

## **Transcript for Man vs nature: What the government can and cannot fix**

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MR. MICHAEL CEMBALEST: Good afternoon. This is Michael Cembalest with the Eye on the Market podcast from my remote location. There is an Eye on the Market called Man vs. Nature, and the point is to focus on the things the government can try and fix and what it can't. It is mostly- it is a pretty quick read; it's mostly charts.

Let me just walk you through what we have in here. We have some high-frequency manufacturing and consumer data measures. These things are pretty hard to revive just with monetary and fiscal policy obviously, when there is lockdowns in place. And so the idea is we're going to start tracking the coincidence of infections, lockdowns, and economic activity the same way we are doing in China.

In terms of that jobless claim number last week, it's not quite the same number- that surge that you get during a typical demand led recession given the speed with which people might go back to work this time once the lockdowns are lifted, and also provisions in the stimulus bill designed to incentivize companies to hire these fired workers back. But still, we are bracing for pretty sharp downward jolt in economic activity in both Q2 and then again in Q3. So what we are going to start doing though, is again tracking how some of these various measures play out to give us an indication of when financial markets might bottom.

And there is a page in here where we walked through a history of labor markets and asset prices. And I don't know if the March 23 close on the S&P of 2200 is going to mark the low for the cycle. It's probably too early for that. But when the bottom does occur I expect it to be pretty consistent with prior cycles in both the U.S. and Europe in which the equity markets a bottom way before unemployment starts declining. And usually, markets bottom even as unemployment is still rising. The best example of that was during the stag-flations era of the 1970s. Equities bottomed when unemployment was just starting to rise. You know, the tech collapse was the big exception.

The other thing we are starting to measure in terms of what the government can't control, is the Fed's ability to alleviate a credit crunch. There is a whole bunch of credit facilities that have been designed to alleviate the pressure in the credit markets. The first thing to note is that in most cases, not all, but in most cases, the spread widening so far is much smaller than in 2008 which I think reflects improvements in the plumbing and capitalization in the banking sector.

And the most remarkable chart to me is the one that shows how bank debt spreads have barely budged versus other investment-grade issuers whereas in 2008 the bank spreads blew out by 2 to 300 basis points versus other investment-grade bonds. So there is evidence that the improvements to the financial system are having an impact this time around.

So we see value given all these fed facilities and investment-grade credit, some selected municipal issuers and some upper tier non-energy high-yield. And we have a whole bunch of charts in here, all of which are also posted in our online coronavirus portal, and which are updated frequently. So you can see what is coming on in terms of libor versus the Fed funds rate and versus treasuries, commercial paper, investment-grade corporate bonds, as I mentioned, mortgages, high yield, preferreds, emerging markets, leverage loans, things like that. So what we are doing is we are tracking how those things are trading and I do think what the Fed is doing here is putting something of a floor underneath some of the most high quality issues. And again, that is where we do see some value.

Now, on to the other things that governments can't fix so easily. There has been a little bit of the unraveling of the chloroquine story. And I just want to make it very clear many of the antiviral studies that you have seen reported in the press so far don't meet any of the qualifications of what is typically a lengthy and complex process of randomized trials and control groups and population sets and things like that and that are designed to demonstrate the efficacy and the safety of some of these drugs.

And while some of them may be used eventually to combat the disease, it is a little premature based on these nonrandomized trials of 20 or 30 people to draw comprehensive inferences about their effectiveness. And we have some- an interesting chart here showing that, while there were thousands of antiviral drugs proposed in the scientific

literature over the last 50 years, only 90 of them have ever been approved for final use. And around half of those were just for HIV on its own.

And while there is some perspective here that I think is worth looking at, we show the results of some of the- some of the live trials and some of the cell culture trials, but I just want to walk through just for a second, it's now clear that some of the studies that have been floating around in the press were completely nonrandomized trials. There were no discussions of clinical outcomes. Some of the recipients of the drugs weren't discussed in the final results. Sometimes the control group had a more intense measure of the virus starting out than the infected patients which could explain why the control group was still infected at the end. And a bunch of other things in here.

So the chloroquine study has been muddied further by other studies which have found no benefits at all in looking at control groups versus these things. So the big issue is that there is enough rationale, I think, to continue investigating some of these drugs, antiviral drugs that have been approved for other diseases in COVID-19 patients in hospitalized settings. But the idea that they are- that they should be used as a preventive on a prophylactic basis I don't think stands up right now. And in any case, if we have an update on all of the antiviral and vaccine stuff going on.

And the last thing I wanted to comment on this week is some of you have asked why we haven't published any prediction curves for the infections. And there is a two pager here at the end of the Eye on the Market on Monday which gets into that. It is really only for people that like math. So I have to warn you, if you don't like math you do not want to read this.

But, there are these epidemic outbreak models based on the SIR model that was developed in the '20s. We've adapted a version of it and it estimates the number of active infections in a given exposed population based on the rate of new infections, recoveries, mortalities, infectiousness, removal rates and a bunch of other things. It sounds very scientific but there is a lot of very, very manual curve fitting going on. And the big problem is it's very hard to predict reported infections for a very infectious disease like COVID-19 when you have such large numbers of infected people who are asymptomatic or for other reasons not reported because the model get confused because it has to try to

reconcile the smaller number of reported cases versus what is expected. So there is a series of charts in here that are kind of interesting.

It looks at how well the model worked in Korea, which could've been serendipity and I suspect might've been. But even so, the model did a pretty decent job in Korea. And if you took those parameters and you applied them at the time to what you thought was going to happen for Italy it would have been a disastrous failure. Using the Korea parameters, it predicted a peak infection rate of 9000 in Italy and we have 62,000 just so far.

And there is too many exogenous variables that affect the way these things work for these models to be used reliably across countries. And you can take a look at it. The bottom line is that these models have to be constantly updated to fit the observed infection rates in each country so what you have learned by fitting parameters for one country has almost zero value of predicting the evolution of infections in any other country. And even the predictions you make within a country can shift wildly with testing and policy changes. So the best you can do, is use them to provide a very rough estimate of infection trajectories for a single country assuming that policy testing and behaviors don't change and you could still be wrong. So far what I have seen is that these models are most accurate when the infection rates have already peaked, at which point they become moot and you don't need them anymore.

So anyway that is the story. Again, we have all of our coronavirus materials on markets, economics, vaccines, infections, mortality and all the charts derived from that data are updated on a high-frequency basis on our coronavirus research page. Take a look online and we will talk to you again soon.

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