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Mapping out economic scenarios for COVID-19: How bad could it get and what is discounted by financial markets?

At first, COVID-19 was largely downplayed by major governments around the globe to be only a regional epidemic. It has now, however, gripped the entire world's attention, due to its rapid and exponential spread. According to the World Health Organisation (WHO), it took 67 days to reach the first 100 000 COVID-19 cases, a further 11 days to reach 200 000, another four days to 300 000, three more days to get to 400 000and only two days to make the jump to 500 000 cases. In addition to the humanitarian challenge posed by the outbreak, governments' responses to combatting the spread of COVID-19 will have significant economic consequences. China, Japan, South Korea, Taiwan and Singapore have shown that an aggressive response from the outset, incorporating significant lockdowns or strict quarantines, physical distancing, rigorous detection, thorough testing, proper hygiene and tracing contacts are vital for epidemic containment in the initial stages and can limit subsequent economic losses in the longer run. However, the large-scale isolation of populations has dire implications for economic activity in the short term.

In this report, we attempt to map out some broad economic scenarios, which could play out in the coming months, as the spread of COVID-19 evolves. We appreciate that some of the consequences mentioned under the different scenarios may seem very daunting to investors. The point of this research is not to cause anxiety, but rather to give our investors comfort that we are constantly thinking about likely future scenarios in a detailed manner.

Due to the unknown outcome of COVID-19, there is obviously huge forecast risk attached to each of these scenarios (particularly in terms of the absolute numbers). However, the broad trends identified in the different scenarios could be helpful in terms of establishing a framework for what to expect in the coming period, in terms of the magnitude of the poor economic numbers likely to be reported and the resultant reaction of financial markets to these numbers. The behaviour of asset classes during this period will largely be determined by how much of the eventual realised dire economic environment has been discounted beforehand by asset prices.

At every decision point, we will thus need to consider how much of the economic reality is reflected in prices already and, therefore, how best to appropriately respond. One thing remains our true north – to navigate our clients' investment journeys as best as we can towards comfortable outcomes given the market opportunity set. As such, we will continue to diversify risks and act decisively but cautiously at all times.

Mapping uncertainty

Given the unpredictable nature of the spread of COVID-19, there is merit in mapping out alternative, plausible economic trajectories. A recent study in the Harvard Business Review, entitled 'What Coronavirus Could Mean for the Global Economy', by Philipp Carlsson-Szlezak, Martin Reeves and Paul Swartz, sketched out three economic scenarios, which could unfold following the outbreak of the virus.

In the first scenario, a V-shaped recovery is considered. In our view, this is a scenario in which the globe undergoes a rapid growth slowdown in the first half of 2020, followed by an equally rapid recovery from the middle of 2020, as the virus spread is contained by then, hence, allowing annual growth rates to fully absorb the shock. This scenario necessitates strong public health structures and highly effective policy responses, which ultimately lead to a strong rebound in economic activity.

The authors reflected on a second U-shaped economic recovery, in which a delayed and sluggish upturn follows a more protracted slowdown. Under the U-shaped scenario, in our view, disrupted global supply chains are only restored subsequent to the peak in COVID-19 fatalities in the third quarter of 2020, resulting in an economic recovery only taking hold from late 2020 and extending into 2021. While public health responses in this scenario are sufficient, physical distancing and the control over the movement of citizens persist for additional months in an attempt to prevent an escalation or resurgence in infections. The response from policymakers in this scenario is only partly effective, while the negative effects on unemployment and business operations muffle the economic recovery.

Lastly, the Harvard Business Review publication reflects an L-shaped growth recovery, in which significant permanent structural damage occurs on the supply side of the global economy, either in the labour market, in capital formation or in the productivity function. Historically, the recovery that followed the sharp economic decline in Greece between 2006 and 2007 was denoted as an L-shaped recovery. Another clear example of an L-shaped recovery was Japan's lost decade, following a rise in interest rates in 1989, which was followed by a plunge in the equity market and lethargic economic activity. In an L-shaped recovery, an insufficient public health response allows for a further spread of the virus for an extended period, while policy measures fail to prevent widespread unemployment, insolvencies, credit defaults and instability in the financial sector.

Policymakers' responses to the COVID-19 crisis

Globally, policymakers have responded aggressively in an attempt to avoid a prolonged economic crisis from the COVID-19 pandemic. In some countries, the fiscal responses unleashed exceed the stimulus triggered in the global financial crisis.

As COVID-19 induces a supply-side shock to the global economy through its effect on world-wide supply chains and an idiosyncratic demand-side shock, where large parts of the global economy are in lockdown mode and not spending on discretionary items, the typical demand-side stimulus responses of monetary and fiscal policies are unlikely to prove very effective during the crisis. However, the barrage of fiscal and monetary policy measures enacted by global policy makers in reaction to COVID-19 should induce a strong lagged cyclical recovery in global growth in the aftermath of COVID-19.

The large array of monetary and fiscal measures enacted so far by the major economies and South Africa (SA) can be viewed in Appendix 1 at the end of this report.

A V-shaped recovery (best-case scenario)

The Harvard Business Review claims most prior epidemics followed a V-shaped economic trajectory. These include Sars in 2002 (774 deaths globally, according to the BBC), the H3N2 or 'Hong Kong flu' in 1968 (100 000 deaths in the US and one million worldwide, according to the Centres for Disease Control and Prevention), the H2N2 or 'Asian flu' in 1958 (116 000 deaths in the US and 1.1 million worldwide) and the Spanish flu in 1918 (675 000 deaths in the US and 50 million worldwide).

For this scenario to unfold, either a pharmaceutical breakthrough is required or government measures need to prove effective in containing the spread of the virus by the second quarter of 2020, so quarantines are quickly lifted and disruptions in supply chains are limited to the first half of the year, with normal production resuming around the middle of 2020. However, with the Imperial College London COVID-19 Response Team modelling a peak in deaths in the US only in June 2020 (if inadequate control measures are taken), the likelihood of a V-shaped recovery taking hold with only a short-lived dip in global demand is looking increasingly unlikely.

Table 1: Global growth forecasts for 2020 and 2021 under a V-shaped recovery

Growth	2020	2021	Long-term average	Percentage of world gross domestic product (GDP)
World	0.3%	3.0%	3.5%	100%
Developed markets (DMs)	-1.4%	1.5%	2.5%	39%
Emerging markets (EMs)	1.5%	4.1%	5.5%	61%
US	-1.1%	2.0%	3.2%	15%
Eurozone	-2.2%	0.9%	1.5%	11%
UK	-1.3%	1.8%	2.5%	2%
Japan	-1.0%	1.1%	1.9%	4%
China	2.7%	5.9%	8.3%	19%

Source: International Monetary Fund (last two columns), Momentum Investments

Under a V-shaped scenario, SA growth would still suffer from constraints in electricity supply and weak consumer and business sentiment. In light of an escalation in the number of COVID-19 infections, President Cyril Ramaphosa announced an escalation of containment measures to slow the progression of the disease, including a nationwide lockdown for 21 days, effective midnight 26 March 2020. A lockdown adds to the hit to discretionary spend and business output, and would leave the SA economy with a still-sizeable contraction in 2020.

Meanwhile, the plunge in international oil prices would translate into downward pressure on headline inflation, with a muted pass through from rand weakness (as struggling retailers clamber to protect volume growth) and would likely keep inflation well within the target band in the medium term. After executing 125 basis points worth of easing since the start of 2020, the Sarb would likely pause its interest-rate-cutting cycle after another 50 basis points of cuts in the second quarter of 2020.

In this environment, SA's current account deficit ratio is likely to remain close to its long-term average of around 3.0% of GDP. SA's fiscal deficit ratio is nevertheless expected to expand to high single digits, due to fiscal stimulus measures because of COVID-19, strained revenue collection and difficulty in achieving the planned wage bill cuts in the public sector. Subsequently, following Moody's ratings downgrade of SA's sovereign rating to junk, this scenario includes further rating downgrades by Fitch and Standard and Poor's (S&P) in 2020.

Table 2: SA forecasts for 2020 and 2021 under a V-shaped recovery

Economic indicator	2020	2021
GDP	-1.8%	1.2%
Household consumption	-0.7%	0.8%
Fixed investment	-2.0%	-1.2%
Government consumption	1.4%	1.4%
Exports	-4.1%	0.6%
Imports	-2.7%	0.7%
Headline inflation (average)	3.6%	4.2%
Core inflation (average)	3.4%	3.6%
Interest rates (end of the year)	4.75%	4.75%
Real interest rates (average)	1.5%	0.6%
Rand/dollar (average, in rand terms)	16.10	15.90

Source: Momentum Investments

A U-shaped recovery (base-case scenario)

In a U-shaped recovery, we consider a peak in the rate of global COVID-19-related fatalities occurring in the third quarter of 2020. Here, we expect the effects of the global supply chain disruptions to fade by the fourth quarter of the year. On a disaggregated basis, we would expect China to emerge from recessionary conditions faster than the US and Europe, given the earlier peak in infection rates observed in China.

Under this scenario, announced global fiscal and monetary policy efforts are only likely to benefit growth from the fourth quarter of 2020 and are expected to facilitate a recovery into 2021. According to the International Monetary Fund (IMF), world growth troughed at negative 0.1% in 2009, after the global financial crisis, while the average, since 1980, printed closer to 3.5%. Global growth in this environment is likely to fall to about negative 1% in 2020, before recovering to about 2.5% in 2021. Growth on a sectoral basis will differ substantially, in our view. Areas, such as tourism, hospitality and the airline industry will experience a permanent loss in demand during COVID-19, which is largely irrecoverable, while other discretionary-spending sectors could see delayed demand until after the crisis.

Growth in the US is unlikely to escape a meaningful contraction in this scenario, as shocks to the real economy, through the crash in financial markets and enforced social isolation, would weigh heavily on household demand in the interim. Despite extensive interest-rate cuts and additional liquidity-easing measures by the US Federal Reserve (Fed), as well as government stimulus packages, discretionary consumer spending would be negatively affected well into the third quarter of 2020, by dashed consumer sentiment and restrictions on the movement of people. McKinsey & Company (a global management consulting firm) estimates between 40% and 50% of discretionary consumer spending may not occur. McKinsey explains that, while people cut back on purchases of cars and appliances during a normal recession, COVID-19 is different, as people are also forced to withdraw spending on restaurants, travel and personal services.

Although the European region already started to underperform towards the end of 2019, under a U-shaped recovery, we would expect additional European governments to impose more stringent restrictions to the movement of citizens to curb the spread of the virus, resulting in a sharper contraction in economic activity. While Hubei in China is in the early

stages of its recovery, a lower-than-usual availability of migrant workers may delay the full resumption of activity at manufacturing plans. With inventories being drawn down, a shortage of critical inputs may delay China from operating at full capacity.

Moreover, McKinsey warns "the unpredictability of the timing and extent of the demand rebound will mean confusing signals for several weeks".

Table 3: Global growth forecasts for 2020 and 2021 under a U-shaped recovery

Growth	2020	2021	Average since the global financial crisis
World	-0.8%	2.5%	3.4%
DMs	-2.9%	0.9%	1.5%
EMs	0.8%	3.6%	5.2%
US	-2.7%	1.4%	1.6%
Eurozone	-4.2%	0.6%	0.8%
UK	-2.9%	1.0%	1.1%
Japan	-2.2%	0.3%	0.5%
China	2.0%	5.5%	8.0%

Source: IMF (last column), Momentum Investments

Under a U-shaped scenario, SA growth crumples to negative 3.2% under a nationwide lockdown, hitting discretionary spending and business output, weaker exports for longer, due to lower global demand, downtrodden consumer and business confidence as well as ongoing constraints in electricity supply.

Suppressed international oil prices would translate into downward pressure on headline inflation, while a muted pass through from a more depreciated currency would likely keep inflation well within the target band in the medium term. In addition to implementing 125 basis points worth of easing since the start of 2020, the Sarb would likely cut by an additional 150 basis points to 3.75% by the third quarter of this year.

Even with a dramatic decline in exports, the current account would likely narrow relative to its long-term average in response to lower import demand.

A worsening global economic outlook extending to SA for longer, additional COVID-19 fiscal stimulus measures, sharply weaker revenue collection and increased difficulty in achieving the planned public sector wage bill cuts in this scenario would likely lead to the fiscal deficit ratio expanding to the low teens.

Further staggered downgrades in SA's sovereign ratings by Fitch, Standard and Poor's (S&P) and Moody's in 2020 and 2021 become inevitable in this scenario.

Table 4: SA forecasts for 2020 and 2021 under a U-shaped recovery

Economic indicator	2020	2021
GDP	-3.2%	0.8%
Household consumption	-2.1%	0.4%
Fixed investment	-2.6%	-1.4%
Government consumption	-6.2%	-0.4%
Exports	1.6%	1.7%
Imports	-4.0%	0.7%
Headline inflation (average)	3.5%	4.1%
Core inflation (average)	3.4%	3.6%
Interest rates (end of the year)	3.75%	3.75%
Real interest rates (average)	1.1%	-0.4%
Rand/dollar (average, in rand terms)	17.30	16.80

Source: Momentum Investments

A protracted U-shaped or double-dip W-shaped recovery (bear-case scenario)

In our analysis, we also consider a protracted U-shaped recovery in which a second wave of the COVID-19 outbreak flares up globally and in SA, with quarantine measures extended to more regions and for longer. In addition, new cases could rise in other parts of the world, despite a change in seasons, dragging out the peak in global infection rates. A re-emergence of disruptions in supply chains are likely under this scenario and these bottlenecks would exacerbate and prolong the downturn in local demand and exports. This would, in turn, negatively affect corporate profitability, with corporate credit risks rising as a consequence.

Historically, the US underwent a protracted U-shaped recovery in the 1970s when unemployment and inflation remained high for years. In 1980, the US experienced a double-dip or W-shaped recovery, where the economy dropped twice before a full recovery was achieved.

An extended outbreak of COVID-19 in the Eurozone and the US in a protracted U-shaped scenario would place their healthcare systems under significant pressure. A fall in demand would be experienced in a wider array of service sectors rather than just the travel and tourism industries, and disruptions in supply chains would be more extensive.

Severe restrictions on normal economic activity would prolong the downturn in economic activity well into 2021, with the rebound in growth more drawn out. Under a protracted U-shaped recovery, the global weighted average interest rate would likely reach a new low, while stronger fiscal responses from DMs and EMs would be enacted. Although monetary and fiscal policymakers would step up their stimulus efforts in such a scenario, consumers may be more inclined to increase their savings and could remain wary of discretionary spending. Nevertheless, policy easing could prevent a further tightening in financial conditions and keeping accommodation in place could aid a gradual recovery in demand later in 2021.

A dragged out economic recovery would cap the recovery in business and consumer sentiment, leading firms to delay spending on fixed investment projects and the hiring of new workers, exacerbating the length of the slowdown in global economic activity through second-round effects.

Table 5: Global growth forecast ranges for 2020 and 2021 under a protracted U- or W-shaped recovery

Growth	2020	2021	Historic trough (year)
World	-4.7% to -2.2%	-0.5% to 1.1%	-0.9% (1982)
DMs	-6.4% to -3.8%	-1.1% to 0.6%	-3.5% (2009)
EMs	-3.5% to -1.2%	0.0% to 1.4%	2.3% (1998)
US	-6.5% to -3.5%	-1.0% to 0.9%	-12.9% (1932)
Eurozone	-8.5% to -5.5%	-2.0% to 0.7%	-4.5% (2009)
UK	-5.5% to -3.5%	-0.5% to 1.3%	-4.2% (2009)
Japan	-4.5% to -2.5%	-0.5% to 0.7%	-5.4% (2009)
China	-4.5% to -1.5%	4.5% to 5.9%	-27.0% (1961)

Source: World Bank, IMF and Bloomberg (last column), Momentum Investments, historic numbers start in 1960 for the world, 1981 for DMs, 1994 for EMs, 1929 for the US, 1998 for the Eurozone, 1969 for the UK, 1981 for Japan and 1953 for China

Under a protracted U- or W-shaped scenario, the damage to the SA economy would be more severe. A delayed recovery in aggregate global demand would send the economy into a much deeper slumber in 2020, with a recovery in global demand only beginning in earnest later in 2021. SA growth would plummet to negative 4.9% under a nationwide lockdown and compounded negative global growth signals. Consumer and business confidence would dip markedly lower from already decimated levels. The damage to discretionary spending and business output would be more pronounced, while exports would remain weaker for longer due to prolonged weakness in global demand. Suppressed international oil prices would translate into downward pressure on headline inflation, while a muted pass through from an even more depreciated currency would likely keep inflation well within the target band in the medium term, as demand is quelled under this scenario. In addition to implementing 125 basis points worth of easing since the start of 2020, the Sarb would likely make an additional 225 basis points cut by the first quarter of 2021.

Table 6: SA forecasts for 2020 and 2021 under a protracted U- or W-shaped recovery

Economic indicator	2020	2021
GDP	-4.9%	-1.2%
Household consumption	-4.2%	-0.8%
Fixed investment	-4.2%	-2.9%
Government consumption	1.7%	1.8%
Exports	-7.9%	-2.0%
Imports	-5.5%	-0.9%
Headline inflation (average)	3.0%	3.5%
Core inflation (average)	2.9%	2.8%
Interest rates (end of the year)	3.25%	3.00%
Real interest rates (average)	1.70%	-0.5%
Rand dollar (average)	18.1	19.60

Source: Momentum Investments

In this scenario, the current account deficit ratio would likely narrow substantially on the back of vastly weaker import demand. However, the fiscal deficit ratio would rise beyond the mid-teens, in our opinion, as a stretched out recovery in the global environment bears negatively on SA's economic trajectory. Accelerated COVID-19 fiscal stimulus measures, immense pressure on revenue collection and little chance of achieving the planned public sector wage bill cuts, in this scenario, would likely lead to a chain of downgrades by the three major rating agencies.

An L-shaped recovery (tail-risk negative scenario)

McKinsey has studied various 'black swan of black swans' events, which cause structural damage to the global economy, triggered by a year-long spread of the virus. In these sub-scenarios, a lack of adequate policy responses results in widespread insolvencies, a surge in unemployment and the unfolding of a financial crisis.

Similarly, Mohamed A El-Erian, chief economic adviser to Allianz, suggests the COVID-19 shock will "alter the economic terrain", referring to this as the "new, new normal". In this altered world, deglobalisation and deregionalisation accelerate, which redefine chains of production and consumption. He outlines a world of excessive risk aversion and the potential 'weaponisation' of trade tools, as national security eclipses economic concerns.

In our view, an L-shaped recovery, where supply is cut permanently, holds the lowest probability of occurring. Parts of China have already seen a relatively quick restart in production and, as such, global companies are unlikely to make a structural decision to move their supply chains out of China. Similarly, the probability of severe financial dislocations remains less likely, given governments' efforts to shore up liquidity.

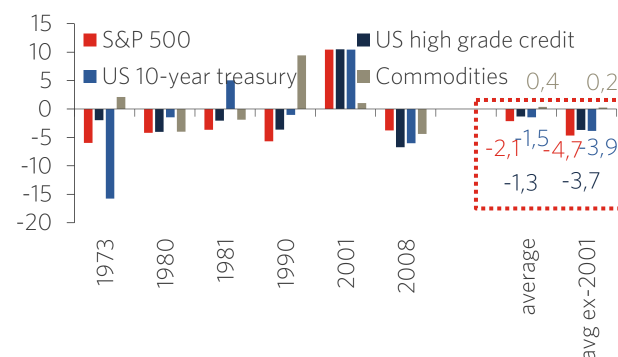
Under this low-probability scenario, the recovery in growth would be akin to the Great Depression, where the nature of a deeper recession in economic activity results in a number of credit events, such as a significant rise in corporate defaults, a sharp rise in corporate bankruptcies and major employee layoffs.

Financial market consequences

During the indeterminate time COVID-19 continues to spread, uncertainty will remain about the ultimate trajectory of the global economy with volatility in financial markets likely staying high, as growth expectations ebb and flow. Throughout this risk-off period, defensive asset classes (such as DM bonds, the US dollar and gold) are likely to trump the returns of risky asset classes (like global equities, credit, EM debt and EM currencies).

Once the virus effect has played out, global supply chains become unblocked again and isolation measures cease, there will be a significant rebound in global economic growth and company profits on the back of a normalisation in economic activity and the lagged effect of massive policy stimulus undertaken during the crisis. This economic rebound will ignite renewed risk appetite by global investors and will be discounted by rising risky asset prices ahead of the time (see chart 1). Whether this will occur within weeks, months or quarters depends on how the COVID-19 pandemic plays out.

Chart 1: Duration in months before end of recession and trough per asset class for the past six US recessions



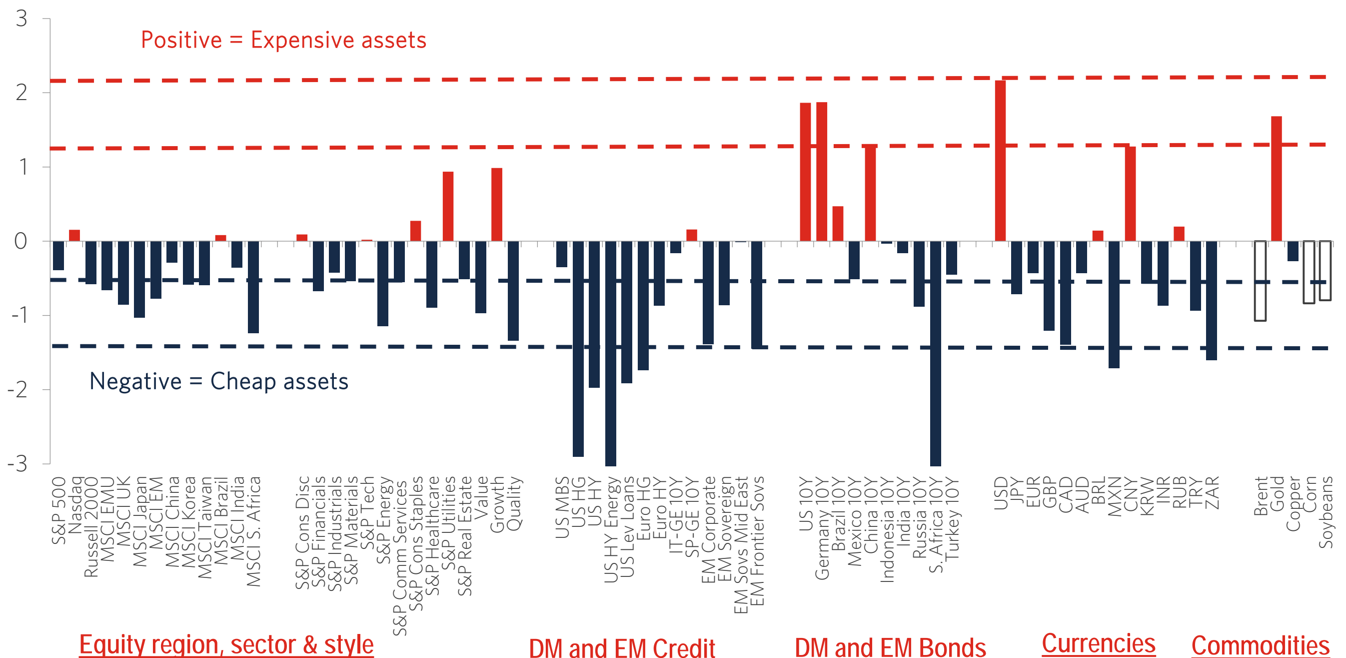
Source: JP Morgan

Our scenario analysis in this report shows the severity and evolution of the COVID-19 pandemic will ultimately determine the magnitude and duration of the negative effect on global and SA economic growth and whether the global growth trajectory follows a V shape, U shape, W shape or L shape. Until government interventions are successful in effecting a decline in global virus infection rates, physical distancing policies are likely to remain in place, with resultant negative consequences for economic activity. In terms of a possible timeline, a sustainable rebound in the returns from riskier asset classes will only be fundamentally justified once an infection peak is in the offing, with a subsequent economic recovery then on the horizon.

Separately from the COVID-19 evolution, research from Bank of America shows that equity bear markets linger for a while after the initial 20% drop (reached on 12 March 2020), with further downside for about three to four months. If equity bear market history is any guide, this would point to a possible bottoming in equity markets around the middle of 2020.

The meaningful adjustments in asset prices in February and March 2020 intimate that some degree of a dire economic outcome is at least already discounted by global equities, government bonds, credit, commodities and currencies. In this regard, JP Morgan research (see chart 2) shows valuations of risky asset classes are now cheap against history (with DM credit, SA bonds and EM currencies being the cheapest), while defensive asset classes are now expensive (with the US dollar, DM bonds and gold the priciest).

Chart 2: Risky asset classes trading cheap relative to defensive asset classes (deviation from long-term averages)



Source: JP Morgan

At the 27 March 2020 equity market close in the US, the S&P 500 Index was down 25% from its 19 February 2020 peak, which is still less than the median (28%) and average (31%) drawdowns experienced in the past 25 equity bear markets, and much smaller than the peak-to-trough declines in the 2001 dot-com bear market (35% down), the 1973 oil crisis (48% down) and the GFC bear market (52% down). This would suggest that not all the potential economic growth downside is reflected in the US equity market, particularly if the economic growth scenario trajectory turns out to be anything worse than a V-shaped recovery.

Investment implications

While investment returns in the short term will be negatively affected by the destructive effect of COVID-19 on growth asset classes, history has shown that long-term returns are largely unaffected by these kind of events, which in retrospect are barely discernible on longer-term graphs of returns from asset classes and, hence, turn out to be far less significant than they are deemed at the time. We are very aware that opportunities will likely again present themselves during this time to enhance long-term returns by taking advantage of dislocations in asset prices during market overreactions to the virus on the back of sentiment-driven market behaviour.

We remain steadfast in our mission to keep our focus on our clients' long-term investment goals by not overreacting to short-term events in a way that could have a detrimental effect on the probability of achieving these goals. As such, our overriding guiding principle is to encourage our clients to stay invested throughout all market cycles, rather than attempt the timing of markets at times like this, when there is a virus outbreak.

Selling into market weakness locks in paper losses and also exposes investors to the risk that they miss any eventual rebound in markets, if they have not reinvested by that point. Although investors often feel the behavioural urge to at least 'do something' to their portfolios during uncertain times, history shows that the more prudent and lucrative investment strategy during these events is actually to 'stay invested'. During periods of social isolation, investors should be particularly wary of spending too much time worrying about their well-diversified portfolios, as this might entice outcome-destructive behaviours.

It is in times like these that we remain deeply anchored in our outcome-based investing philosophy and process, where we are unwavering in our belief that a well-constructed diversified portfolio is the most efficient way to achieve the long-term investment outcomes for our clients and, in these uncertain and volatile market environments, we continue to vigilantly manage the risk in our portfolios and look for opportunities to harness the available opportunity set towards achieving our long-term investment goals. Of particular benefit is our exposure to a range of investment strategies, which are less affected by daily market moves and sentiment changes – these include allocations to alternative and real asset classes or strategies. Additionally, the investment managers appointed to our underlying mandates have full discretion to take advantage of any opportunities or mispricings that may arise.

It may well be that we will look back at the COVID-19 period in a number of years' time with the realisation that this was a mere blip on the long-term investment horizon and indeed presented investors with one of the best investment opportunities in a generation. The best we can do for now, is to do our utmost to limit the spread of COVID-19, keep our families healthy and remain unemotional about our investments.

Appendix 1: Policymakers' responses to the COVID-19 crisis

United States (US)

- Measures undertaken by the Fed include:
  - Cutting interest rates to near zero
  - Lowering the interest rate on the discount window by 1.5%, to 0.25%
  - Lowering reserve requirements to zero
  - Increasing reverse repo operations by another US$500 billion
  - After launching a US$700 billion quantitative easing programme, the Fed later removed the limit on its asset purchases
  - Launching a Primary Dealer Credit Facility
  - Introducing a US$10 billion Money Market Mutual Fund Liquidity Facility (an emergency lending facility for banks that purchase assets from mutual funds and other short-term credit sources)
  - Announcing a Main Street Business Lending Programme to support small and medium enterprises (SMEs)
- Measures undertaken by the US government include:
  - A US$8.2 billion emergency spending package
  - A US$100 billion emergency virus relief bill (expanded unemployment insurance and paid family and sick leave)
  - A US$2.2 trillion stimulus deal (the largest in US history) to provide economic relief to American taxpayers and businesses hit by COVID-19 (which includes US$1 200 each for American adults earning less than US$90 000 a year, US$500 each for American children, a US$500 billion lending programme for businesses, cities and states,
  - US$367 billion for SMEs, US$130 billion for hospitals and expanded unemployment insurance)
  - An extension to the tax deadline from 15 April to 15 July
  - Deferring interest on student loan payments for a year

Europe

- Measures undertaken by the European Central Bank (ECB):
  - Announcing an asset purchase programme, called the Pandemic Emergency Purchase Programme
  - Pledging to purchase roughly US$800 billion of additional bonds throughout 2020
  - Lowering the interest rate on bank reserves to negative 0.5%
  - Easing lending requirements for its targeted long-term refinancing operations
  - Loosening capital requirements on banks to allow them to lend more
- Stimulus measures announced by Germany include:
  - US$1.1 billion in credit for businesses and companies
  - Tax measures to ensure liquidity for companies
- Stimulus measures announced by Spain include:
  - US$219 billion to help companies and protect workers and other vulnerable groups
- Stimulus measures announced by Portugal include:
  - A US$10 billion aid stimulus package, which is worth more than 4% of Portugal's GDP
- Stimulus measures announced by France include:
  - A US$50 billion aid package for small businesses
- Stimulus measures announced by the United Kingdom (UK) include:
  - A coronavirus Job Retention Scheme, where grants of 80% of an employee's wages are being made available
  - The Bank of England's purchase of US$228 billion worth of UK government bonds and corporate bonds
  - Interest rate cut of 0.15% to 0.1%
  - A US$14.5 billion emergency fiscal stimulus package to tackle COVID-19
  - State-backed loans worth US$400 billion (15% of the UK's GDP) for businesses in the retail and hospitality industries

Japan

- Measures announced by the Bank of Japan include:
  - A doubling of its annual exchange-traded-funds purchasing target to US$112 billion
  - The rolling out of a new lending facility
  - The increase in the upper limit for its purchases of commercial paper and corporate bonds by US$18 billion
- In addition, the Japanese government announced:
  - Direct fiscal spending exceeding US$137 billion
  - Two packages of small business loans amounting to nearly US$20 billion

China

- Measures carried out by the People's Bank of China (PBoC) included:
  - A 0.1% cut in the one-year medium-term lending facility rate
  - A 0.1% cut in the one-year prime rate
  - A 0.05% cut in the five-year prime rate
  - The announcement of special loans to businesses hit hard by the virus
  - A US$174 billion expansion in reverse repo operations to allow banks to have more cash on hand
  - Lowering bank reserve requirements, which frees up US$79 billion to be lent out
- The Financial Times estimated various relief measures announced by government amount to 1% of China's GDP, which included:
  - A reduction in employers' required social insurance payments
  - Lower electricity fees
  - Value-added-tax waivers

SA

- Measures announced by the SA Reserve Bank (Sarb) include:
  - An interest rate cut of 100 basis points
  - Changes to the money market liquidity strategy, including the adjustment of the Standing Facilities Borrowing Rate from 100 basis points below the repo rate to 200 basis points below repo to discourage banks from placing cash with the Sarb
  - Purchase of government bonds in the secondary market, to promote the smooth functioning of local financial markets (no announcement on size or duration)
- In addition, the SA government announced a range of measures to limit the economic fallout likely to be experienced by the more vulnerable in society and SMEs, which included:
  - A tax subsidy of up to R500 per month for the next four months to employees in the private sector earning less than R 6 500 per month under the Employment Tax Incentive
  - Allowing businesses with a turnover of less than R50 million to delay 20% of their pay-as-you-earn (PAYE) liabilities and a portion of their provisional corporate income tax payments for four months without penalties
  - Additional funding pledged by the Department of Trade and Industry and the Small Business Development Department for SMEs
  - Averting job losses through the Small Enterprise Development Agency
  - A debt-relief fund for small businesses
  - The possible use of the Unemployment Insurance Fund reserves to extend support to workers in SMEs
  - Seed capital of R150 million to the Solidarity Fund
  - Urging malls and retailers to consider rent and payment holidays for tenants affected by the lockdown

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