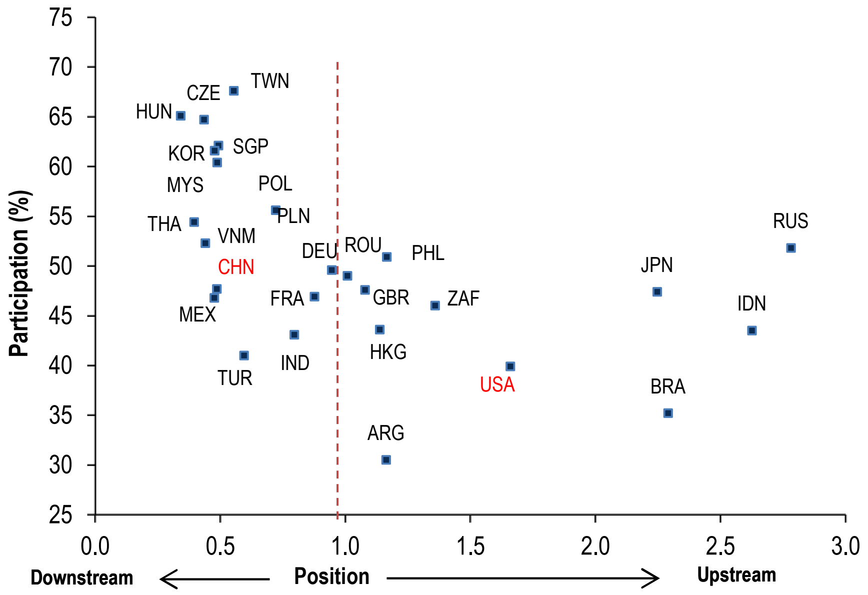


Source: Haver, BofA Global Research

An ever harder quest for growth / EM has been the main growth drivers

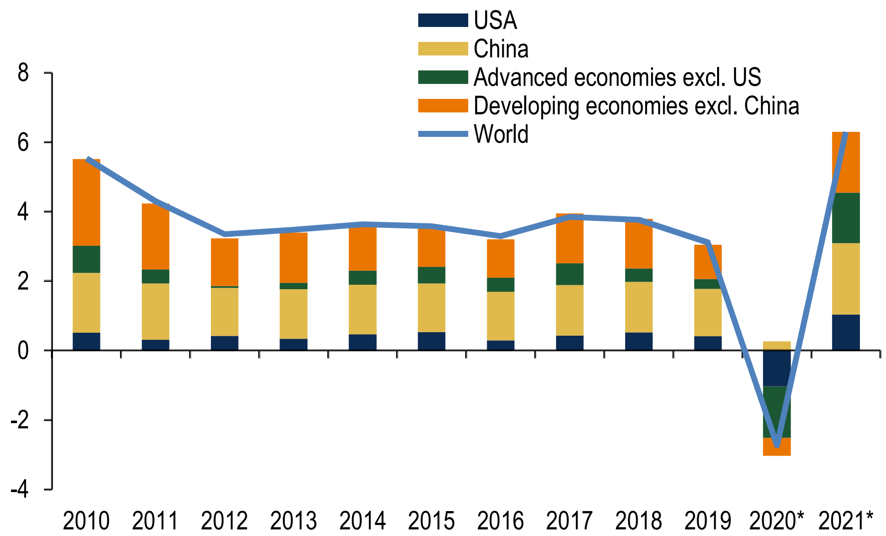
- Asian economies (Korea, SGP, Taiwan, Thailand, Vietnam), the CEE countries, Turkey and Mexico are closest substitutes to China in the global value chains.
- In a world short of growth, inundated by debt and likely full of political conflict, we would favor countries with competitive growth models, reasonably stable politics and sustainable fiscal. Countries with strained balance sheets will be even more at risk.

CEE, Mexico, Turkey & some Asian countries are close China substitutes in the GVC



Note: The positioning index is calculated as a ratio of forward to backward participation in the OECD's Global Value Chain (GVC) database which allows comparing domestic vs. foreign value added as a percentage of total exports. Downstream countries' exports have a high import content while Upstream countries are either commodity exporters or strong in R&D. Source: OECD, WTO, BofA Global Research

EM have been main drivers of global growth



Note: Real GDP (%yoy) contributions. Source: Haver, BofA Global Research

Balance sheets near a breaking point

- The fiscal costs of Covid-19 and even lower growth will add to the strain on sovereign and corporate balance sheets globally, including in many emerging markets
- Among the bigger markets, Brazil (fiscal), South Africa (fiscal) and Turkey (FX liquidity) stand out as most vulnerable, while Korea seems to relatively stable.

Pressure points in red could push countries into financial or debt crises: comparison vs last EM crash in 2015

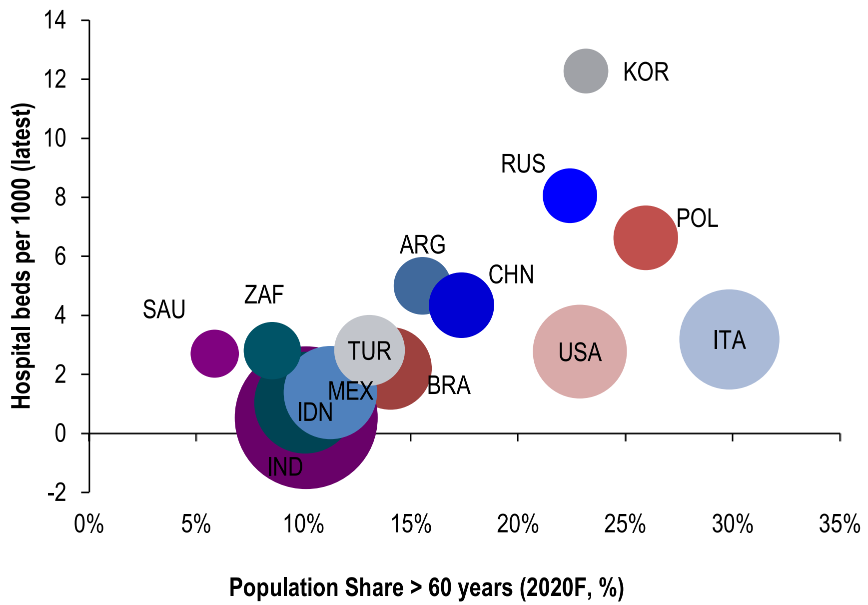
Country	current account % GDP		FX reserves/short-term external debt		foreign currency debt % GDP (all sectors)		local currency external debt % GDP (all sectors)		net international investment position, % of GDP		bank capital to risk weighted assets	
	2020	**2015**	**latest**	**2015**	**latest**	**2015**	**latest**	**2015**	**latest**	**2015**	**latest**	**2015**
Argentina	0.1	-2.7	65.7	43.1	58.4	25.6	3.7	0.9	25.0	8.8	17.5	13.3
Brazil	-3.9	-3.0	490.3	692.6	28.2	28.2	8.2	8.8	-38.9	-20.8	17.7	16.4
China	0.9	2.8	259.4	406.8	n.a.	n.a.	n.a.	n.a.	15.5	14.9	14.5	13.5
India	-0.7	-1.0	405.6	409.9	12.5	16.2	6.5	6.5	-15.2	-17.3	15.2	12.7
Indonesia	-2.7	-2.0	272.1	268.7	n.a.	n.a.	n.a.	n.a.	-29.9	-43.8	23.3	21.3
Korea	5.4	7.2	270.4	348.1	20.5	19.9	7.8	7.2	31.2	13.9	15.2	13.9
Mexico	-0.9	-2.7	312.2	246.9	27.0	25.1	8.3	10.5	-50.2	-51.3	16.0	15.0
Poland	1.0	-0.6	215.4	248.3	38.4	44.9	22.0	24.5	-50.2	-60.0	18.4	16.0
Russia	0.9	5.0	936.5	761.7	20.7	32.1	8.2	6.1	23.3	25.0	12.5	12.7
Saudi Arabia	-6.2	-8.7	1140.2	n.a.	n.a.	n.a.	n.a.	n.a.	86.1	105.4	19.4	18.1
South Africa	-2.0	-4.6	143.1	143.1	26.0	21.8	23.6	17.3	13.1	12.9	16.8	14.2
Turkey	-1.6	-3.2	66.6	88.4	55.2	43.8	3.2	2.8	-46.9	-44.7	18.4	15.6

Source: IMF, BIS, Haver, BofA Global Research

Better to be young and healthy, check for fiscal space; domestic growth; political stability

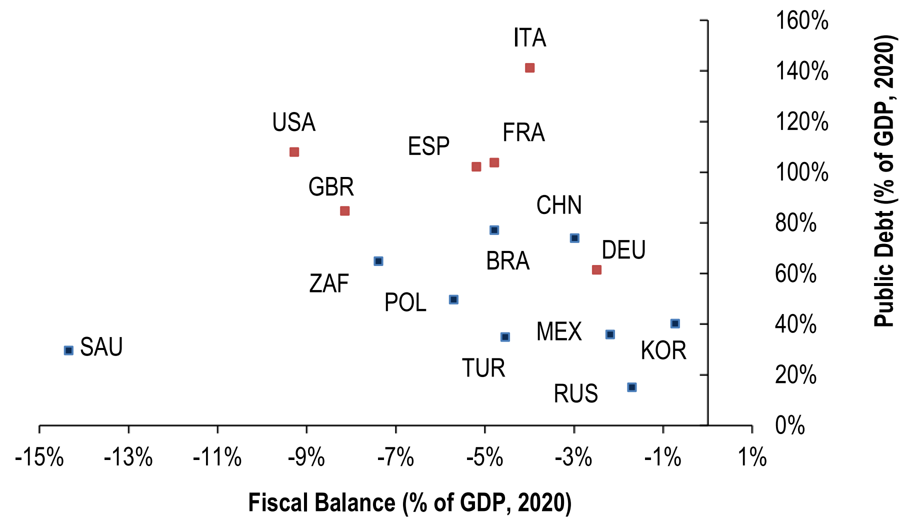
- Aged countries already have lower growth, but Covid-19 is likely to reinforce this relationship 1) as consumers there will be more cautious of infection 2) a greater need to boost health care will be fiscally expensive and crowd out other growth
- Only countries that have room (i.e. fiscal space, growth, political stability) to stimulate growth and upgrade their healthcare systems will be able to navigate this environment reasonably well. Korea seems stable in this regard.

In EEMEA slightly better health system offsets older population



Note: Bubble size = x/y, Source: OECD, UN, Haver, BofA Global Research

Poland, Russia, Turkey have fiscal space, South Africa doesn't

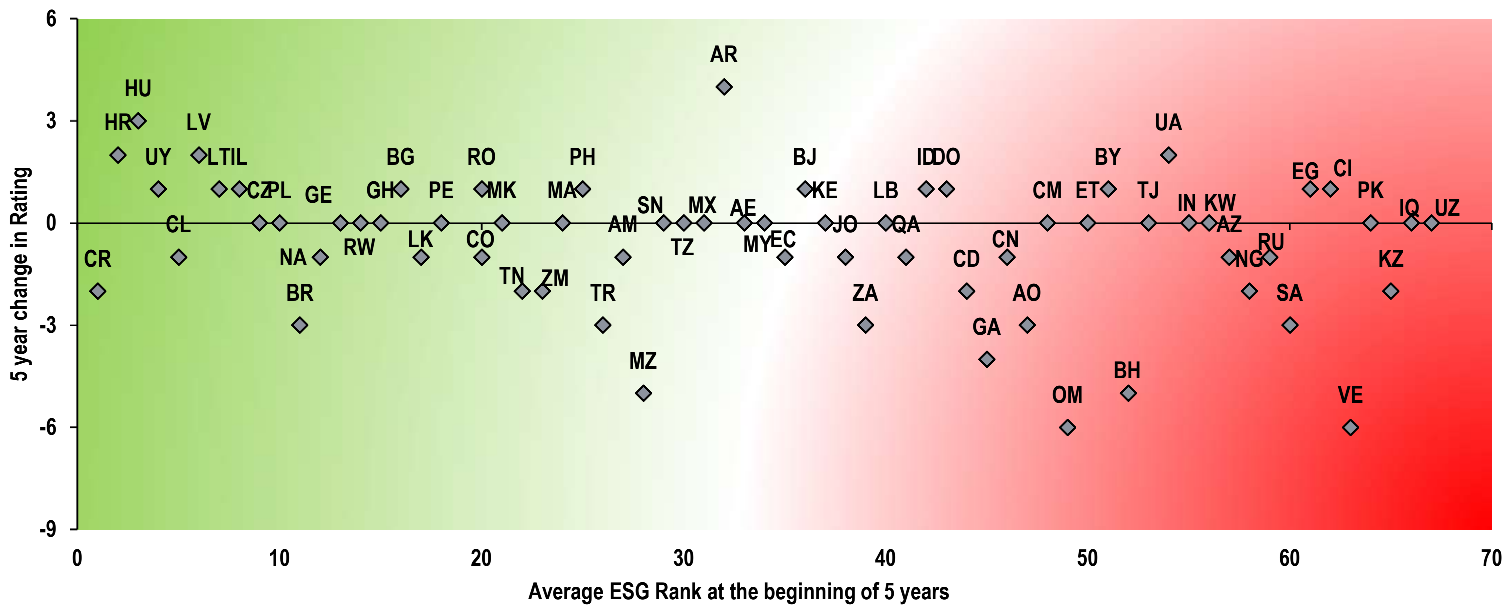


Source: Haver, BofA Global Research

ESG helps to avoid credit pitfalls

- Sovereigns with better ESG rank are also less likely to experience credit rating downgrades over the next five years, and vice versa . Better institutions provide better safeguards against rapid deterioration in fundamentals which typically results from social conflict, fiscal spending sprees , etc
- Korea, although not included in chart, should be relatively sound given decent rankings in sources such as “Global Sustainable Competitiveness Index” where it tanked 27th out of 180 countries

Worst ESG = highest risk of downgrades over next five years, and vice versa



Source: BofA Global Research, Bloomberg

Will the economy follow the markets?

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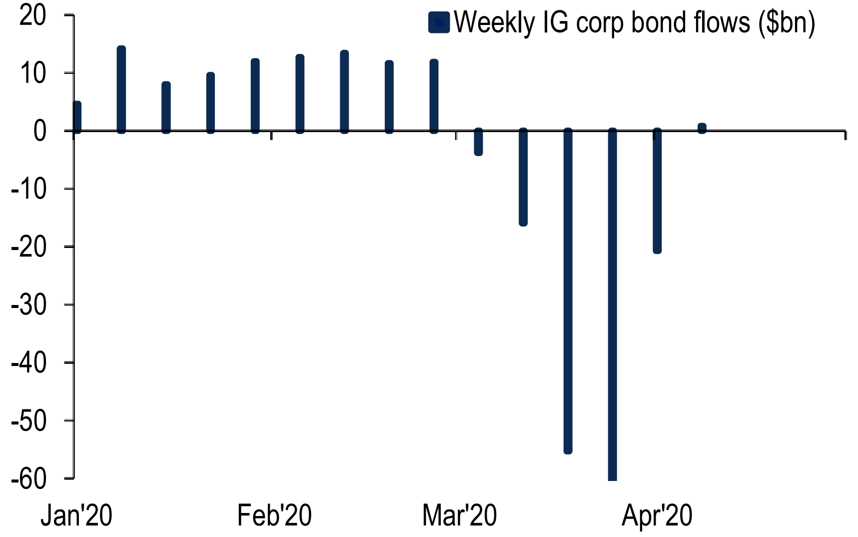
Systematic risk over?

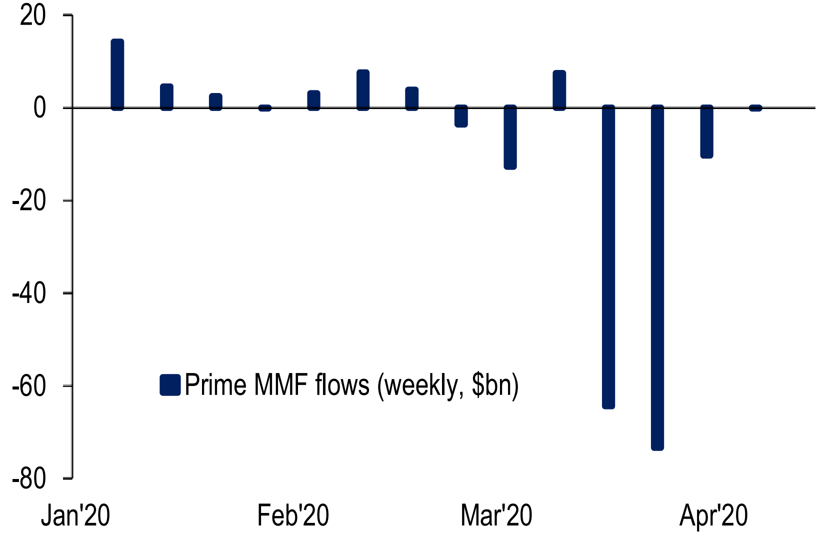
- Notably we saw the 1st week of investment grade bond (IG) inflows of $0.8bn post-5 weeks of sizable outflows. Further given that the prime MMF outflows also seem to be ending, it seems that the epicenter of systemic risk has been calmed by Fed.

Investors return to IG funds after record redemptions



Source: BofA Global Investment Strategy, EPFR Global

Record Prime MMF outflows also ending

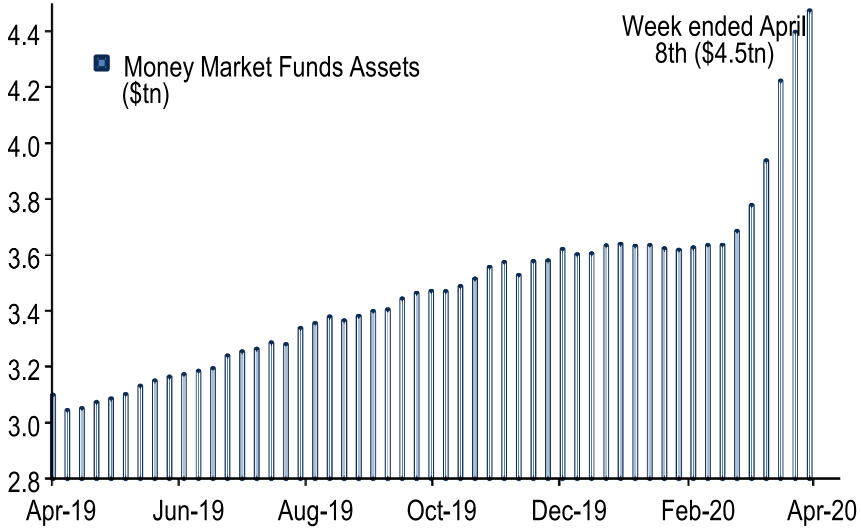


Source: BofA Global Investment Strategy, iMoneynet

Mountain of cash and investors turning into forced buyers

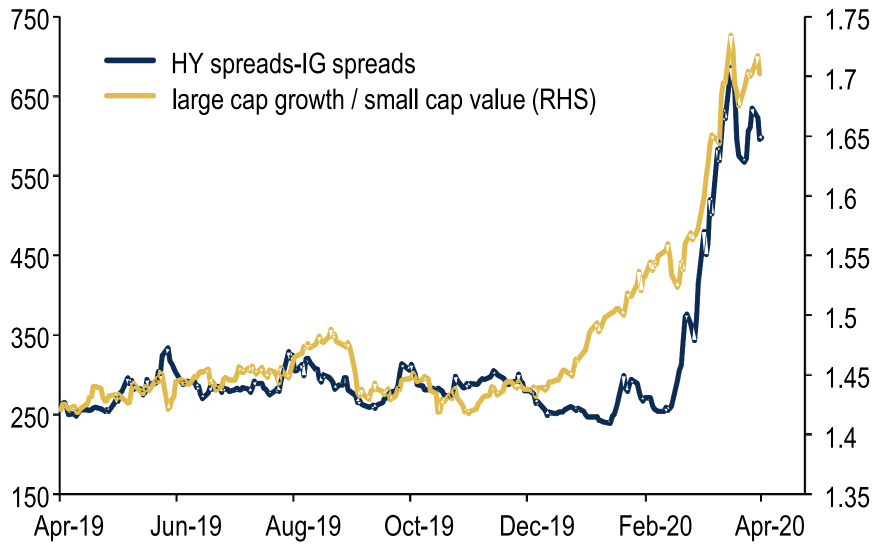
- AUM of US money market funds stands at $4.5tn (>$3.5tn equity market cap of Eurozone, close to $4.9tn mkt cap of EM stocks).
- Given the sizable liquidity injection with monetary + fiscal stimulus = 15% of global GDP, rally now broadening into junk away from quality as bond investors. HY bond & equity investors are now "forced buyers" to hedge against Q3 GDP bounce.

US Money Market Fund assets soar to $4.5tn



Source: BofA Global Investment Strategy, Bloomberg, FRED

Liquidity injection turning investors into "forced buyers"

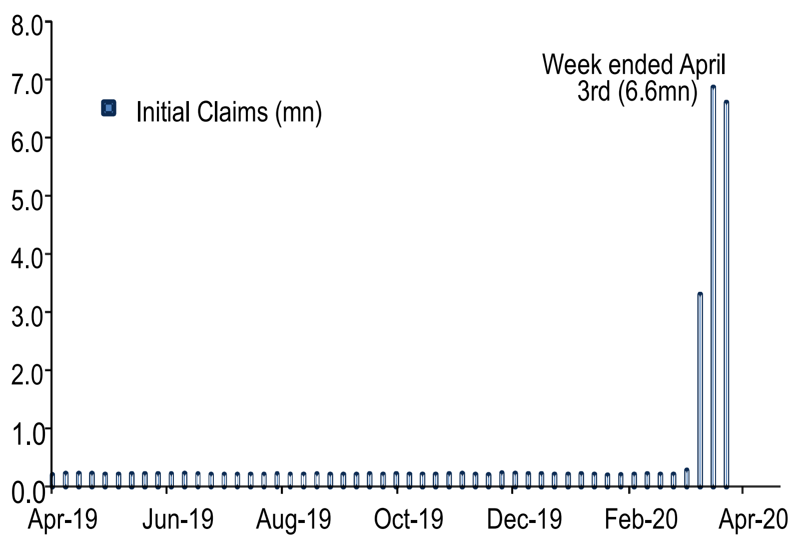


Source: BofA Global Investment Strategy, Bloomberg

Possibility of a long recession..? – see jobless claims and mortgage applications

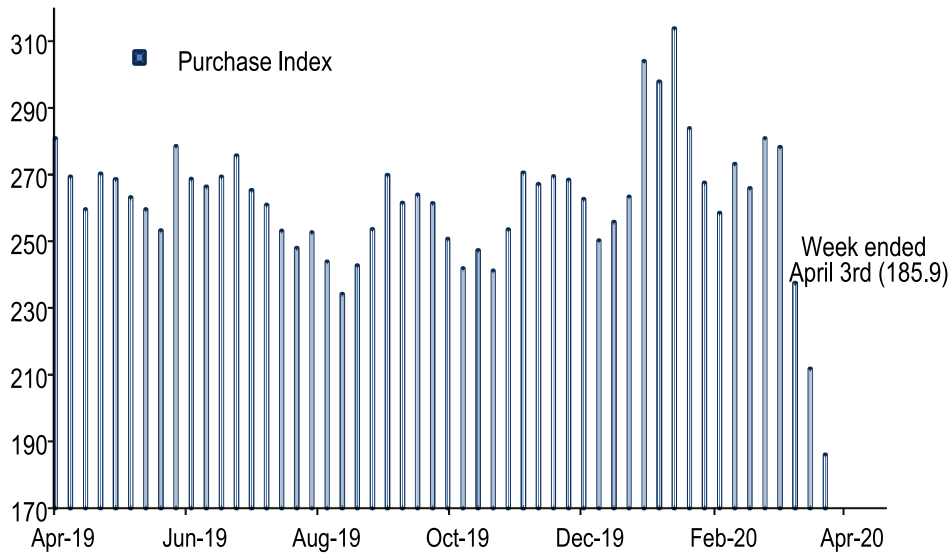
- To judge the possibility of a longer recession, we need to watch weekly data on US jobless claims. We would need a big drop from sizable current levels of 6 million to <1 million in order to calm recession concerns.
- We would also need to see US mortgage applications (purchase) bounce, which is a good lead indicator of consumers, to see if we can avoid a long recession

The bad news…initial claims hit staggering 6.6mn…



Source: BofA Global Investment Strategy, Bloomberg, FRED

…and mortgage applications are plunging

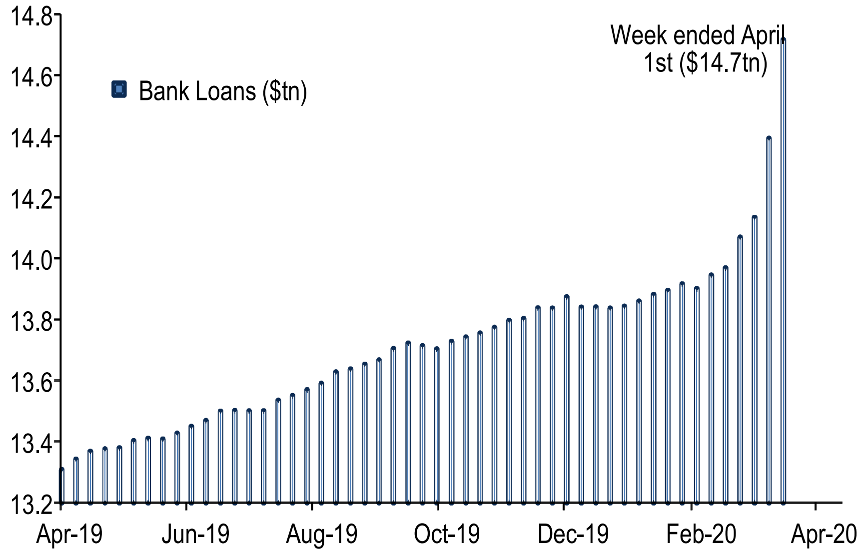


Source: BofA Global Investment Strategy, Bloomberg, FRED

Possibility of a long recession..? – see bank lending and Fed balance sheet

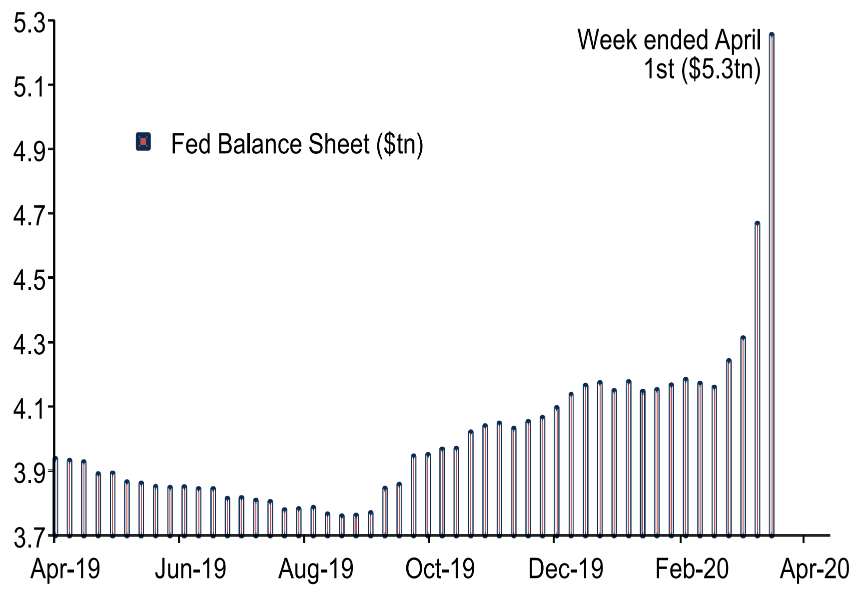
- US bank lending has been rising to fresh highs (up from $14.0tn to $14.7tn). This needs to continue along with the surge in Fed balance sheets, to signal that Fed liquidity is finding real economy.

The goods news…US bank lending rising to fresh highs…



Source: BofA Global Investment Strategy, Bloomberg, FRED

…alongside the engorged Fed balance sheet

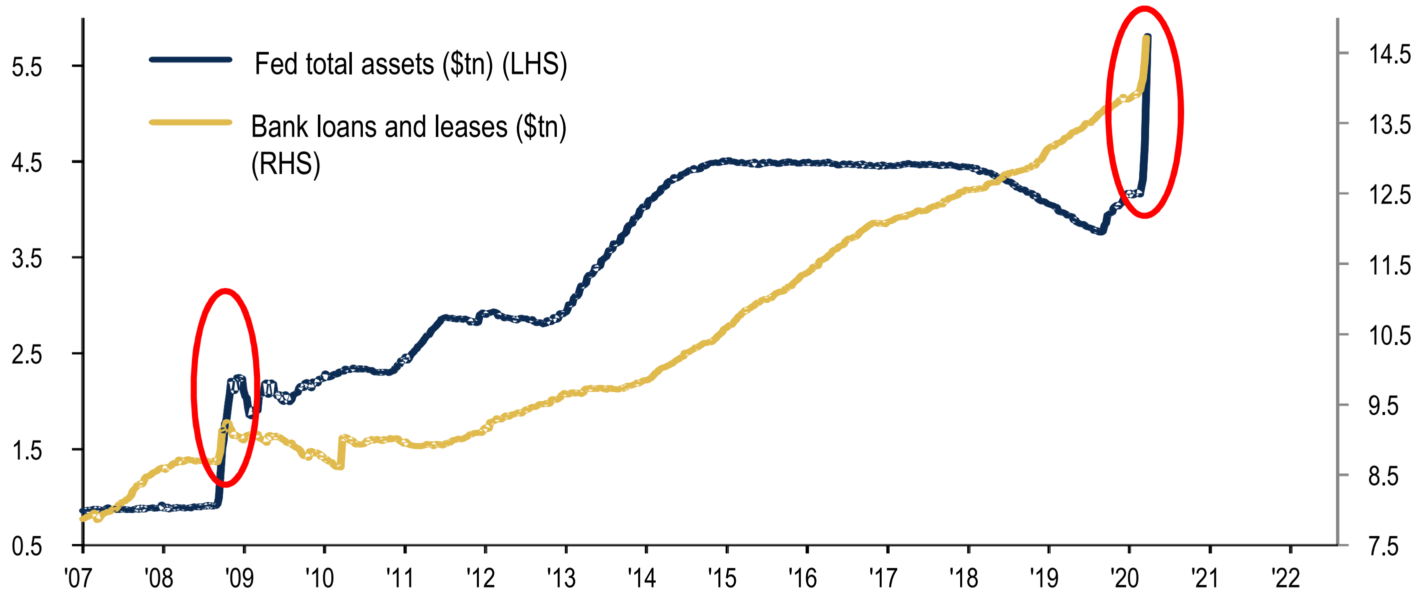


Source: BofA Global Investment Strategy, Bloomberg, FRED

Need to see more bank lending along with Fed balance sheet expansion

- Combination of bank lending and Fed balance sheet expansion will imply that Fed policies are having real impact, which is something we didn't see in the Global Financial Crisis.

Combo of rising bank lending & Fed balance sheet key to economic recovery

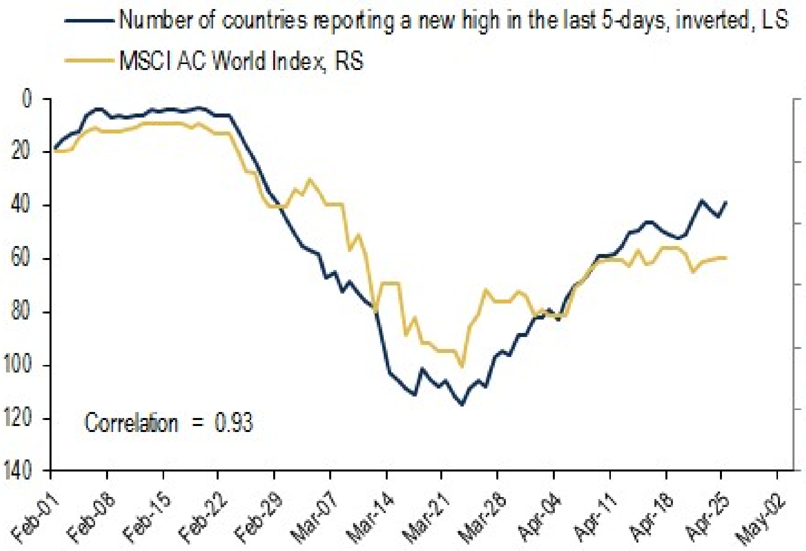


Source: BofA Global Investment Strategy, Bloomberg, FRED

When will economies reopen?

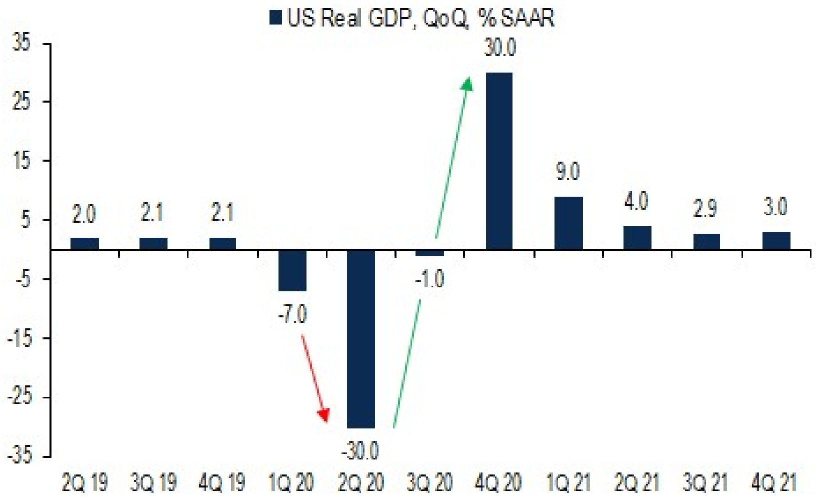
- Industrial and construction capacity have largely been restored with 99% of large firms and 84% of SMEs as of mid April
- Supply side in China mostly back to capacity – 85% of housing and infrastructure project resumed work by 1 April

Global equities moving with the number of countries reporting a new high in daily COVID-19 cases, suggesting continued recovery as the pandemic fades out



Source: BofA Global Research, John Hopkins University, Bloomberg. Note: Only countries with cumulative cases of 50 or above till date are considered.

We expect a sharper global recession in 2020, followed by a strong recovery the next year, including a staggering 30% annualized QoQ contraction in US GDP in 2Q 2020

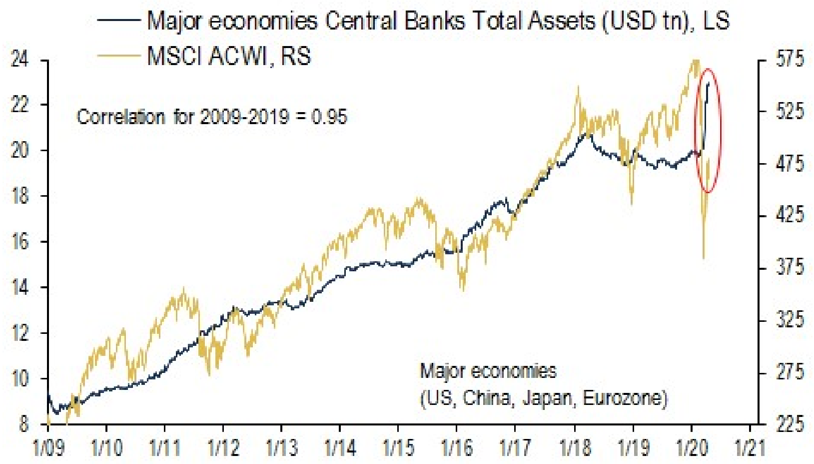


Source: BofA Global Research

When will economies reopen?

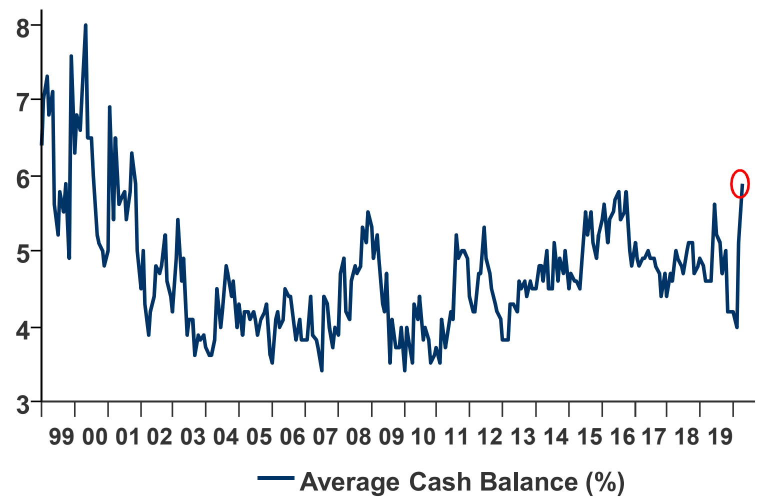
- The majority of rest of Asia to be next in line for economic recovery followed by EU and US
- Germany has already started to reopen

Central bank balance sheet expansion drives asset prices...estimated USD7tn central bank balance sheet expansion coming in 2020



Source: BofA Global Research, Bloomberg

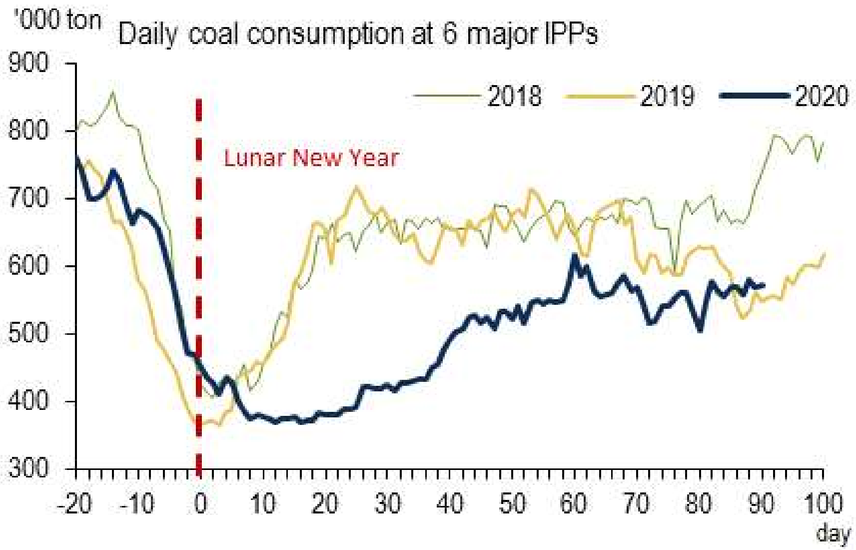
BofA April Fund Manager Survey shows extreme investor pessimism as average cash balance jumped from 5.1% last month to 5.9% now, the highest level since the 9/11 terrorist attacks



Source: BofA Global Fund Manager Survey, Bloomberg

How sharp will the recovery in activity be?

China's Road to Normalcy: Energy demand has recently exceeded 2019 levels

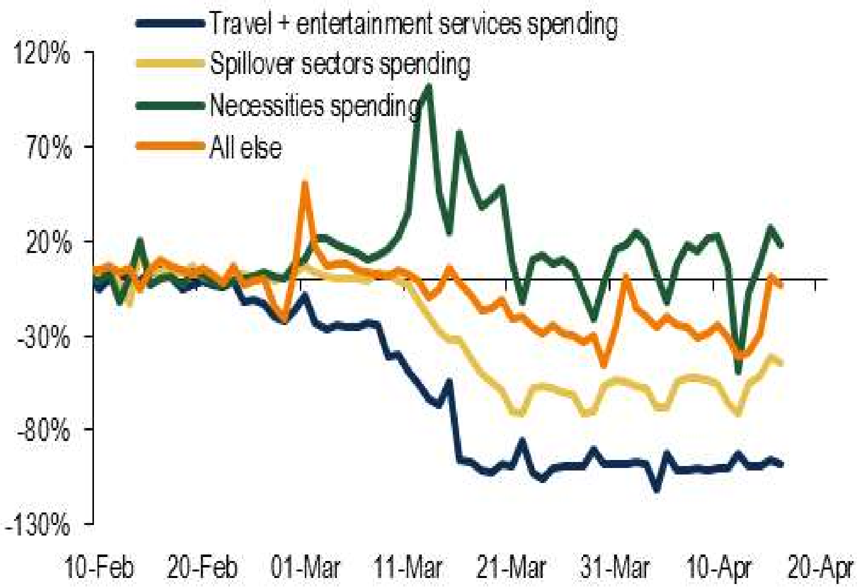


Source: Wind

- According to survey of BofA analysts, most voted in favor of U shaped recovery from COVID-19. Restoration of demand holds the key to sustained economic recovery
- Market demand in China may fully recover to its 2019 level by the end of the month
- Notably, consumption of coal at major power plants exceeded the 2019 level
- China's retail consumption is below the pre-pandemic level, thanks to pent-up demand and government support measures. Green shoots are visible in select areas like cosmetics, luxury goods
- Chinese inter city traffic volume have also picked up major city traffic volumes have normalized

How sharp will the recovery in activity be?

Aggregated daily spending on BAC credit and debit cards



Source: BAC internal data. Note: Travel includes airlines, lodging and cruises. Spillover sectors include restaurants, clothing, department stores, and furniture. Necessities include groceries, general merchandise, and health & personal stores and online electronics.

- Although down from last year's levels, there is a notable sequential improvement on aggregated daily spending on BAC credit and debit cards across categories, barring airlines, lodging and entertainment
- In the US, where the pandemic is in the most severe stages, there are signs of stabilization in retail consumption, backed by BAC credit and debit card usage, ending Apr 16 (28% YoY up)

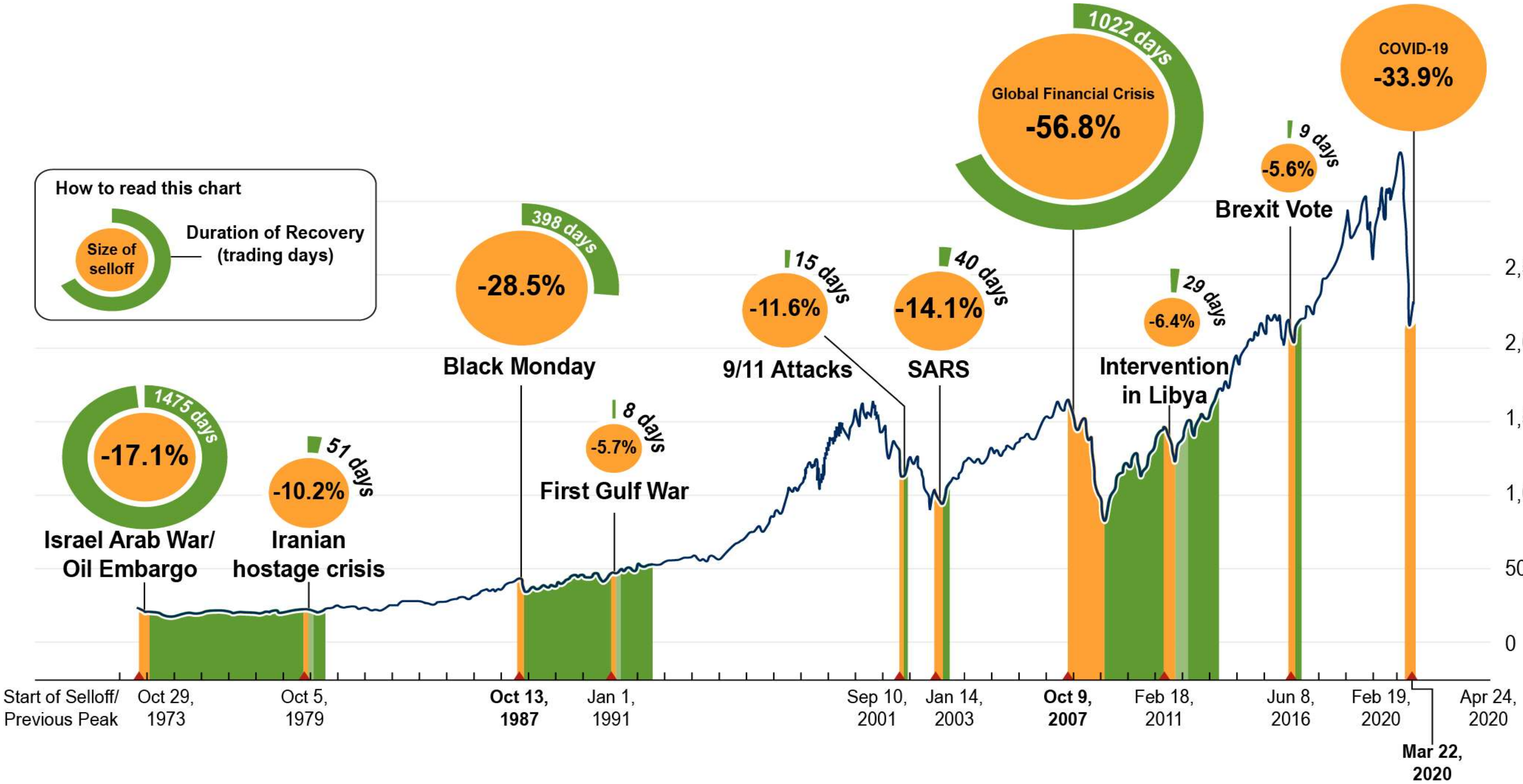
Global emerging markets snapshot
- amidst COVID-19

BofA SECURITIES

Black Swan events: Short-term crisis, Long-term opportunity

- Looking at the previous black swan events, we can see that they have been solid long term investing opportunities

S&P 500 Performance (October 1,1973 to April 24,2020)

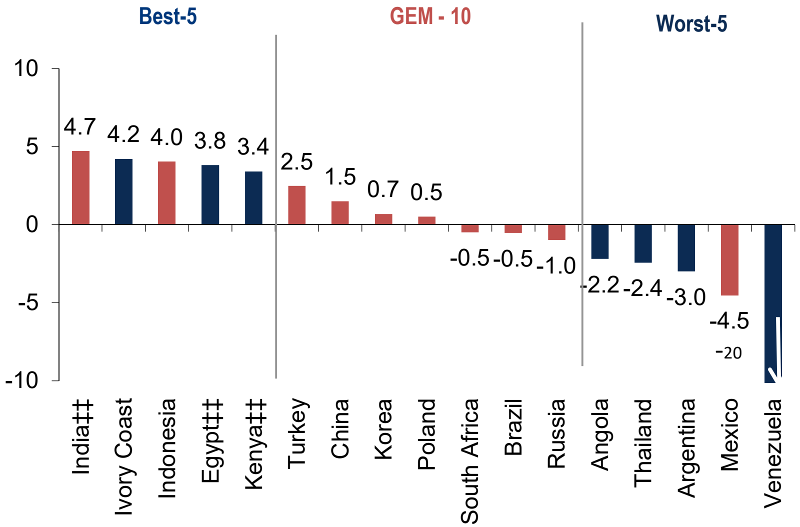


Source: Visual Capitalist, Bloomberg

Sluggish macros for most GEMs amid low interest rate environment

- GDP forecasts have been cut heavily by COVID-19 with many countries even expecting negative growth. Notably, Korea and China only expect 0.7% / 1.5% growth each.
- Recent trend of interest rate cuts have created a low interest rate environment as many countries have negative rates if adjusted for inflation.

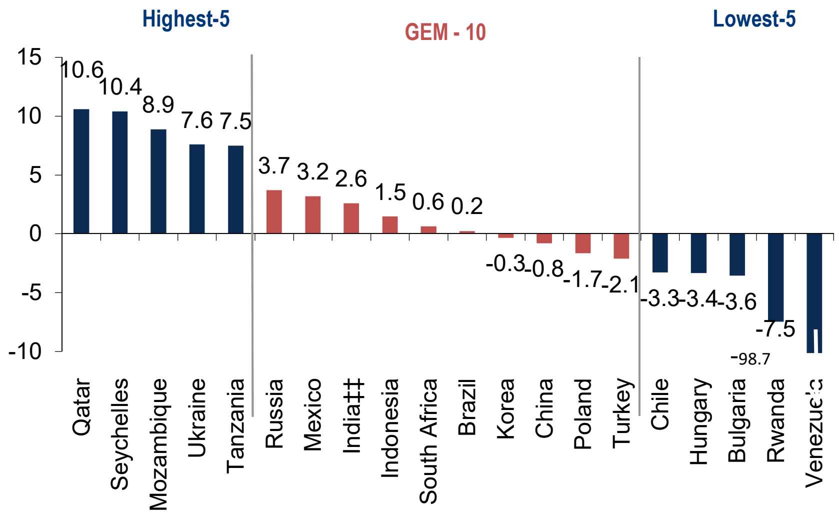
Real GDP growth (%, 2020F)



Source: BofA Global Research

‡‡Fiscal Year (FY21 for India). Source: BofA Global Research, IMF

Real policy interest rate* (%, CPI adjusted, latest)



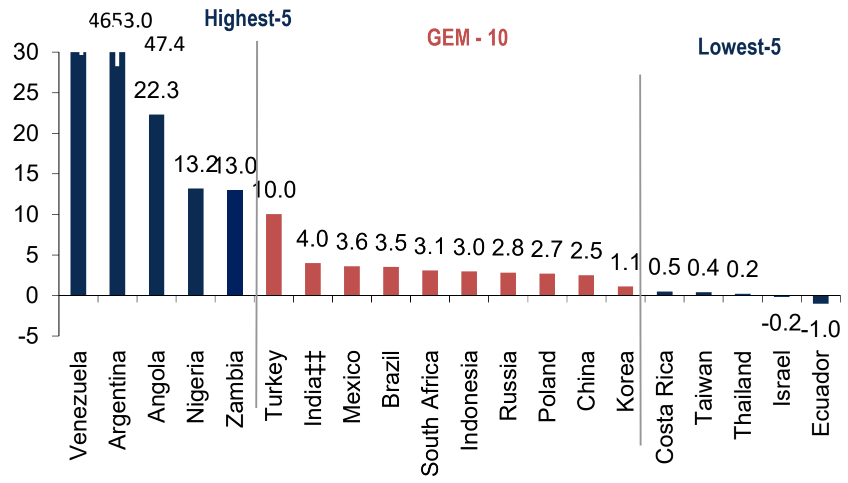
Source: BofA Global Research

*Current policy rate or ST rate adjusted for trailing CPI inflation; ‡‡Fiscal Year (FY21 for India). Source: BofA Global Research

Low inflation and current account provides some support

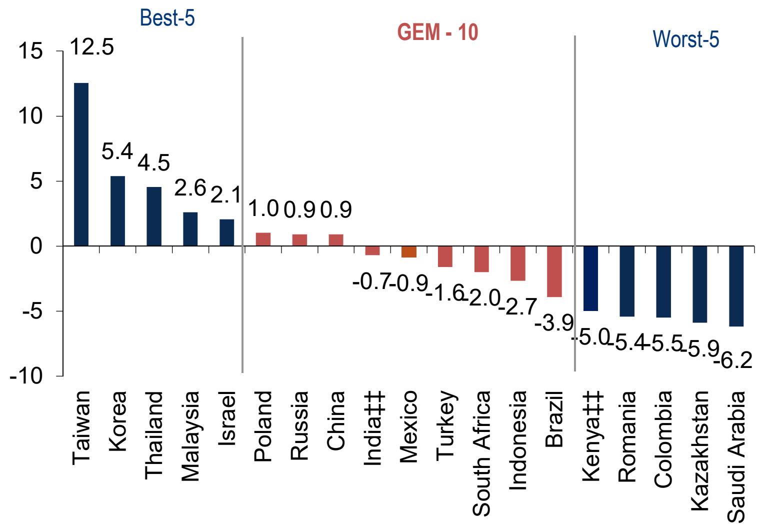
- Most big GEMs expect low inflation which will allow central banks to cut rates.
- Further, some big GEMS seem reasonably resilient in terms of current accounts, especially for Taiwan, Korea and Thailand.

CPI inflation (%, 2020F)



Source: Euro monitor

Current account balance (% GDP, 2020F)

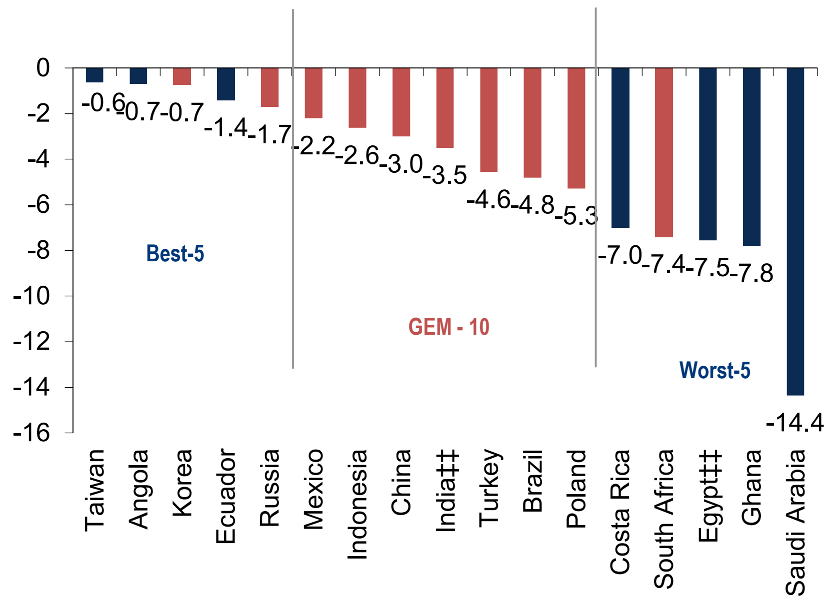


Source: Gongkong, CCID

Korea and Russia with sound fiscal balance and public debt levels

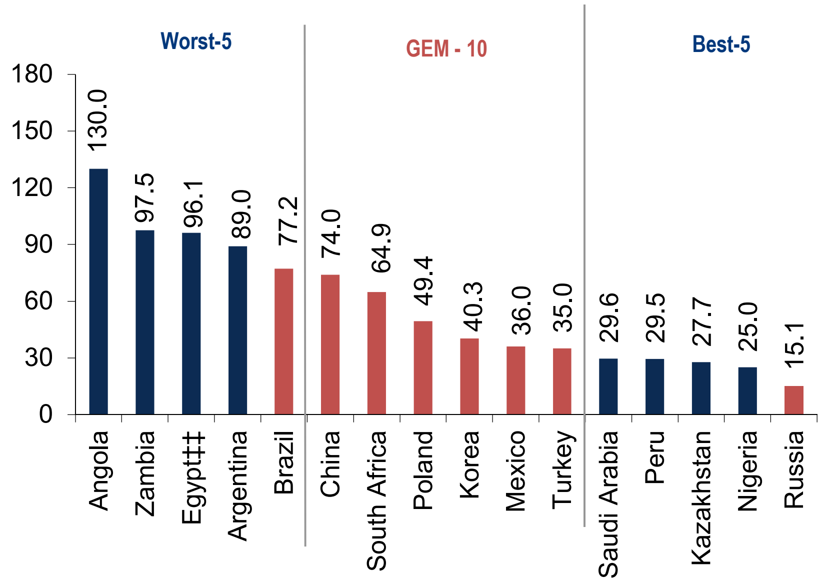
- Taiwan and Korea have sound fiscal balance with negative balance of <1x GDP, while countries in Africa and S. America seem to have more troubling levels of fiscal balance.
- High public debt still remain an issue but Korea seems to have relatively sound levels of 40% of GDP. Notably, Russia had very low levels at only 15% of GDP.

Fiscal balance (% GDP, 2020F)



‡‡Fiscal Year (FY21 for India). Source: BofA Global Research

Public debt (% GDP, 2020F)

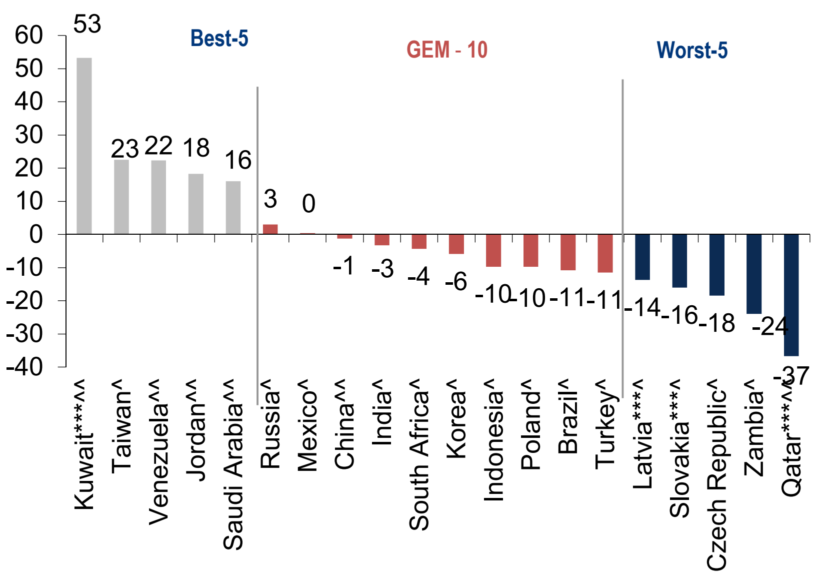


‡‡Fiscal Year . Source: BofA Global Research

Net external position and FX reserve – Russia is solid, while Korea and China are in middle-ranges

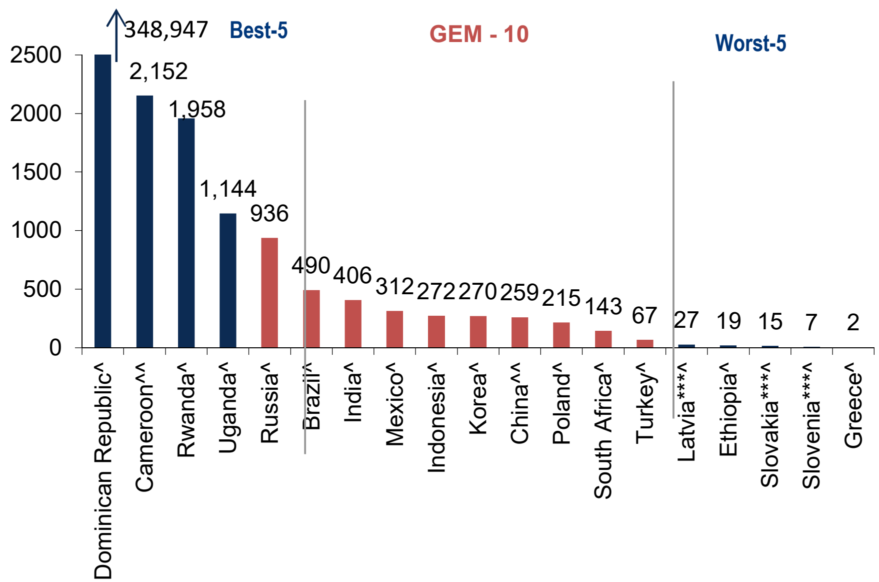
- Overall net external position was low, with most major GEMs having negative positions. Korea ranks in the middle range at -6% of GDP.
- Among big GEMs, Russia has the most solid FX reserves while Korea and China ranks somewhere in the middle.

Net external position* (% GDP, latest)



*Countries' net external position vs BIS reporting banks. Rankings exclude some countries as external positions biased upwards for offshore centers (Bahrain, Seychelles) or due to significant nonresident deposits (Lebanon). ^^ - countries with fixed/non-floating exchange rate regime; ^ - countries with floating exchange rate regime; ***Data not comparable for external debt/positions and FX reserves: Greece, Latvia, Lithuania, Slovakia and Slovenia as Eurozone members. Source: BofA Global Research, BIS

FX reserves/ST external debt*

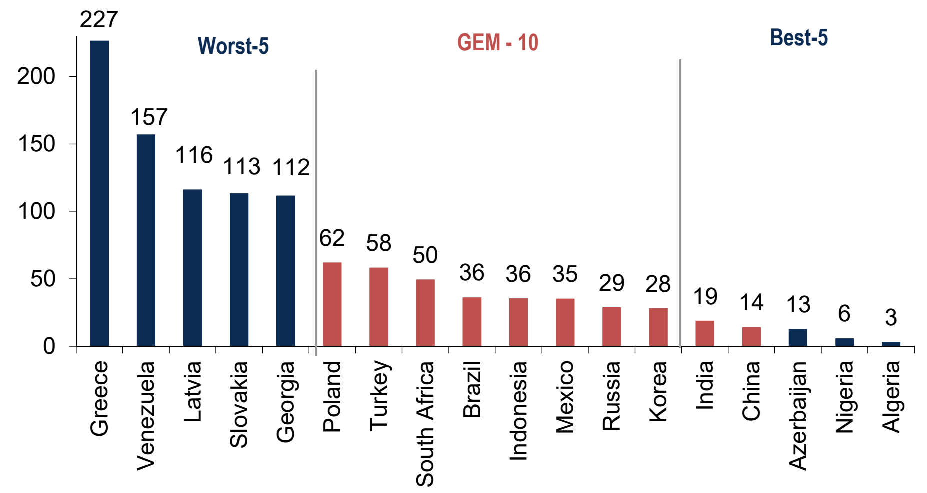


*Total reserves ex gold over external debt with original maturity up to 1 year. Rankings exclude some countries as external debt biased upwards for offshore centers (Bahrain, Seychelles) or due to significant nonresident deposits (Lebanon); or FX reserves not fully reported due to sovereign wealth funds (Kuwait, Qatar and UAE); ^^ - countries with fixed/non-floating exchange rate regime; ^ - countries with floating exchange rate regime;***Data not comparable for external debt/positions and FX reserves: Greece, Latvia, Lithuania, Slovakia and Slovenia as Eurozone members. Source: BofA Global Research

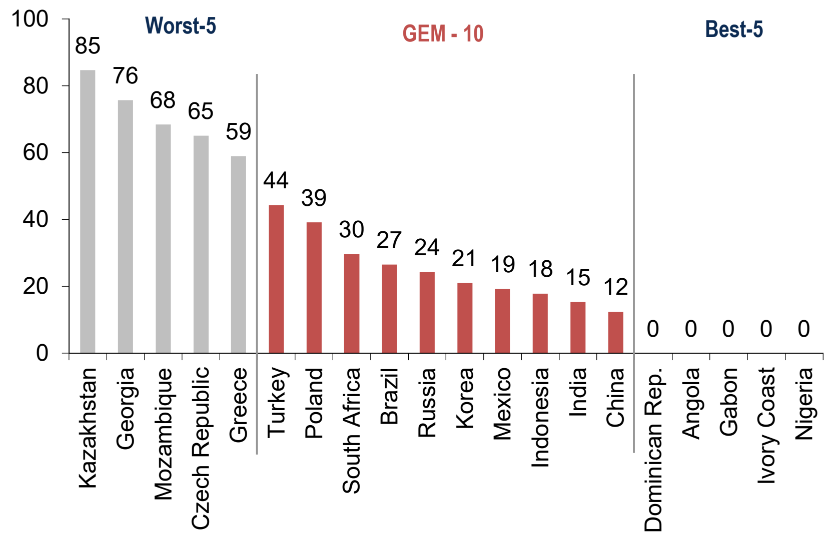
Solid gross external debt levels for most major GEMS

- Most major GEMs show sound levels of Gross external debt with China, India and Korea ranking the highest among large economies. China and India also show solid levels in terms of private sector external debt.

Gross external debt (% GDP, latest)



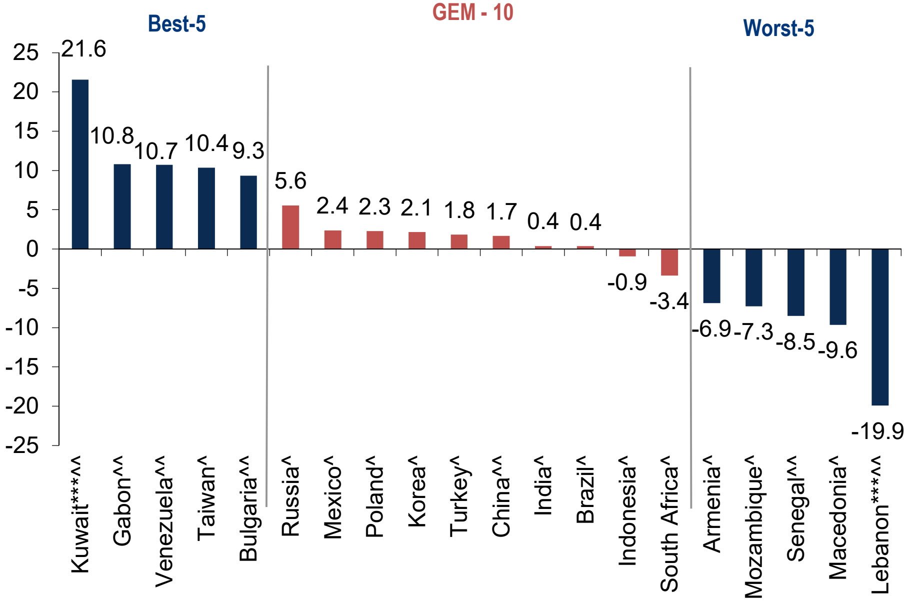
Gross external debt: private sector (% GDP, latest)



Rankings exclude some countries as external debt biased upwards for offshore centers (Bahrain, Seychelles) or due to significant nonresident deposits (Lebanon). Source: Joint IMF-WB-BIS External Debt Hub, Haver, BofA Global Research

Rather low current account balance + net FDI

Current account balance + net FDI (4q sum, % GDP, latest)



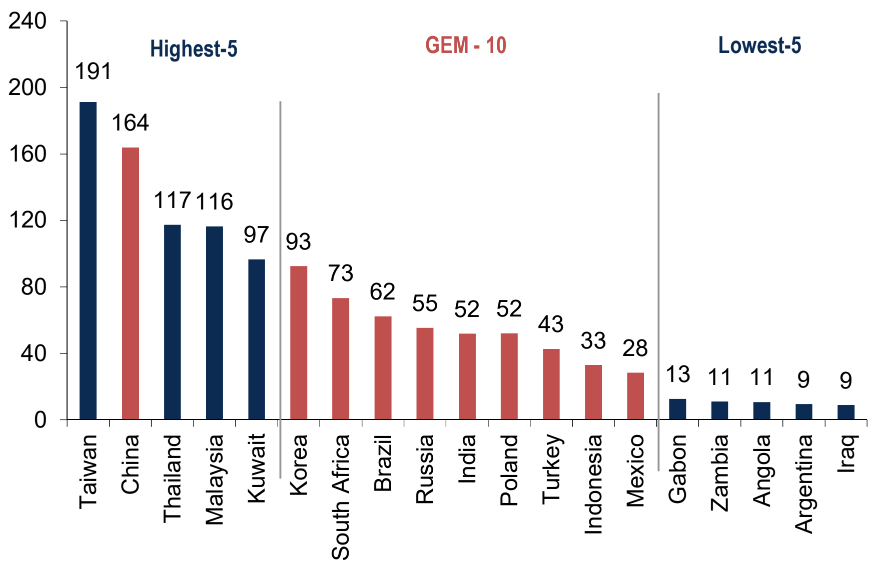
- In terms of current account balance and net foreign direct investment (FDI), major GEMs seem to have rather low levels excluding Taiwan at 10.4x GDP.
- Korea and China are in the middle level at 2.1x and 1.7x GDP each. Korea's heavy FDI outflows lead it to slide from having the 2nd highest current account balance (vs GDP) to 9th on incorporation of net FDI.

***Data not comparable as external debt biased upwards for offshore centers (Bahrain, Seychelles) or due to significant nonresident deposits (Lebanon); FX reserves not fully reported due to sovereign wealth funds (Kuwait, Qatar and UAE); Greece, Lithuania, Latvia, Slovakia and Slovenia as Eurozone members; ^^ - countries with fixed/non-floating exchange rate regime; ^ - countries with floating exchange rate regime; Source: BofA Global Research based on IMF and national sources

Private sector credit – concerning for China and Korea

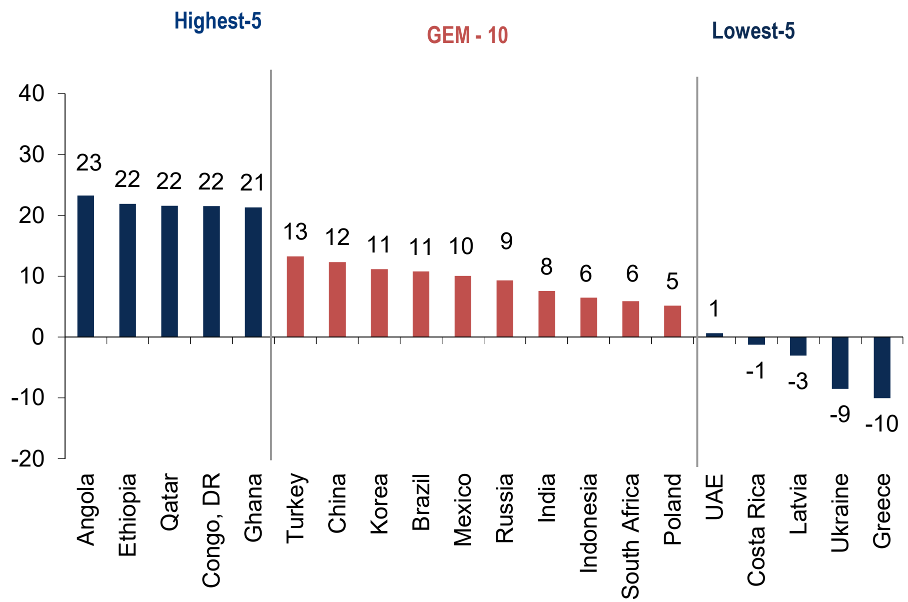
- Private sector credit are at very high levels for Taiwan and China which should increase risks on prolonging of the macro slowdown from COVID-19.
- Korea also had high levels at of private sector credit at 93% of GDP while also showing high levels of growth (as did China) at 10%+ YoY growth

Private sector credit (% GDP, latest)



Source: BofA Global Research

Private credit growth (% yoy, 3mma, latest)

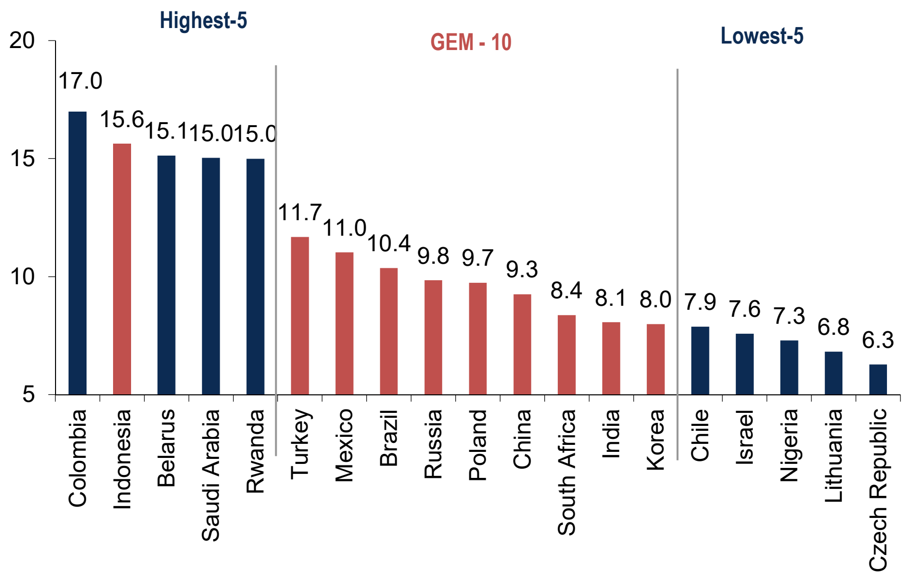


Source: BofA Global Research

Most GEMs have sound banking sector stability

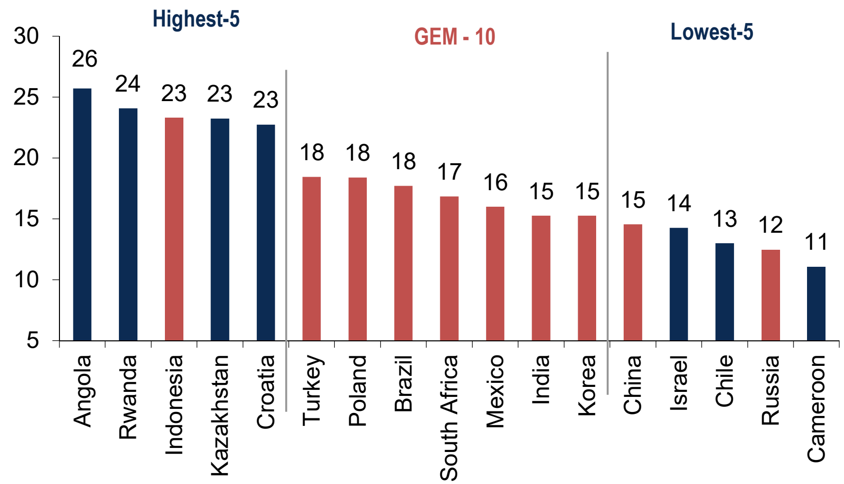
- Most major GEMs display rather sound banking sector stability shown by decent levels of bank capital in comparison to assets and risk-weighted assets
- Korea seems to have rather low levels of bank capital in comparison to other GEMs with bank capital only at 8% of assets and 15% of risk-weighted assets

Bank capital to assets, %



Source: IMF Global Financial Stability Report, October 2019

Bank capital to risk-weighted assets (%, latest)



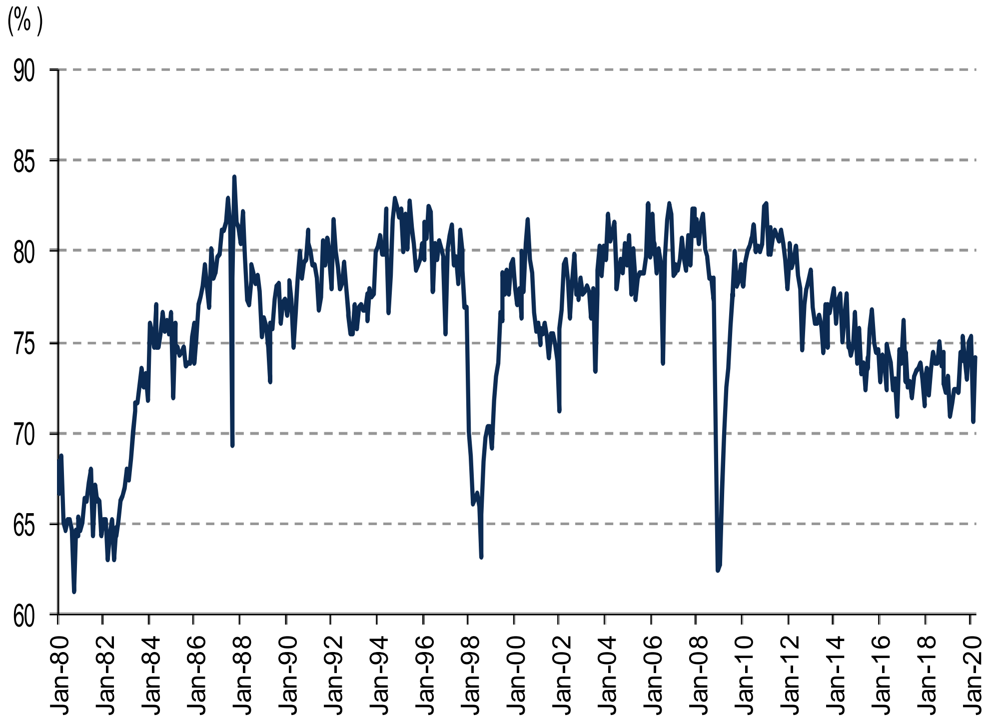
Source: IMF Global Financial Stability Report, October 2019

Korea,
Desperate for a silver lining

BofA SECURITIES

Investments – Why need more capex?

Declining capacity utilization rate of Korean manufacturers

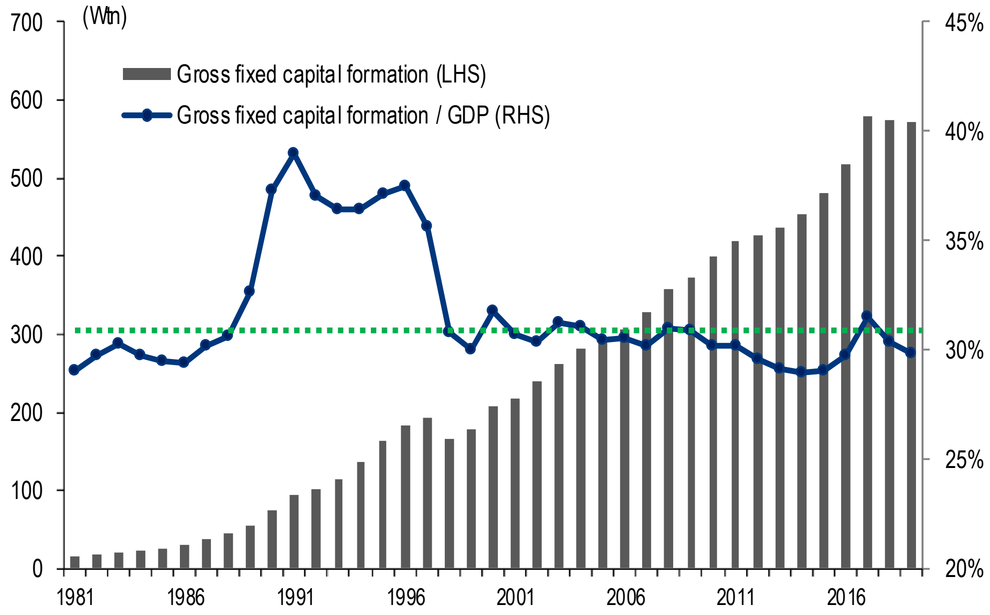


Source: KOSIS, BofA Global Research

- Macro recovery has been mainly dragged by weak domestic investments
- Korean manufacturers' capacity utilization rate has been steadily declining
- Also, construction and facilities investments faltered along with conservative corporate capex plans

Investments – below historical average

Gross Fixed-capital Formation as Percentage of GDP

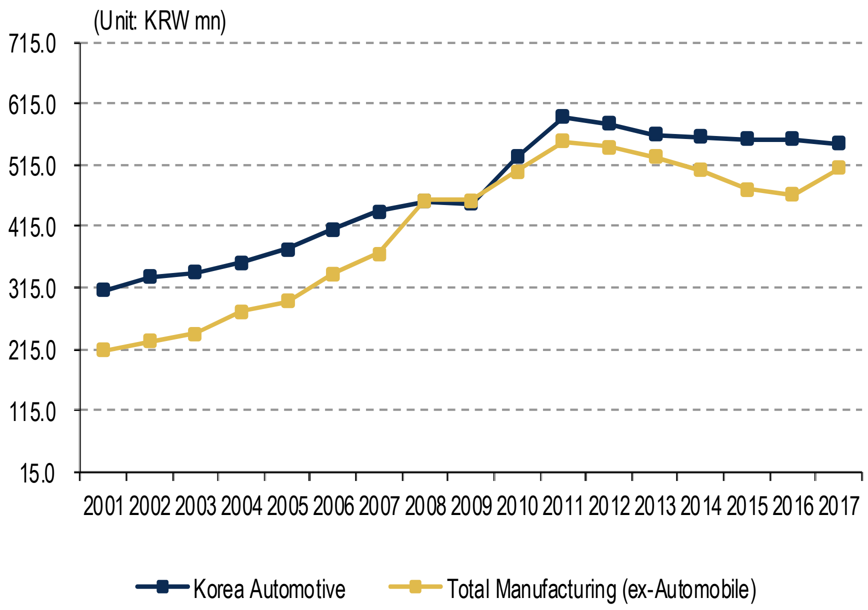


- Gross fixed-capital formation is a measure that shows how much of the new value added in the economy is invested rather than consumed.
- In 2019, gross fixed-capital formation stood at 29.8% of nominal GDP, slightly below the historical average of 31% of GDP.

Source: Bank of Korea, BofA Global Research

Productivity matters – but it is on the decline

Annual production per worker in Korean manufacturers

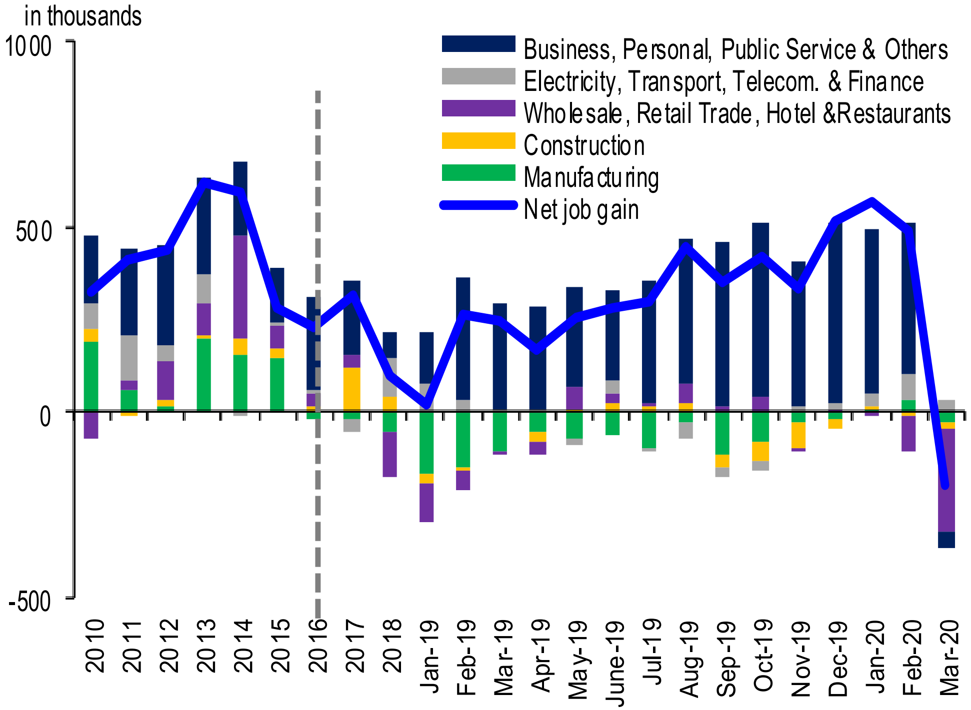


- Auto industry – Korea's representative manufacturing sector – is a good example of productivity decline.
- HMC's hour per-vehicle production is the longest in Korea factories vs. overseas, implying low productivity per unit cost.
- Annual production value per worker in Korea continues to remain lower than overseas auto peers.
- Also, production per worker in Korean manufacturers has been steadily declining since 2011.
- The declining competitiveness of domestic production is leading to weaker investment sentiment.

Source: Korea Statistics, BofA Global Research

Labor markets – Job contraction on COVID-19 impacts

Net job gains (YoY) plummet mainly in wholesale, retail, hotel/restaurants

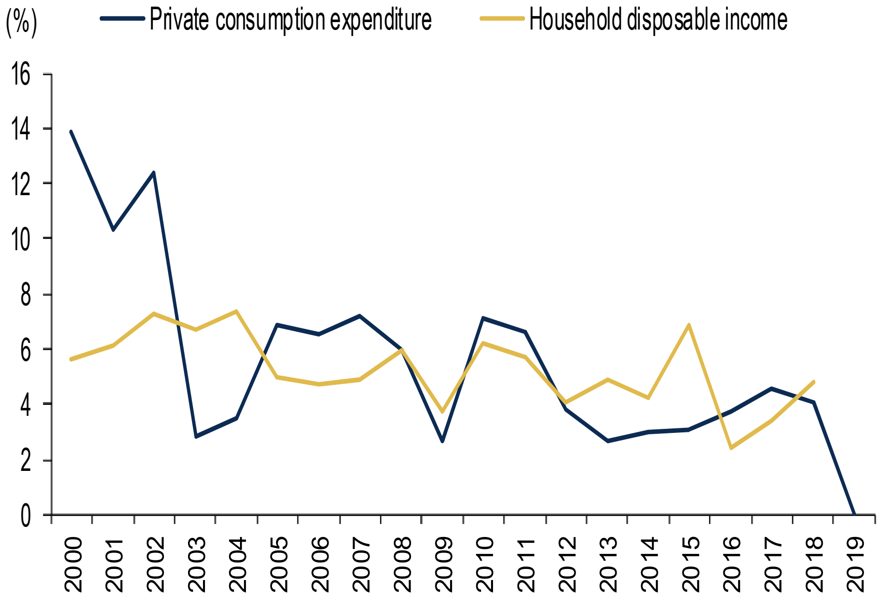


- Jobs decrease for most industries in March on COVID-19 impacts with the most substantial impact on wholesale, retail and hotel/restaurants.
- Even before the pandemic, job creation in Korea had been rather weak on the following factors:
  - Weak growth outlook in traditional manufacturers and service industries
  - Lack of new growth engine an innovation
  - Increasing overseas relocation due to the rigidity of Korea's labor market
  - Greater focus on improving labor productivity than increasing new hires, given the deteriorating cost-efficiency from an ageing workforce and additional pro-labor laws

Source: Korea Statistics, BofA Global Research

Domestic consumption – Actually weaker than the statistics

Private consumption and household disposable income growth

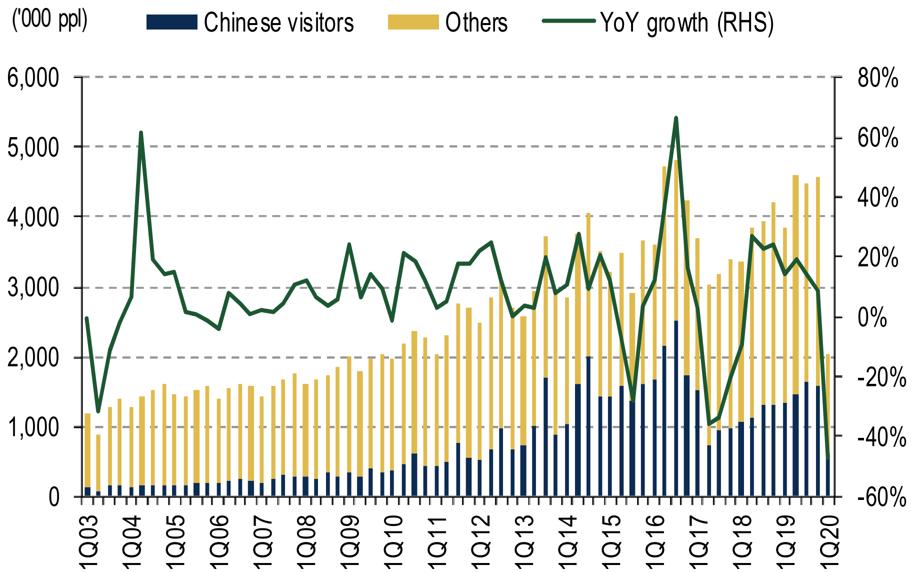


Source: Bank of Korea, BofA Global Research

- Household disposable income growth has been at lower levels of 3-4.5% in recent years, down from 5-7.5% levels in early-to-mid 2000s
- Along with a slowdown in disposable income growth private consumption growth has also slowed down to flattish growth
- If considering the rising cost of living for housing (the interest and principal payments for mortgages, *jeonse* loans, monthly rent payments), the room for additional consumption would be limited

Domestic consumption – ~¼th of growth is a function of inbound foreign visitors

Quarterly inbound visitation to Korea



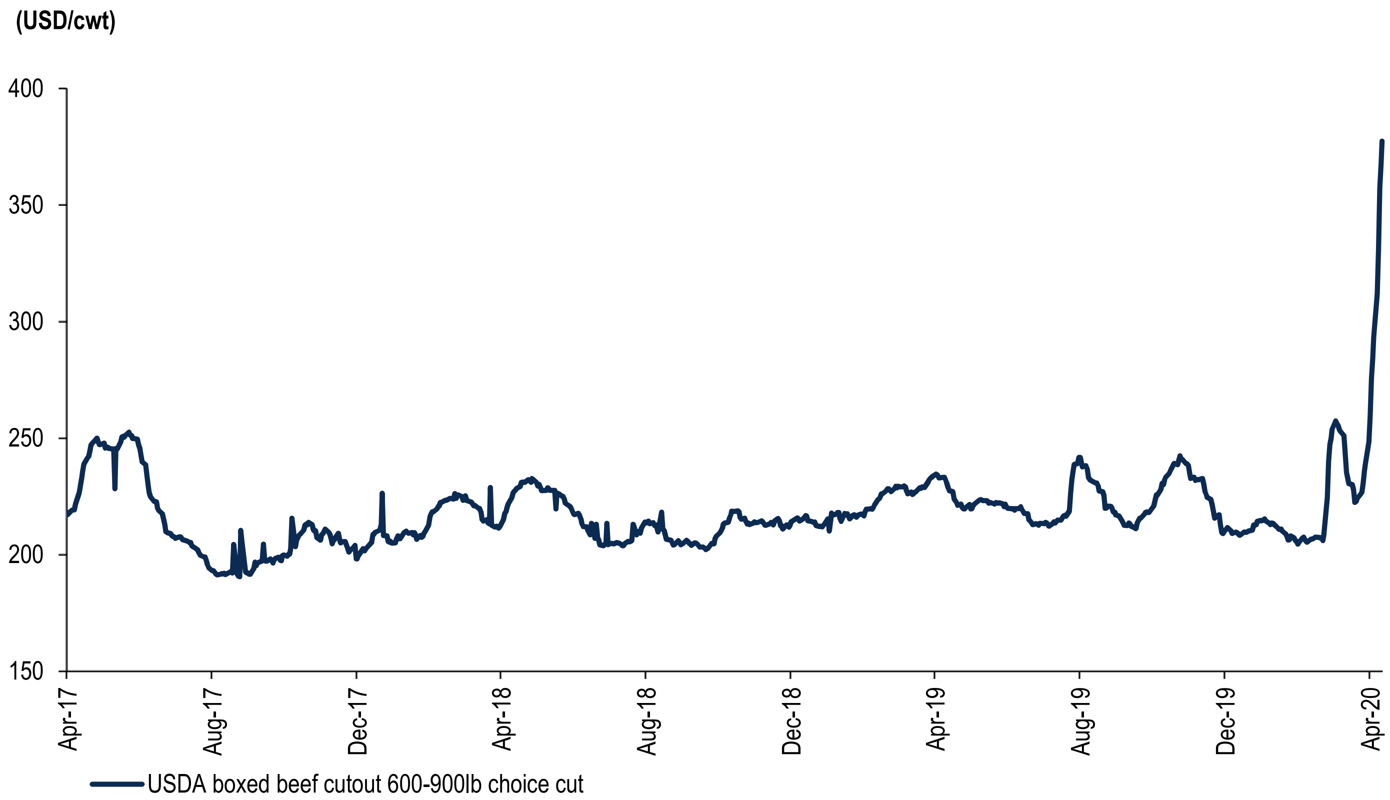
- Inbound tourism growth – mainly led by Chinese visitation – has become a large swing factor to Korea's domestic consumption growth (= residents' & foreigners' consumption in Korea). We now see that is has fell considerably in 1Q20 due to COVID-19.
- The portion of foreigners' domestic consumption is still minimal, but it has a large impact due to its high volatility.
- For example, back in 2017, residents' consumption grew 2.4% YoY, but foreigners' consumption fell 27.9% YoY, due to a significant drop in Chinese tourists. Hence, total domestic consumption growth fell to 1.7% YoY, as the decline in foreigners' consumption dragged down the total growth by 0.6ppt.

Source: Tourism Knowledge & Information System, BofA Global Research

Food driven inflation risks

- US Beef prices have hit historical highs in a matter of weeks due to supply chain disruption from COVID-19 impacts, with facilities such as slaughterhouses temporarily closed down
- Beef prices could go up even further on as restaurants open back up

USDA boxed beef cutout 600-900lb choice cut prices

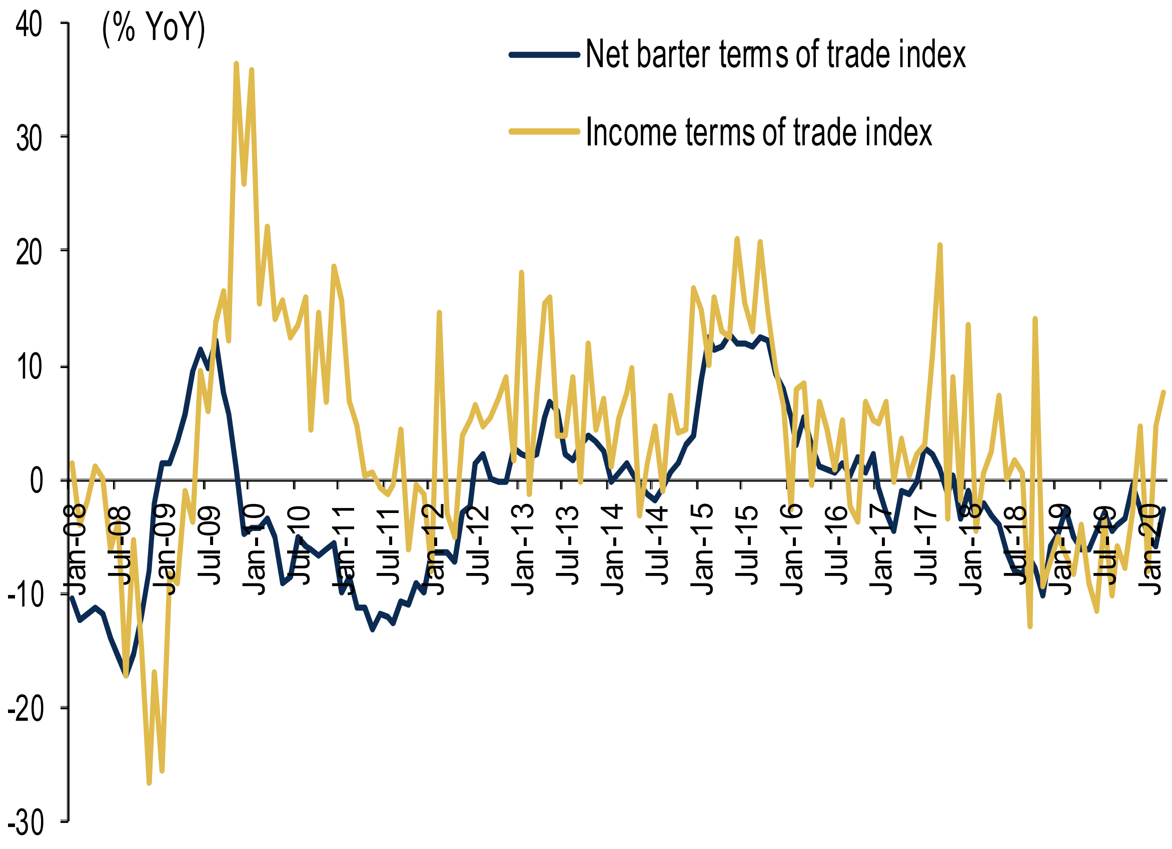


Source: Bloomberg, BofA Global Research

Exports – Deteriorating terms of trade

- Export growth has been falling rapidly with the most recent April exports down 24% YoY.
- However, terms of trade indices have continued to stay at rather weak levels.
- Korea’s export volume and price should be face even further challenges going forward on such a global slowdown in demand from the pandemic

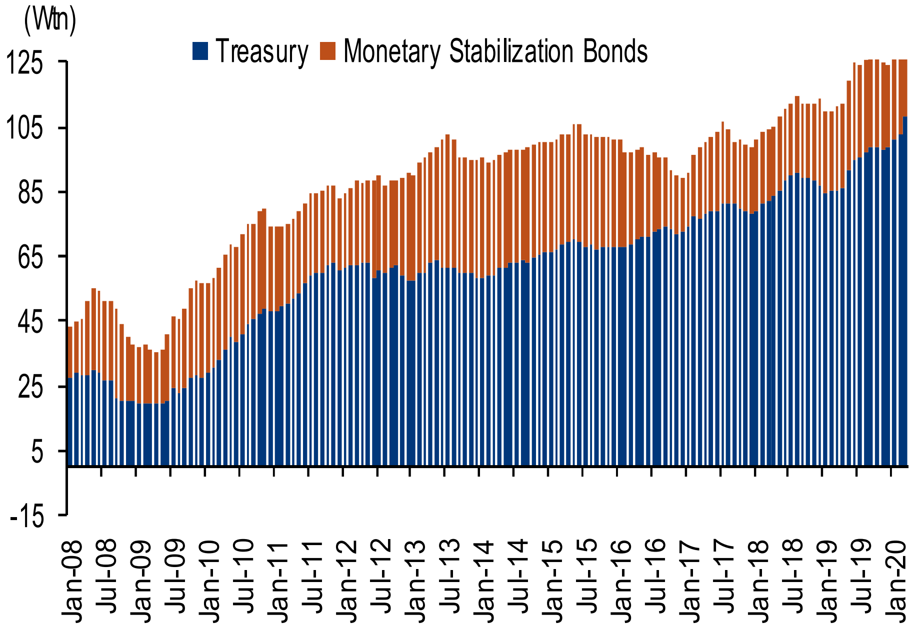
Terms of trade indices



Source: Bank of Korea, BofA Global Research

KRW depreciation – Key trigger of capital outflows

Foreign holding of Korean bonds



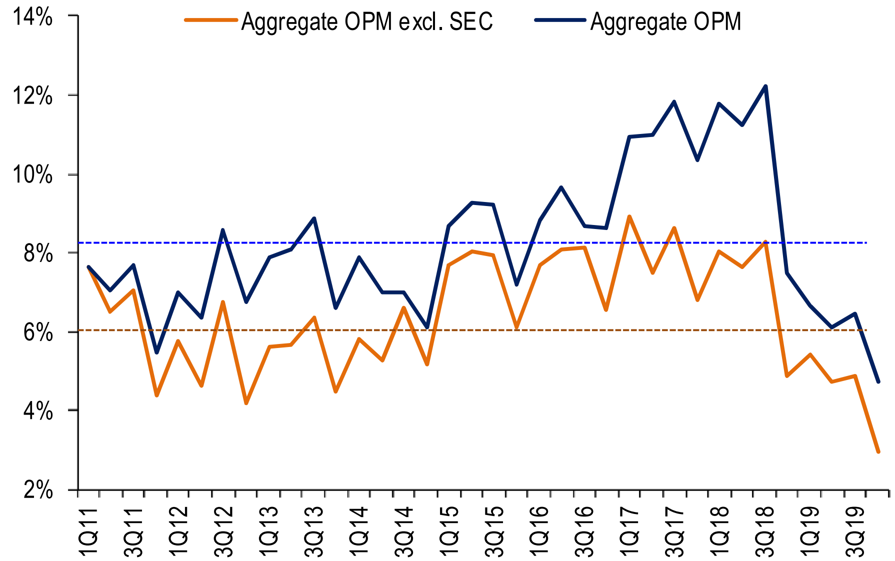
- During 2010-12, the KRW appreciated as the USD weakened on Fed’s QE. Net foreign inflow into Korean bonds amounted to around $60bn during the period
- From 2015, the KRW depreciated as China depreciated its currency, leading to net foreign outflows
- Hence, the major factor leading to higher risks of capital outflows seem to be expectations for KRW depreciation, aside from interest rate reversals between Korea-US

Source: Financial Supervisory Services, BofA Global Research

Dent in corporate profitability – Higher COGS, lower OPM

Cost of goods as percentage of sales

Quarterly aggregate OP margins



Note: Based on BofA coverage firms, excluding financials

Source: Company data, Bloomberg, BofA Global Research

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster*
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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