

# THE ALCIVAX

**Alcimed** evaluates the end of the fiscal year and why COVID may be an opportunity to put public debt to maximal use.

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## Soaring to newly leveraged heights

"Wisdom is oftentimes nearer when we stoop than when we soar." — William Wadsworth. The WHO reported a new record daily increase in COVID cases (230K/day), but may have reached almost 250K/day by July 16th. How much wisdom can we gain from all this suffering?

### Excess Debt and Opportunity

According to the IMF, global public debt has hit several new milestones, by hitting its highest level in history and is now at over 100% of global GDP. The total contribution so far? \$11 Trillion. Some real thought needs to be put into how the money will best be spent before even advanced economies end up with unsustainable debt loads. How should the money be spent, according to the IMF? "Policymakers should tackle the rising poverty and inequality, as well as the structural weaknesses exposed by the crisis to better prepare for future shocks." But how do we create this resiliency? Invest the money in 1) people, to preserve human capital, 2) green initiatives for climate-resilient growth, and 3) continued digital transformation, especially e-government platforms.

### Public Spending and Industrial Impacts

Public spending is being implemented at different rates, but G20 companies are all spending more on COVID relief than they did on relief for the 2008 financial crisis. Some of that is working as consumer spending is up in all but the highest discretionary spending categories, and is still highly focused on domestic & local activities. There have been some substantial shifts in both B2B and B2C spending, as both are pushing more to online platforms, with digital sales channels almost doubling in volume.

But industries will all be feeling the impact of a prolonged recovery over the next decade. Some more than others, but on average expected losses from pandemic related disruptions will be the equivalent of 45% over a single year's annual earnings. The biggest loser is petroleum at 84%, with aerospace not far behind at 67% and the auto industry at 56%. But even industries that supply essentials during a global pandemic have seen losses due to pandemic disruption, such as medical devices (38%), the food & beverages (30%), and pharmaceuticals (24%).

In the best case scenario, most industries will see a return to pre-COVID levels by 2021, but some industries, most notably, mining, education, hospitality, and arts & entertainment will not fully recover until 2023-2024. In the worst case, i.e. if COVID isn't contained, most industries won't recover until 2023, pushing out the slower recoveries, such as the arts, past 2025.

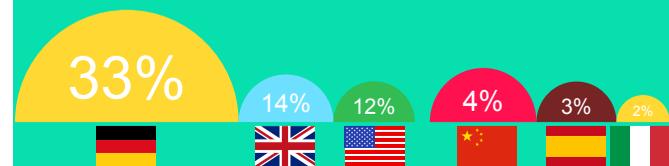
### A Resilient Healthcare System

In the long run, this is not the last pandemic, but using some public spending now can help to build a more resilient healthcare system so that future pandemics will not cost such significant economic devastation. Based on current projects, the pandemic will cost the global economy between \$9-33 trillion. However, a McKinsey analysis estimates at investments to prevent future pandemics would only cost between \$70-120 B for an initial investment with about \$20-40 B annually for maintenance. This would provide the world with proactive surveillance systems both human and zoonotic that feed into always on epidemic response systems, that could ramp up production needs such as vaccines quickly, so we are never caught by surprise again.

## Not All Recovery is Equal

Economic stimulus through public funding has not been uniform across different countries, but neither has industrial recovery in the same sector across those countries.

% of GDP spent on recovery (IMF)



### Current Outlook

Germany: partially still in the response phase, partially in the recovery phase  
UK: overall still in response phase but showing signs of recovery  
US: mostly in recovery mode with some sectors still facing significant disruption and high impact on business and cash flow  
China: moving from significant disruption into recovery mode  
Spain: largely still in response phase  
Italy: in the recovery phase

### Life Sciences & Healthcare

Germany: In the green with a positive outlook  
UK: Cross sector disruptions  
US: Disruptions for healthcare providers/payers but medtech, pharm & generics largely unaffected  
China: In the green with a positive outlook  
Spain: Cross sector disruptions  
Italy: Disruptions for healthcare payers/providers, positive outlook for biopharma and medtech

### Technology & Media

Germany: Tech & digital entertainment disruptions, larger in sports/entertainment  
UK: Largely unaffected with tech in the green  
US: Sports and live entertainment is the biggest loser, significant disruptions overall  
China: Positive outlook for digital entertainment, Tech & sports/entertainment disruptions  
Spain: Disruptions overall  
Italy: Disruptions in digital entertainment and sports/entertainment, but tech is largely unaffected



## Diganosis & Treatment

Test results are taking so long to come back across the United States that they are often proving useless in the campaign to control the coronavirus. Some testing sites are struggling to provide results in five to seven days. Others are taking even longer. That rising demand, in turn, has caused shortages of swabs, chemical reagents and equipment. The long testing turnaround times are making it impossible for the United States to replicate the central strategy used by other countries to effectively contain the virus — test, trace and isolate. One of the biggest test reporting hurdles is a lack of uniform connectivity, resulting in a surprisingly large number of COVID test results still being reported by fax machine.

In addition to BD's rapid POC test recently, 3M is working with MIT to develop a rapid paper based test that can be mass produced. BioIntelliSense's health-tracking sticker has also been tapped by Phillips as enhanced monitoring in their remote patient monitoring systems targeting extremely high risk patients after they leave the hospital. The sensor is FDA-cleared to track sneezes, coughs, and vomiting.

On the treatment side, the UK's Rosalind Franklin Institute have used llama's specially evolved antibodies to make an immune-boosting therapy, a template for a coronavirus treatment breakthrough. The approach involves "engineering" llama antibodies, which are relatively small, and more simply structured than human antibodies. The resulting llama-based, Covid-specific "antibody cocktail" could enter clinical trials within months.

Remdesivir has demonstrated a 62% increase in survival likelihood in ongoing studies in Texas and as well as 33% general clinical improvement in a South Korean study. Though the US is already bracing for remdesivir shortages, as cases continue to surge.

In the long term, Adagio is betting that its monoclonal antibodies for SARS-CoV-2 will prove to be useful as broad spectrum monoclonal that can be used as a prophylactic or therapeutically for not only this pandemic but a future coronavirus pandemic. Now it has \$50 M of investment to prove it.



## Vaccines: Steady Progress

The FDA granted 'fast-track' status to 2 COVID-19 vaccine candidates developed by Pfizer and BioNTech, a move that raises the possibility that a successful vaccine could be put into production by year's end or early 2021, signaling how desperate the world to live in a post-COVID world. Even Europe which seemed to have pandemic under control has seen waves of new cases, especially in Eastern Europe. South Africa has once again ban alcohol sales to attempt and slow hospitalizations.

- Moderna's Phase 1 vaccine data has been published to confirm positive results from previous reports, but the data is limited to the robustness of the immune response and does not indicate whether the response is protective. Phase 3 studies will be conducted in the US, starting later in the month.
- AZ & Oxford's vaccine is currently in Phase 3 testing using 2,000 Brazilian volunteers, hoping to take advantage of rising case numbers in order to test the vaccine capacity to protect against infection, monitoring participants for a year.
- Positive Phase 1 data for the AZ/Oxford vaccine is expected soon, based on journalist reports, suggesting strong antibody and T cell responses.
- Macron announced that France will get one of the first distributions of the Sanofi vaccine, though both assets (with TranslateBio or GSK) are both still in the pre-clinical stage.
- Tobacco company Phillip Morris is stepping into the COVID vaccine game by backing Canadian vaccine company Medicigo, which has a plant based vaccine for COVID in Phase 1 clinical trials in the US and Canada.
- Russia's Gamaleya National Research Center vaccine has completed Phase 1.
- Operation Warp Speed will be manufacturing vaccine by summer's end, mostly likely to begin in 4 to 6 weeks.



## COVID Air Pollution

Under pressure from the scientific community, the WHO acknowledged the airborne transmission of "micro-droplets" as a possible third cause of COVID-19 infections. However, Japan has operated for months on the assumption that tiny, "aerosolized" particles in crowded settings are turbo-charging the spread of the new coronavirus. For larger respiratory particles, social distancing and face masks are adequate safeguards, but in rooms with dry, stale air, people coughing, sneezing, and even talking and singing, emit tiny particles that remain in the air for many hours or even days. The key defense is ensuring proper ventilation and circulation of fresh air.

The problem with summer COVID spread is air conditioning, which lowers the relative humidity allowing droplets to remain in the air longer, which is particularly problematic for large office buildings that do not have windows that open.

While waiting for a vaccine, the strategy may be cough suppression, as 40% COVID patients leave the hospital with a post-viral cough for 3-8 weeks. Nocion Therapeutics is hoping they already have the solution.



## All Joking Aside



Hong Kong Disneyland is closing again after 52 new COVID cases have been reported city wide. In stark contrast, heiress to the

Disney fortune Abigail Disney is as confused as everyone as to why Disney World in Florida is still open despite being pandemic center stage.

Germans are so over COVID and social distancing, they are back to debating naked swimming and needing to be reminded that Oktoberfest was canceled this year.

More than 800 people will have to be tested in Tokyo after 20 new cases of COVID were traced to a Japanese Boy Band performance.



Bubonic plague once again makes the news with a positive squirrel in Colorado. So now flea and tick bites can lead to antibiotic prescriptions.

## Now that the WHO acknowledges airborne transmission:

How do you ride an elevator in the age of COVID-19?

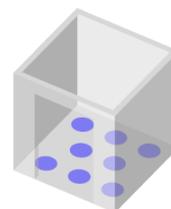
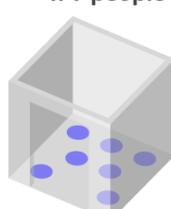
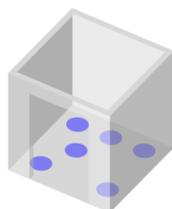
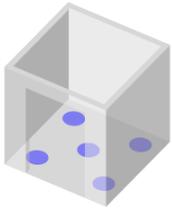
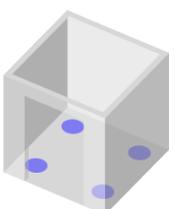
If 4 people

If 5 people

If 6 people

If 7 people

If 8 people



- Wear a mask
- Load in a checkerboard pattern and maximize spacing (see graphic at left).
- Face forward.
- Announce your desired floor.
- Have the person nearest buttons select for everyone, using knuckles
- No talking.
- Try not to sneeze or cough.
- If you must, turn toward wall and cough/sneeze into elbow with mask on.
- When door opens at floor, middle people move aside and front person moves out to create pathways to exit.

Illustration: Joseph Allen, Harvard T.H. Chan School of Public Health

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