Thinking Through the Wide Range of Possible Economic Outcomes

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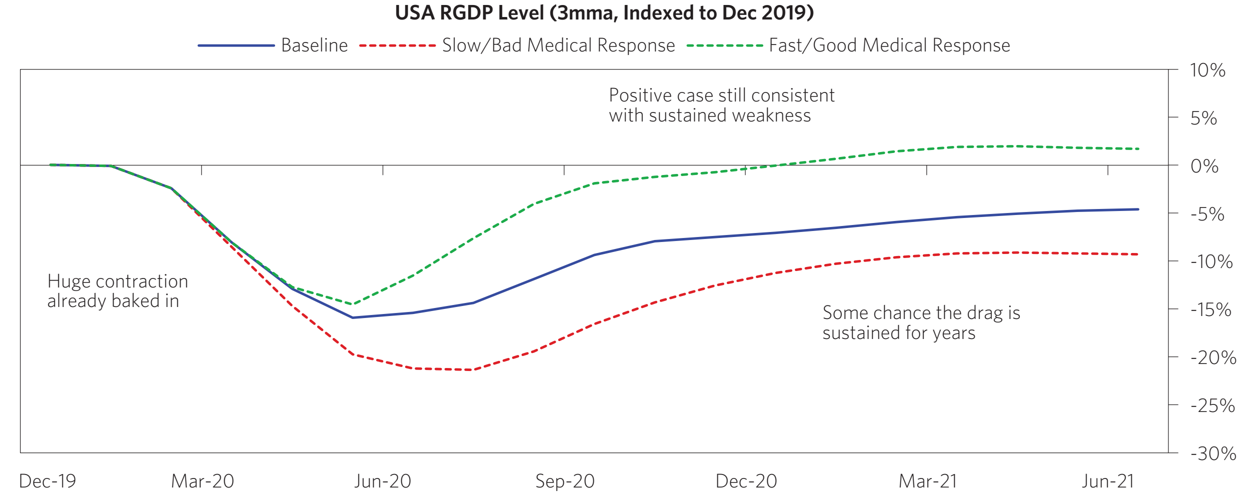
We are considering what the range of plausible economic outcomes is from here and the implications across that range. Data is starting to come in that confirms our analysis that the level of global GDP has dropped a little over 20%. This is of course catastrophic, and the rate of the downturn is unprecedented. But knowing what has occurred doesn't do much to reduce the range of outcomes from this unique economic shock and the wide range of fiscal and monetary responses. Deep economic contractions that don't quickly resolve themselves have second- and third-order linkages. This is the case whether a contraction is originally caused by central bank tightening in response to inflation, the bursting of a credit bubble, a commodity shock, a balance of payments crisis, or a pandemic-driven income shock. Adequate monetary or fiscal easing can mitigate these second-order effects, so understanding deeply how these tools work is a necessary step in visualizing how the economy and markets will unfold.

In terms of our portfolio, as in any environment, we are looking for positions that have positive expected value based on the linkages we understand deeply. At the same time, it is never wise to invest based on central expectations alone. This is even more important when the range of outcomes is extremely wide, with some of the most important drivers being things we are not experts in. We are studying how economies around the world are handling circumstances to get a sense of the range of potential outcomes. Asian economies provide a window into a reasonably optimistic case in terms of handling the virus—but even those economies with low virus case numbers have struggled to bounce back. Developments around the virus, treatments, and societal responses will lead us to make adjustments to our curves as we learn more. We aren't fooling ourselves into believing we know more than we do. Today we want to share the range of outcomes we're considering. In future research, we will run the range of scenarios and share our loss estimates and other implications.

USA RGDP Level (3mma, Indexed to Dec 2019)

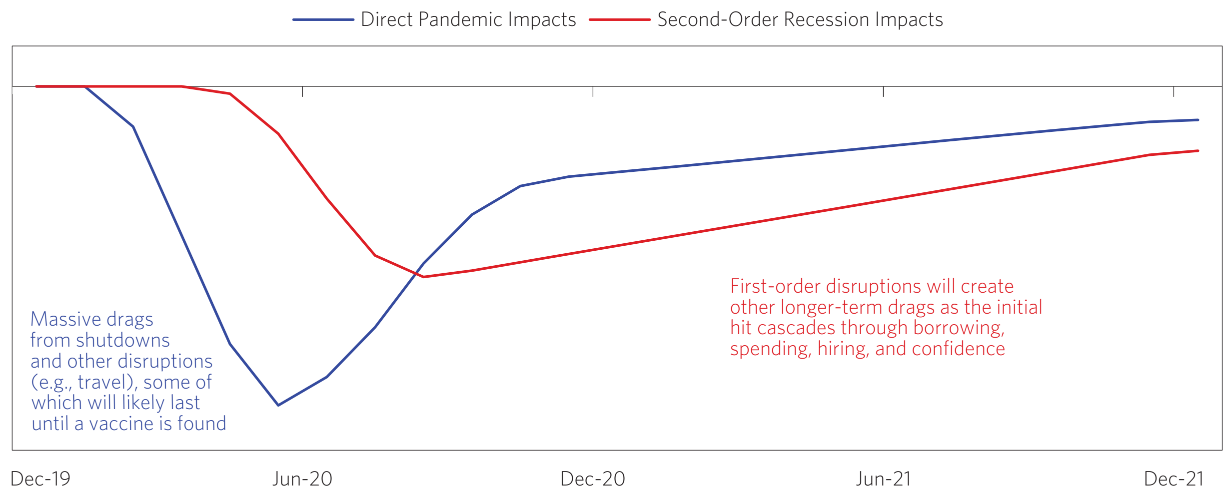


The Ripple from the Shock Is Unavoidable, So Recovery Will Be Difficult

While the virus-related shutdowns kicked off this contraction, we would expect it to linger long after they are lifted. Unless an economic contraction is very brief (allowing spenders to "see through" it), there are knock-on effects that come from a pullback in spending. Some businesses close forever; incomes fall, leading to less spending; and high unemployment and uncertainty lead to higher savings rates and even less spending. Then, once demand begins to recover, hiring tends to lag as a result of businesses finding more efficient ways to meet demand. Fiscal policy can help to offset some of the recession impacts, but it would take a much more aggressive response than we've seen so far to offset them fully.

We illustrate how we'd expect these pressures to play out in the chart below, in terms of how each would impact the level of activity.

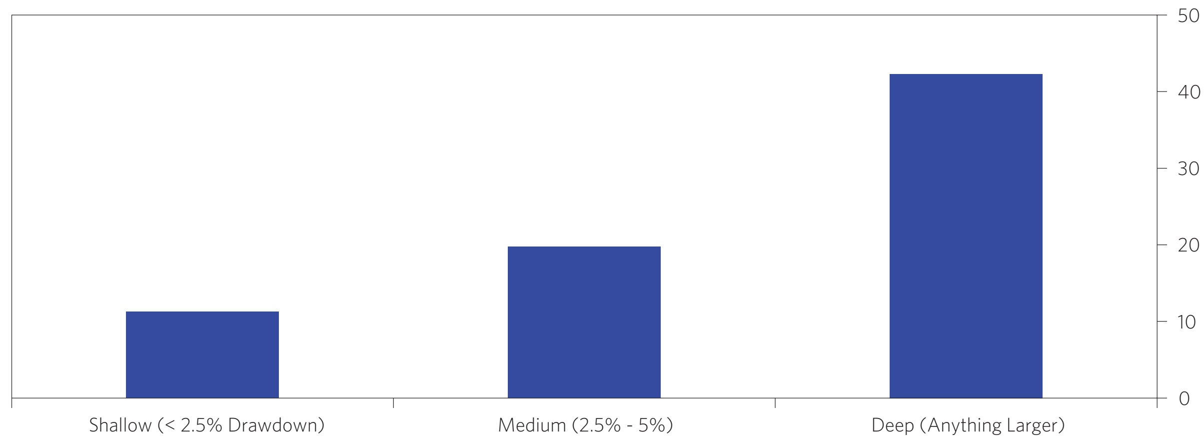
Forces Underlying the Virus Drag on Growth



Above, we describe why deep economic shocks tend to take a long time to fully heal. Below, we show how long it has taken to recover from prior recessions relative to their depth. On average, it has taken economies more than three years to recover from shocks of the magnitude we've begun to see today. Note: in this analysis, we looked at how developed world economies fared during every recession since 1990. Historically, it has taken economies even longer to recover from downturns, but this sample is likely more representative of how people will respond today, given the institutions and automatic stabilizers in place.

How Long Before RGDP Returns to Pre-Drawdown Level

(Months Trough-to-Recovery, Based on Last 30 Years of Dev Wld RGDP Drawdowns)



The Effects of the Pandemic Will Be Felt Differently Across Economies

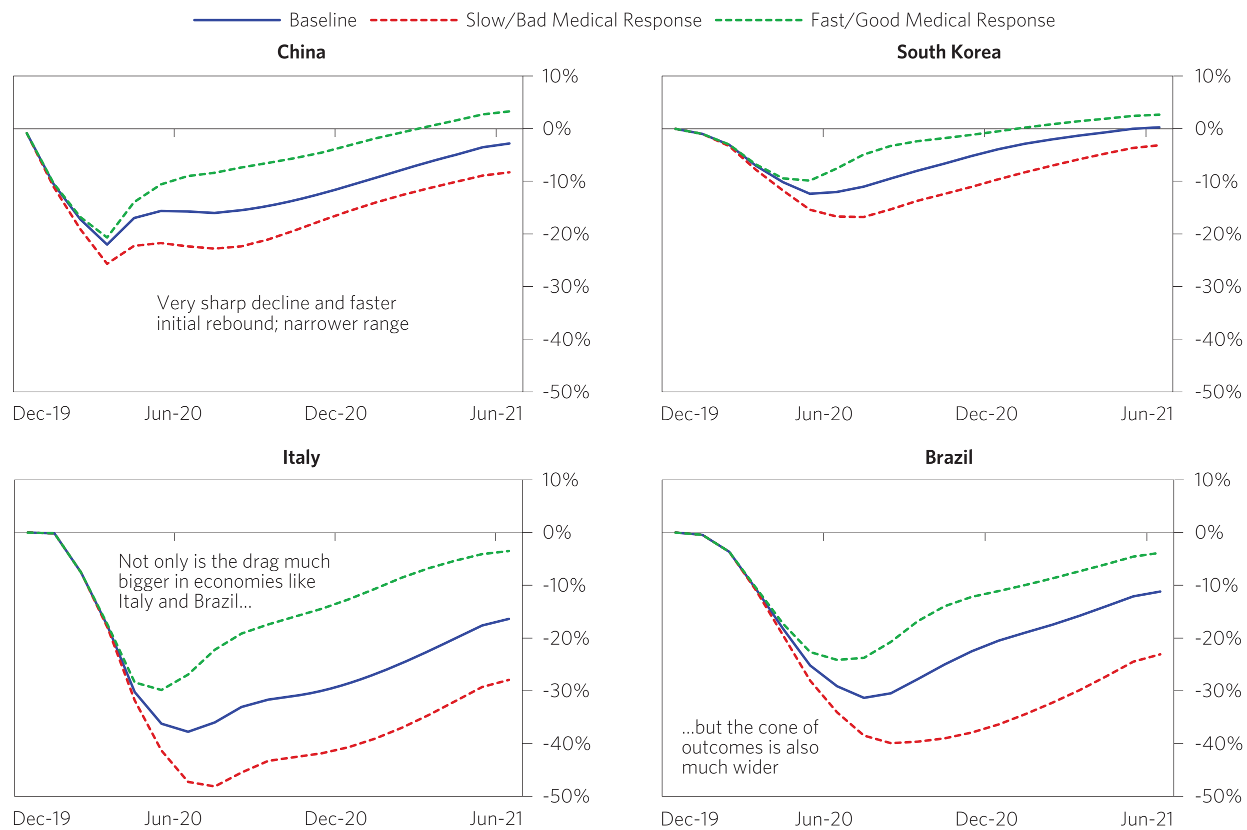
We are far from certain about what the levels of activity will be at the end of the year anywhere. But the range of plausible outcomes isn't the same everywhere. As with most shocks, the toll is likely to be greatest in the economies with the least economic and medical capacity to respond. Plus, these economies are likely even more sensitive to downside surprises, such as how contagious the virus is. Below, we quickly walk through the most important reasons we'd expect economies to fare better or worse and illustrate the range of outcomes we see.

- **Containment/Mitigation Capacity:** We expect that economies that have a greater capacity to contain/mitigate the effects of the virus will not only fare better as a baseline, but also be relatively less impacted should the virus turn out to be worse than expected. Take, for example, China and Korea, which have been able to contain the virus relatively well with either brief or targeted shutdowns. On the other hand, many emerging economies will struggle to contain even one wave of the virus, and repeated waves would likely be even more chaotic for them.

- **Ability/Willingness to Ease:** We also expect economies with greater ability to ease to fare better on an outright basis and disproportionately well in negative scenarios. As the virus-related disruptions worsen, they create bigger income hits and greater risk of massive/lasting drags (e.g., defaults, unemployment, foreclosures) unless policy makers can temporarily "fill the income hole." The US, China, and most developed economies have significant latitude here and so are more likely to respond to any worsening of the outbreak as needed. The European economies are more constrained, as are the EMs. For these economies, any worsening of virus-related disruptions is likely to create magnified drags.

Note that our outcome ranges are significantly wider (not just more negative) in places like Italy and Brazil. The range is somewhat narrower in economies like China and South Korea, which are somewhat better equipped to contain the virus and have more capacity to ease in response to downside shocks.

Levels of Activity Across Economies (RGDP, 3mma, Indexed to Dec 2019)



Next, we show our estimates for the range of outcomes across a broader set of economies. For simplicity, we show the levels of activity we'd expect to see by the end of 2020 and by mid-2021. Needless say, these point to massive declines across economies, with a much wider range than during normal environments.

Range of Outcomes Across Economies (RGDP Level vs 2019)

	Dec-20			Jun-21		
	Bad	Base	Good	Bad	Base	Good
South Korea	-9.6%	-3.7%	-0.5%	-2.7%	0.6%	2.9%
Australia	-10.9%	-6.7%	0.9%	-6.0%	-2.0%	3.8%
United States	-11.1%	-7.2%	-0.2%	-9.3%	-4.5%	1.6%
Japan	-12.8%	-7.7%	-1.6%	-8.2%	-2.0%	0.9%
China	-15.7%	-10.9%	-3.2%	-7.7%	-2.1%	3.9%
Germany	-19.4%	-13.0%	-4.5%	-14.3%	-5.0%	-0.5%
Canada	-20.0%	-13.3%	-3.6%	-12.8%	-5.9%	0.2%
Russia	-25.4%	-17.8%	-9.2%	-15.8%	-8.4%	-2.0%
Brazil	-36.5%	-20.4%	-11.1%	-21.7%	-10.2%	-3.2%
United Kingdom	-32.8%	-21.0%	-11.3%	-21.2%	-11.4%	-3.6%
France	-38.9%	-23.6%	-13.7%	-25.4%	-13.1%	-5.2%
South Africa	-38.4%	-23.6%	-12.5%	-19.4%	-9.5%	-1.7%
India	-41.9%	-24.2%	-11.6%	-21.4%	-8.6%	0.9%
Turkey	-41.4%	-24.7%	-14.4%	-24.1%	-13.2%	-4.9%
Mexico	-46.2%	-28.7%	-15.9%	-26.5%	-14.3%	-4.8%
Spain	-40.0%	-28.8%	-16.3%	-26.2%	-16.1%	-5.4%
Italy	-40.9%	-28.8%	-12.8%	-26.7%	-15.2%	-2.9%

Our central expectation is that most economies will still be below 2019 levels of output by mid-2021

Broadly, worse outcomes (and a wider range) in economies with limited ability to print

These expectations are a key driver of how we are assessing markets. Bond pricing reflects what will be needed to produce these outcomes. Central banks are unlikely to want yields to rise much under these circumstances, as they have to absorb all the issuance necessary for large fiscal moves. This will be more possible in some economies than in others. The combination of price declines and declines in rates means a significant contraction in earnings has been priced in over the last couple of months. The hurdle for being long equities relative to cash and bonds has also fallen. Commodities are more of a reflection of spot underlying demand and will be deeply impacted by which of these scenarios play out. Lastly, our currency views are deeply informed by what trade and capital flows may look like under different scenarios. In the future, we will extend this analysis to what it implies for losses.