

COVID 19

An Industrial report

OVERVIEW TO THE CASE STUDY

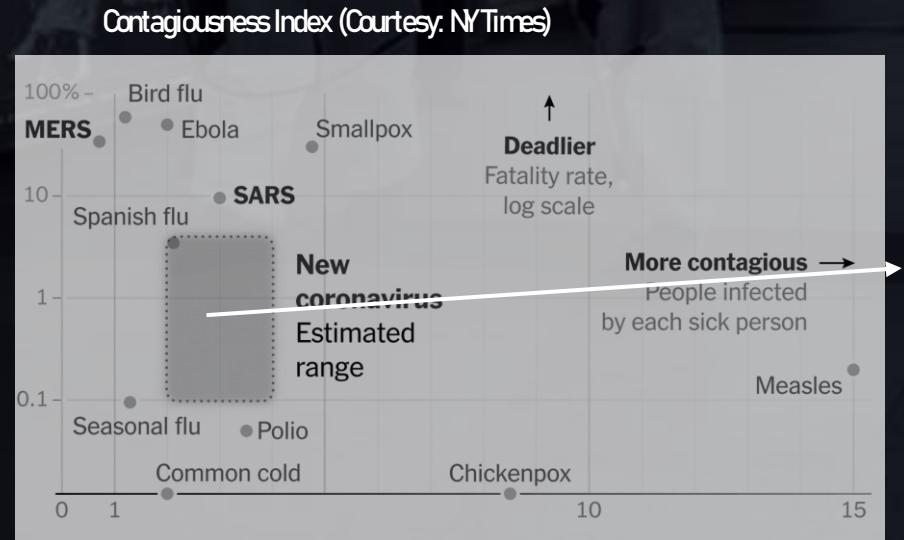
Objective of this presentation is to highlight issues encountered by industries (i.e. banking, tourism) across the globe by considering individual entities, understanding the effects and providing solutions to mitigate the effects on a longer term.

The presentation aims to do the above in three components, which are :

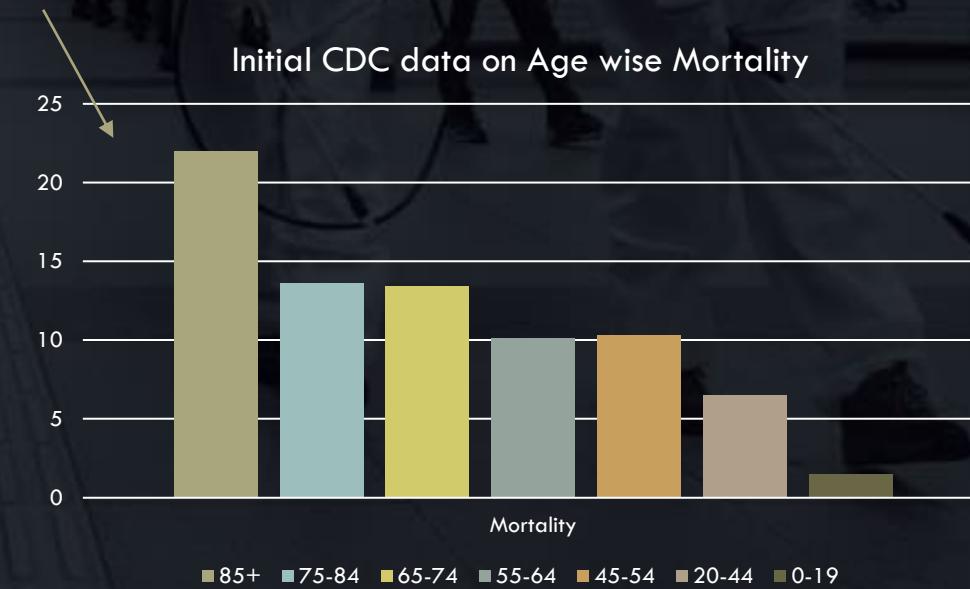
-  Introduction: We define the pandemic and its characteristic effect on various human machinery and we quantify the pandemic. Also we overlook governance strategies implemented to control the pandemic.
-  Implication: Based on the quantification we draw inferences and analyse them by drawing conclusions and localising them. This has been further subdivided into operational, financial and market implications.
-  Mitigation: Solving the issues we found in the above sections and quantitatively forecasting and simulating the effects of these measures.

SARS COV – 2 (THE DISEASE)

- SARS-CoV-2 is a virus responsible for COVID infection which affects the upper respiratory tract of humans.
- Infection has an incubation stage (actively contagious during this phase) of about 1 to 13 days and recovery stage for mild cases lasting about two weeks, while people with severe or critical conditions recover within three to six weeks.
- Transmission is proven to be possible up to a range of 2 meters airborne through respiratory droplets of an infected individual and can sustain in metal surfaces for a few days and on organic substances indefinitely. Dis-infection techniques proven viable is using acidic disinfectants (alcohol based generally) and using powerful UV rays passed through frequently touched surfaces.
- Death rate has been varied across age groups, it is estimated almost 80% of all deaths happened in age bracket of 65 and over, whereas mortality for teens and infants has been extremely rare if having no underlying respiratory related immune conditions.

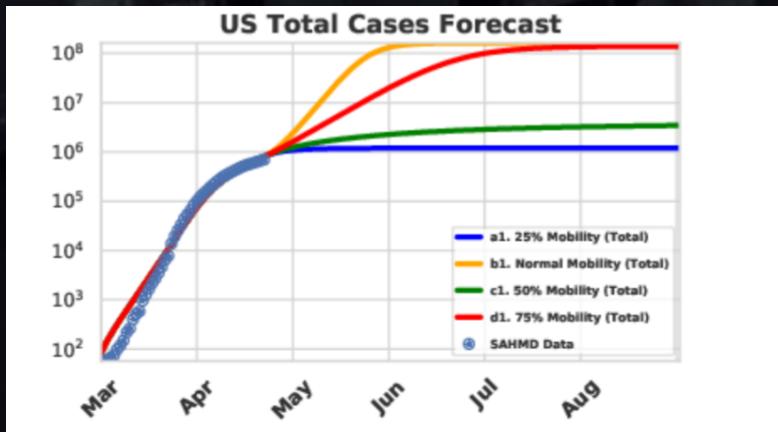


Current analyses determines the virus has a mortality rate close to 10% with higher contagiousness index as comparable to its predecessor SARS virus.

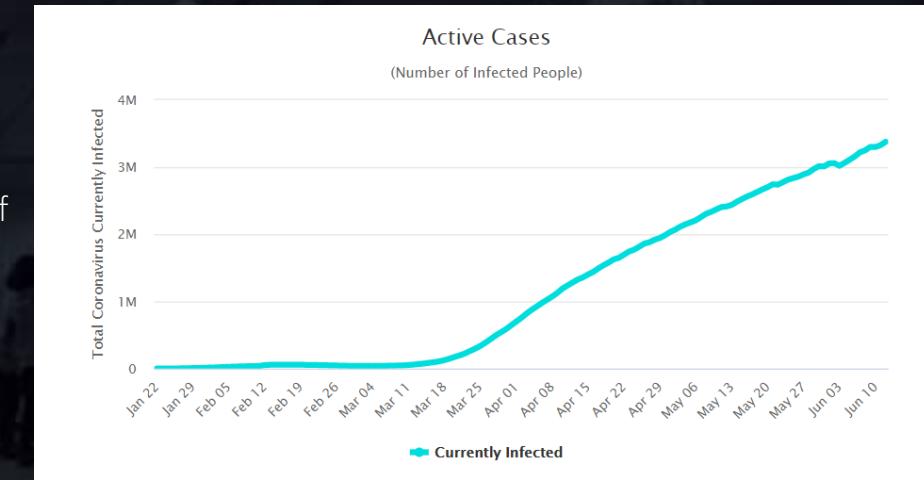


THE PANDEMIC

- Lockdown imposed in countries managed to curb down the active curse by may end but reopening unchecked public operations led to a growth again.
- Excessive deaths data estimate that COVID 19's reported cases account for only a third of the actual cases, i.e., an antibody test done at New York estimated at least 20% of residents were affected (10 times the actual reported case as of June,2020).
- Mortality rate from these studies suggest a much lower mortality rate of the infection (about 0.5%) and its widely under consideration.



- It is predicted to have a footprint of total cases affecting almost half the population (3.2 billion) with no vaccination, serious cases amounting 10% with fatalities reaching 1 - 3%.
- This shows the AI model researched by University of Texas with COVID total case saturation overtime, which estimates close to a 100 million cases in US alone with lenient approach to public mobility.
- Statistics widely varies from case to case on the governance approach chosen, medical research and development and public mentality of the virus.



Timeline

An overview to major events across the globe through COVID crisis:

2019

December

First Case

31st December marked the inception of corona virus in human, claims are highly doubted regarding the first case as there isn't a viable evidence for the same.

2020

January

China Reports Anomaly

Wuhan city begins lockdown and reports 41 abnormal cases of pneumonia to international community, WHO declares emergency.

2020

February

First international Case

2nd of this month saw the first case outside China in Philippines , the same month WHO named the outbreak "COVID – 19" and declares pandemic status.

2020

March - May

Global lockdown

Country's limit mobility, contact based businesses are regulated and shut down. Markets meltdown, and economy suffers a severe hit with over \$400 billion in final quarter losses.

2020

June and onwards

Resurrection

Governance is denuclearized for effective administration leading to surge in total cases .Active cases stabilize and starts declining in countries most affected in initial wave.

ECONOMICS OF PANDEMIC

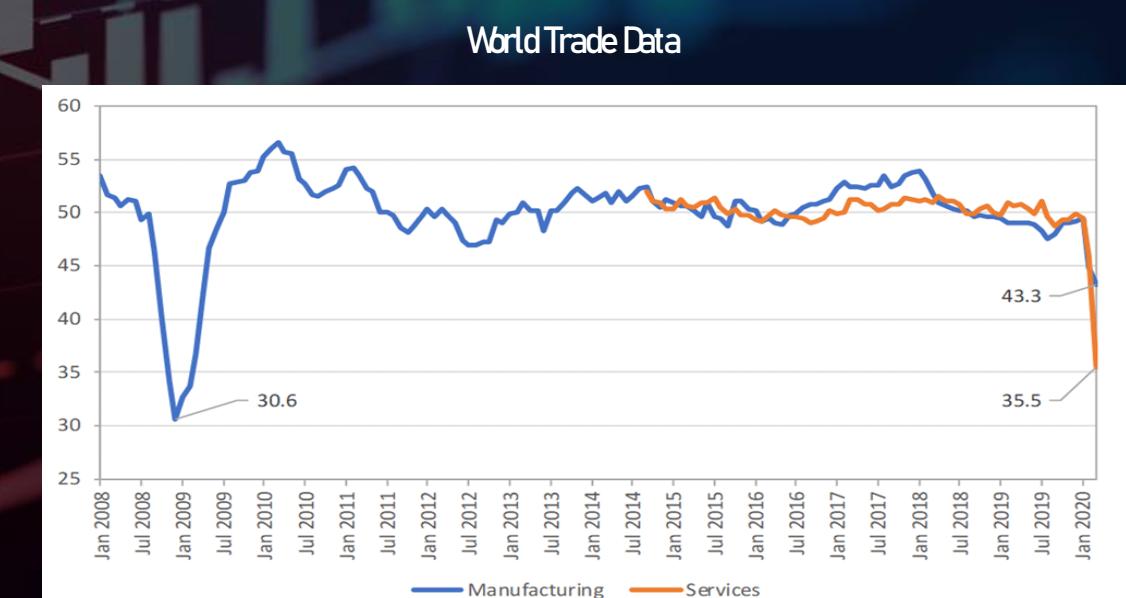
Quantitative analysis

INITIAL REACTION

With nearly 100 countries closing national borders during the past month, the movement of people and tourism flows have come to a screeching halt. This had severe transactional repercussions to the trade.

Fast facts regarding economy are:

1. The International Monetary Fund (IMF) has revised its global GDP growth estimate from 3.3% just 3 months ago to a contraction of 3%.
2. The eurozone economy will see a sharp contraction of 8.7 percent in 2020, and Q1 this year is already seeing a global contraction of 3%.
3. Global trade could also fall by 13% to 32% in the physical year 2020-21.

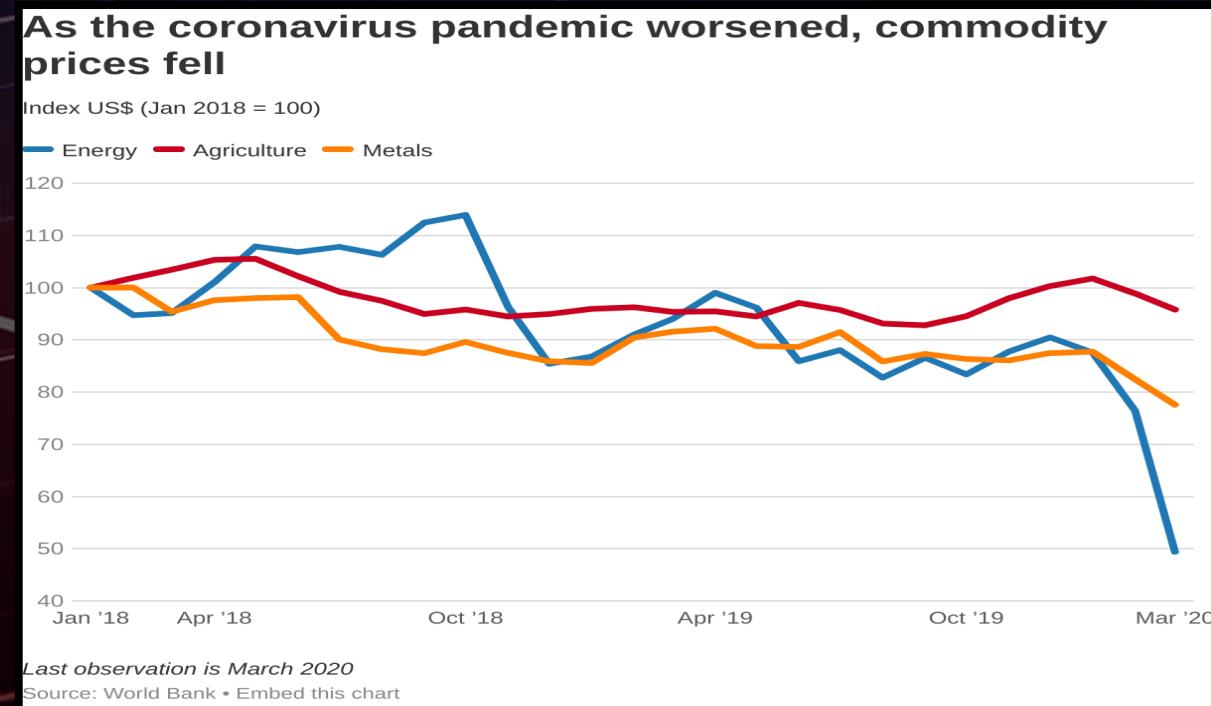


FORECASTS BY THE ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT

- The greatest impact of the containment restrictions will be on retail and wholesale trade, and in professional and real estate services, although there are notable differences between countries.
- Business closures could reduce economic output in advanced and major emerging economies by 15% or more; other emerging economies could experience a decline in output of 25%.
- Countries with large agricultural and mining sectors could experience less severe effects.
- Economic effects likely will vary across countries reflecting differences in the timing and degree of containment measures.

STEPS TAKEN BY WORLD BANK

- The World Bank approved 150 COVID-19 projects, totaling to \$15 billion, in 99 countries.
- Plans to deploy as much as \$160 billion to respond to the COVID-19 pandemic.
- Plans to establish a new multi-donor trust fund to help countries prepare for disease outbreaks.



STEPS TAKEN BY THE ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (INDIA)

- Pledged \$10 million towards South Asian Association for Regional Cooperation (SAARC) “COVID-19 emergency fund.”
- Announced a 1.7-trillion-rupee (\$22.6 billion) Economic Stimulus plan providing direct cash transfers and food security measures to give relief to millions of poor people hit by the nationwide lockdown over COVID-19
- Outlined plans for medical insurance cover of 5 million rupees (\$66,000) for every frontline health worker, from doctors, nurses and paramedics to those involved in sanitary services.

The background of the slide features a photograph of a large row of international flags flying from poles in front of a modern building with many windows. The flags are from various countries, creating a colorful and diverse pattern against a clear sky.

GOVERNANCE STRATEGIES

An overview to governance
during the pandemic

OVERVIEW:

In an ideal case, a pandemic should be considered as a war in most of the democratic nations, giving the government regulatory power over institutions (both public and private). The primary aim analogous to decreasing casualties in a war is to develop herd immunity against the virus, leaving the virus with no susceptible host to replicate. There exists three approaches to curbing out a pandemic:



Rush through it

Here the governments take no mobility regulations against the population with the virus affecting the majority of the people. Quickly survivors develop immunity to the virus starving it out.



Delay and Vaccinate

Governments heavily fortify their provinces and restrict mobility to slow down the virus giving time to pharmaceuticals to develop a vaccine and vaccinate at least 40%-90% of the population.



Coordinate and Crush

Governments coordinate centrally to strategize virus spread collectively instead of locally providing resources to each other and starving the virus by pressing it onto certain regions only.

MODEL OF CURRENT RESPONSE:

Rushing through the pandemic to develop a herd immunity will result in millions of deaths from the overwhelmed healthcare system.

Delay and vaccinate was the only option possible to curb the virus but required higher human loss then coordination and time than rushing into the pandemic.

Coordination is a viable solution but an immediate global consensus requires unprecedented change in world foreign cooperation, also transmission through fauna is un-known to the point

Delay in lockdown

Timely lockdown starts

Appropriate measures taken
(Mobility restrictions)

Appropriate measures not taken

Appropriate duration of lockdown

Un - Appropriate duration of lockdown

**Timely Reopening
without casualties**

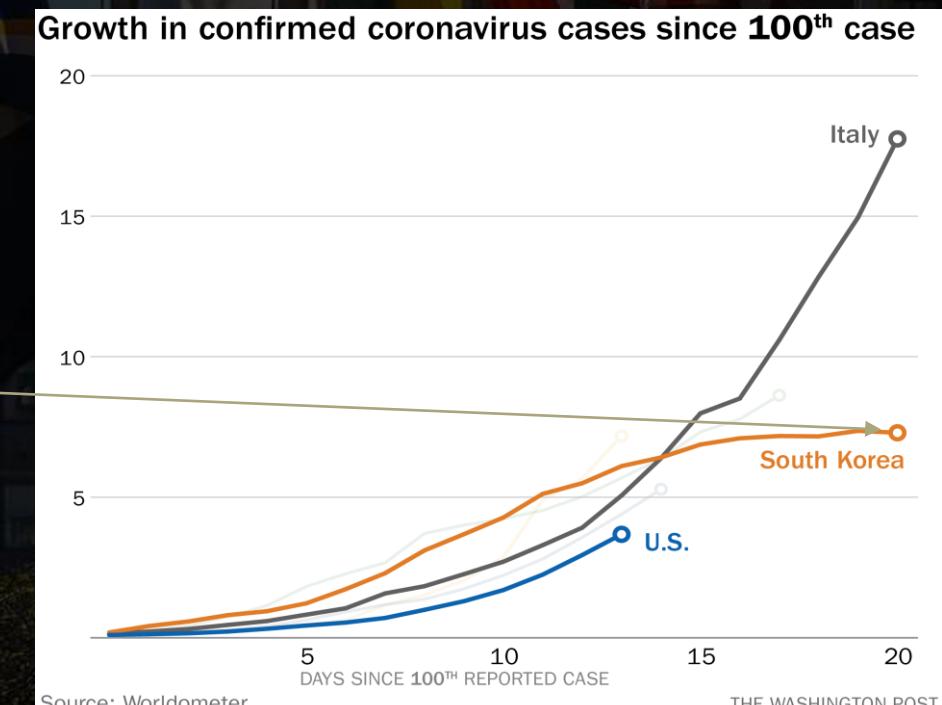
**Timely Reopening
with casualties**

**Extended impacts,
without casualties**

**Extended impacts,
with casualties**

DIVERSITY IN APPROACHES:

- As modeled lastly, different countries saw mixed responses due to varied approaches applied by their respective governments. With a population density greater than the United States (35.71 people per Km²) and Italy (206 people per Km²), South Korea (503 people per Km²) did far better in curbing their cases by effective contact tracing, social distancing, and extensive testing.
- South Korea is reporting 200 times fewer cases per day than the USA as of June 2020 in-spite of having a population 6 times as less and density 14 times of it.
- They have made it possible through very extensive contact tracing and testing since the first day of pandemic and curbing the case early.
- USA and Italy delayed economic closure for longer leading a higher gain in the curve of total cases.
- South Korea also has significantly less mortality estimated due to lesser median age and obesity which makes the disease deadlier to immune.



OPERATIONAL IMPLICATIONS

A COMD-19 Report on Industries

SYNOPSIS

COVID 19 outbreak hit business's operations in levels, targeting the unprepared risk strategies for companies and volatile finances. Here is the analysis of the domino effect which the industry experienced through the pandemic:



Sales decline due to decreased market confidence pushing companies to breakeven.



Cost of operations increases in the industry decreasing profitability, businesses transitions to more profitable domains

Uninformative decisions lead to unhealthy operations



Initial wave: Regular operations, unanticipated business repercussions to industries.

Unprepared risk management leads to panic



Stringent policies imposed, lockdown begins, physical operation halt.

Anti trust practices further decline companies reputation



Stock markets fell due to severed trust in industries, results in lack of cash reserves in institutions

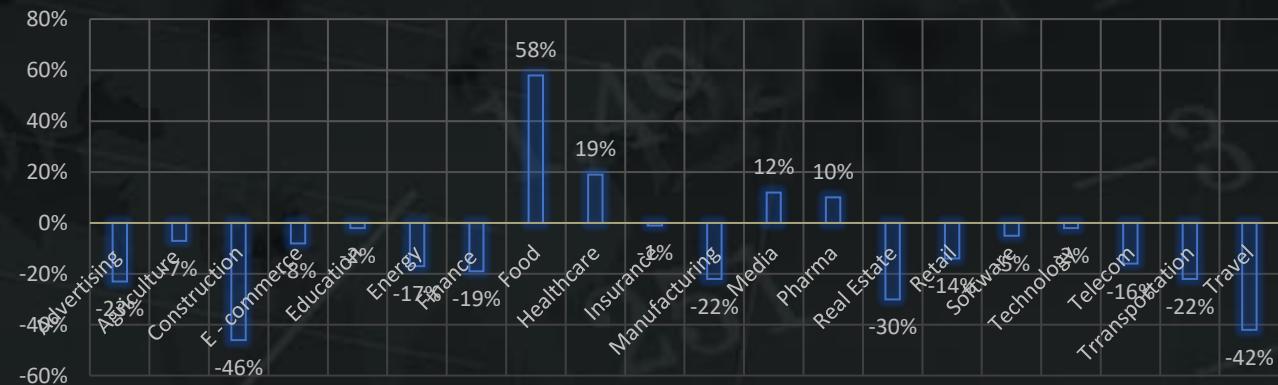


This resulted in massive layoffs for physical oriented industries and less severe repercussions for other industries

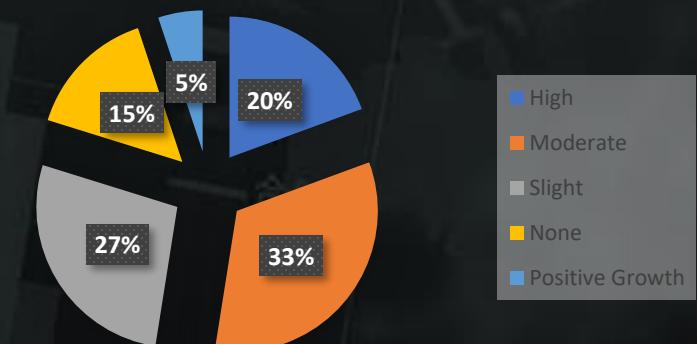
OVERVIEW TO OPERATIONS

- Operations have been deeply limited in contact-based industries due to the potency of the outbreak which includes most of the manufacturing sector, parts of service, and the primary sector as evident from the growth rate of industries provided.
- Overall, the productivity has been highly negative since supply chain joining the industries have been deeply severed at contact points.
- Worst hit industries post first (February – April) wave of the pandemic have initiated salvaging company capabilities.
- Big firms like JC Penny, Avianca have filed bankruptcy due to direct operational implications already.

Industry wise Growth Rate Q4 FY 19 -20



Operations Disruption overall industry wide:



INDUSTRY SEGREGATION

COVID 19 affected different segments of the economy differently with common complications being contact-based disruption and supply chain intrusion. To understand implications on wider note locally, we have segregated the economy into three basic sections:



Primary Sector

Sector comprises of natural resource extraction and agriculture, amounting over 5 % of the world GDP (\$ 4 trillion)



Manufacturing Sector

This sector comprises of industrial companies which produce business to user hardware commodities. It accounts for 30 % of GDP (\$25 trillion).

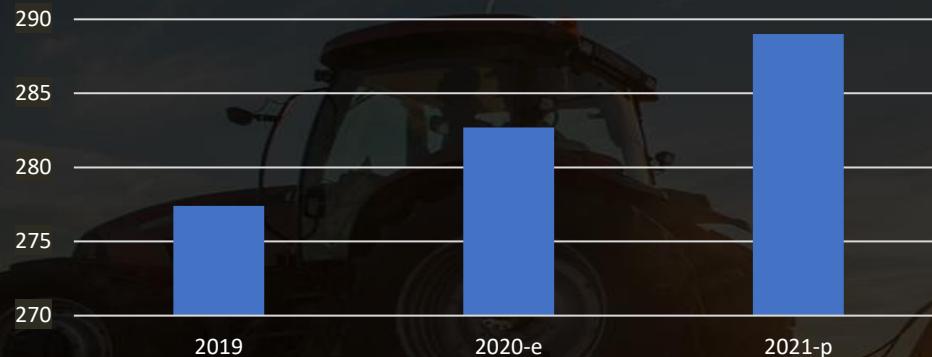


Service Sector

Largest sector of all, constituting of almost 65 % of economy. It includes all human machinery apart from primary and manufacturing sector.

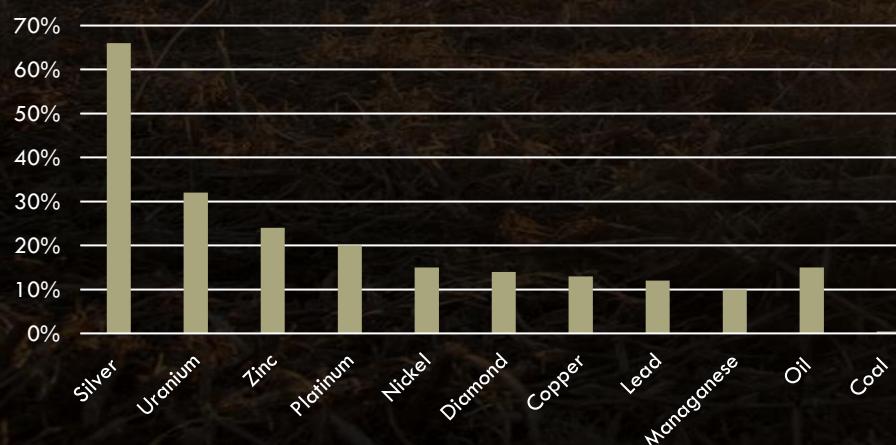
PRIMARY SECTOR:

COVID 19 Impact on Feed Market (\$ Billion)



- This sector accounts for 1% of world GDP (\$ 900 billion).
- Restrictions in this sector has been deeply limited to preserve optimal production and preserve the supply chain.
- Food reserves have had a growth even during the pandemic, which led to the overflow of the supply.
- Supply chain has been severed disconnecting farmers.

% Global Production on hold



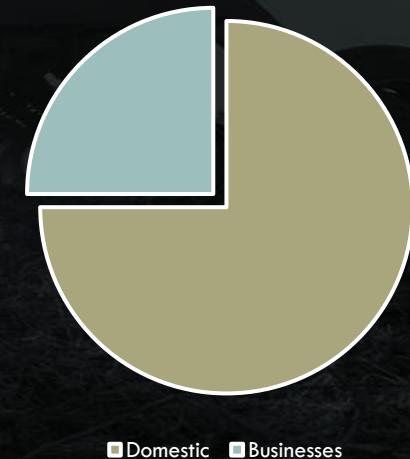
- Mineral production hit an all-time low with the industry facing a 30-40% reduction overall in operations.
- Energy and essential minerals have remained unregulated.
- Price indexes have been very high, i.e., the market has been very volatile to change like metallic minerals have remained high and in contrast, oil and gas prices have been negative (May 2020).
- Due to regulations, industry is not volatile to bankruptcy.

AGRICULTURE SUPPLY CHAIN:

The agriculture sector is one of the only sectors of the economy which has been operationally positive during the pandemic. This sector comprises of mostly MSME holding companies and private farms with a well-established supply chain. This sector is very fragile to market change as it has a low worker productivity (\$/hours worked).

- Food producers faced a big hit post-COVID 19 due to the severed supply chain as the food reserve was excessively surplus due to initial public food insecurity. This led to massive wastage of food resources.
- Consumption did not decrease due to the pandemic, but the supply chain failed to adapt on time, most of the food business shut down (like restaurants and hotels), that food inventory could not find its way to the retail stores where the demands surged rapidly.
- Farmers connected to these businesses had to throw away millions of tonnes of inventory.

Food Distribution

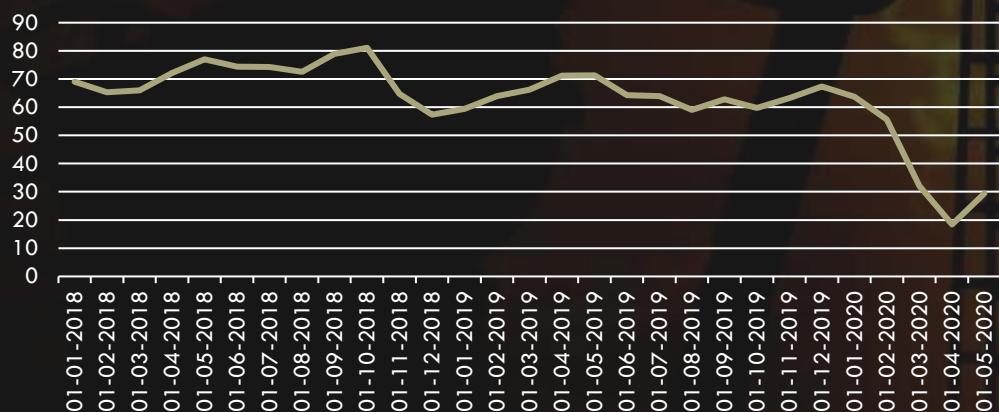


RELIANCE INDUSTRY

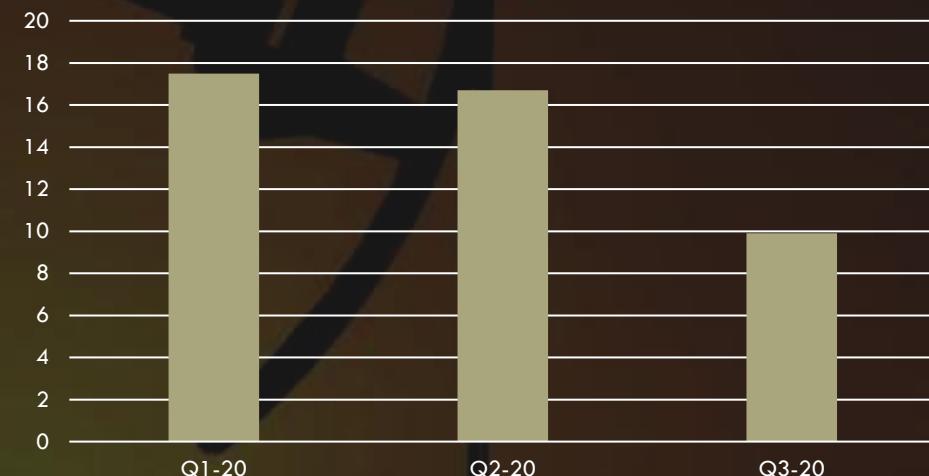
Reliance Industries Limited is one of India's largest oil and gas exploiter with capacity of over 40 MTPA. RIL lost its operations since the oil market has been very volatile and are diversifying its portfolio into the telecommunications and tech sector.

- RIL experienced a 39% slump in its March 2020 quarter profit.
- Brent crude lost an unprecedented two-thirds of its value in the first three months of 2020
- The company's profitability in March quarter was dented by an inventory loss of about \$565 million.

Brent Crude (Week \$)



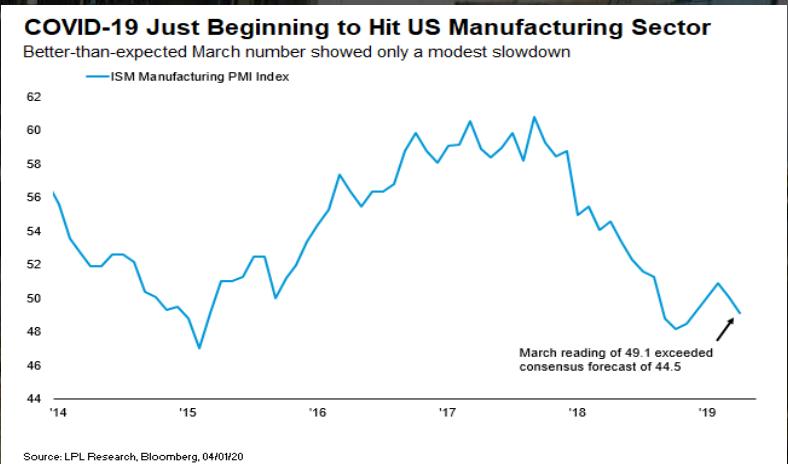
RIL Crude Operations FY 2019-20



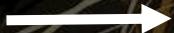
- The oil and gas industry is experiencing its third price collapse in 12 years.
- The current context combines a supply shock with an unprecedented demand drop and a global humanitarian crisis

MANUFACTURING SECTOR:

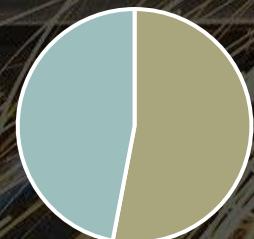
Factories and industrial complexes everywhere faced a closure during the global lockdown forcing many smaller businesses to go out of order. Post lockdown, risk of infections forced factories to decrease operators and technicians per unit area, decreasing overall industry productivity.



Outlook of
Manufacturing
companies:

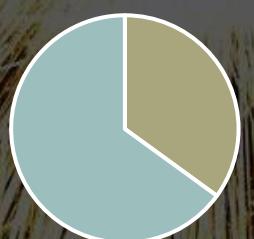


Expect Operational Change



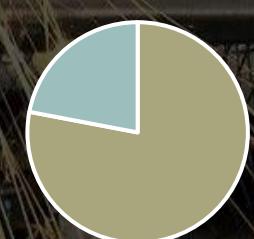
■ Change ■ Unchanged

Total Supply Chain Disruption:



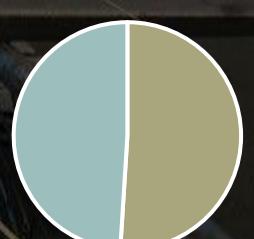
■ Change ■ Unchanged

Expect Financial Impact:



■ Yes ■ No

Have Risk Plan readiness:

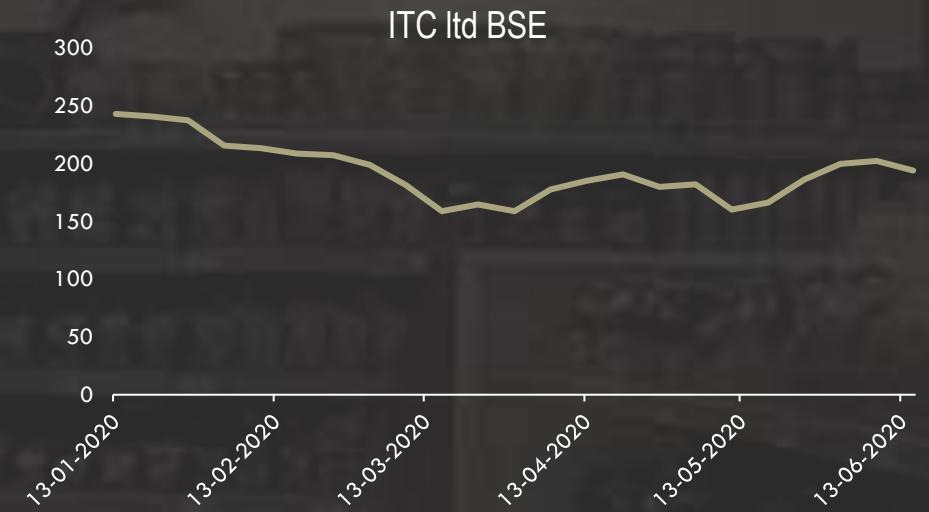
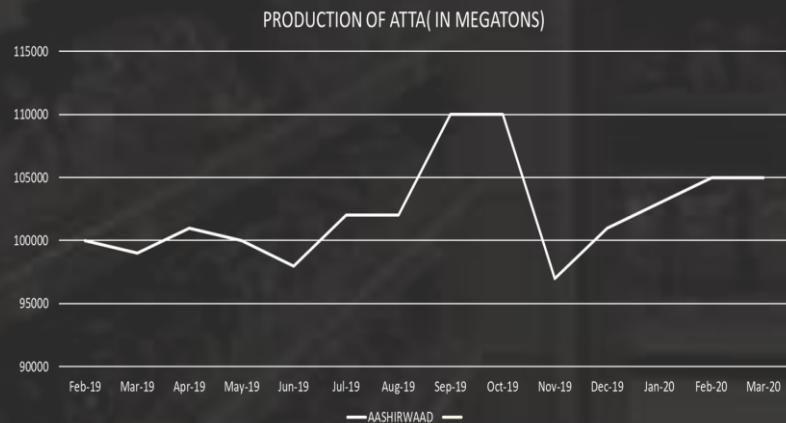


■ Yes ■ No

ITC

ITC Limited is an Indian multinational conglomerate company headquartered in Kolkata, West Bengal. As of 2012–13, it had an annual turnover of US\$8.31 billion and a market capitalization of US\$52 billion. It employs over 30,000 people at more than 60 locations across India and is part of the Forbes 2000 list.

- Hold on nonessential items like tobacco-based products and stationery.
- Essential items like atta, noodles, biscuits, snacks, soaps, sanitizers and other products running with low production due to social distancing norms.
- Manufacturing capacities currently hovering between 20% to 60%.



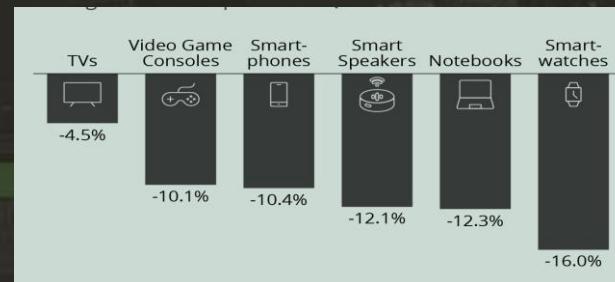
1. FMCG companies have had to swiftly respond to unprecedented challenges, with innovative strategies to maintain supply chains and ensure consumers can access their products.
2. Still like other manufacturing sectors, it saw a drop in productivity due to social distancing norms imposed.

SCHNEIDER ELECTRIC:

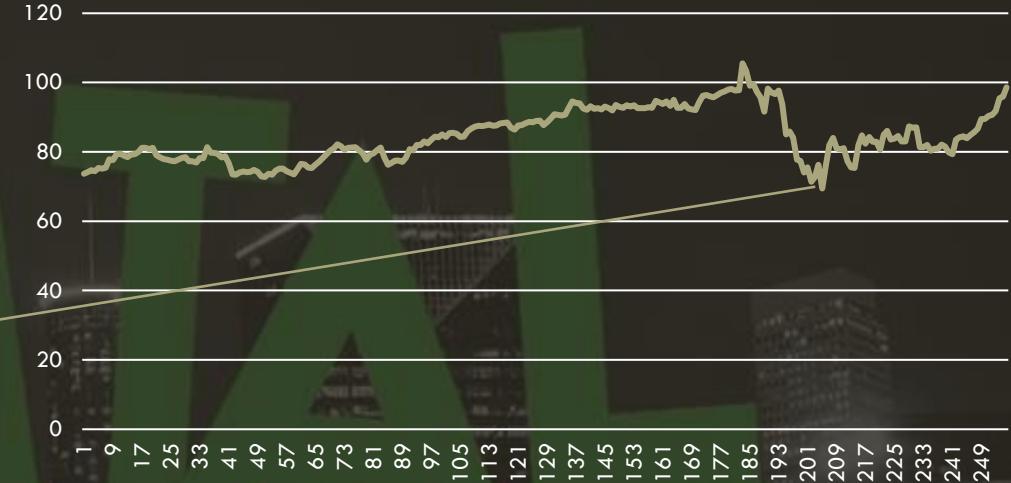
Schneider Electric is a French multinational specializing in energy management. It provides home electrical products, corporate energy solutions, and smart devices for manufacturing. Its Supply chain consists of over 200 factories, over 10,000 distribution centers, and 150,000 in personnel. These plants and DCs met a halt after COVID 19 pandemic cutting essential supply lines.

- Pandemic nulled production of plants worldwide in March– April for the company and shut down much of the DC's.
- Reopening of economy (post- May) after stricter regulations for social distancing, the company was able to increase its production to 30% with DCs partially open.
- Staff lay-offs were minimalized.
- Costs per product (CPA) has increased a few folds owing to low productivity.

Tech Supply-chain Growth



SE 2019-20 Stock (Paris)

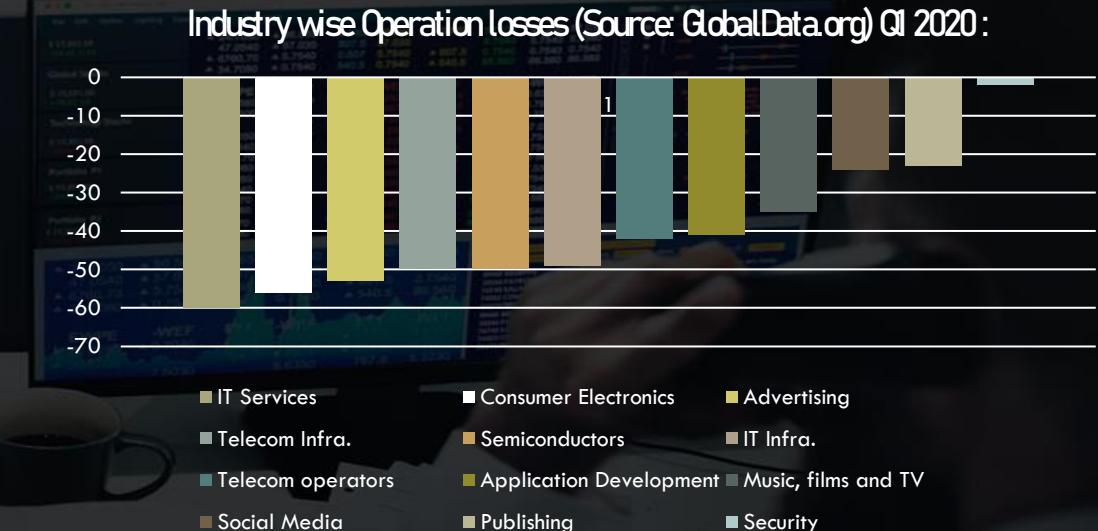


- Industrial Tech - production saw a growth of -17%.
- FDI shift from east Asia saw further declining supply chain which increased the price of products.

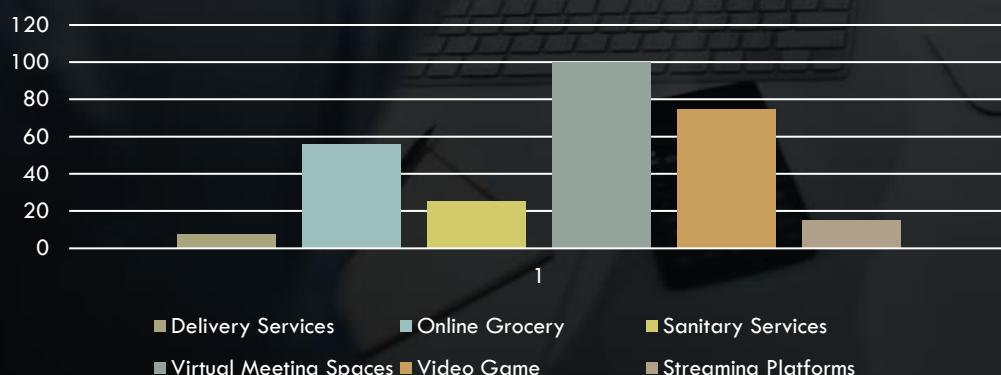
SERVICE SECTOR:

The service sector is the most diverse sector of all, hence saw a very mixed response through the pandemic. Where online services, health care, and automation grew, tourism and travel saw a standstill.

- Travel and entertainment-based industries saw complete operational closure during the summer season which is considered a peak season for the sector.
- B2C un-essential products-based industries saw a shrinkage in the market too owing to the collapsed economy.
- Due to decreased spending capacities of organizations, B2B industries linked with failing industries (IT, job outsources) also saw revenue losses.



Industries which grew in operations FY20-21 Q1

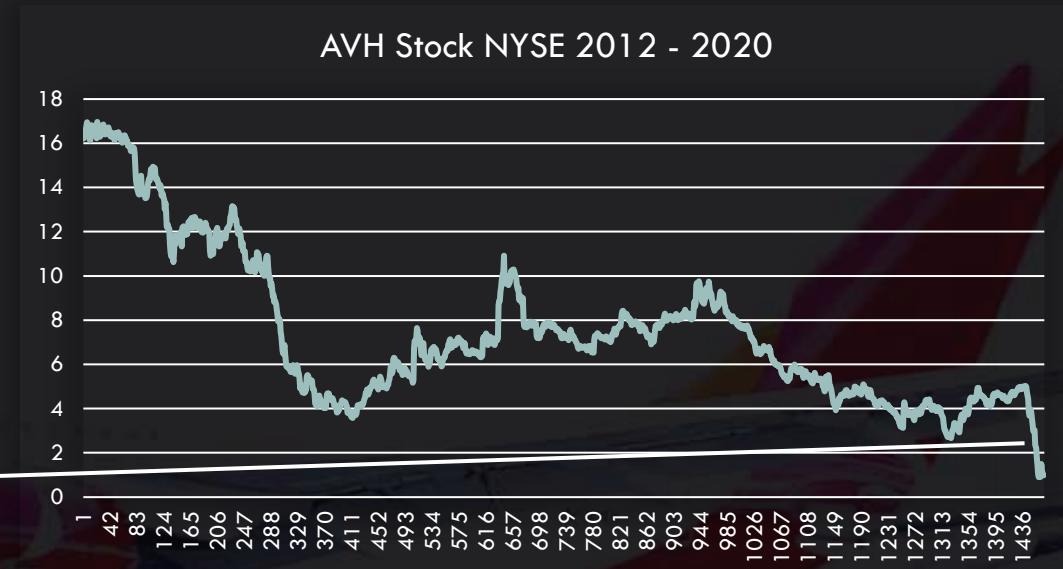


- Internet services space has seen a high growth during the pandemic with consumer markets growing in this contactless medium.
- Industries adapting quickly to contactless service like delivery services (postal and commercial) and sanitation companies also saw an unprecedented growth.
- Video games and augmented reality companies saw a more than 50% jump in investments.

AVIANCA:

Avianca was the second oldest active airline (age: 100 years) with a 189 aircraft fleet, the third largest airline of Latin America by revenue with hubs in Colombia, Peru, Ecuador, and Costa Rica. The airline was declining and incurring losses since 2012, facing COVID 19 with a weak liquidity record..

- As a direct result to COVID 19, the airline lost 88% of its operations resulting in a sharp decline in the trust of investors.
- Company struggling to meet breakeven didn't attract further bailout from banks failing to meet breakeven FY 2019-20 Q4.
- AVH filed chapter 11 bankruptcy in New York to sustain operations post-pandemic.

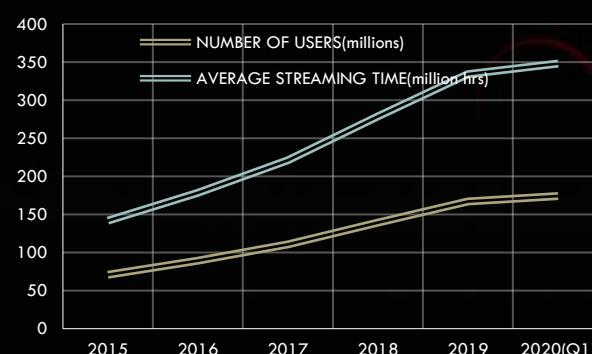
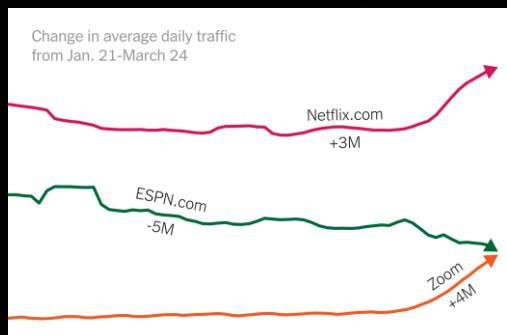


- Overall passenger airline industry losses totaled \$315 billion as of May 2020, with cargo operations down to 35% and passenger by 65 %.
- CAPA reports suggest 60% of airlines going bankrupt by 2021.
- Being hardest hit post-pandemic, major carriers like Virgin group, Compass and Flybe have already filed for bankruptcy.

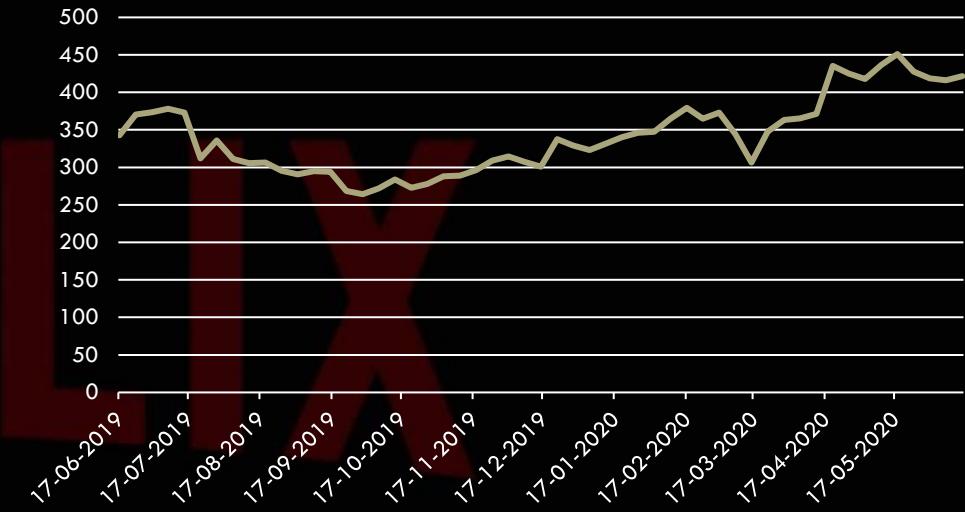
NETFLIX

Netflix, Inc. is an American media-services provider and production company headquartered in Los Gatos, California, founded in 1997 by Reed Hastings and Marc Randolph in Scotts Valley, California.

- Had 15.8 million paid subscribers in the first three months of 2020
- Made a profit of \$709 million in the first three months of this year.
- Netflix is now ramping up production in countries that are easing restrictions like Iceland and South Korea.
- Ted Sarandos, Chief Content Officer, said that most programming for 2020, and much of 2021, already has been filmed and is being finished remotely in post-production.



NETFLIX (NFLX) NASDAQ FY2019-20



- Online streaming platforms recorded a 43% jump in viewership to nearly 495 million hours in the week starting March 29
- Sports fans and players across the world frustrated by canceled matches because of the coronavirus epidemic are turning to online-sports

AIRBNB

Airbnb, Inc. is an American online marketplace company based in San Francisco, California, United States. Airbnb offers arrangements in lodging, primarily homestays, or tourism experiences for the general public. It reported a revenue of over \$ 26 billion in 2019.

- Close to 70 percent of Airbnb guests are afraid to rent or stay in an Airbnb right now.
- Airbnb Inc is lay off 25% of its workforce, or nearly 1,900 employees in last quarter of FY19-20.
- Earnings before interest, taxes, depreciation and amortization (EBITDA) plunged 92.3 percent to a loss of \$276.4 million.



When Guests Will Feel Safe Booking Again

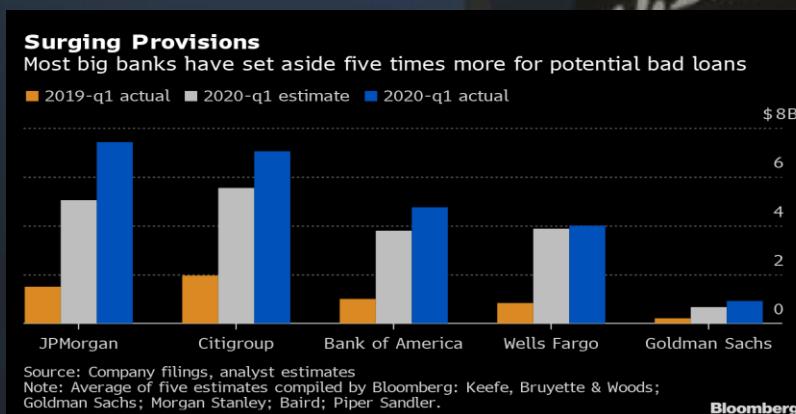
This Summer	26%
Social Distancing Ends	15%
Vaccine Becomes Available	15%
This Fall	12%
Summer 2021	10%
This Winter	9%
Spring 2021	9%

- Hotel revenue per room dropped around 13-29% in last quarter of FY19 in India.
- France, Switzerland, Spain and other European government have promised aid tallying millions of euros towards rescuing all types of local tourism businesses hit by the Coronavirus.

JP MORGAN CHASE:

JPMorgan Chase & Co. is an American multinational investment bank and financial services holding company headquartered in New York City. JPMorgan Chase is ranked by S&P Global as the largest bank in the United States and the sixth largest bank in the world by total assets, with total assets of over \$2.687 trillion.

- 70% of company's bank branches are operational and expects increasing its operations to normal by July end.
- On contrary, during the market pickup, JPMorgan's trading division posted an 32% increase in revenue to a record \$7.2 billion.
- Bank's in general expect heavy defaulting in the first quarter of FY20-21.



JPM Chase & Co. Stock 2019-20 NYSE



- Like other banks, JPMorgan Chase & Co's profit plunged by more than two-thirds in the first quarter as the largest U.S. bank put aside nearly \$8.3 billion in reserves to protect it from a wave of potential loan defaults on June 2020 itself.
- The bank's net income fell to \$2.87 billion, or 78 cents per share, in the quarter ended March 31, compared with \$9.18 billion, or \$2.65 per share, a year earlier.

FINANCIAL IMPLICATIONS

A Company guide

FINANCIAL IMPLICATIONS:

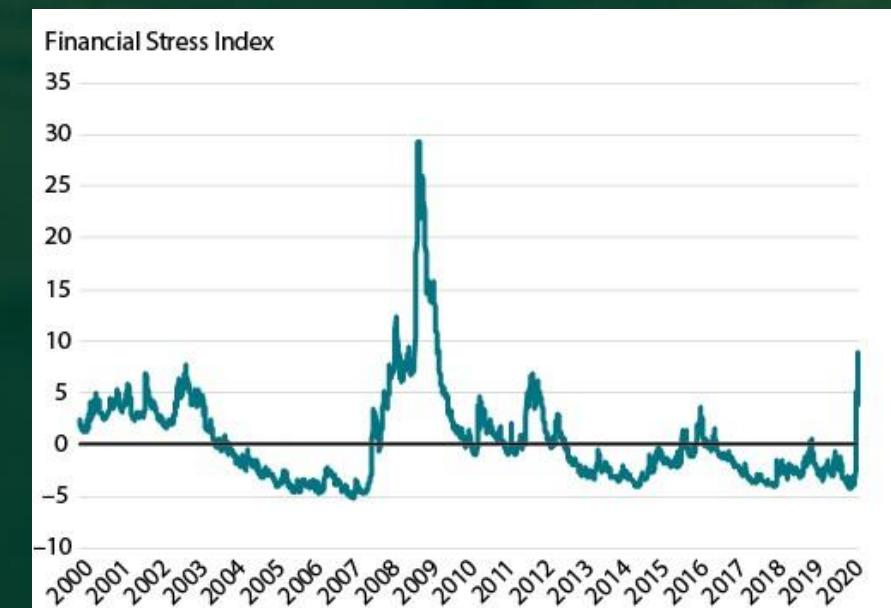
Financially COVID 19 was hard for the majority of the firms in the world due to lack of liquidity and risk management funds. In Indian BSE, two of every five largest firms reported a 20% plus drop in profits, and 12 companies reported losses in the last quarter of FY2019. Globally firms could expect almost \$5-8trillion in deviation from the scoped output. Companies heavily affected are seeking bankruptcy to survive financially. Two primary reasons owing to insecurity for industries are:



Companies lose essential cash due to increasing operating costs, unproductive supply chain, and at times decreasing markets which drains companies out of their assets. It falls like dominoes as discussed in operational implications.



Companies are losing trust in the market which leads to the financial backing of these institutions further jeopardizing sustenance.



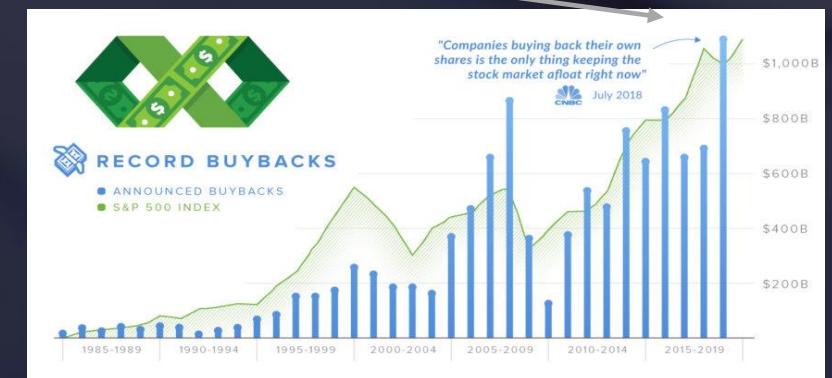
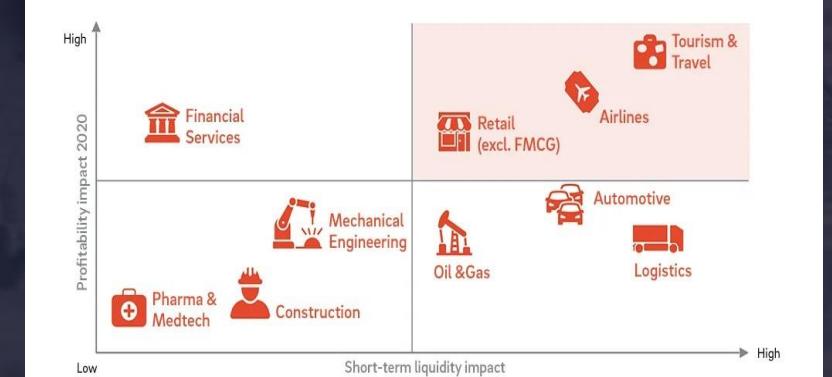
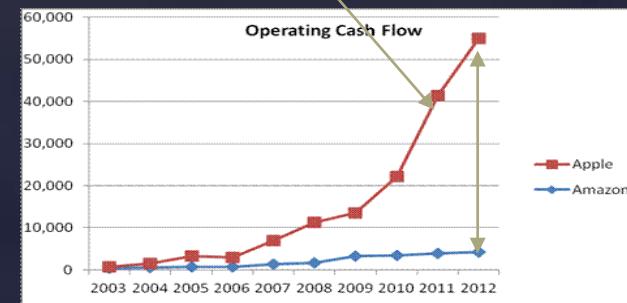
LIQUIDITY CRISIS:

Many larger and medium level companies did not have enough cash reserve to face the pandemic, this led to short term debt crisis to remain operational.

Industry-wise impact on liquidity is shown here:

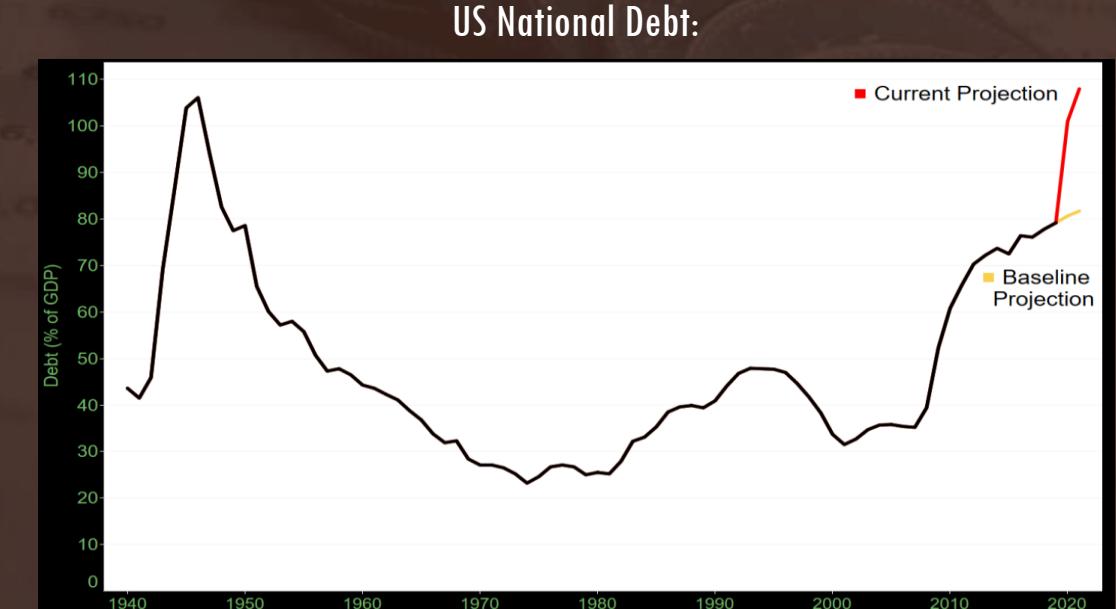
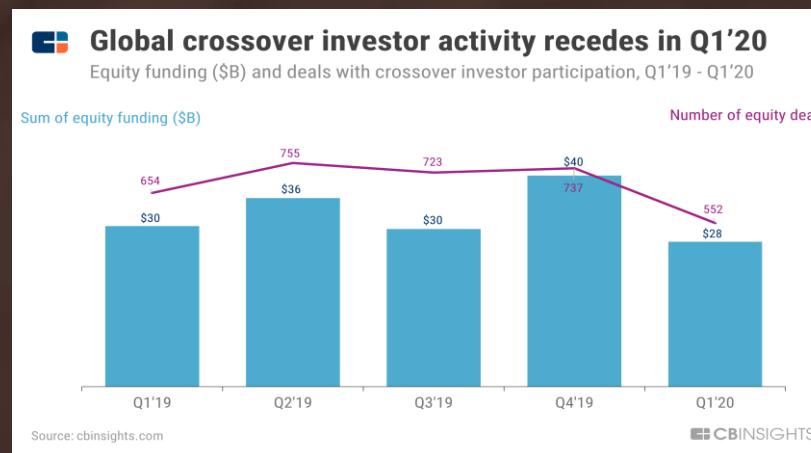
Two major issues have been cited for this lack of liquidity in companies, these are:

1. Stock Repurchases: 2019 saw a record high In stock repurchases by the businesses. Critics claim this fund could've been better utilized to boost the company's reserves.
2. Reinvestment: Companies like Amazon as shown here never kept heavy cash flows in the company to have essential reserves, although not affected by pandemic could have seen a drastic impact as contrary to Apple with a surplus to sustain business even without profitability.



LACK OF FINANCIAL BACKING:

- Short term debt in the economy has already accumulated huge amounts of credit which impacts further backing capabilities and investor's trust in businesses.
- Still the Federal reserve in the US and central banks in other countries have zeroed the interest to stimulate economy and businesses.



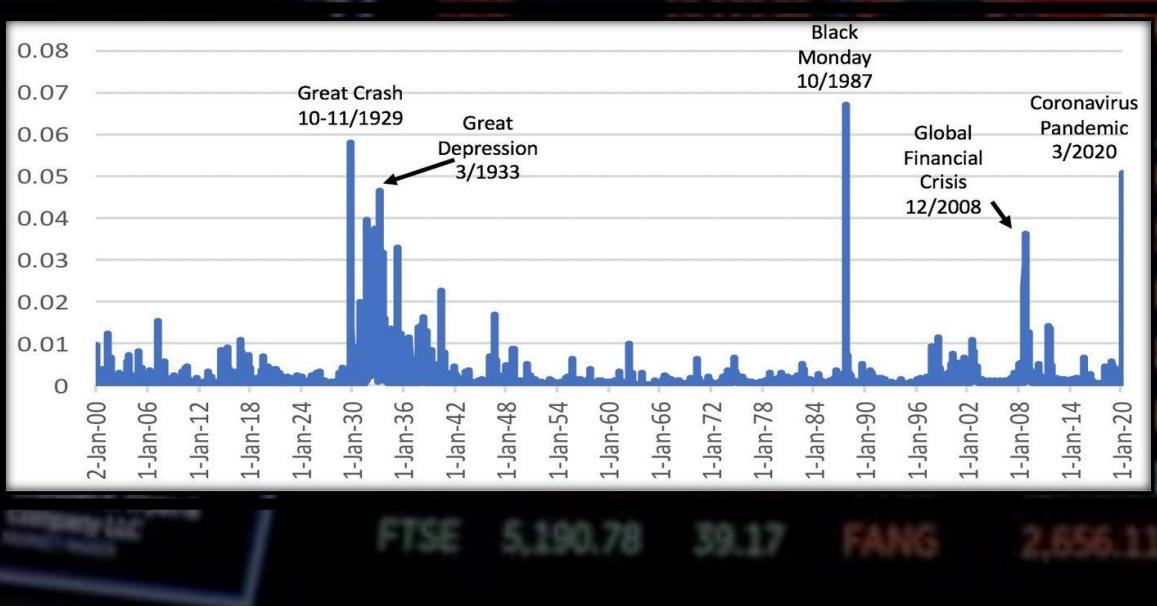
- Industries like tourism, aviation saw a huge cut in investments affecting its capabilities to sustain operations.
- Governments across the world have announced huge stimulus package specifically for the industry which accounts for almost 13 % of global GDP.

MARKETS

An overview to some major markets in a glance

GLOBAL STOCK MARKETS:

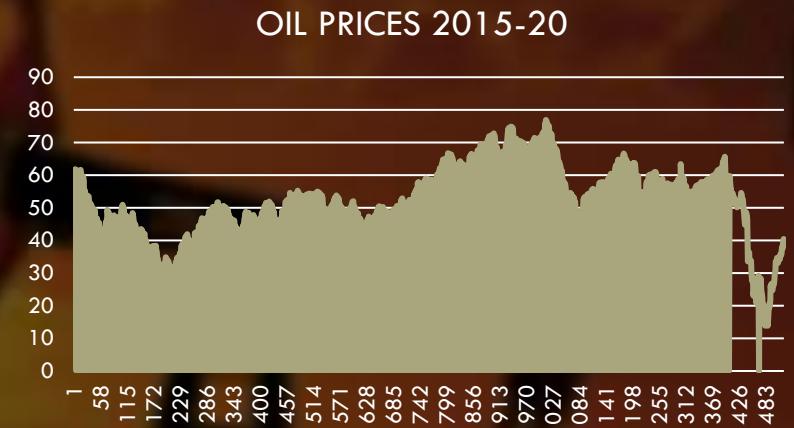
- The market has reacted to recent unpredictability with large drops, triggering a market-wide circuit breaker four times in March.
- On 28 February 2020, stock markets worldwide reported their largest single-week declines since the 2008 financial crisis.



Markets picked up post initial wave of pandemic and did not fall into a recession for a longer stance, although negative of the previous value, but it is recovering.

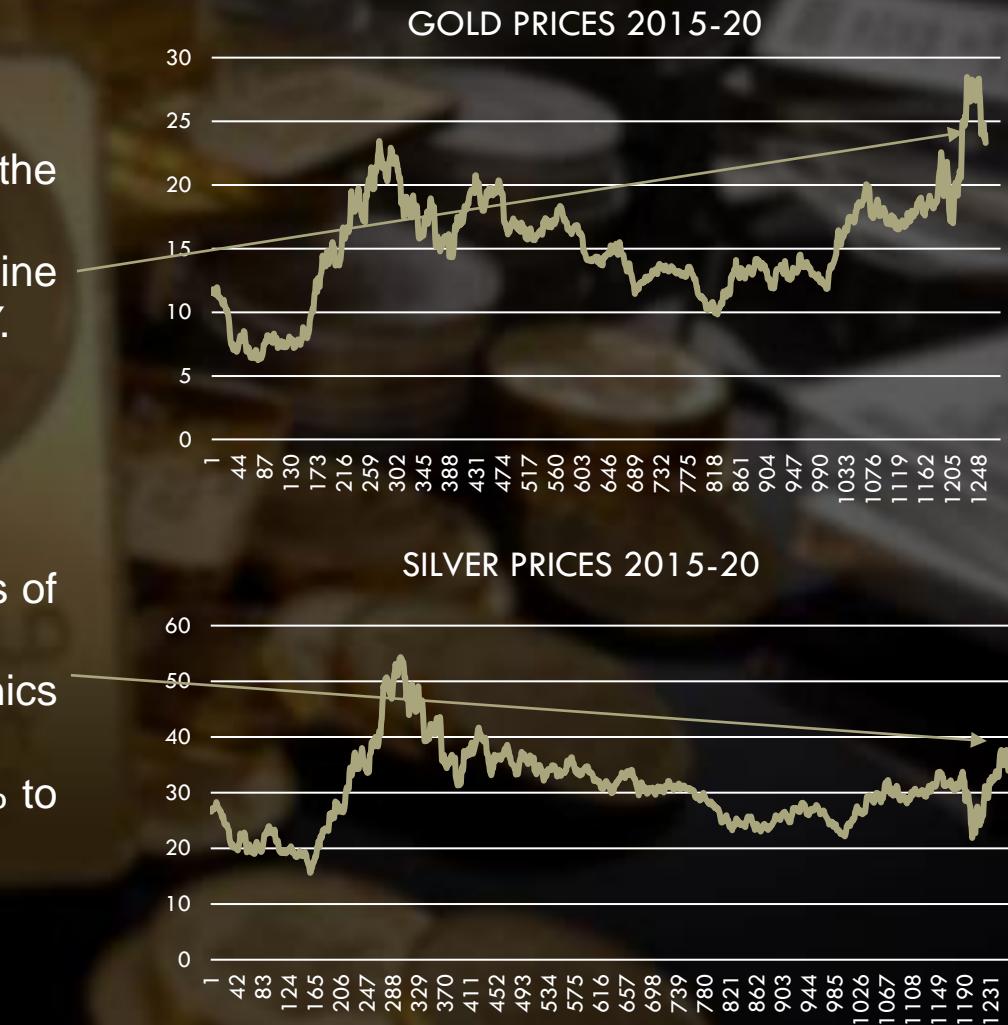
ENERGY RESOURCES:

- Overall, the energy sector is forecasted by GlobalData to face downward earnings revisions of 208% in 2020
 - With countries on lockdown there is significantly less of all activity, and the demand for oil and gas has fallen unprecedentedly.
 - The International Energy Agency reported that oil demand is likely to decrease by 29 million BPD in April 2020 and by 23.1 million BPD in Q2.
-
- April 2020 coal exports from Indonesia hit the lowest level since June 2009 amidst the coronavirus crisis.
 - Comparing export levels from 2015 to 2020, exports already dropped below average in February and March 2020, declining further in April 2020.
 - The demand-supply mismatch has already led to Coal India Limited (CIL) inventory swelling to its highest-ever level of 74 million tones (mt) at the end of March.



PRECIOUS METALS:

- The demand value for gold fell 20% to ₹37,580 crore during the first quarter of 2020
 - The virus also caused disruption to gold supply as mine production fell to a five-year low of 795.8 tones, down 3% YoY.
 - Globally, total gold demand grew marginally to 1,083.8 tones.
-
- Silver lost about 30% of its dollar value in the first three weeks of March, trading at around the US\$12/oz level.
 - The largest volume decline was recorded in the electronics segment, where demand for silver fell by 8.6Moz
 - On the supply side, mine production declined by less than 1% to an estimated 853.7Moz



MITIGATION

The Road Ahead

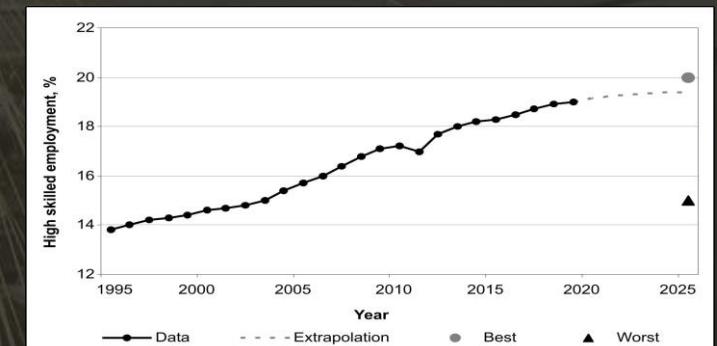
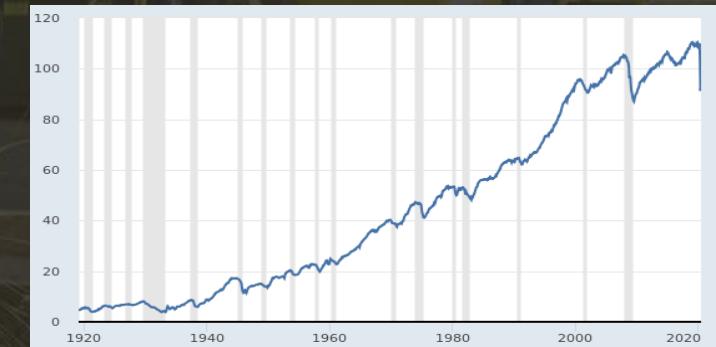
OPERATIONAL ISSUES TO INDUSTRIES:

Operationally as we saw, there existed issues at only a single point: human contact in supply chains. To limit these contact points, we need to inculcate automation into these fragile systems. To do so we counter this problem in two phases: Automating and adapting to the automation with changing HR (Human Resources).

Automation: It is a necessity to sustain and increase productivity, here is shown the productivity index of the manufacturing sector in the US which has been highly susceptible to automation. Key to automation is an internet-based AI and Robotics, this sector can eliminate human linkages in supply chains and make it more productive.



Changing HR: Owing to increasing education standards and more people getting educated, the amount of unskilled labor is set to shrink to half by 2050. Also, automation will take away most of the unskilled tasks shortly. Economists predict this, in turn, will produce more skilled jobs in fields of research and development. Plus, it is also seen that people prefer co-working and work – from home environments, which is set to increase soon.



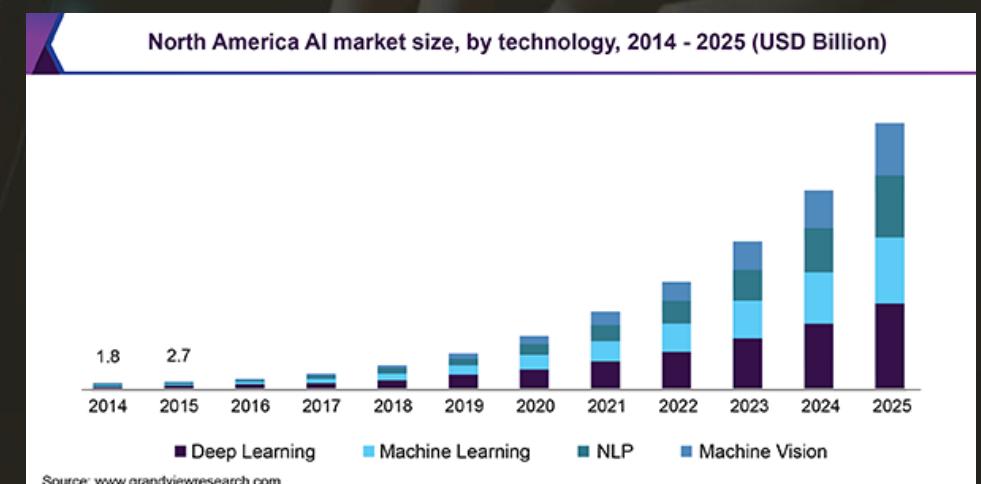
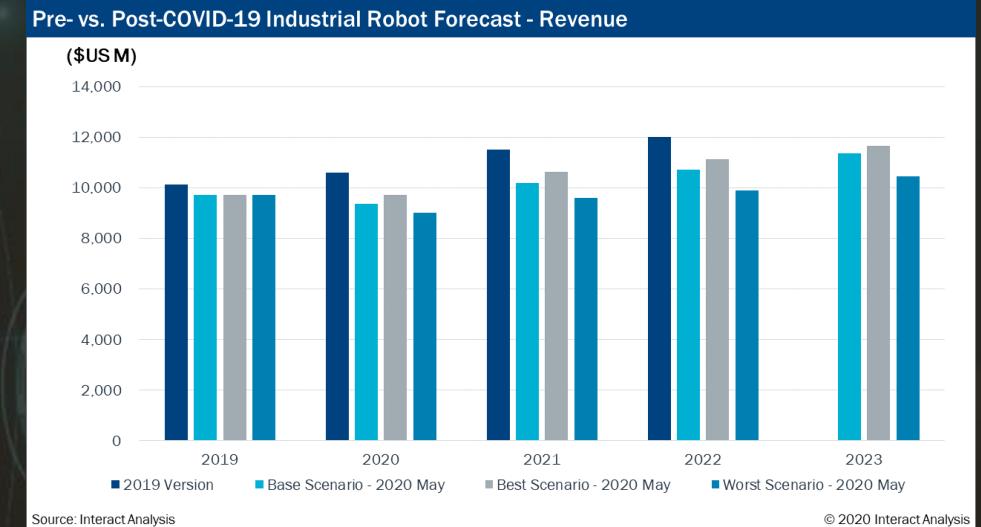
INTERNET AGE AND AI:

Industrial automation business saw an initial dip of about 7% to 8% in the initial part of the COVID 19 due to lack of reserves to fund these projects but has been forecasted to grow exponentially in the coming years. Every industry is inculcating automation solutions with AI to increase productivity, certain examples are:

Banking Automation: USA's Chase bank has already tested prototypes of the technology to build a machine capable of verifying checks, depositing cash, and generating accounts using AI. Most of the banks have already transferred at least 80% of transaction capacity online, a very good example is UPI of India.

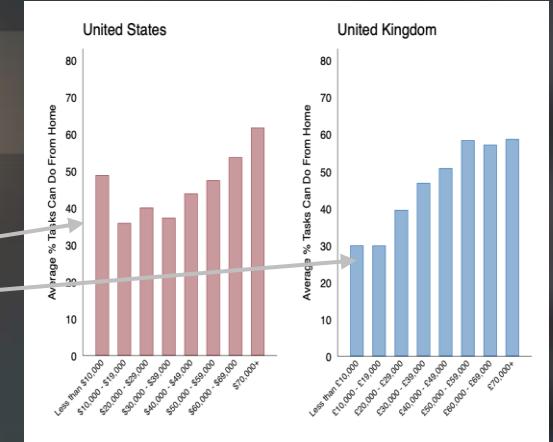
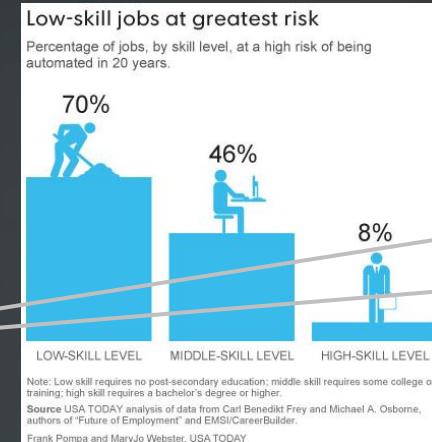
Manufacturing Automation: Industries are spending heavily on robotics to increase production efficiencies as part of the Industry 4.0 initiatives which intends on making industries cloud-based and automated using IIOT.

Hospitality Industry: Accommodation providers are investing in robots to sanitize and dress rooms for the customers. Although the industry has taken a huge hit, it is expected to jump back after vaccine development.



CHANGING HR:

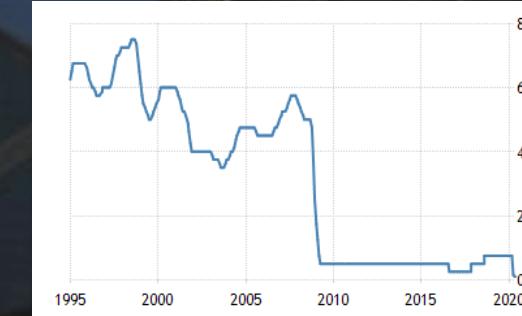
- As unskilled works will be automated to decrease human contact points on supply chains, these jobs will vanish sooner and that rate has only been accelerated by the onset of pandemic.
- As companies invest heavily on automation to prove their sustenance and safety, more jobs are created to develop this machinery and maintain them. It is on a wider note expected that this automation will generate 3 more jobs as compared to one loss at unskilled side.
- This changing scenario of change will stress on companies to change HR strategies and adapt to this circumstances.
- Also, the newer generation jobs are lowly distance oriented, which saves companies office space and allow people to work from home, decreasing operating costs further to an institution.



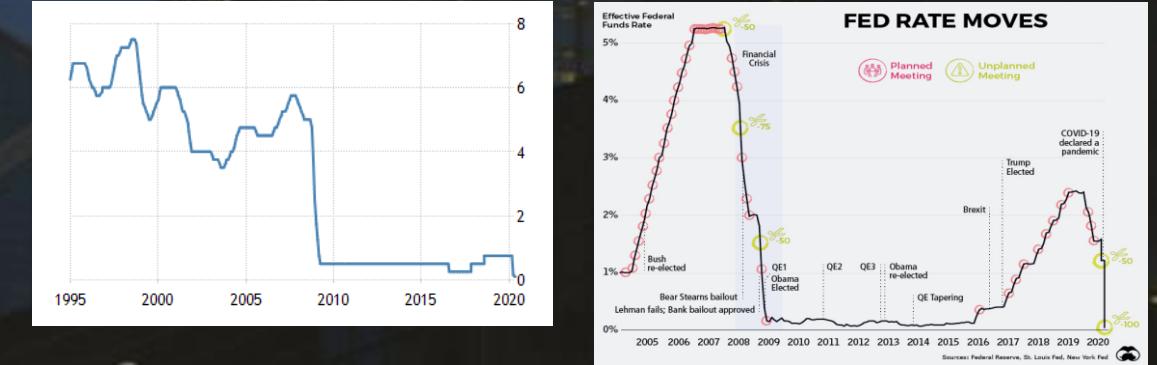
FINANCIAL RELIEF:

Financially funding for the mentioned projects will take long as the industry is already coping up with the existing liquidity crisis. Institutions endeavouring in essential items and with stronger reserves have been kept out of loss in businesses but industries with stronger impact have been provided with financial relief with USA announcing \$2 trillion, UK announcing 300 billion pounds and India announcing \$300 billion in forms of loans, stock backing and direct tax reliefs .

UK's Interest on credit



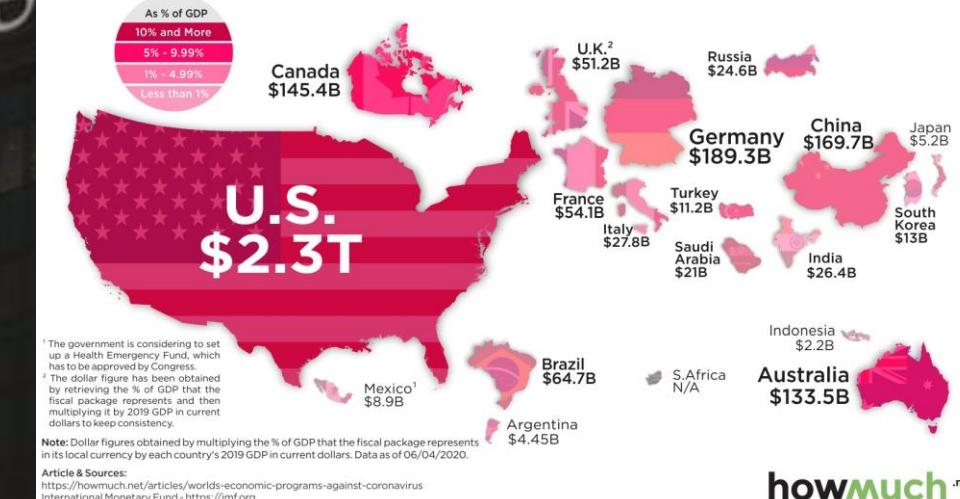
USA's Interest on credit



Lessons Ahead:

Reserves should be maintained in form of cash and reserve stocks as part of a risk management plan by institutions to support organisational sustenance over pandemics like this.

World's Economic Programs Against the Coronavirus
Total Fiscal Stimulus Packages Implemented to Fight the COVID-19 in G20 Countries



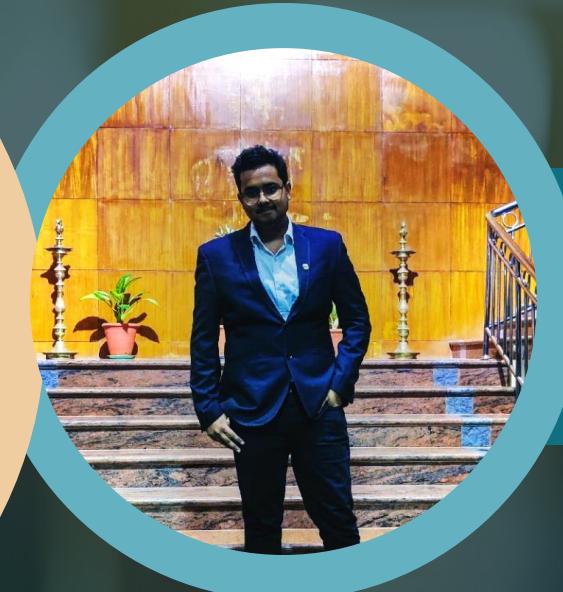
THE TEAM



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Project Leader, Sigma, NTT



Bhala
Mentor, Treasurer - Sigma, NTT



Kushagra K
Project Leader, Sigma, NTT



Thank You

A SIGMA – NITT PROJECT