

Sense and nonsense in pandemic times

How to think through both the long- and the short-term implications of Covid-19 for markets, the economy and forecasting: What we have learned so far.

- _ After such a big event, there can never be a "return" to the old "normal."
- _ It is still too early to fully assess the post-pandemic landscape, as the explanatory power of major economic indicators has suffered from the consequences of Covid.
- _ Like other big events, Covid-19 is likely to cast long shadows in the economic, political and corporate sphere – probably with plenty of further surprises along the way.

Ever since the start of the pandemic, a favorite parlor game in financial markets has been to try to gauge its impact. Which new trends might arise from the pandemic? Which familiar trends might Covid-19 speed up? Which ones might it stop in its tracks or even reverse? And, how long would it take for the world to "return back to normal?" That last question naturally highlights how shallow such discussions tend to be, especially in the early days, when market participants had to quickly react to big, world-changing events. After all, at around this time in 2019, few among us knew all that much about R_0 , the now infamous and still often misunderstood reproduction (R) number underpinning an epidemic's exponential growth dynamic.¹ Is it any wonder, then, that few of the market's pundits – ourselves, to be fair, very much included on occasion – can claim to have gotten most of their outbreak predictions, right?

In looking back at the world's Covid-19 pandemic so far – and ahead to the next winter – it is worth keeping in mind that we

are only living one version of many once possible futures. Part of the problem of the reality we perceive and base predictions on, is that the collection of snapshots we see of given moments in time can create an illusion of inevitability.² What actually happens or has happened during our lifetime blinds us to what might have happened.³

Remember how, just over a year ago, remote further lockdowns in the coming winter appeared during the first summer of Covid-19 in the Northern Hemisphere? How widespread hopes among financial-market colleagues were upon the encouraging results from vaccine trials that these might offer sterilizing immunity – that is, not just protect those vaccinated but prevent chains of transmission altogether? How long it has taken for the reality of further mutations to eventually find their way into growth forecasts, earnings outlooks and financial markets of countries judged to be at particular risk?

¹ <https://www.nature.com/articles/d41586-020-02009-w>

² Deutsch, D. (1997), *The Fabric of Reality: The Science of Parallel Universes—and Its Implications*, Penguin books; see esp. chapter 11, Time: The First Quantum Concept.

³ Tetlock, P.E. and Parker, G., (2006), *Unmaking the West: "what-if" scenarios that rewrite world history*. University of Michigan Press

How to (not) form a view

To be sure, on all these issues, it was possible to get early insights from those with expertise in virology and infectious-disease epidemiology. One very influential and one truly excellent book came out shortly before the pandemic that looked at the parallels between disease outbreaks and phenomena such as panics in financial markets.

In his latest influential tome, Robert Shiller offered a useful, if somewhat superficial, reminder on the role of storytelling in big economic events.⁴ Meanwhile, Adam Kucharski's book probably remains the best starting point in thinking through what financial-market participants should have learned in the past 20 months.⁵ That includes not just infectious-disease epidemiology but also a better understanding of exactly how and why and for how long misinformation can spread. Such pandemics of misinformation are driven not so much by malice but by our own biases both as individuals and collectively.

The framing in much of the first paragraph is a good example of how not to think if the results of a brainstorming exercise are supposed to be useful. Asking: "Which familiar trends might Covid-19 speed up?" or "Which trends might it reverse?" is an open invitation for participants to fall for one of the most prominent sources of forecasting errors in books such as Daniel Kahneman's "Thinking, fast and slow."⁶ Specifically, such questions allow for the swift substitution of some very hard questions (which might require a lot of thought and an open mind) with seemingly easy ones (where one just jumps to conclusions).

Ask an expert about familiar trends, and a ready list will immediately form in her or his mind.⁷ In general, a better approach is to break up the topic in question in more manageable subcomponents. Ideally, this should focus on causal links that can be tested, for example by looking at data from different countries and acknowledge underlying uncertainties. This is precisely the approach we took about a year ago when looking at the narrower question of how Covid-19 might impact the future for the Internet of Things (IoT).⁸

We defined the term IoT as cyber-physical systems, in which mechanical and digital machines exchange data in a network without requiring human intervention.⁹ Both corporate and consumer IoT applications can make use of robotics, sensors, real-time analytics, machine learning and cloud computing in order to fully automate processes. From that, it might seem obvious that Covid-19 would speed up familiar trends, such as those toward automation and digitization. However, precisely because Covid-19 underlined the need to think through low-probability but high-impact risks, we concluded that the ultimate outcome would probably look more like many varied networks of things, rather than one single Internet of Things.

In a nutshell, that approach also serves as a template of how to think through both the long- and the short-term implications of Covid-19. The first key realization is that after such a big event, there can never be a "return" to the old "normal." For something fast evolving like the IoT, the year 2021 would have been different from 2019, with or without a global pandemic. In imagining its most probable shapes after such a change, you instead need to ask how and why – through which causal mechanisms, that is – Covid-19 might have changed the probabilities of various scenarios.¹⁰ And be especially conscious that some scenarios might defy the expectations of you and your generation.

What causes societal changes?

Two particularly powerful causal mechanisms have to do with how companies, other organizations and whole societies learn. These mechanisms are changes in generational attitudes at a macro level and various theories of evolutionary economic change, notably via organizational routines at a micro level, respectively. Take societies and generational attitudes first (the micro level follows below, in the section on how companies learn). It is a sad thing to think of, but societies rarely learn via individuals changing their mind. According to Karl Mannheim's "sociology of generations," it has more to do with new generations replacing old ones. Big social changes typically reflect new generational attitudes, often triggered by commonly shared and remembered events that shaped the life experience of a particular cohort during their formative years.¹¹

⁴ Shiller, R.J., 2019. Narrative economics: How stories go viral and drive major economic events. Princeton University Press

⁵ Kucharski, A. (2020) Rules of Contagion: Why Things Spread - and Why They Stop, Profile Books

⁶ Kahneman, D. (2011) Thinking, fast and slow. Farrar, Straus and Giroux

⁷ Tetlock, Philipp (2005): "Expert Political Judgement: How Good Is It? How Can We Know?", Princeton University Press

⁸ <https://www.dws.com/insights/cio-view/macro/internet-of-things/>

⁹ A good introduction to the concept and its history can be found in the article "As Objects Go Online" from "The Fourth Industrial Revolution: A Davos Reader," 2/12/14

¹⁰ <https://www.economist.com/leaders/2019/07/06/why-its-worth-reading-crazy-sounding-scenarios-about-the-future>

¹¹ Mannheim, K. (1928), "Das Problem der Generationen," In: Kölner Vierteljahreshefte für Soziologie, 7. Jg., H. 2; S. 157-185; first translated into English in 1952 as "The Problem of Generations"

The shared experience of the Covid-19 pandemic is likely to prove an important causal mechanism, perhaps the most significant one for Western thought since the fall of Communism in Eastern Europe in 1989. However, that is precisely why you should be wary of extrapolating from recent developments while ignoring the potential for countervailing effects. At least after their formative years, people tend to try to fit whatever life throws at them into pre-existing conceptions of reality. The effect on politics, arts or ways of organizing society can be dramatic – but usually with a time lag of several years or even decades. It takes time for a new generation to collectively gain positions of power and influence, but when they do, they bring a new and different outlook.

Those shaped by the Cold War inevitably saw history as an ideological conflict, which liberal Western democracies had won.¹² That, though, was not at all the flavor of the future you might have gotten from the cyberpunk novels of the late 1980s and early 1990s.¹³ Take "Snow Crash," by Neal Stephenson. Like other Sci-fi books written around that time, it is set in a dystopian society that has long since descended into an anarcho-capitalism. States have been carved up into residential burbclaves – quasi-sovereign gated communities – and larger territories run by big business franchises.¹⁴

How big events cast long shadows – the example of 1989

Burbclaves versus Western-style "business as usual" provide two extreme scenarios familiar to many – now middle-aged – market participants. A third – never far from the mind of those old enough to remember the actually existing socialism of the former Soviet Union – is that of a domineering state. And among those three, it seems clear that the probabilities need some adjustment in the aftermath of Covid-19. States have rarely looked more powerful, with China's recent tech crack-down perhaps offering a foretaste of what could lie ahead.¹⁵ Pause so, just to acknowledge, that if some Sci-fi aspiring writer had wanted to write a short story of how burbclaves emerged, a global pandemic might have seemed like an obvious plot device. In countries with weaker governance, quasi-sovereign gated communities might well emerge as one of Covid's legacies.

As for the West, it certainly feels like the era of lax regulations and modest corporate taxes may be drawing to an end. After all, someone will eventually have to pay for all the pandemic rescues – and profitable technology companies, along with other highly profitable multinationals, could make for tempting targets. As David Bianco, our Americas Chief Investment Officer recently pointed out: "Because the S&P 500 is digitally dominated, perhaps its biggest risk is that of government actions to curb the business models of the listed, but privately owned digital behemoths. (...) Whether it be commands and controls in the east or taxes and regulations in the west, governments taking a bigger bite is a risk. This risk exists for tech and communications, but we also see such risk at health care, and especially financials and energy."¹⁶

Note, however, that we are talking about "risks" rather than trends or anything remotely as certain as that. It is still a little early to say what exactly the consequences might be with regards to societal change. Indeed, it is probably even too early to say what might replace the old 1990s-style debates on the proper role of government. Even before the pandemic, there were some indications that younger voters might welcome a permanently stronger role for the state to redistribute wealth and regulate the private sector.¹⁷ Concerns about climate change have been running high among digital natives, with significant political implications, for example in the most recent elections to the European Parliament.¹⁸

Will Covid-19 turbo-charge the trend towards greater political involvement and a more activist state? Or could the experience of home schooling, state-imposed lockdowns and mask mandates leave the next generation even warier and more rebellious when it comes to politicians and officials telling them what to do? What new forms of social and political engagements might emerge?

Some early pointers on societal changes

There is an intriguing way to not necessarily answer these questions but at least get some early pointers on potential scenarios likely to shape future debates. It is by keeping an eye on which sorts of novels generally, and science fiction in particular, will make it on the bestseller list over the coming

¹² <https://www.dws.com/insights/cio-view/emea-en/history-stages-a-comeback/>

¹³ On cyberpunk generally, see: <https://www.economist.com/the-economist-explains/2020/12/14/what-is-cyberpunk>

¹⁴ Stephenson, N. (1992), *Snow Crash*, Bantam Books;

¹⁵ <https://www.dws.com/insights/cio-view/cio-flash/cwf-2021/china-has-a-regulatory-plan/>

¹⁶ <https://www.dws.com/insights/cio-view/americas-cio-view/20210830-americas-cio-view/>

¹⁷ <https://www.ft.com/content/0960efc6-4220-4172-8961-c94bb6efcbf8>

¹⁸ <https://www.dws.com/insights/cio-view/cio-view-quarterly/q2-2019/europes-green-wave/>

months and years. Sci-fi has always been a useful way to extrapolate from the concerns of the present, by taking trends to their mind-stretching conclusions. Especially at tipping points of generational attitudes, what younger readers are devouring can sometimes offer you more useful clues than the conventional wisdom dominating among non-fiction books.

Partly, that is because today's readers will be the decision makers, who one day might have the power to bring about various futures they have been reading and dreaming about. Stephenson's *Snow Crash*, for example, is less famous among technology aficionados for its privatized burbclaves but for its digital metaverse, in which human avatars and software daemons inhabit a parallel 3D world. In light of the world's Covid-19 experience, chances are looking increasingly good for some version of such a metaverse, as a collective virtual shared space, not least because many of today's leading Silicon Valley entrepreneurs were avid cyberpunk readers once.¹⁹ To get a better idea of what comes after that, though, you might have to be patient – a few months, perhaps, for fictional visions but many years before their realization.

How companies learn

As we saw in the example of the IoT, making predictions on a micro-scale – which companies or products might receive a lasting boost, or how a sector might evolve after some big shock – can be just as tricky as at a societal level. Fortunately, economists have developed working theories, over the past 50 years or so, on how to make sense of such shocks. In terms of accelerating economic changes – and potentially changing the path these changes might take, Covid-19 has done two important things and did not, but easily could have, resulted in a third.

The first was by accelerating the learning of companies themselves. According to how economists tend to think about economic change nowadays, companies learn and remember by doing. Over time, private businesses tend to get better and better at maximizing profits – provided the environment does not change too much. When faced with new challenges some might have the good fortune to already have just the right routines or the right product in place. Think, say, of a middle-aged founder promoting work from home or video conferencing

long before Covid-19, perhaps inspired by reading about the metaverse decades earlier. For most mature businesses, however, old routines were suited to business as usual, not working under lockdown. These were unlikely to work well, forcing firms to quickly implement changes on the fly. At least initially, their new routines had more to do with trial-and-error rather than imitation or rational deliberation of a wide range of options.²⁰ As the dust settles around the new challenges posed by a global pandemic, more and more of the successful changes are being imitated, and the private sector as a whole learns appropriate ways to deal with the challenges.

Second, whether the new business routines will stick will partly depend on the employees or customers firms are competing for; whether they dislike or welcome the changes or do not particularly care either way. On this as on much else, however, there remains plenty of uncertainty over the attitudes among employees and consumers after having been forced to embrace new habits for so long. How sticky new habits will prove is likely to vary, across different people and places as much as across different goods or services. Just as with the future political attitudes of today's rebellious teenagers, it is, for the most part, far too early to say what the net lasting impact on future demand for some particular good or service will be.

For example, we explained last year why we think that the net long-term impact of Covid-19's effect on demand for office space might actually be accretive, or at least not destructive.²¹ That was contrary to common fears among landlords and real-estate investors at the time. More importantly for the present publication, it is not the sort of question that can be answered through a-priori reasoning or just a few data points.

Will the experience with video conferencing and work-from-home speed up the adoption of some form of a metaverse as the default "location" for everyone who can work remotely? Or might there be a backlash, as some companies find there are hard-to-replicate benefits from having their employees in the same physical location, not least as some of those employees might prefer being "at work" some or much of the time? Probably, and as is becoming increasingly clear, a bit of a mix of both.

¹⁹ <https://www.ft.com/content/bcac6b61-7b11-4469-99b7-c125311fa34d?emailId=6127a4caade4e20004f3d3f9&segmentId=7d033110-c776-45bf-e9f2-7c3a03d2dd26>; also see: <https://www.economist.com/technology-quarterly/2020/10/01/a-novelists-vision-of-the-virtual-world-has-inspired-an-industry>

²⁰ Nelson, R. and Winter, S. (1982), *An Evolutionary Theory of Economic Change*. Belknap Press/Harvard University Press

²¹ <https://www.dws.com/insights/cio-view/cio-view-quarterly/q3-2020/the-future-of-office-spaces/>

What about brick-and-mortar retailers? Or gyms? Or restaurants? Or movie theaters? For all these service businesses, the pandemic has highlighted the scope for technology-enabled alternatives – but also, from the early indications, left plenty of pent-up demand for old-style shopping and dining in its wake. What the pandemic undoubtedly has done is generate plenty of data and lively anecdotes for business folks, from market researchers and human-resource professionals, to sift through. Some of that would have been impossible to capture without such a massive experiment in how to do things differently.

For many sectors, this has been an unusual crisis, precisely because so many businesses survived it

Still, great care needs to be taken not to read too much into such early results, and it often seems to us that this is sometimes missing among financial-market commentators. To take one specific and evocative example from earlier this year, the reopening of bookshops in England and Wales saw scenes of joy, with "perfectly respectable middle-aged people acting like kids in a sweet shop," according to press reports.²² Apparently, some avid readers in Bournemouth, on England's southern coast, were especially keen on once again being able to not just physically browse but smell real books, before purchasing.

That is interesting in highlighting the emotional bond between some of the good people of Bournemouth and the particular service this specific bookseller provides. How much, though, should you read into the anecdote, if you are a landlord in Berlin, Germany, long worried whether a tenant of yours running an independent bookshop. Can that Berlin bookshop survive and prosper in the era of e-commerce and does the press report from Bournemouth – lively as it is – really tell you all that much that is new and relevant? What if, instead, we are talking about, say, a video-games retailer in Bloomington, Minnesota? Or an old-fashioned toyshop, in Bydgoszcz, Northern Poland? How much should you read into just one or a few datapoints that might or might not be relevant for the questions you are asking?

Yet many financial-market observers remain all too willing to extrapolate on similarly flimsy evidence as to which familiar trends might Covid-19 speed up or stop. When it comes to e-commerce or work-from-home or even video conferencing,

the honest answer is that the companies themselves do not and cannot quite know yet. Nor is there much reason to put trust in financial markets' assessments of winners and losers at this relatively early stage, either.²³ Partly, that is because of the element of economic change, the one Covid-19 did not result in: mass extinction among existing businesses.

In the abstract, one might think about the impact of a global pandemic on business life as a period of accelerated evolution, similar to how being hit by an asteroid might impact a planet's biodiversity. The disruption caused by the asteroid creates new ecological niches, partly by the sheer destruction it causes. The survivors mostly just got lucky. It is not that the organizational routines of surviving businesses are all that good – just a bit better in coping with the unexpected shock than those that didn't make it. Even for survivors, the optimal response to lasting changes in consumer tastes within their niche will still take a long time of adaptation, assuming their environment remains stable. Having survived, though, they at least have a good chance of being able to prosper, at least for a while, due to the relative absence of competition.

That is what tends to happen after recessions, but in our view, it will not be the situation this time around. At least in developed markets, that element of creative destruction has largely been absent, thanks to governments' pandemic-relief efforts. That still makes it even harder to say who the corporate winners and losers will be in the long term, at both the company and sector level. Thinking about big trends, in other words, is no substitute for conducting thorough bottom-up analyses, too.

Conclusion

It is still early days in assessing the post-pandemic landscape and things will probably remain murky for quite a while yet.

In this piece, we have argued that it is still too early to fully assess the post-pandemic landscape, whether it is in the economic, political or corporate sphere. To illustrate why, consider one of the more prescient and worrying early pandemic predictions from within the economics profession. Writing just a few weeks after the start of the crisis, Charles Goodhart and his co-author Manoj Pradhan pointed out that Covid-19 was going to wreak havoc in how economic statistics are gathered and calculated. "[At] a time when the basket of

²² See, for example: <https://www.theguardian.com/books/2021/apr/21/book-sales-jump-a-third-in-first-week-of-bookshops-reopening-in-england-and-wales>

²³ Lo, Andrew (2017) *Adaptive Markets: Financial Evolution at the Speed of Thought*, Princeton University Press

goods and services that we buy was so suddenly distorted out of all recognition, it will have become almost impossible (...) to put together sensible and meaningful data for CPI, [consumer price indices...] or any other inflation series."²⁴

There can never be a return to the old normal

That might sound like a pretty nerdy concern, but it has big consequences likely to last quite a while. After such a big event, there can never be a "return" to the old "normal." That is true in the metaphorical sense, as we saw above, starting with the example of the Internet of Things (IoT). It is just as true, though, in a more narrow, technical sense, when it comes to economic statistics. Economists typically try to make sense of data by making various adjustments, for example to take into account seasonality. Sadly, that will probably be hard – both for government statisticians and market observers – for a number of years. We simply will not have an alternative data set for 2020 and 2021 of how the economy might have looked like in the absence of a pandemic, while the 2019 data will have less and less relevance as the economy undergoes structural changes. Nor will inflation series be the only data that suffers. The same basic logic holds for many other widely watched economic indicators, putting some of the market-moving forecasting misses in perspective.

It is important to sort out sense from non-sense in pandemic times

Now of course, the point about inflation statistics was not what most readers of Goodhart and Pradhan's book took away from reading it. The book also argues that we will see an inflation revival and that Covid-19 will accelerate various trends pointing in that direction. Knowing the difference between these two predictions – from the same two experts – is the equivalent of being able to sort sense from non-sense in pandemic times. The first – how reliable will inflation statistics and seasonal adjustments be one year, two years or three years from now – is a technical question on which most economists will be able to come to an agreement. Depending on various things such as the length of lockdowns, some might have said three years, others five years, before the data series was back to something like "normal" (in terms of how it was collected and could be relied upon for analysis). But these are differences in degree. On the big question of whether Covid-19 would lead to an inflation revival, the most you could probably expect from

a diverse range of experts is an "It depends..." followed by a long list of factors that will need to be considered.

We expect moderately higher inflation going forward

For what it is worth, we cautiously lean in the same direction of Goodhart and Pradhan, in thinking that aging populations, together with various changes in government policies, probably point towards moderately higher inflation than in the decade or so before the crisis.²⁵ Decarbonization could accentuate inflationary tendencies, at least in the short to medium term. The pandemic could also mark a turning point in terms of governments playing a bigger role, for example in tackling technology giants' market power and enacting more redistributive fiscal policies than before the crisis. However, as in every area we have considered, there is the potential for countervailing effects. For example, Covid-19 could further reinforce trends towards wealth inequality, potentially more than reversing the impact from demographic factors on both inflation and real interest rates.²⁶ On a more hopeful note, U.S. trends in new business formation may be pointing towards a spurt in innovation and productivity growth.²⁷ In the longer term, efforts to fight climate change or invest in infrastructure could also have positive effects on innovation and potential growth.

Broad, generic predictions can be helpful – but they are no substitute for careful analysis

All of which is another way of saying that when it comes to the economy as a whole, there really is no substitute for careful analysis focusing on specific causal mechanisms, through which Covid-19 might have changed the probabilities of various scenarios. The same applies to politics, from big questions, such as how the role of states might be changing and what risks this might pose for some of the world's most profitable companies, to small ones, such as how various electoral events might turn out.

At the end of last year, we predicted that the pandemic was unlikely to materially boost anti-lockdown protest parties in established Western democracies and that Covid competency (incl. on vaccinations) will probably tend to favor centrists. So far, this has largely been borne out by various regional and national electoral events in Europe, though Germany will

²⁴ Goodhart, Charles und Manoj Pradhan (2020). The Great Demographic Reversal: Ageing Societies, Waning Inequality and an Inflation Revival. Palgrave Macmillan, pp. 214

²⁵ <https://www.dws.com/insights/cio-view/macro/the-return-of-inflation/>

²⁶ https://www.kansascityfed.org/documents/8337/JH_paper_Sufi_3.pdf

²⁷ <https://www.dws.com/insights/cio-view/charts-of-the-week/cotw-2021/chart-of-the-week-20210730/>

present an interesting test case. We also pointed out that Covid deprivations (incl. higher food prices) might reinforce pre-existing sources of discontent (esp. corruption) and tensions (esp. between central governments and separatist movements), potentially causing popular uprisings or coups in countries with less stable political systems.

Especially for emerging markets, these types of generic political predictions linked to some major global shocks can be – moderately – helpful in highlighting risks early on, when assessing a country's sovereign bonds, say, or potential disruptions in commodity supplies. They are, however, no substitute for careful issuer selection via thorough bottom-up analyses, taking into account each country's peculiarities. Uncertainties cannot be wished away, simply by extrapolating from recent trends or experiences in other countries.

That is even more true for investment decisions at a company and sector level. By all means, think through the implications of the pandemic. But do not fall for the trap of doing so by framing the questions in ways that are likely to lead you astray! For what it is worth, we remain constructive overall, with strong earnings and negative real interest rates likely to underpin valuations for risky U.S. assets for the immediate future. That, in turn, is likely to support risky assets elsewhere, many of which still look cheap by comparison.

GLOSSARY

Cloud computing encompasses technologies and services that offer the dynamic and flexible use of a third party's IT infrastructure.

The **consumer price index (CPI)** measures the price inflation as a percentage, year over year, of a basket of products and services that is based on the typical consumption of a private household.

Emerging markets (EM) are economies not yet fully developed in terms of, amongst others, market efficiency and liquidity.

Fiscal policy describes government spending policies that influence macroeconomic conditions. Through fiscal policy, the government attempts to improve unemployment rates, control inflation, stabilize business cycles and influence interest rates in an effort to control the economy.

Inflation is the rate at which the general level of prices for goods and services is rising and, subsequently, purchasing power is falling.

Internet of things is a term used to describe the increasing interconnectedness of many products via the internet.

The **real interest rate** is the nominal interest rate adjusted for inflation as measured by the GDP deflator.

A **recession** is, technically, when an economy contracts for two successive quarters but is often used in a looser way to indicate declining output.

The **S&P 500** is an index that includes 500 leading U.S. companies capturing approximately 80% coverage of available U.S. market capitalization.

Sovereign bonds are bonds issued by governments.

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