

Insight

FACTS, PANIC AND REASON

Coronavirus and Seven Variables

All you need in this life is ignorance and confidence,
and then success is sure.

Mark Twain

Travelling to work on a bicycle through London's West End is surreal. The sun shines down; shops and restaurants are closed, buses overtake empty, pavements deserted. The weather may be beautiful, but the economy is not.

We have had plagues before. In the middle ages, Samuel Pepys noted that it took eight months for the plague to move from Amsterdam to London. We move faster now; so much faster, that Coronavirus, SARS2, Sars-CoV-2 and Covid-19 seem to have multiple names (we will use Sars-CoV-2 for the virus and Covid-19 for the disease).



We are not epidemiologists; we have no particular influence or insight on Government decisions; we are just analysts. Gerard Stern quoting Mark Twain left a strong impression on a younger Jérôme. Fools are exceedingly good at answering all the questions of the world. The wise admit they just do not know.

That admission does not prevent us analysing the pandemic. We have listened and discussed the pandemic with public health authorities, epidemiologists, economists, companies and other market participants – experts all. Our objective has been to assess the impact of Sars-Cov-2 on the global economy and the companies we invest in.

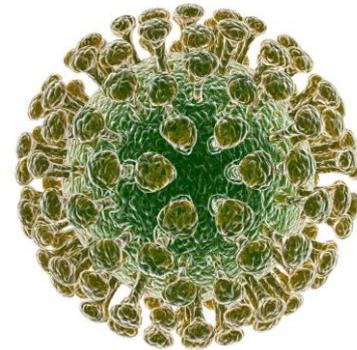
THE SEVEN VARIABLES

From our analysis, we believe there are seven key variables. These seven variables are not necessarily independent of each other, but they can combine in different ways to create different scenarios.

VARIABLE 1 - SEVERITY OF THE DISEASE

Just how bad are Sars-CoV-2 and Covid-19? Sars-CoV-2 seems to be more infectious than normal flu; but how much more varies widely in the data to date. The same data also suggests a higher mortality rate from Covid-19 (up to 4% vs 0.1% for the yearly flu), but this must also vary as not every area, let alone country, is testing in the same way. But what does seem to be true is that many people show no symptoms at all; in Vò (in Veneto in Italy), everyone was tested, and a majority of the positive cases were asymptomatic.

We look at this variable as having three main outcomes. The first, now perhaps very unlikely, implies Covid-19 is just a bad flu; from those who die, very few would have survived for long in any event when looked at statistically. The second assumes it has a high mortality rate amongst elderly and vulnerable people, but across the whole population has a very low mortality rate. The third asserts Covid-19 has a high mortality rate, skewed to the elderly and vulnerable, and a high hospitalisation rate.



VARIABLE 2 - INACCURATE DATA

The World Health Organisation and most Governments have been very open with the data they have which is brilliantly [summarised by John Hopkins](#). We applaud all for so doing so. As analysts, we are biased to push every country to “test, test, test” as the WHO has encouraged. More testing and hence more data are likely to reduce the extent of any inaccuracies in the data.

Despite this treasure trove, we know that the data on Sars-CoV-2 is inaccurate. At its simplest, not everyone is being tested even if they have symptoms. The two related questions are first, is the data published too optimistic or too negative and how is that inaccurate data interpreted and acted upon.

We believe the strategy of test, trace and isolate, exemplified by South Korea, is right. We would like to see added to this antigen testing as soon it can be made available. But one key question remains: were there really only broadly 80,000 cases and 3,000 deaths in China? This seems low compared with Italy, the US and Spain for the 60 million population of Hubei province around the 10 million in Wuhan, let alone for a country of 1.4 billion.



Contrasting data is shown starkly in the UK Imperial College’s Covid-19 Response team published [research](#) on 16th March predicting a huge number of deaths. Imperial made a number of assumptions. The incubation period is 5.1 days. Each infected person infects 2.4 others. A third of cases show so few symptoms that people will not self-isolate.

The University of Oxford’s team published [their research](#) a week later. Taking the same underlying data, they reached a far more optimistic - and enticing - conclusion that the virus had already infected half of the country’s population; few would require hospitalisation and very few people were likely to die.

Which is right? Although we know neither can be entirely accurate, the prospect laid out by Imperial of overwhelmed health services and mass fatalities forced the UK’s Government to change course. The policy of laissez-faire up to when herd-immunity would protect the population was abandoned. Press rumours suggests the United States also reviewed the analysis and changed course as well.

Even though the data and analysis are inaccurate and incomplete, Governments have to make decisions. Inaccurate data is a variable as it can lead not just to the wrong response from policymakers and Government, but a reluctance to change responses as the data changes.

VARIABLE 3 - ABILITY OF HEALTH SYSTEMS TO COPE

A few months ago, to the amazement of many, China built a new hospital in a week. A few weeks ago, we saw the first pictures of tents with camping beds doubling as hospitals in Northern Italy. Two weeks ago, temporary hospitals were set up in Exhibition Centres in New York and London and across the world. This week we learn that retrained aircrew from easyJet and Virgin Atlantic are to be asked to help staff the now five, temporary, Nightingale Hospitals in the UK.

Our health systems, public or private, are globally under enormous pressure. It is clear that the world's health systems were not adequately prepared for such a devastating pandemic, with the possible exceptions of Germany and those directly affected by SARS and MERS. One key determinant of the future mortality rate will doubtlessly be how health systems will be able to cope with the tsunami of infected patients requiring ventilators and ICU beds, at the peak of the outbreak. The [Imperial research](#) suggested that without any mitigation more than 250 people per 100,000 in the UK would need critical care, where there are (or were) only 6 beds for the same number. Even with the mitigation that the British Government has put in place, experts still expect more than 50 people per 100,000 will need care in early June.

We think it matters not whether the system copes better in the US or Europe; if the scale of the problem is anything like the Imperial research predicts, it makes no difference whether people have health insurance or not. We simply note that problems with insurance coverage in the US may increase political desire for more state provided or paid for health care.

The variable is simply this; the more the health system struggles, or, in the almost unimaginable worst case, routinely leaves patients to die on the streets outside A&E departments, the worse the result is likely to be.

VARIABLE 4 - LENGTH & EFFECTIVENESS OF LOCKDOWNS



The purpose of lockdowns is to limit the spread of Sars-CoV-2, to slow the increase in the number of Covid-19 cases and to make it easier for health systems to cope. In epidemiological terms, to reduce "R0" - the number of people a single infected person then infects.

How effective will this be? At this stage, all we can comment on is whether they are effective in locking people down. Although there are positive messages about the effectiveness of lockdowns in limiting the rate of infection and hospitalisation, it is (at this stage) very hard to see in the data – except perhaps in comparing the responses in different countries or even within countries.

Italy was the first European country to lockdown its population, in Lombardy on 21 February and the entire country on 9 March. Other countries followed swiftly, and the UK told its population to stay home on 23 March. Public authorities in Italy now see the beneficial impact of those measures starting to appear with new infections slowing and admissions into hospitals and intensive care units decreasing. Should this trend continue, then this would be

the first step to a victory. But what if not? What if the populations do not follow those prescriptive orders to stay at home?

How long will lockdowns continue? We suspect at least six weeks; and some Governments are suggesting longer - perhaps six months. Depending on any eventual medical treatment or vaccine, it may be that we are released from lockdown, then put back into lockdown as Sars2 then spreads again through the population, a scenario which analyst Tomas Pueyo calls "[The Hammer and the Dance](#)".

We see here three possible outcomes. Either the measures are highly effective, and the outbreak is tamed, or the measures are effective but work only if mass testing and tracking are effectuated in parallel, or they are not effective at all.

VARIABLE 5 - EFFECTIVENESS OF THE FISCAL AND MONETARY RESPONSES

Having learnt their lesson from the Global Financial Crisis, Governments and Central Banks around the world have been quick to design and announce significant policy responses, both fiscal and monetary. The figures are as massive as they are symbolic. The US has signed off a US\$2 trillion stimulus plan including direct payments to millions of families, expanded unemployment aid, small business loans and hospitals. The UK has created a similar programme of £66 billion with similar focus but to date without direct payments to taxpayers. The Federal Reserve's response has been equally impressive and nothing short of what then Mario Draghi promised during the 2008 crisis. Whatever it takes! Many other countries have enacted similar policy responses in an overwhelming manner. The key question is will this be enough? How effective will it be in the short, medium and long-term?



But with entire sectors closed or closing, from restaurants, shops and airlines, to car factories, European Governments have all imported the German concept of *Kurzarbeit*, picking up the majority of salaries for many employees and now self-employed people. Many people in the UK have had to look up “furlough” in the dictionary, while, more seriously, seeing nearly a million file for universal credit in the first two weeks of the lockdown. In the United States, 6.6 million people signed for unemployment benefit in the week ending 28th March, more than double the week before – and the previous record was 695,000 in the 1982; even the US response includes income support for affected workers within their \$2 trillion stimulus package.

The objective is to enable productive capacity to survive, rather than disappear or be permanently destroyed. In the UK, company insolvencies were running at between 50 and 100 a day; whereas now they are close to 200 a day. Each insolvency risks destroying capital, jobs and the potential to recover. An effective fiscal and monetary response reduces that risk.

VARIABLE 6 - MEDICAL TREATMENTS & VACCINES

The race is on to find a medical solution to the Coronavirus. This may take the form of drugs that alleviate the symptoms; all the way through to a vaccine. Multiple companies (including Abbott, Roche and Thermo Fisher which are all in our World Stars portfolio) have shifted significant research and resources to discover, design and implement Covid-19 treatments including antivirals, anti-inflammatories and antibodies-based drugs as well as widespread and fast testing facilities. We see three possible outcomes, which are not mutually exclusive when time is taken into account.

First, that existing drugs and medical treatment may be used to alleviate the symptoms of Covid-19. This is already happening.

Secondly, that a vaccine is developed that means Sars-CoV-2 is neutralised quickly. Work is already underway in both developing a vaccine and building sufficient scale to enable it to be delivered fast, on a global basis, a major logistical challenge.

Thirdly, that no vaccine can be found (or it can, but Sars-CoV-2 mutates to make it less effective), so that Covid-19 becomes endemic. At its worst, this may substantially shorten life expectancy. We may all have to get used to lifespans reverting to three score years and ten instead of four score years and ten.

VARIABLE 7 - FOOD SUPPLY CHAINS



We have all seen the stories about toilet paper rolls going rapidly out of stock almost everywhere, with many more amusing memes than our photo. If one cannot understand how food gets delivered to a shop and one has no idea how long the lockdown is going to last, the natural reaction is to stockpile.

However, there may also be a more fundamental point here. Estimates vary, but one study from the US Department of Agriculture, suggests that food consumed away from home may amount to 50% by value and 34% by calories.

So an industry with complex, cross-border, supply chains, set up to supply two-thirds of our current food intake must increase its capacity by 50% in a world where not only are people locked down but borders are closed and air freight capacity restricted. (Half of global air freight is carried on passenger planes which are no longer flying.) The result is that seemingly every single supermarket we go past is looking for new temporary workers; one small corner shop we know has had to double their staff and the owner says with astonishment “what is going to happen to all this food?”. Whether we are ready to eat only domestically produced food that is in season we do not know.

The food supply chain may get less attention, and more jokes, than the hospitals. But its ability to cope is as important. If people cannot get the food they need on a major scale, not just because they cannot afford it, then that reduces the prospect of more positive scenarios. It matters just as much if this happens in lockdown as after lockdown ends.

TURNING VARIABLES INTO SCENARIOS

We can then turn outcomes of each variable to create scenarios and from those scenarios suggest the impact on economies and markets. With seven variables, the number of scenarios is at least 27, or 128, if they are all binary (which they are not). As time passes, and the outcomes for each variable becomes clearer, the likely scenarios will themselves narrow down.

SCENARIO 1 - BAD FLU GLOBALLY

1. Severity – More minor than expected
2. Data – Far too pessimistic
3. Health Systems – Copes well
4. Lockdowns – Short and effective
5. Fiscal & Monetary Response – Effective to counter panic
6. Medical Treatment – Unnecessary
7. Food Supply – Copes well

From where we are today, this looks unlikely. There are short-term adverse impacts on sectors already impacted; with a short recession. Investment is (mostly) postponed rather than cancelled, leading to significant pent-up demand. Financial markets have over-reacted already, which leads to a V-shaped recovery, similar to 9/11, as soon as investor confidence emerges.

SCENARIO 2 - CONTAINMENT AND DATA FAILURE

1. Severity – Infectious but less deadly than the flu
2. Data – Underestimates those already infected, closer to the Imperial scenario
3. Health Systems – Strained as Covid19 spreads, but copes
4. Lockdown – Ineffective in limiting spread of Sars-CoV-2
5. Fiscal & Monetary Response – Not effective to halt global recession which is then followed by Marshall Plans on local and global scale
6. Medical Treatment – In time
7. Food Supply – Copes well

The ineffectiveness of lockdowns matters not, simply because the data grossly underestimates those infected. While people do die, as a percentage of the population infected the number is actually small. The lockdowns are ineffective, in that the virus has already spread, but businesses are still economically inactive for a lengthy period which leads to a global recession. The bailout comes, Marshall-like, on local and global scale, both fiscally and monetary. As in 2008, this keeps unemployment lower than it might otherwise have been, but with a longer the downturn and higher volatility for an extended period. We have a U-shaped recovery with a long base. Eventually investor confidence returns, recognising the opportunities emerging from low asset prices and eventually there is an economic turnaround.

SCENARIO 3 – CONTAINMENT AND MANAGEABLE RECESSION

1. Severity – Infectious but less deadly than the flu
2. Data – *Underestimates those already infected, closer to the Oxford scenario*
3. Health Systems – Strained as Covid19 spreads, but copes
4. Lockdowns – Effective in limiting spread *but with hindsight unnecessary*
5. Fiscal & Monetary Response – Ineffective to halt global recession but then followed by Marshall Plans on local and global scale
6. Medical Treatment – In time but not necessary
7. Food Supply – Copes well but demand adapts to amended supply

This appears very similar to Scenario 2. But the differences (italicised) are that Oxford's study is more accurate and so with hindsight the lockdowns have been mostly unnecessary. Governments react with a massive stimulus package comparable to 2008 to counter the tough recession that they have self-imposed. The economy picks up through state intervention (investing into public health and transport infrastructure), reducing unemployment but with stable growth from Q4 2020 onwards. We have a U-shaped recovery with a short base. Investor confidence comes back during Q4 2020 and markets recover fully in 2021. Consumer demand adapts with an amended food supply chain, shorter transport cycles and more in-tune with seasonal production. Governments get replaced, with perhaps a rise in populism.

SCENARIO 4 – LONGER LOCKDOWNS AND RECESSION

1. Severity – Infectious and/or deadlier than the flu
2. Data – Accurate enough to lead to extended lockdowns
3. Health Systems – Strained, but cope with temporary facilities
4. Lockdowns – Protracted and extends well into 2021
5. Fiscal & Monetary Response – Not effective to halt global, deep recession that lasts for years which is then followed by increased state spending
6. Medical Treatment – In time
7. Food Supply – Copes well

The length of containment leads to the destruction of productive capacity. A long global recession leads to an aggressive devaluation of assets and rising inflation over the long-term. For markets, a severe market downturn and a longer-lasting period of low returns, as it would be hard for the economy to work itself out of this deep recession. Eventually investor confidence creeps back slowly recognising over time the opportunities emerging from valuation levels and economic turnaround.

SCENARIO 5 - HEALTH SYSTEMS COLLAPSE & SOCIAL UNREST FOLLOWS

1. Severity – Infectious, many are hospitalisation & deadly for some
2. Data – Accuracy improves and justifies Imperial fears
3. Health Systems – Fail to cope, loss of trust in authorities
4. Lockdowns – Initially effective then people react against
5. Fiscal & Monetary Response – Ineffective as cannot keep pace with rate of job losses
6. Medical Treatment – Vaccine available in 12-18 months
7. Food Supply – Heavily restricted, loss of trust in authorities

The infectiousness of the virus and severity of the disease is worse than expected. The accuracy of data gradually improves and justifies the initial predictions of Western Governments. However, the health systems fail to cope, with patient families desperately searching for treatments. Governments' economic response is ineffective and people without income lose faith in the lockdowns and restrictions on food supply push up prices. For such Governments, social unrest follows, and business and market confidence evaporate, with further authoritarian crackdowns. Eventually, herd immunity takes over, but with reduced life expectancy.

SCENARIO 6 - MANAGEMENT TO A NEW NORMAL

1. Severity – Infectious, many are hospitalisation & deadly for some
2. Data – Accuracy improves and justifies Imperial fears
3. Health Systems – *Severely strained but just about copes*
4. Lockdowns – Initially effective *but generally supported*
5. Fiscal & Monetary Response – *Effective and keeps pace with rate of job losses and business failures*
6. Medical Treatment – Vaccine available in 12-18 months
7. Food Supply – *Copes well, with some seasonal adjustments*

Similar to scenario 5 (with changes italicised), but Governments come through with mass testing and flexible policy changes so that public trust is not lost. The health systems are severely strained, but cope with an enormous personal effort of from cleaners, through nurses to doctors. The fiscal and monetary response works. Lockdowns are eventually applied on a rolling basis as people are gradually released to go back to work. The medical research community is galvanised. Economically, there is still a severe market downturn and markets remain volatile and unpredictable for months. The productive capacity destroyed was mostly already under strain, especially in fragmented industries with weak business models and a lack of differentiation. As medical treatments are developed, there is a noticeable improvement in market sentiment, strongly boosted as a vaccine is approved and then distributed.

NOW WE SIMPLY CANNOT KNOW

As keen observers and participants in markets, we are to some extent hostage to market sentiment. A breathless media will exaggerate the fundamentals, so market perceptions will

swing even further “to hopeless from flawless”, to paraphrase Howard Marks of Oaktree Capital. We will have more surprises like Zoom, a great video conferencing service, being valued at nearly 50 times sales or over 1,000 times earnings; and difficult stories such as property businesses receiving less than half their normal quarterly rent. Market overreaction and volatility will remain with us.

We do not know what the final scenario will be. We expect for well-run countries it is likely to be closer to either Scenario 3 or 6; for countries that are not so well run, Scenario 5 may well beckon. Careful, considerate, selective investing in quality businesses is the way to go; investing in markets is not.

MEANWHILE WE CELEBRATE...

What we do know is that we can and should praise the response to this unnerving plague. The comedy clips, memes and songs keeping us entertained on social media. The cheering and clapping of hospital cleaners, nurses and doctors from flats and houses in Italy, Spain, the UK and the US. Half a million people or more volunteering to the help the NHS in the UK. US health care workers flying into New York City to help their overburdened colleagues. Retired health workers going back to work, at tremendous personal risk to themselves. Or simply LVMH, one of our World Stars companies, producing free hand sanitiser for French health workers.

Crises bring out the best in some people, and we are proud to celebrate this.

*Tom Price & Jérôme Stern
2nd April 2020*



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