

In this investment note, Steven Slaughter, an equities specialist in global healthcare, looks at the latest progress toward treatment and vaccines for COVID-19. Overall, he thinks that despite considerable progress made, these advances likely won't mitigate all the challenges attributable to this virus.

## COVID-19: What might the market be missing in the data?

On balance, we find more reasons for pessimism than optimism when considering the state of the global coronavirus pandemic. Despite considerable progress toward treatments and vaccines, these advances likely won't mitigate all the challenges attributable to this virus, and the economic deterioration may be longer lasting than many realize.

### First, the bad news: the perfect pathogen, a lesser-known symptom, bigger numbers, and exhausted workers

A large pharmaceutical maker has modeled that the true number of cases worldwide, as of late July, was about 90 million, or roughly six times the diagnosed count. This model predicts that by the end of 2021, cases will reach between 300 million and 2 billion, the latter representing roughly a quarter of the world's population. The company expects the world to start turning the corner around the end of 2020 and to reach some form of normalcy by mid-2021.<sup>1</sup> But COVID-19 will be a fact of life, possibly for years to come. If it becomes endemic, like the flu, some herd immunity should occur as we develop memory T cells, which are white blood cells essential for immunity that fight antigens long after an infection is gone.

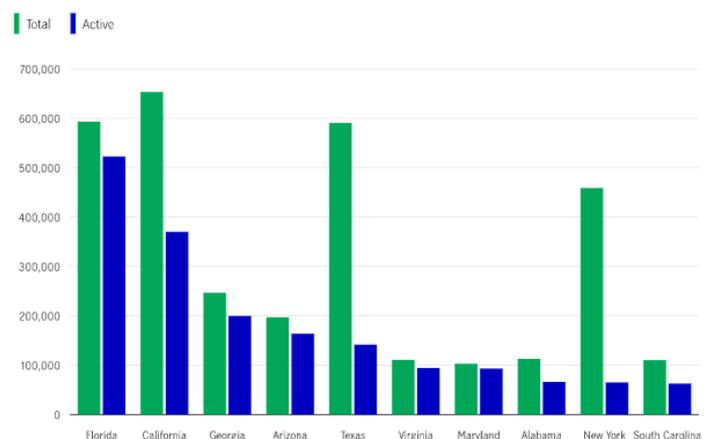
Ease of transmission and the breathing-related issues most commonly associated with COVID-19 aren't the only problems. One critical symptom that's received little attention is hypercoagulation, where the blood thickens and calls for the use of blood thinners to reduce the incidence of clots. In addition to the symptoms, some may underestimate that healthcare workers are a finite resource. The virus has burned out

nurses, technicians, and doctors, and counts of their deaths and cases are likely understated. One American anesthesiologist who began tabulating domestic healthcare worker deaths from individual sources in March has counted over 1,000, versus the official 625 CDC tally.<sup>2</sup>

### Why does the United States have 4% of the world's population and a quarter of its cases?

Without getting deeply into political issues, there may be more tolerance for unsafe behavior here than in other nations, with a lack of sufficient enforcement, coercion, and financial incentives. For instance, a British citizen returning from a visit to the United States is required to sign a form on return home, promising to quarantine for 14 days, and it's not an honor system. In the United Kingdom, inspectors visit the homes of returnees to make sure they're observing the quarantine, with fines assessed if they're not following protocols. Groceries and other essentials must be brought to the individuals.

Top 10 states in confirmed COVID-19 cases



## Better testing may be on the way

In recent weeks, BD, Quidel, and Abbott Laboratories have made significant progress in antigen tests. The standard test throughout the pandemic has been a polymerase chain reaction (PCR), which has excellent results for sensitivity in detecting positive cases, but which can also indicate positivity when subjects are no longer infectious, resulting in unnecessary quarantines. The newer antigen tests aren't quite as accurate for detecting positive cases but are virtually flawless in finding negative ones. Just as important, the PCR tests often take multiple days, rendering them essentially useless. The antigen tests resolve within about 15 minutes.

## Prospects for vaccines are both exciting and likely overstated

The world is piling resources into finding effective vaccines. Of the 200 or so being developed, we believe that perhaps 5 will make it across the finish line, maybe 1 or 2 by the end of this year. Drug maker Pfizer is hoping for authorization as early as October, although many are skeptical. For a vaccine to be approved, it needs to be tested on around 30,000 at-risk patients, and favorable results so far have only been on small groups. It's essential to find geographic hot spots for effective testing to get meaningful results. Traditional vaccines take five to seven years—not months—to develop, and many conditions have never seen a successful vaccine (e.g., the common cold and HIV). Still, there's no precedent for the level of resources being thrown at this virus. The government's deal to pay Pfizer \$2 billion on successful vaccine trials seems reasonable, as it amounts to about \$40 per treatment.

Even if vaccines do pass muster, there's a question of how effective they'll be and how long they'll last—perhaps no longer than six months. Consider that, last year, the Centers for Disease Control (CDC) measured the flu vaccine's effectiveness at 45%.<sup>3</sup> Then there's the matter of production: A two-shot regimen could translate into 15 billion shots worldwide. The production and delivery challenges will be immense.

## Some good news in treatment

The antiviral Veklury, or remdesivir, has been effective in slowing the progression of the virus and reducing fatalities. Demand for this drug is going through the roof, and Gilead Sciences, the maker, is selling as fast as it can produce. Dexamethasone, with a broad group of makers led by Pfizer, is helping reduce respiratory inflammation, and fewer patients are going on ventilators as a result. Death rates in the United States appear to be stabilizing at unimaginable numbers, but numbers suggesting treatment regimens have improved significantly.

Unfortunately, convalescent plasma, which many had hoped could serve as a treatment, didn't show a strong benefit in a Mayo Clinic study, even though the FDA has approved it for emergency use.<sup>4</sup> Dr. Scott Gottlieb, former head of the FDA, said that convalescent plasma was “probably weakly beneficial.”<sup>5</sup>

## Economic effects will continue to be severe

It's hard to envision how the pandemic wouldn't have an ongoing effect on the economy, although a successful vaccine will be, if you'll forgive the pun, a shot in the arm. Apple may be doing fine, but many customers, out of work or worried about losing their jobs, may think twice before making expensive purchases such as a new iPhone. Small businesses will continue to be at heightened survival risk for the foreseeable future. As Manulife Investment Management's Global Chief Economist Frances Donald wrote, “while the market has likely priced some probability of a second wave of COVID-19 outbreak, we don't believe it has appropriately discounted an economic second wave that could develop in the coming three to six months.”<sup>6</sup>

<sup>1</sup> For comparison, see “CDC says COVID-19 cases in U.S. may be 10 times higher than reported,” nbcnews.com, June 2020. <sup>2</sup> CBS News, August 2020. <sup>3</sup> cdc.gov, February 2020. <sup>4</sup> mayoclinic.org, August 2020. <sup>5</sup> Transcript of Dr. Scott Gottlieb discussing the coronavirus, “Face the Nation,” August 2020. <sup>6</sup> “U.S. economic outlook: macro headwinds vs. tailwinds,” Manulife Investment Management, May 26, 2020.

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