

Client Call: Macro Outlook 2021

JAKE SIEWERT: This is Exchanges at Goldman Sachs where we discuss developments currently shaping markets, industries, and the global economy. I'm Jake Siewert, Global Head of Corporate Communications here at the firm.

Today we're sharing segments in the client call that was hosted just this morning on Monday, November 9th, by Goldman Sachs Research. The topic is the macro outlook for 2021. And specifically, the impact of the US election results on our economic recovery. You'll hear from Jan Hatzius, Chief Economist and Alec Phillips our Chief Political Economist. The conversation was moderated by Senior Strategist Allison Nathan. Hope you enjoy it.

VOICE: It is now my pleasure to turn the floor over to your host, Allison Nathan. Allison, the floor is yours.

ALLISON NATHAN: Hello everyone and thanks again for joining us on our annual Goldman Sachs Global Macro Outlook Webcast. I'm Allison Nathan, Senior Strategist in Macro Research here at Goldman Sachs. And I'm joined here today by our Head of Global Investment Research and Chief Economists Jan Hatzius, as well as our Chief Political Economist Alec Phillips.

Yesterday we published our 2021 outlook piece, *V, as in Vaccine, Shaped Recovery*. I'll kick off the call, as always, with a few of my own questions for Alec and Jan. But then we will open up to client Q & A. Please do submit your questions through the webcast. We'll only be taking questions through the webcast. And we will get to as many as time permits.

So with that, let's go ahead and jump in. Alec, let's start, of course, with the US election. It's clear at this point that Joe Biden will be President and the Democrats will keep the House. But there is more uncertainty about the outcome for the Senate. Can you give us an update on what is going on there and what to look for?

ALEC PHILLIPS: Sure, thanks. Right now the Republicans hold 53 seats in the current Congress, in the Senate. They look like they have won at least 50 seats, so there are a couple of races where there's still a little bit of uncertainty, but basically, they've won 50 seats. That means there are two seats left that need to be decided. Both of them are in Georgia. Georgia has a special rule that requires that if no candidate has reached 50

percent of the vote, then the election goes to a runoff. That runoff this year will be held January 5th, 2021. So, that essentially means that we have a 50 seat Republican Senate, but with a possibility that Democrats could then also get up to 50 seats if they won both of those elections, splitting the Senate evenly, 50/50. In that scenario, Vice President Elect Harris would be breaking the tie, meaning it would be nominally a Democratic controlled Senate. That is probably not the most likely scenario. While President Elect Biden did win more votes in Georgia, Republican Senate candidates also won more votes and actually by a larger margin. So, for instance, one of the Senate Republican candidates there one 90,000 votes in excess.

So, the issue here is that when this is no longer a presidential election and, instead, is a runoff election, turnout, you know, typically drops. In the last two Senate runoffs in '92 and 2008, turnout dropped by about 40 percent in those two examples. And those were a long time ago. But in those two examples, Republican candidates actually increased their support versus the prior presidential election.

So, this time could be different. This will be a very nationalized race. There will be a lot of focus on it, a lot of resources put into it. But nevertheless it looks like Democrats probably have a little bit of an uphill climb in terms of winning both of those seats.

So, it looks like the most likely scenario is a Republican majority Senate, but a very thin Republican majority. But there is still, you know, a chance that it could turn out to be a 50/50 split, and therefore a slim Democratic majority. For what it's worth, and in closing on that question, right now prediction markets have something like a 20 to 25 percent chance that it could turn out to be a Democratic majority in the Senate. So, you know, reasonably unlikely, but certainly within the realm of possibility.

ALLISON NATHAN: Let me just ask you a very quick follow-up to that Alec. If the Democrats pull it out and do end up with a very slim majority on the Democratic side as you lay out, you know, policy wise, you know, how important would that be, really, given how tight that majority would be?

ALEC PHILLIPS: So, you know, it really depends a lot on the issue. I would say it's actually really important. Because while you could make the argument that the, you know, marginal Republican center versus the marginal Democratic center might be

much closer in terms of policy than the parties are as a whole, what really matters in the Senate is the ability just to get a bill onto the floor and have a vote.

Just as one example, you know, right now with fiscal stimulus, there are probably 60 votes in support of a reasonably large fiscal stimulus package in the current Congress, in the current Senate. But the issue is just getting a bill onto the floor.

And so, you know, once you have control of the House and the Senate, even if it's by a very small margin, that allows the majority party to use, you know, various procedural mechanisms to push legislation through, particularly fiscal legislation. So, you know, on some issues it may not make that much of a difference. On fiscal policy, it would actually probably make a big difference.

ALLISON NATHAN: Okay, great. Well, let's talk about the implications of all of this for fiscal policy. Where do we stand now?

ALEC PHILLIPS: So, if we just make the assumption for right now that we're more likely to have a Republican Senate next year, then the two main implications that come out of the election are, number one, that we're not going to see as much structural change in fiscal policy as, you know, one might have imagined under a Democratic sweep. So that means we're unlikely to see any substantial spending increases, apart from fiscal stimulus, which I'll come back to in a moment. But so, for example, President Election Biden had proposed a \$2 trillion infrastructure package. That seems, you know, reasonably unlikely under a divided Congress. Likewise, we also probably won't see any substantial tax increases. So, discussion of the corporate rate, other things like that, probably are essentially taken off the table for the time being.

The second implication is on fiscal stimulus. And there, I would say, you know, two things change. One, the size. And then the other is the timing. So, on the size, you know, we had imagined under a Democratic sweep that you would probably see something like maybe \$2.5 trillion of fiscal support coming in early 2021. What probably happens now is you have a much smaller package, call it something like a trillion dollars, that's still, you know, pretty big. That's almost five percent of GDP. But nevertheless, you know, smaller than under the alternative scenario.

It may also come a little bit sooner, and this is frankly really up in the air at the moment, so I don't think we can really say for sure what's going to happen right now, but I think directionally the odds of getting something done sooner have increased because there's just less incentive to wait until 2021 to do something given that Congress is still going to be divided.

So, there are essentially two scenarios for what might happen on fiscal measures over the next, you know, couple of months. One is that we end up seeing Congress pass sort of a placeholder, very skinny package at some point in December, probably ahead of the December 11th spending deadline. That would just include a couple of, you know, so of must-pass things that everybody agrees on. Extending the expanded unemployment insurance eligibility, maybe some small business support. And then leaving the bigger decisions for next year.

The alternative scenario, which has probably increased in probability, you know, versus where we were pre election, is to have a bigger package pass in December, simply because it looks likely that they're going to have to address at least a couple of things. And once they're already in the process of putting a bill through, you can imagine that it might turn out to be a little bit more substantial. So, where you know, before the election you would have said probably the odds of doing something in the lame duck session of Congress in December were very low, now you could say it's probably, you know, at least as likely that they do something a little bit more substantial in December. But regardless of the timing, you know, it looks likely that we'll end up seeing something on the order of a trillion dollars pass, either in December or in Q1. Either way, it's probably more of an issue for growth in Q1 than it is for Q4. But you know that timing has probably accelerated a little bit.

ALLISON NATHAN: Okay, great. Jan, let's turn to you. Given the election outcome, most likely election outcome that Alec has laid out, what does this mean for the overall economic outlook?

JAN HATZIUS: Yes, thanks Allison. And let's turn to our global forecast table to show you where we stand. Clearly, we have quite an optimistic forecast for global growth in 2021 and 2022. And the timing in terms of where we are above consensus and, you know, between the different years varies a little bit between countries. But you know, if you just look at the global number, we're at 6 percent for 2021 relative to a Bloomberg consensus of

5.2 percent. And we're at 4.6 percent for 2022 versus a Bloomberg consensus of 3.7. And the biggest outperformance in general we have in the advanced economies, the United States and also the Euro area, especially if you look at not just 2021 but also 2022, but in the vast majority of cases we have an above consensus view.

Now having said that, the recent changes have been a bit on the negative side. On net, we've shaved our numbers a bit, especially for-- at least for 2021 for, you know, effectively one big reason, namely the COVID resurgence that we've seen in the US and especially in Europe. It's also, of course the case that it wasn't really a blue wave. There was no, at least we think, no Democratic sweep of Congress. And as Alec explained, that has led to a smaller fiscal stimulus package in our forecast than at we would have adopted in the case of a blue wave. But what's really happened is the COVID resurgence.

And if we flip to the next page, I think one good way to look at COVID cases, given all of the measurement issues around testing, is to focus on hospitalizations. And here are hospitalizations scaled to the size of the population for many of the key western economies. And we've seen a very sizable deterioration in most places, especially in Spain, in France, and in Italy. So, it's really Euro area, first and foremost. We've also seen deterioration in the US and the UK, but it's, you know in particular, the Euro area.

And if we flip to the next page, in response to this significant deterioration, European governments have, of course, imposed various restrictions on activities: closing bars and restaurants and shops, and forcing people to-- or restricting people's movement. In every country it's been a little bit different. But one way in which we capture all of this from an aggregate perspective is our GS Effective Lockdown index, which is based on a combination of official restrictions on activity, and actual mobility as revealed by cell phone locations. And in the US we have not really seen any change in that. So, despite the fact that the US has deteriorated, we've not really seen a substantial change either as far as actual mobility is concerned or as far as restrictions are concerned. But in Europe we've seen a pretty meaningful tightening in that index. It's about a quarter or a little more than a quarter of the deterioration that we saw in March and into early April. So, not as dramatic as what we have been, but it's fairly sizable.

And so, if you flip the page, we have on the basis of that

increase in restrictions and the change in the virus outlook, we have cut our European numbers in the next couple of quarters. We've slightly shaved on net also our US numbers, at least for Q1. But where we've really made a more significant adjustment is the Euro area.

In the Euro area we're now looking for a decline in real GDP on a quarter to quarter basis of a little over two percent, not annualized, which is actually 8 to 9 percent annualized. So this is, you know, this is a sizable decline. Obviously, nowhere near as dramatic as what you had in the second quarter, but nevertheless sizable. And then we're building in another weak quarter in terms of [UNINTEL] quarter changes in Q1. And the idea here is that these lockdowns basically spill into Q1. We're assuming it's a three-month period. And in the course of Q1, things start to pick up. But that only starts becoming visible in the quarterly GDP numbers in Q2.

And I would just say that we have generally upgraded our numbers for Q2 and Q3 from growth rates that were already quite optimistic relative to the consensus forecast. But we've made further upgrades there. And that accounts for these still positive annual numbers, despite these [UNINTEL] revisions in the short term.

ALLISON NATHAN: So Jan, what gives you confidence in that acceleration in Q2 and beyond for next year?

JAN HATZIUS: I would say two main things as far as the health situation is concerned. I mean, one, if you just flip the page, I think one important thing to note is that this virus does look like it's fairly seasonal. Temperature does seem to play an important role. And that probably accounts for a significant part of the deterioration that we've seen recently.

This chart here just looks at the virus cases or changes in average daily new cases against the change in average temperature, both over the July to October period for US states. So we focused on US states because that's probably a little bit cleaner than looking at countries because the US has quite a large range of temperatures. But other factors are probably a bit more uniform than across countries, including how these cases are reported. And there's quite a strong relationship between temperatures and virus cases. Though we'll be on the wrong side of that, unfortunately, in coming months. But then as we get into the second quarter, in particular, we'll be on the right side of that. And we're assuming that that's going to be

helping us as far as the virus is concerned.

And then even more importantly, if you flip the page, we have been quite optimistic about a coronavirus vaccine. Our working assumption for the last several months has been that we would have an FDA approved vaccine by the end of 2020, around the end of 2020. And that emergency approval would be given for vaccinations of high-risk populations at that point. And that within relatively short order we would see mass vaccination of the population, which would get us to, effectively, herd immunity in, you know, some time around the middle of 2021.

And you know, there has been generally an improvement in the way people have thought about the vaccine. The chart that we have up on the screen here shows the, you know, basically forecasting tournaments for when the vaccine would become available. This morning we had news from Pfizer that looked very positive on the efficacy of their vaccine trials. You know, obviously we haven't looked at this in detail yet. And I should also always say that we're not medical experts. But I think the news flow that we're getting on the vaccine front is highly consistent with our optimistic view that a vaccine really will make a very substantial difference to the public health situation.

And then if you flip the page, we think that that's also going to make a significant difference to the economic outlook. So, in the chart here, we're showing the impact of a vaccine on the level of real GDP in the US, the Euro area, and China. In the US and the Euro area we're getting something on the order of 2 percent. So, you boost the level of GDP in, say, the second half of 2021 by 2 percent relative to what it otherwise would be because of the availability of a vaccine. That's a pretty sizable boost and probably accounts for a significant part of our optimism relative to the views of other forecasters. We're also showing China here, the impact of China, by our estimates, is going to be a lot smaller, basically because China has already emerged from the downturn in GDP that was associated with the virus. Output is already largely back to normal. And so, the additional boost that you're likely to get from a vaccine in China is probably much more limited.

ALLISON NATHAN: But, I mean, how much would you worry about our above consensus view if a vaccine is delayed or it's less effective than we hoped? How much [UNINTEL]?

JAN HATZIUS: Yeah, I would worry quite a lot. I mean, you know, again, the news that we're getting is obviously

alleviating that worry. But if you look at these numbers and look at these charts and you have a vaccine impact of 2 percent of GDP, you know, if you take that away, that obviously removes, you know, much or all of the outperformance that we think the economy is going to show, you know, especially as you then get into next winter again where our forecasts assume a very significant positive impact from a vaccine, then that would need to be downgraded.

ALLISON NATHAN: Okay, and what about the other risks that we're hearing about, which is the risk of scarring or, you know, more lasting effects from the sharp downturn in terms of the labor market or bankruptcies? How concerned are you about that prospect?

JAN HATZIUS: Well, it is a concern in principle that you see a, you know, temporary but very sharp hit to activity. And that leaves kind of lasting scars in the workforce. People get thrown out of work, lose their jobs, and then ultimately lose their attachment to the labor force and their skills. And it takes a long time for them to come back. Or businesses, you know, in principle, viable businesses go out of business because of the temporary downturn because they run out of financing, for example. And that then hurts the economy's capacity to produce, even in the longer term. In principle, those are concerns that I think are quite valid and actually quite widespread among economists.

That said, we, I would say are, again, on the optimistic side of this debate, partly because this is such a-- you know, what we're going through is such a clearly temporary hit to output. Again, assuming that the public health emergency is temporary. And we think that that's, you know, important because it gives policy makers the confidence and the ability to provide temporary support to kind of bridge this health emergency.

And more specifically, the developments that we've seen in the labor market, if you just flip the page, have been pretty encouraging so far. So, what I'm showing here is unemployment rates, just to keep it simple, in some of the major economies: US, Canada, Euro area, UK, and Japan. Just start with the European countries, unemployment rates have really barely risen in most cases. And that's because the governments have been subsidizing existing employment relationships and, you know, through wage subsidies of some form. And they call it different things in different countries. In Germany it's called Kurzarbeit or short-term work arrangement. In France it's called [UNINTEL]

sort of partial unemployment. But basically, governments have seen to it that individuals stay in existing employment relationships.

In the US and Canada we've had quite a different sort of story. We've seen very sharp increases in unemployment in the very early parts of the crisis in March and April to levels in the, you know, 15 percent range, to 20 percent range. There were a number of statistical issues in some of this data. So the Labor Department actually says that the US unemployment rate, if measured correctly, would have been close to 20 percent. However, basically all or initially almost all of this increase in unemployment came in the form of so-called temporary lay offs. And these temporary lay offs basically mean that the individual still has an existing attachment to their prior firm. And that they expect to come back to their prior employment relationship as the crisis abates. And that is largely what has been happening.

So, you look at the changes in the unemployment rate, you know, for example in the US Employment Report on Friday for October, and we've seen, you know, very big declines in the unemployment rate in the US from, you know, about 15 percent to about 7 percent. And there is still a significant share of the unemployed, even now, even after this big decline, that is on temporary lay off and still expects to come back to their previous job.

So, we think we'll see continued improvement in these labor market numbers. There will still be damage. And there will still be-- we're not going to go back quickly to the previous unemployment numbers of 3.5 percent in the US. But we continue to unwind this crisis in the labor market at a pace that, I think, has been faster than I think most people thought, faster than we thought, and we think that there's room for further improvement.

If we turn to the business sector, the biggest thing to watch, if you turn the page, is what's happened to bankruptcies. And bankruptcies have been surprisingly low in many countries. And in fact, if you take a look at, you know, what's happened to bankruptcies in a range of countries, they've actually been running, not only below the levels that we saw in the previous recession, the global financial crisis, but even relative to where we were last year. So, in 2020, we've actually seen fewer bankruptcies than in 2019. And you know, of course this is partially driven, largely driven, by the support that we've seen

from governments, fiscal support for businesses, both large and small. Monetary policy support. Support for the credit markets. And also forbearance from lenders and financial institutions. And, you know, of course if the health emergency were to last much longer than anticipated, the patience to provide this kind of support from policy makers and banks probably would eventually run out. And then, you know, we would worry about bigger spikes in bankruptcies. But it still looks like the health emergency is, you know, ultimately quite a temporary occurrence, then we think there's a very strong incentive for policy makers to still be very supportive. And we expect them to be very supportive. So we wouldn't really expect a spike in bankruptcies.

You know, tying all of that together sort of says I think we have a good chance, as societies, to keep these scarring effects pretty limited, provided that policy stays as supportive as it ought to be in this kind of temporary emergency environment.

ALLISON NATHAN: So, what does all of this mean for inflation? I mean, as recently as a month or two ago, the market seemed to be pretty concerned about a sharp increase in inflation. But given the election results, you know, likelihood of a divided government, and the virus resurgence, is that worry now off the table?

JAN HATZIUS: Yeah, I mean, I wouldn't call it so much worry as kind of confidence that we get to the kind of 2 percent or even 2 percent plus kind of numbers that central banks are aiming for. I think that confidence was somewhat greater a couple of months ago. And it's waned a little bit. Now, again, we've now got this vaccine announcement. I think that's probably helping the increased confidence a bit again.

I would say our own view hasn't really changed. And you know, our own view is basically that we're starting out from inflation well below targets in many economies. And that's driven, really, by two factors. One is some COVID-specific disruptions that we see especially in sectors like hospitality and travel and so forth. And those COVID disruptions have been really weighing on inflation, especially in the spring, in the kind of April/May period. Those are unwinding. And those are probably going to be replaced by positive COVID-related disruptions because of base effects, yes? These unusually low prices early in 2020, so you get into early 2021 and that then results in a boost to inflation as you're dropping out these unusually low observations. So that's where a lot of this noise comes from

that you see in the chart, the sharp increase in inflation that we're likely to see over the next six to nine months or so.

The other factor that's been holding inflation down though is that the economy is underutilized. And you know, while the normalization is taking place more quickly than what we've had in past cycles, it, you know, probably still will be underutilized for at least the next several years. You know, it will take a while before we're fully back to normal, even with strong growth. And that is the reason why, you know, even as we go into 2022/2023, in general, our inflation forecasts are still pretty low. And in general, below 2 percent or maybe at 2 percent. And of course there are several central banks that really want inflation to be somewhat above 2 percent before they would react to that increase. But we think, you know, slack is diminishing, but there's still significant slack. And we think that's going to weigh on inflation.

ALLISON NATHAN: And what does this all mean for central bank developments over the next couple of years?

JAN HATZIUS: Well, I think it's going to be relatively boring as far as policy rates are concerned, at least in the DM economies, advanced economies. If you flip the page, as you can see for the major central banks, we have no hikes until 2025 anywhere. We have had kind of early 2025 as our baseline for the first hike in the funds rate for a while. In the Euro area, we've just pushed out the first hike into 2025 as well, on the back of these very low inflation numbers and the deterioration in the near-term growth outlook. And also, our expectation that the European Central Bank is going to move to a symmetric 2 percent inflation target, which means that they need to see more than they otherwise would have had to see for them to start hiking. So, policy rates, you know, very low.

As far as the asset purchase environment is concerned, we do expect additional QE in Europe. And at the meeting in December we think they will add, you know, 400 billion euros plus to the pandemic emergency purchase program. In the United States we're basically expecting continued asset purchases of about \$120 billion per month, 80 in treasuries, 40 in mortgage-backed securities. We do expect a clarification of the timeline. Right now they're just saying, "We're doing this for now." But haven't really said for long they're going to do it or what the conditions would be under which they might change this. But we think we'll get a clarification relatively soon, maybe already in December. And it's also possible that the Fed could increase

the average maturity [PH] of these purchases if the outlook were to deteriorate. But you know, it's very easy policy. Central bankers have been very clear that they think economies need a lot of support. And we don't think that's going to change any time soon.

ALLISON NATHAN: Okay, great. Let me just ask a couple quick questions about China. It does stand out as a major economy where we don't expect above consensus growth, even though it actually has been, you know, has experienced one of the fastest recoveries from the pandemic, as you mentioned. So, why are we less optimistic about it going forward?

JAN HATZIUS: We're less optimistic because we've already seen such a strong recovery. And you can really see it just by focusing on the level of real GDP in-- and we have the third quarter numbers here, and as you can see, there was a huge decline in real GDP in Q1, just as in other economies in-- but just one quarter earlier. But then a huge recovery in Q2. And then further, more moderate recovery in Q3.

And now we're not just above the previous, the pre-pandemic level of real GDP, but we're actually basically back to the previous trendline, or at least close to the previous trendline for real GDP. So, just the room for normalization in China is much more limited. This also relates back to the virus chart that I showed earlier where the boost that China could see from a vaccine is likely to be much smaller, just because there's not as much weakness to unwind.

Now, if you flip the page, one cost, if you will, of this very rapid recovery that we've seen in China has been that the policy makers have had to provide an enormous amount of stimulus and that's been visible on the fiscal side. And here is our estimate of the augmented fiscal deficit, which is a broad measure of, you know, overall deficits across different levels of government. And we have seen a sharp increase in that deficit. We've also seen a significant acceleration in total social financing growth. Total social financing is basically a broad measure of credit creation. That has risen from around 10 percent to between 13 and 14 percent, definitely above the sort of rates that Chinese policy makers are comfortable with.

So, when you take this together, it seems to us and our China team that the Chinese policy makers are likely to take their foot off the accelerator. Maybe tap the brakes a little bit. And rebalance away from a focus on supporting near-term activity.

And in the direction of reducing some of the stimulus, and thereby reducing the risk of future financial imbalances. So, that's one reason why China is one of the few places where we're actually slightly below consensus on growth in 2021. We're at 7.5 percent for the annual average versus 8 percent. And that means, you know, more subdued sequential growth.

The annual average, even at 7.5, obviously still looks very strong. A lot of that is kind of the base effect of the comparison with 2020, and especially Q1 2020. But you know, we think it's-- China is just in a very different cyclical situation. And therefore, the policy is going to look quite different.

ALLISON NATHAN: Alec, let me ask you a little bit about how much the election results could change the US/China relationship. Obviously, very relevant to CNY and markets more broadly. And to what extent we are, you know, embedding an end to the trade war? Are we going to see rollbacks of Trump tariffs? What are we really expecting at this point?

ALEC PHILLIPS: So, I think prior to the election we imagined that a Biden win, if it occurred, would mean an eventual reduction in tariffs on imports from China. But that that would probably take a year or more. You know? So, a reduction seemed likely because President Elect Biden has been, you know, generally supportive of international institutions, trade for the most part in general, but also, you know, gradual because it would probably take some negotiation to get a new agreement with China. And that that would probably be required in order to get tariffs down. Also, because you know, there would be a lot of other competing domestic political priorities.

So, that all seems still basically to be intact, though I would say we learned two things from the election. So one, is that President Elect Biden will be working with a divided Congress. Which means that it will probably put more emphasis on actions that the White House can take on its own. As we learned from the Trump administration, trade and tariffs are clearly in that category. So, it arguably elevates the issue compared to what we would have imagined under a Democratic sweep. The other is that, you know, if you look at the election result, it actually is, you know, in the rust belt in particular, which was sort of the focus in many ways for political considerations around trade, it hasn't really changed that much from 2016. So, if you just look across Wisconsin, Michigan, Pennsylvania, President Elect Biden only won a few counties that Secretary Clinton lost. So you

could argue with, you know, narrow wins in those states, Biden might want to be careful not to reverse things too quickly.

I mean, my guess is that ultimately, we still do see tariff reductions. That possibly, you know, given the election results we've seen, it may take a little bit longer to get those through. And regardless, it probably will take some kind of an agreement, you know, reworking the quote/unquote, "phase one" deal that President Trump negotiated.

The other thing I'll say just in terms of US/China relations is while we are likely to see an eventual shift in trade policy, it looks unlikely that we'll see as much of a shift in some other areas. For instance, you know, export controls and technology restrictions and things like that, which have also become such a, you know, source of tension between the two sides. So, you know, overall it does look likely that we'll see shift toward lower tariffs over time. But that's, you know, one of several elements of the US/China relationship that is in play. And I'm not sure that the others will change as quickly.

ALLISON NATHAN: Okay, great. Let me turn to-- I've got a few client questions at this point. A lot of questions around the vaccine, given the importance of it in our forecast. So Jan, the first question is assuming the vaccine is rolled out unevenly globally, some countries will get it before others, or regions, you know, what are the implications of that for, you know, our economic outlook? And in the process of that, if you could give a little more color on what we're expecting for the emerging markets next year in terms of growth.

JAN HATZIUS: Sure. So, in general, and you know, this is obviously all quite uncertain and a lot of it depends on, you know, which vaccine proves to be most successful, what the approval timeline is for different candidates, what the pre-buying arrangements have been with different governments, but in general we do expect that the vaccine and the vaccination is going to occur most quickly in the advanced economies: US, Euro area, you know, Australia, Canada, et cetera. So, I think that is a reasonable rule of thumb. If you look at our vaccine GDP chart, we have a slightly earlier impact on output in the US than in Europe, basically because of a little bit more pre buying in the US. But again, that's quite tentative. It's really probably more, you know, advanced economies, which is sort of a mid 2021 issue. Where I think you're going to be largely done some time around the middle of 2021, maybe third quarter. Whereas in the emerging economies it might take until 2022.

More broadly, on the outlook for emerging markets, I think it's often difficult to answer the question what's the outlook for emerging markets because emerging markets are all quite different. I think that's even more true now because the emerging world really has been affected so differently by this virus. We talked about China, where we have already mostly recovered. You know, we've got other places that have been hit very hard in the summer, where things are now improving somewhat. I would say India is in that category. India was hit extremely hard both from a health perspective, although it's obviously also a huge population, and certainly from an economic perspective with a, you know, truly massive decline in output in the second quarter.

Latin America, similarly, was hit very, very hard. But now appears to be improving. And virus cases are still better there and are generally on a good path, probably also related to some degree to temperature. And then you've got the Eastern European economies that were quite quick to shutdown in the spring and avoided a large virus wave. But have recently also seen a very sizable deterioration in a number of countries, similarly to Western Europe. So, they didn't get the Western European wave in March and April to nearly the same degree. But they appear to be seeing a very large deterioration now. So there we are, you know, more concerned about the economic impact, just like in Western Europe. We've downgraded our numbers for Eastern Europe, so there probably will be contraction in a number of places in the short term, but then also more room for recovery once we have gotten on top of the health situation.

So, it's not a very kind of pithy summary of the EM outlook, but that's broadly the groups of countries that we are focused on.

ALLISON NATHAN: Okay, great. The other question related to vaccine is even if we do get approved vaccines, one or more, and they are effective, how are we thinking about the willingness of the population to actually take it? What are we assuming? And what are we basing those assumptions on?

JAN HATZIUS: That's a good question and it comes up quite a lot. We are-- so, what's the basis? I mean, where do we have evidence on the willingness to take it? There are surveys of the population in many countries that basically ask people, "Would you be willing to take an approved coronavirus vaccine?" And as you'd expect, it's mixed. Some portion of the population, maybe you know, 50 percent or 60 percent say yes. And then there is a

minority of the population that says no. And then there are some people that are in between and say, "It depends. And I wouldn't want to be, you know, right in the first group of people that are being vaccinated." Those proportions vary over time. Attitude towards vaccines vary-- sorry, they vary across countries. Attitudes towards vaccines vary across countries. There's more skepticism in some places than in others. But broadly speaking, I think that's a reasonable description.

Our expectation is that, you know, at the start when you have approval or emergency approval or compassionate use authorization as it's sometimes called, you start by vaccinating the highest risk populations that are probably where the benefit of getting a vaccine is very high. And our assumption would be that these are the populations that are also going to be quite willing to be vaccinated because they're likely to benefit more. And then I think you'll see over time that, you know, if the scientists are right, the vaccine is safe, the vaccine is effective, people who have been vaccinated don't get sick, they don't show abhorous [PH] side effects, the rest of the population observes this, and then gradually becomes more willing to be vaccinated as they observe this vaccine in action.

And how long does this take? I mean, it's hard to know. And there are certainly uncertainties around that. But for us, it's likely to be a matter of months rather than a matter of many quarters or even years. So, we're assuming that, yeah, we're not going to vaccinate the population overnight and demand factors certainly play an important role in that. But at the same time we don't think it's going to prevent us from having a sufficiently large proportion of the population vaccinated by, say, next summer to make a very significant economic difference.

The one last thing I would say is that you don't have to vaccinate everybody. What you have to do is you have to vaccinate a sufficient share of the population that, in order to generate herd immunity and really reduce the risk of uncontrolled outbreak. So, if you've already had some share of the population that is probability immune, at least for a period of time because they have been infected. We don't really know what that number is, but there are estimates of, you know, maybe 10 to 15 percent in the US. Nobody knows. But then on top of that if you vaccinate, you know, two third of the remaining population and the vaccine is, you know, 90 percent effective, then you would have, you know, obviously a high proportion of people, you know, two thirds, three quarters, who are immune. And in that kind of environment, the scientists and the

epidemiologists basically say that there is herd immunity, prevents large outbreaks. So, that's the broad way, plenty of uncertainty around the details of all of this, but that's the broad way in which we're thinking about it.

ALLISON NATHAN: And let me give one last question to Alec. Which we've a few questions, quite a few questions about climate change, energy policy. Given the likelihood of a divided Congress under Biden, what can you really achieve on energy policy?

ALEC PHILLIPS: So, you know, I would say there are probably two things that could happen. One is on the administrative side. So, there were a number of regulations that were in process at the end of the Obama administration or in a few cases had been implemented that the Trump administration essentially, you know, either postponed or turned off. And it's likely, I think, that a lot of those will come back. So those would have to do with tightening controls around oil and gas development in the US. Not the so-called banning fracking or anything like that, but restrictions around methane emissions, other things like that.

Likewise, there are changes that could be made to fuel economy standards, as well as, you know, broader carbon emissions, regulations. All of that, obviously, would take quite a while. And it would be, you know, reasonable incremental because it would have to work within existing law. But there certainly are some things that they, I think, are likely to do there.

The other issue would be, you know, what could Congress still potentially do in a scenario where you have a divided Congress? You know? The one thing I would point out there is that it was never likely that you would see sort of a unilateral climate or environmental bill moving through Congress, even under a Democratic sweep scenario, simply because those things were very likely to require 60 votes in any case. There might have been some exceptions to that, for instance tax incentives for various renewables, things like that. But for the most part for a variety of reasons this was always likely to be more of a bipartisan initiative, if something were to happen. So, from that perspective it hasn't really changed very much.

I mean, my guess is that what we will probably see is some additional discussion around renewable incentives. So, you know, whether that's solar, wind, biofuel, et cetera. Most of that would probably come through the tax code. Some of it could also come through some additional spending programs. It's possible

that if we do end up seeing a stimulus package in early 2021, that you might see a few things tucked in there. And then the other thing that I think is still, you know, reasonably likely to come up for debate, and something will have to happen on it, is on infrastructure. And while that's not directly, you know, energy and climate related, there could be an aspect to it that, you know, takes that angle.

And I say that something has to happen on that simply because there are some deadlines that Congress is going to need to hit next year for extending various programs. The main one would be transportation infrastructure.

So, you know, this does not mean that there will be no action. And it's actually, I think, quite possible that there would have been less action than maybe some might have imagined if you had had a Democratic sweep. But nevertheless it means that getting things through Congress will be more difficult. And so, the focus will be more on what can happen administratively.

I should say also, not to omit it, there's also obviously the question of President Elect Biden getting back into the Paris Agreement, which seems reasonably likely.

ALLISON NATHAN: Okay, great. I think we're going to cut it there. We've run long. Thank you so much to all the clients for participating and for the great questions. Apologies if we didn't get to your question. We can always [UNINTEL] offices. Thanks very much Jan and Alec. And good luck, today, to the clients. Have a good day everyone.

JAKE SIEWERT: That concludes this episode of Exchanges at Goldman Sachs. Thanks for listening. And if you enjoyed the show, we hope you subscribe on Apple Podcasts and leave a rating or a comment. And tune in again tomorrow for a podcast with David Kostin, the firm's Chief US Equity Strategist on how the results of the US election will impact the outlook for the S & P 500.

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