What longer-term structural changes are expected to result from the COVID-19 pandemic?

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Even as the pandemic fades over time, it will leave a lasting footprint on the planet, mostly around how we live and work. In the private sector, structural impacts will include a continued shift towards economic digitisation resulting in a greater proportion of time spent working remotely and a greater share of consumption shifting to e-commerce. Supply chains will become more domestic, often prioritising stability and redundancy over pure lowest cost sourcing and JIT management. Big government will loom large in our daily lives, with more spending, taxation, healthcare monitoring/provision, and regulation.

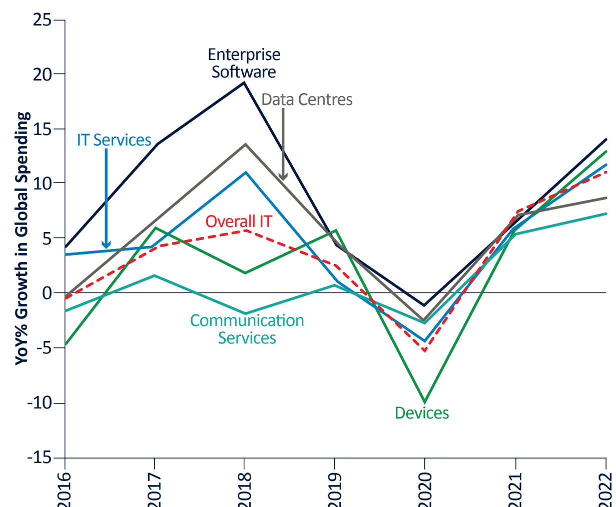
a. Remote working has accelerated technology adoption

COVID-19 has compressed a decade's worth of digital adoption into the space of a year. As well as the shift to remote working, consumption habits have changed forever with technology facilitators being the key beneficiaries. The SARs outbreak in 2002/2003 is widely cited as one of the key factors behind the early adoption of digital payments in China, with companies like Alibaba and JD.COM propelled to the forefront during that pandemic[1]. The COVID-19 pandemic will have an even more significant impact on the shift to digital/online. In a survey by McKinsey, at least two-thirds of consumers say they have tried new kinds of shopping during the pandemic and over 75% of those consumers say they intended to continue to shop in a similar fashion post-pandemic. In the United States, the penetration of e-commerce was forecast in 2019 to reach 24% of all retail sales by 2024. By July 2020, it had hit 33% of total retail sales. To put this in perspective, the first half of 2020 saw an increase in e-commerce equivalent to that of the previous ten years[2].

Structural changes do not appear to be limited to consumer behaviour. Organisations have also shifted their mindset on technology investment. KPMG's global CEO survey showed that organisations are investing heavily in technology to address immediate concerns like falling revenue, interrupted supply chains and to build longer-term competitiveness and resilience. 67% of CEOs say they have accelerated their digital transformation strategy and 63% say they have increased their digital transformation budget as a result of the pandemic[3].

Figure 1 shows that global spending on IT did fall in 2020 by c. -5% but spending is expected to accelerate dramatically in 2021 and 2022.

Figure 1: Global IT spending is forecast to accelerate in 2021 and 2022



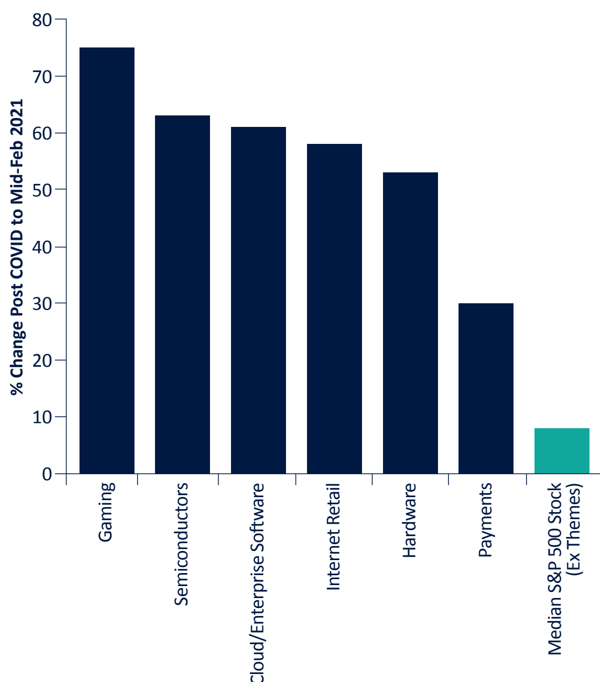
Source: Gartner Research

[1] https://www.cnbc.com/2020/03/26/chinas-2002-2003-sars-outbreak-helped-alibaba-become-e-commerce-giant.html#:~:text=The%20SARS%20outbreak%20appeared%20to,to%20have%20a%20silver%20lining.
[2] DTC ecommerce analysis McKinsey
[3] https://home.kpmg/xx/en/home/services/advisory/management-consulting/kpmg-connected-enterprise/going-digital-faster.html

US-20230929-3138430

The winners from this acceleration in digitisation have been the technology facilitators such as the FAANNGM stocks[4]. These stocks enjoyed a median gain of nearly 70% in 2020 versus a total return of 18.4% for the broad S&P500 with the median stock in the index gaining just over 8%[5]. Using ETF data we have segmented those sectors and themes that have benefited directly from the pandemic in Figure 2, illustrating their change in market capitalisation since the crisis began[6]. Many people turned to home entertainment during periods of self-isolation with video games being one of the biggest beneficiaries. Game sales grew 44% YoY in 2020 and the Wedbush Video Game Tech ETF has risen by c. 75% since the broad markets' pre-COVID-19 peak[7]. Thematic ETFs that represent Hardware, Semiconductors, Enterprise Software and Internet Retail have all gained more than 50% over the same period.

Figure 2: Key beneficiaries of the crisis have appreciated by 30-75%, where as the median stock in the S&P500 excluding those themes has appreciated by 7.5%



Source: US based ETFS/Indices; GMR US Equity, S5TECH Index, SOXX US Equity, SKYY US Equity, DJINET Index, IPAY US Equity

[4] Facebook, Amazon, Apple, Netflix, Nvidia, Google and Microsoft
[5] Bloomberg
[6] 19 Feb as start point – 14 Feb 2021
[7] We have stripped out the performance of GAMESTOP for the purpose of this analysis. Pre pandemic peak; 19 Feb 2020

b. The commercial real estate market has been fundamentally changed

The shift to remote work means that office attendance is expected to drop by 15-30%. The impact on the real estate market is expected to be more benign and may have already been reflected in valuations. Prior to the COVID-19 pandemic, McKinsey estimated that approximately 5% of the global workforce could effectively work from home 3-5 days per week without any significant drop in productivity. They now estimate this figure to be just over 20% of the global workforce[8]. Necessity is the mother of innovation and the pandemic created a surge of technology investment coupled with real-time trial and error to enable an enormous swath of the workforce to transform how they work. Microsoft CEO Satya Nadella noted in April 2020 that "we've seen two years' worth of digital transformation in two months". While it is unlikely that a full 20% of the workforce will work from home 3-5 days a week, it is likely that office attendance will drop by about 20-30% each day in the long term according to research from Barclays bank.

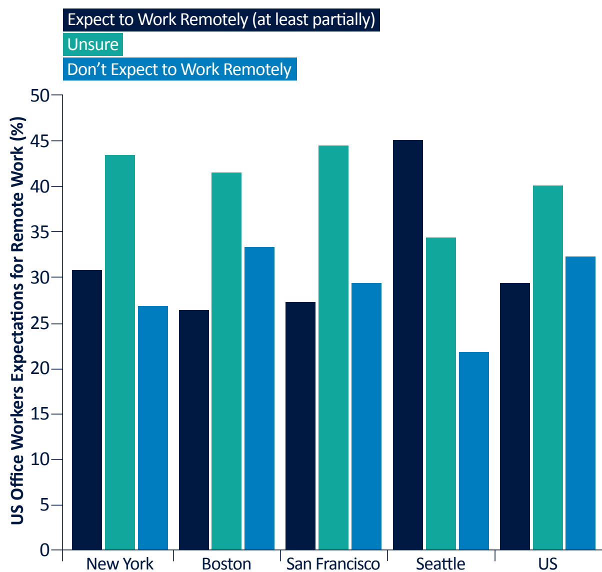
The benefits to both employees and employers are obvious. In the US and the UK, the average daily round-trip commute is approximately one hour[9]. A study by Harvard showed that the average workday increased by 48 mins for those working from home and productivity increased by over 13% according to a Stanford study. US productivity saw its largest improvement since 1965 in the six months following the outbreak of the pandemic[10]. Potential cost savings will also have to be factored in. In Manhattan, for example, the average workspace is around 310 square feet. At pre-COVID-19 rental costs, that amounts to an average of $20,000 per employee and more than $30,000 for A+ grade buildings[11]. There are some drawbacks, however. A study by Tristan Capital, a boutique real estate investment manager, showed that 73% of both decision-makers and office workers felt that career development and learning were better in the office than at home. This will likely mean that a hybrid

[8] https://www.mckinsey.com/featured-insights/leadership/the-next-normal-arrives-trends-that-will-define-2021-and-beyond
[9] https://www.prospectmagazine.co.uk/politics/commute-times-london-uk-work
[10] The Economist
[11] Cushman & Wakefield

US-20230929-3138430

model will emerge with employees having the option of working 1-2 days per week at home on solo tasks with the rest of the time spent in the office. Just over 30% of US office workers expect to go back to the office full time once the pandemic has ended as shown in the survey by Redfin, Figure 3.

Figure 3: US office workers expectations for remote working post pandemic

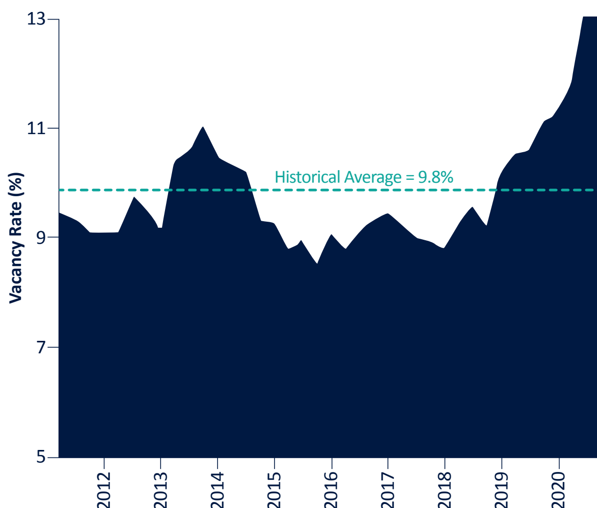


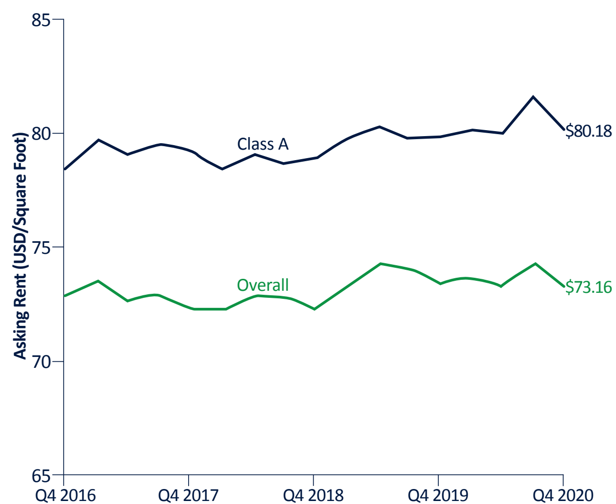
Source: BCA, REDFIN

The move to remote work creates a physical real estate question. Analysis by Tristan Capital suggests that knowledge-based firms (organisations where >80% have a degree) will reduce time spent in the office by about 15% and low knowledge firms (<50% have a degree) could reduce time spent in the office by about twice this amount. Barclays believe the demand for floor space will fall by a much smaller magnitude due to re-designing of office floorspace and increased spacing between individual desks. They estimate demand to fall by approximately 10-20%. Green Street, a real estate research provider, also suggest that there will be a 30% reduction in office usage, but that alteration of spaces and increased biosecurity means that the impact on demand will be closer to 10%. Asking rents for office space in Manhattan have remained steady but vacancy rates have skyrocketed as shown in Figure 22 from Cushman Wakefield. The assumption is that it is only a matter of time before this is reflected in rental rates. In London prime office rental rates are down by about 13% YoY.

The pandemic has only served to accelerate and exacerbate the problems faced by the retail segment of the real estate market. Grade A retail asking rents were about 15% lower year on year in Manhattan

Figure 4: Manhattan office vacancy rates have skyrocketed but asking rents are yet to reflect this





Source: Cushman & Wakefield

US-20230929-3138430

in Q4 2020, Figure 5. The US also has far too much retail space when viewed from a per-capita perspective; nearly 5x higher than the UK/Europe.[12]

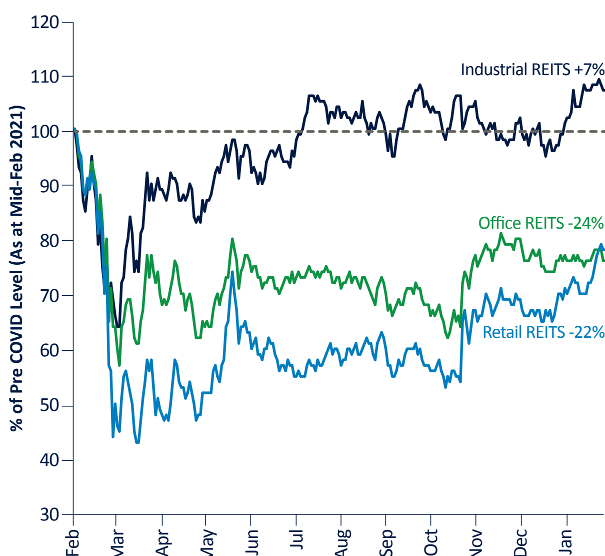
Figure 5: Manhattan retail rents have fallen dramatically

Manhattan Retail Space	Change in Q4 2020 Asking Rents YoY%
Soho	-22%
Lower Fifth	-20%
Herald Square	-18%
Madison Ave.	-16%
Flatiron	-15%
Upper West	-14%
Third Ave.	-11%
Times Sq.	-5%

Source: Cushman & Wakefield

The most obvious implication of this is that rents in the retail space are likely to continue to decline. Retail and office REITs, as measured by the S&P500 subsectors, are trading 22-24% lower than they were prior to the crisis. Industrial REITs on the other hand are trading 7% higher having directly benefited from the ecommerce boom,[13] Figure 6.

Figure 6: The REIT market reflects a K-shaped recovery



Source: Bloomberg

While there remains a huge amount of uncertainty around the future of the office, particularly in New York where most REIT exposure is concentrated, office REITs may already reflect this to a certain extent, as shown in Figure 7. Analysts expect earnings to be 15-20% lower than they would have been without the crisis. Current pricing reflects this fact, but it doesn't appear to reflect any change in the discount rate associated with these earnings. This would suggest that there may be some moderate upside within this segment of the market.

Figure 7: Office REITS pricing may reflect a structural cut in EPS but not in the discount rate

S&P500 Office REITS % difference to DCF fair value (Mid Feb price)	EPS Unchanged	EPS Cut 10%	EPS Cut 15%	EPS Cut 20%	EPS Cut 25%	EPS Cut 30%
Discount Rate Unchanged	21%	9%	**3%**	**-3%**	-9%	-15%
Discount Rate -20bps	30%	17%	**11%**	**4%**	-2%	-9%
Discount Rate -40bps	41%	27%	**20%**	**13%**	6%	-1%
Discount Rate -60bps	55%	39%	**32%**	**24%**	16%	8%
Discount Rate -80bps	71%	54%	**45%**	**37%**	28%	20%

Source: Bloomberg

c. Onshoring and diversification of global supply chains has become a priority

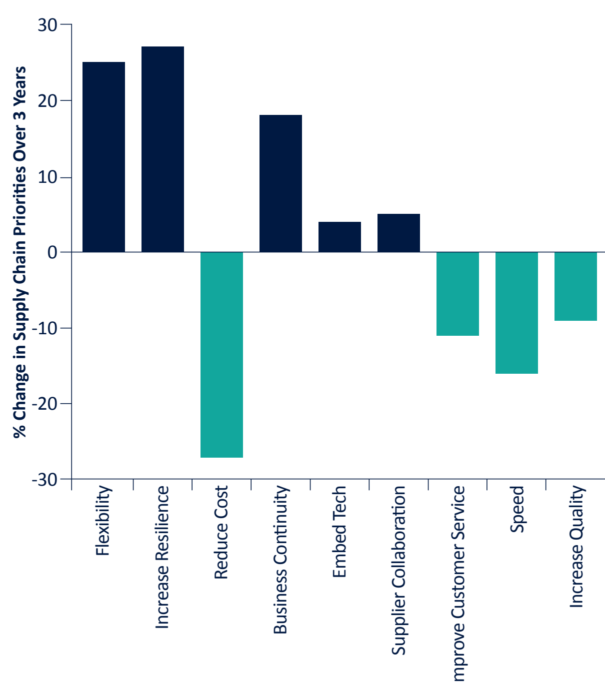
The pandemic has laid bare all of the vulnerabilities in the global supply chain. Experts believe there will be a clear shift away from a focus on cost and efficiency to resilience. This could lead to lower corporate profits, inflationary pressures and some shift in production away from China. A study by Bank of America found that companies in over 80% of sectors have experienced disruptions in their supply chains during the pandemic. As a consequence, supply chains are expected to become shorter and more regionalised. McKinsey has coined the phrase "just in time plus" where the plus signifies

[12] Cushman & Wakefield
[13] As of 14 February 2021

US-20230929-3138430

a new element of risk management that focuses on resilience. A survey of supply chain objectives from Bain & Company (see Figure 8), showed that companies will be emphasising flexibility and resilience over costs in the next three years.

Figure 8: Companies are emphasising supply chain resilience and reliability with less regard for costs



Source: Bain & Company Supply Chain Survey

McKinsey has modelled the impact of a significant supply chain shock across all industries to analyse which industries are the most vulnerable as shown in Figure 9. Those industries at the top of the list where domestic alternative sources are available, will see the biggest shifts to local sourcing. Industries such as petroleum and mining are the most exposed to shocks but the geographical risk for these industries is impossible to mitigate. However, textiles, food & beverage, pharmaceuticals, medical devices and automotive, could see big sourcing shifts in the years ahead.

Figure 9: Sectors with the most significant supply chain risk

Sector	EBITDA Margin Loss over 10yrs from sustained supply chain shock
Petroleum	8.9%
Mining	8.4%
Textiles	7.8%
Food and beverage	7.6%
Medical devices/ Pharma	7.4%
Aerospace	7.4%
Automotive	7.3%
Machinery and equipment	6.5%
Glass and cement	6.2%
Computers and electronics	5.9%
Chemicals	5.7%
Electrical Equipment	5.4%

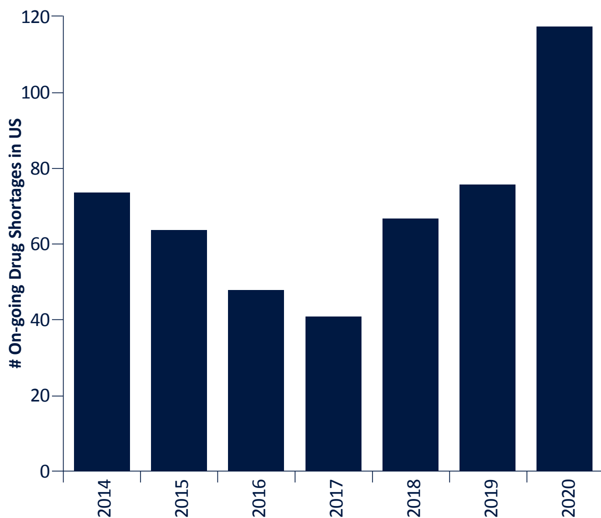
Source: McKinsey & Company

One area that was exposed during the pandemic was the pharmaceutical sector. Active pharmaceutical ingredients (APIs) are the key parts of a drug that produce an effect. The US, Europe, and Japan had produced 90% of the world's APIs until the mid-1990s. But now it is estimated that Chinese and India are the sources of 80% of the APIs imported to the US and Europe.[14] This move to offshore production was primarily a function of cost. European producers, in particular, found it too expensive to maintain the environmental standards demanded by European regulators whilst drug prices fell precipitously. In late March, India's Ministry of Commerce announced they were imposing restrictions on the export of 13 key APIs due to plant closures. Panic ensued in European and US pharmaceutical companies and government health agencies. The US had warned for years that the pharmaceutical supply chain could be "weaponised" by China. While the worst fears were not realised, the scare prompted both the US and Europe into action with a view to re-shore more API production. The European Commission is proposing a shift away from its "lowest possible base" cost model to a pricing model negotiated from the bottom up based on a

US-20230929-3138430

supplier's cost of goods, regulatory costs, and other considerations. This will undoubtedly bring about an increase in the price of generic drugs and healthcare overall. We can expect to see several examples of this across global supply chains which will likely lead to upward pressure on inflation.

Figure 10: On-going drug shortages reported by the FDA increased by nearly 30% in 2020



Source: FDA

McKinsey believes that as much as a quarter of global goods exports, or $4.5T, could be re-shored or shifted by 2025. This would have two important consequences. Firstly, the increased costs associated with re-shoring are expected to lead to some margin compression, but this will be somewhat offset by an increased use of automation and subsidies/ tax breaks offered by governments to incentivise re-shoring. The Global Robotics and Automation ETF[15] has appreciated by more than 60% since its pre-COVID peak in anticipation of a reshoring drive. Valuation in the space has reflected this with the median P/E multiple on 2021 earnings moving from 23x pre-crisis to 34x.[16] Secondly, China is highly exposed to this trend. Bank of America estimates that 7% of China's GDP (40% of Chinese exports), is derived from exports by foreign companies based in China[17]. Bank of America expects this to result in further efforts to stimulate domestic consumption and China's regional ecosystem, bolstered by its "Belt-and-Road Initiative".

d. Business travel will be structurally reduced

While leisure travel will eventually recover, business travel is unlikely to ever return to pre-pandemic levels and this will have a significant impact on airlines, hotels and hospitality in general. The $8T travel and tourism sector was decimated in 2020 with the number of airline passengers declining by over 60% and hotels averaging just a 40% occupancy rate in the US[18], the lowest occupancy rate on record. To put this in perspective the SARS crisis in 2003 saw airline passengers decline in Asia by just 8%[19]. Past crises would suggest that it will take two years for leisure travel to fully recover. The evidence in China would appear to bear this out as well with hotel occupancy and domestic flights having recovered to 90% of their 2019 levels by August 2020. Easyjet has also said that bookings for summer 2021 with its holiday's arm are up 250% on last year. Business travel typically takes at least five years to recover after a crisis and the sector never regained the pre-financial crisis levels. Business travel accounts for approximately 20% of the global travel and tourism sector but crucially its accounts for 70% of the revenue for high-end hotels. While premium class passengers amount to only 10% of airline passengers (Figure 11), they typically account for over 30% of revenues and 70% of profits. Jeffrey Goh, CEO of Star Alliance, the world's largest airline group, predicts that the pandemic could structurally reduce business travel by around 30%. A decrease in business travel essentially raises the cost of leisure travel for the general public and this will be exacerbated by shrinking competition within the airline space with several carriers having filed for bankruptcy in 2020. While the MSCI World Hotels Index has recovered its pre-COVID levels, the MSCI World Airlines Index remains c. 25% below its pre-COVID levels.[20]

[14] theconversation.com
[15] ROBO US Equity
[16] As of 14 February 2021
[17] https://www.barrons.com/articles/supply-chains-on-the-move-as-global-pressures-mount-51596825253
[18] https://str.com/press-release/str-2020-officially-worst-year-on-record-for-us-hotels
[19] International Civil Aviation Organisation
[20] As of 14 February 2021

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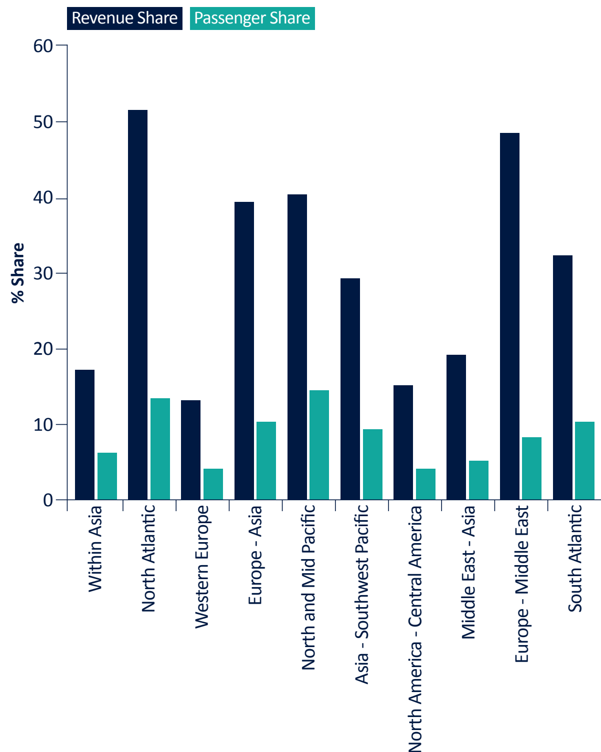
Figure 11: Premium passengers' amount to 10% of airline passengers but account for over 30% of revenues



Source: IATA/The FT

e. Big government is back

We anticipate that governments will continue to play a more active role in our lives in the post pandemic world. Heightened control and influence are the price for aggressive stimulus schemes to rebuild the economy with an eye towards decarbonisation and wealth redistribution. The extent and the duration of this more active role remains uncertain.

One of the clearest lessons from the pandemic appears to be that government intervention via the introduction of restrictions and removal of individual liberties has proved to be the most effective method of controlling the spread of the virus. In order to achieve this, governments were obliged to provide a massive social security net to prevent the collapse of affected industries and the individuals whose livelihoods depend on them.

Governments across the globe have suggested that their increased role in society has shown clear benefits. Operation warp speed in the US has partially aided the development of vaccines against the virus in record time. In the UK, Chancellor Rishi Sunak has hailed the early success in Britain's coronavirus vaccine rollout as an economic model for the future, with an emphasis on "nimble" regulation and an active role for the state in promoting innovation. Professor Sarah Gilbert, the scientist credited with designing the Oxford vaccine, noted that while it was encouraging to see the government investing in vaccine research, this cannot mask the fact that "there hadn't been the investment we would have liked in vaccine manufacturing and vaccine testing in the UK in the past". While everyday restrictions will be eased, there may be a trade-off with the concept of vaccine passports and the transfer of personal data. Although this idea may seem quite radical, it is not without precedent. Yellow cards that signified inoculation against cholera existed over 100 years ago and were required when traveling[21]. Sweden, Denmark and Greece are already actively pursuing the concept and the UK government has tendered for proposals from the likes of De La Rue[22].

The encroachment by governments on civil liberties has led to warnings from former Superior Court Justices, Lord Sumption and Lady Hale in the UK. Sumption remarked that "the government has discovered the power of public fear to let it get its way. It will not forget." It is evident that governments in the coming years have effectively been granted more license with fiscal policy and perhaps with regard to civil liberties.

f. The physical economy has given way to the digital economy

COVID-19 has reshaped the global economy with equity sector weightings reflecting a more digital future. In the past the global economy was powered by oil and gas, now the world runs on semiconductors, "the oil of the 21st century" according to Xi Jinping. Organisations require less physical real estate space and more cloud space. The capital requirements to run an organisation have shrunk with social media providing a gateway to the world at a substantially lower cost. Consumers have seamlessly transitioned from physical purchases to digital transactions. Analysts and investors have

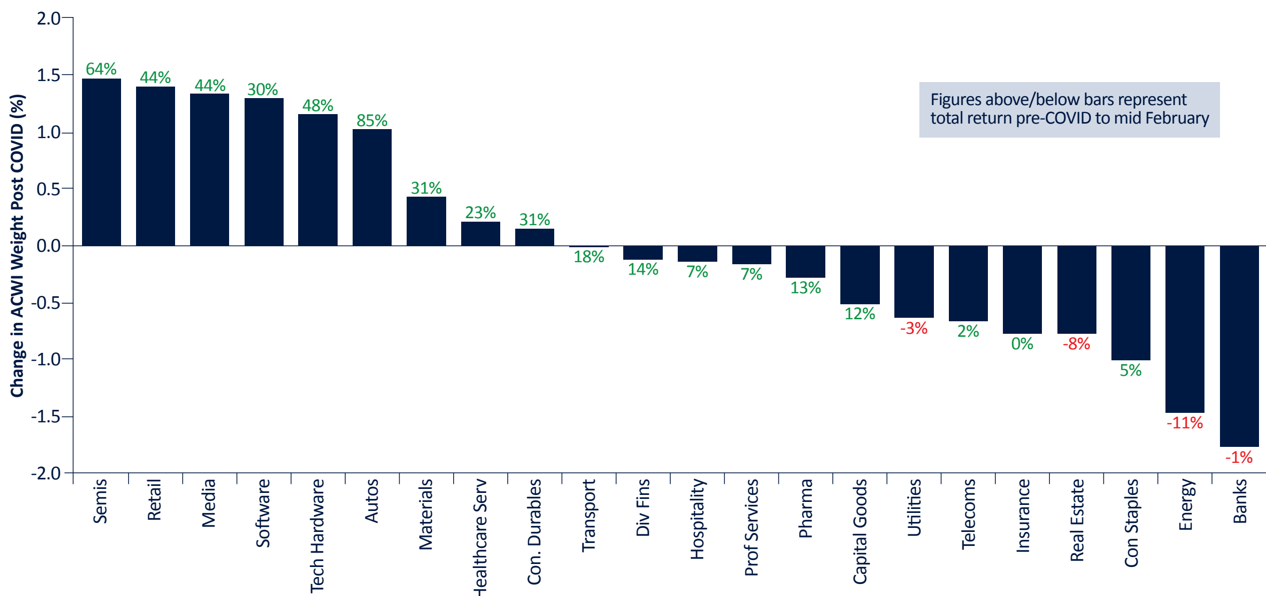
[21] The Economist
[22] https://www.telegraph.co.uk/business/2020/11/21/de-la-rue-talks-covid-travel-certificates/

US-20230929-3138430

modelled the long term impact of the crisis and determined that industries such as energy, banks, insurance, real estate and consumer staples will play a smaller role going forward with their share of the MSCI All Country World Index shrinking by c. -6%. On the other side of this semiconductors, e-commerce, media, software and hardware have seen their share of the global market climb by over 7% as illustrated in Figure 12.

In conclusion, COVID-19 has been an accelerant of many of the trends that were in place before the crisis. Remote working has moved from being marginal to mainstream, the number of companies' reshoring production has evolved from a trickle to a stream and one third of all retail consumption now occurs online. It has also resulted in some unexpected developments with international mobility potentially restricted for years to come and governments now playing an increasing role in our daily lives. While the former trends appear to be set in stone the duration and sustainability of the latter are far more uncertain.

Figure 12: The physical economy gives way to the digital economy



Note: All figures in this chart refer to the period from 19th Feb 2020 – 14th Feb 2021
Source: Bloomberg

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