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THE SEMIANNUAL MONETARY POLICY REPORT TO THE CONGRESS

HEARING

BEFORE THE

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS UNITED STATES SENATE

ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

ON

OVERSIGHT ON THE MONETARY POLICY REPORT TO CONGRESS PURSUANT TO THE FULL EMPLOYMENT AND BALANCED GROWTH ACT OF 1978

FEBRUARY 23, 2021

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C O N T E N T S

TUESDAY, FEBRUARY 23, 2021

WITNESS

ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

THE SEMIANNUAL MONETARY POLICY REPORT TO THE CONGRESS

TUESDAY, FEBRUARY 23, 2021

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
Washington, DC.

The Committee met at 10 a.m., via Webex, Hon. Sherrod Brown, Chairman of the Committee, presiding.

OPENING STATEMENT OF CHAIRMAN SHERROD BROWN

Chairman BROWN. This hearing is in the virtual format, as we have done in the past. For those joining remotely, a few reminders.

Once you start speaking, there will be a slight delay before you are displayed on the screen. To minimize background noise, please click the mute button until it is your turn to speak or to ask questions.

You should all have one box on your screens labeled "Clock" that will show you how much time is remaining. For all Senators, the 5-minute clock still applies for your questions. At 30 seconds remaining, you will hear a bell ring to remind you your time has almost expired. It will ring again when your time has expired.

If there is a technology issue, Cameron and Charlie, who are very good at this, will fix it, but we will move to the next Senator until any technology issue is resolved.

To simplify the speaking order process, Senator Toomey and I have agreed to go by seniority for this hearing, as we have in the past.

At this Committee's first hearing, we heard from our witnesses the challenges and struggles Americans have faced over the past year.

Anyone who has been doing their jobs has heard these stories. Frontline workers, like transit workers—whom we heard from last week—go to work every day worried they will get the virus on the job and bring it home to their families. Mayors and county commissioners and community leaders wonder how long they can hold on without starting layoffs. Renters see their bills pile up, watching their bank balances dwindle lower and lower, wondering if this will be the month that an eviction notice is posted on their door.

Today more than 4 million people are out of a job. That number keeps climbing. We are still fighting the battle against the coronavirus. Nearly 500,000 of our fellow Americans have died from COVID–19.

We know we are facing two crises: a public health crisis and an economic crisis. We have to be clear about that. We cannot solve one without solving the other.

We know getting our economy back to full strength requires a massive, wartime-level mobilization to get all Americans vaccinated.

We also know that vaccines alone will not put most workers and their families back to where they were a year ago.

We want people back to work, we want kids back in school, and we want to see Main Streets thriving and humming with life again. That requires real Federal leadership on a level we have not seen in this country since World War II.

As Bill Spriggs alluded to when testifying before this Committee, before D-Day, General Eisenhower did not call up President Roosevelt and ask, "Can we afford to storm the beaches at Normandy? Do we have the money in our accounts?"

Most people that I talk to in Ohio and around the country are not worried about doing too much in the battle against this virus; they are worried about doing too little. They want us to do whatever it takes.

Eighty-five percent of Americans still need a vaccine. Our frontline workers still need PPE. Small businesses still need assistance to keep their doors open. States and cities and towns still need resources and support to open schools safely and keep buses running and libraries open and firefighters on the job.

Experts agree the best thing we can do, the best thing we can for the country right now, is to get resources out the door as quickly as possible to tackle these interconnected problems.

Former Fed Chair, now our Treasury Secretary, Janet Yellen said if we do not do more, we risk a permanent, her word, "scarring" of the economy into the future.

Economists from across the political spectrum—including many who have testified before this Committee—tell us that without strong fiscal support, our economy could spiral even further out of control and take even longer—years—to recover.

Our witness today, Federal Reserve Board Chair Jerome Powell, has expressed some of those same concerns. Just a few weeks ago—after we passed the COVID–19 relief bill in December—Chair Powell said that "support from fiscal policy will help households and businesses weather the downturn as well as limit lasting damage to the economy that could otherwise impede the recovery."

Chair Powell has talked to all of us about the risk of falling short of a complete recovery, the damage it will do to people's lives and to the "productive capacity of the economy." Those were his words: "productive capacity of the economy."

President Biden understands this moment; he has risen to meet it with his bold American Rescue package. It is a plan to both rescue the economy and save American lives.

Workers and their families need to see their Government work for them now, and this rescue plan must be the beginning of our work to deliver the results that empower people and make their lives better. We need to rethink how our economy operates. When a hard day's work does not pay the bills for tens and tens of millions of workers, and even middle-class families do not feel stable, something in the system is broken. We know that.

Workers' wages have been stagnant for decades; CEO pay has soared. Corporations get huge tax breaks. Instead of investing in their employees and the communities they serve, management too often rewards itself and its shareholders through stock buybacks and dividends.

The wealth and income gaps for women and for Black and Brown workers are getting worse, not better. Many families still had not recovered from the Great Recession when the pandemic hit.

This did not happen by accident. It is the result of choices made by corporations and their loyal allies in Washington.

They have spent years rolling back consumer protections in our financial system, cutting corporate tax rates, and using Wall Street to measure the economy instead of the condition of workers.

And the same people that have been advocating for these rollbacks, pushing this stock market-centered view of the economy, are the same people who say we should not go big on a rescue plan. They say that there is no need for the Government to help people, that the market should decide who wins and who loses.

But we all know that the market does not work when the game is rigged. Corporations that have been lining their own pockets have done so with plenty of Government help and intervention.

We know that for them short-term profits are more important too often than their workers. That is why we have to stop letting them run things.

Look at what has happened in Texas, where a deregulated energy grid failed, leaving millions without power in frigid winter temperatures. People are literally freezing to death in their own homes—in the United States of America.

Without any rules, energy companies can charge consumers sky-high prices. They even use automatic debits, taking thousands of dollars directly out of people's bank accounts. We know climate change causes severe weather patterns across this country. We need more investment in public infrastructure, not less. We cannot let corporate greed continue to stand in the way.

Our Nation's central bank plays a critical role in all of this.

The Federal Reserve can ensure that the biggest banks use their capital to invest in their workers and lend in their communities, instead of ginning up stock prices with buybacks and dividends.

The Fed can make sure the response to economic and financial crises does not just help Wall Street, but helps everyone.

It can require that financial institutions take into account the serious risks posed by the climate crisis.

It can help ensure that everyone in this country has a bank account and access to their own hard-earned money. It can start to undo the systemic racism in the financial system, from black codes to Jim Crow to redlining to locking in discriminatory practices during the last Administration. It can make workers the central focus of our economy.

Chair Powell, you said just a few weeks ago that the "benefits of investing in our Nation's workforce are immense. Steady employment provides more than a regular paycheck. It also bestows a sense of purpose, improves mental health, increases life spans, and benefits workers and their families."

What that boils down to is the dignity of work. It means that hard work should pay off, no matter who you are, no matter what kind of work you do, whether you punch a clock or work for tips or work on a salary or taking care of aging parents. It means we need to start measuring the success of our economy by the success of the people who make our economy work.

Chair Powell, thank you. I look forward to your testimony.

Senator Toomey.

OPENING STATEMENT OF SENATOR PATRICK J. TOOMEY

Senator TOOMEY. Thank you, Mr. Chairman, and thank you, Chairman Powell. Welcome back to the Banking Committee. I look forward to your testimony.

About a year ago, the U.S. economy was entering an unprecedented economic contraction as a result of the shutdowns that followed the spread of COVID–19. We all remember credit markets seizing up. Second quarter GDP last year fell by over 30 percent. The unemployment rate reached about 15 percent in April, the highest it had been since the 1930s. The economy was in very desperate straits, to say the least.

Thankfully, the worries about a long, drawn-out depression appear to have been unfounded. In response to the economic collapse, Congress and the Fed took very, very bold, unprecedented, and decisive action. The Fed quickly lowered interest rates, launched a quantitative easing program on an unprecedented scale, and helped facilitate market functioning through a variety of emergency programs that were funded through congressional legislation, and we in Congress passed over $4 trillion in relief over five overwhelmingly bipartisan bills.

Fortunately, today we are in nothing like the situation we were in last spring. Today the unemployment rate is now 6.3 percent, about where it was in July of 2014. Eighteen States have unemployment rates below 5 percent. The average household in America is in a better financial position today than it was in before the pandemic. Personal savings rates are up by over $1.6 trillion. Consumer credit is down by over $100 billion. There is no question there are some subsets of our economy and our society that have been hit much harder than others, but in the aggregate, the fact is Americans have more disposable income now than they had before the crisis. And yet Congress is in deliberations to spend another $1.9 trillion with universal payments to people who have never had as much income as they do, to entities such as State and local governments, which in the aggregate have taken in more revenue in 2020 than they did ever before.

We are well past the point where our economy is collapsing. And, in fact, our economy is growing very powerfully. The last thing we need is a massive multi- trillion-dollar universal spending bill. And we should recognize that all of this spending comes at a cost. It all gets funded with Government debt, which is either monetized, which has its own dangers, or it is a burden that gets passed on to future generations that have to service that debt.

In 2020, debt held by the public reached 100 percent of our total economic output, and CBO projects that over the next 10 years, net interest costs will amount to $4.5 trillion, and that is without another $1.9 trillion bill.

There is also a real danger that we have overheating in places that lead to unwanted inflation, and I think the data is increasingly pointing in that direction. Keep in mind, we have $11 trillion in personal savings deposits. The country is in an accelerating reopening as the number of COVID cases is declining very, very rapidly on a daily basis. The economy is poised for very substantial growth in the near term, and yet the Fed continues to purchase $120 billion of securities per month, maintain short-term interest rates at basically zero, and Congress is considering, as I said, another enormous bill.

On another matter, I want to make the point that I do think it is very important for the Fed to continue to focus on the mandate it has and not to seek to broaden that mandate. As noble as the goals might be, issues such as climate change and racial inequality are simply not the purview of our central bank. So during this hearing, I look forward to hearing about your views, Mr. Chairman, on the economy, on monetary policy, and the state of our markets.

And with that, I yield.

Chairman BROWN. Thank you, Senator Toomey.

Today we will hear from Federal Reserve Chair Jerome Powell the Fed's monetary policy and the state of the U.S. economy. It is nearly 1 year since the coronavirus pandemic first wreaked havoc in our country. We know the Federal Reserve plays a key role in making sure that our economy recovers for all Americans.

Chair Powell, thank you for your service. Thank you for being in front of our Committee today and for your testimony. Proceed.

STATEMENT OF JEROME H. POWELL, CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Mr. POWELL. Thank you, and good morning, Chairman Brown, Ranking Member Toomey, and other Members of the Committee. I am pleased to present the Federal Reserve's semiannual *Monetary Policy Report*.

At the Federal Reserve, we are strongly committed to achieving the monetary policy goals that Congress has given us: maximum employment and price stability. Since the beginning of the pandemic, we have taken forceful actions to provide support and stability, to ensure that the recovery will be as strong as possible, and to limit lasting damage to households, businesses, and communities. Today I will review the current economic situation before turning to monetary policy.

The path of the economy continues to depend significantly on the course of the virus and the measures undertaken to control its spread. The resurgence in COVID–19 cases, hospitalizations, and deaths in recent months is causing great hardship for millions of Americans and is weighing on economic activity and job creation.

Following a sharp rebound in economic activity last summer, momentum slowed substantially, with the weakness concentrated in the sectors most adversely affected by the resurgence of the virus. In recent weeks, the number of new cases in hospitalizations has been falling, and ongoing vaccinations offer hope for a return to more normal conditions later this year. However, the economic recovery remains uneven and far from complete, and the path ahead is highly uncertain.

Household spending on services remains low, especially in sectors that typically require people to gather closely, including leisure and hospitality. In contrast, household spending on goods picked up encouragingly in January after moderating late last year. The housing sector has more than fully recovered from the downturn, while business investment and manufacturing production have also picked up. The overall recovery in economic activity since last spring is due in part to unprecedented fiscal and monetary actions, which have provided essential support to many households, businesses, and communities.

As with overall economic activity, the pace of improvement in the labor market has slowed. Over the 3 months ending in January, employment rose at an average monthly rate of only 29,000. Continued progress in many industries has been tempered by significant losses in industries such as leisure and hospitality, where the resurgence in the virus and increased social distancing have weighed further on activity. The unemployment rate remained elevated at 6.3 percent in January, and participation in the labor market is notably below prepandemic levels. Although there has been much progress in the labor markets since the spring, millions of Americans remain out of work. As discussed in the February *Monetary Policy Report*, the economic downturn has not fallen equally on all Americans, and those least able to shoulder the burden have been hardest hit. In particular, the high level of joblessness has been especially severe for lower-wage workers and for African Americans, Hispanics, and other minority groups. The economic dislocation has upended many lives and created great uncertainty about the future.

The pandemic has also left a significant imprint on inflation. Following large declines in the spring, consumer prices partially rebounded over the rest of last year. However, for some of the sectors that have been most adversely affected by the pandemic, prices remain particularly soft. Overall, on a 12-month basis, inflation remains below our 2-percent longer-run objective.

While we should not underestimate the challenges we currently face, developments point to an improved outlook for later this year. In particular, ongoing progress in vaccinations should help speed the return to normal activities. In the meantime, we should continue to follow the advice of health experts to observe social distancing measures and wear masks.

I will turn now to monetary policy. In the second half of the year, the Federal Open Market Committee completed our first ever public review of our monetary policy, strategy tools, and communication practices. We undertook this review because the U.S. economy has changed in ways that matter for monetary policy. The review's purpose was to identify improvements to our policy framework that could enhance our ability to achieve our maximum employment and price stability objectives. The review involved extensive outreach to a broad range of people and groups, including through a series of Fed Listens events.

As described in the February *Monetary Policy Report*, in August, the Committee unanimously adopted its revised statement on longer-run goals and monetary policy strategy. A revised statement shares many features with its predecessor. For example, we have not changed our 2-percent longer-run inflation goal. However, we did make some key changes. Regarding our employment goal, we emphasized that maximum employment is a broad and inclusive goal. This change reflects our appreciation for the benefits of a strong labor market, particularly for low- and moderate-income communities. In addition, we state that our policy decisions will be informed by our assessments of shortfalls of employment from its maximum level rather than by deviations from its maximum level. This change means that we will not tighten monetary policy solely in response to a strong labor market. Regarding our price stability goal, we state that we will seek to achieve inflation that averages 2 percent over time. This means that following periods when inflation has been running below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time. With this change, we aim to keep longer-term inflation expectations well anchored at our 2-percent goal. Well-anchored inflation expectations enhance our ability to meet both our employment and inflation goals, particularly in the current low interest rate environment in which our main policy tool is likely to be more frequently constrained by the lower bound.

We have implemented our new framework by forcefully deploying our policy tools. As noted in our January policy statement, we expect that it will be appropriate to maintain the current accommodative target range of the federal funds rate until labor market conditions have reached levels consistent with the Committee's assessment of maximum employment, and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time. In addition, we will continue to increase our holdings of Treasury securities and agency mortgage-backed securities, at least at their current pace, until substantial further progress has been made toward our goals. These purchases and the associated increase in the Federal Reserve's balance sheet have materially eased financial conditions and are providing substantial support to the economy. The economy is a long way from our employment and inflation goals, and it is likely to take some time for substantial further progress to be achieved. We will continue to clearly communicate our assessment of progress toward our goals well in advance of any change in the pace of purchases.

Since the onset of the pandemic, the Federal Reserve has been taking actions to more directly support the flow of credit in the economy, deploying our emergency lending powers to an unprecedented extent, enabled in large part by financial backing and support from Congress and the Treasury. Although the CARES Act facilities are no longer open to new activity, our other facilities are in place.

We understand that our actions affect households, businesses, and communities across the country. Everything we do is in service to our public mission. We are committed to using our full range of tools to support the economy and to help ensure that the recovery from this difficult period will be as robust as possible.

Thank you. I am happy to take your questions.

Chairman BROWN. Thank you, Chair Powell.

First, just a yes or no question. Do you agree the most important thing we can do for the economy right now is get people vaccinated?

Mr. POWELL. I would say that, yes, that is the single best policy to return the economy to its potential growth.

Chairman BROWN. Thank you. Researchers in Minneapolis say the pandemic is forcing mothers of young children out of the workforce. Some 3 million women have been forced out of the paid labor market in the past year. Every day families face impossible choices between their paychecks and caring for their children. The Biden Rescue Plan, as you know, provides the funding we need to get Americans vaccinated, as you suggest is the right policy. And that will help kids go back to school, to help working moms get back to work safely.

What can the Fed do to make sure women, especially those with young children, can return to the workforce so that we do not end up with an even bigger lasting gender gap in the labor market?

Mr. POWELL. So the tools that can really address specific groups, for example, women who have perhaps temporarily dropped out of the labor force, those are really fiscal policy tools. Obviously, those are not tools that we have, and I today will, you know, stay away from fiscal policy and really talk about what we can do. And I think the main thing that we can do is continue to support the economy, give it the support that it needs. We are still 10 million jobs below the level of payroll jobs before the crisis. There is still a long way to go to full recovery, and we intend to keep our policy supportive of that recovery.

Chairman BROWN. Thank you for acknowledging in your opening statement and your comments to many of us, and your public comments, frankly, about how much we need to do to fight racism and increase diversity. Yet we know historically the Fed's monetary policy has benefited wealthy savers and homeowners. Decades of discrimination in the financial system we talked about earlier, from redlining to the subprime mortgage crisis, specifically targeted Black, Brown, and other vulnerable communities. It is clear the Fed's policy and failure to regulate predatory actions in the banking sector have contributed to the racial wealth, income, and home ownership gaps. You have said that the Fed's tools cannot address the underlying causes of racial injustice or income and wealth inequality in our economy. I think you give up a little too easily when you say that.

So how can the Fed use its supervision authority to enforce anti-discrimination laws and fight racial injustice and income inequality?

Mr. POWELL. We do have responsibilities and authorities for fair lending, for example, under a number of statutes, and we take those responsibilities very seriously and, I think, carry them out robustly, and that is an important part of our mandate. And so that is something that we could do, and I think we do aggressively.

In addition, through our Consumer and Community Affairs Division and through the Federal Reserve Banks, we do not spend, you know, public resources, but we try to attract private resources around, for example, initiatives that will address economic issues of low- and moderate-income communities and racial minorities.

Chairman BROWN. I think we could do more, but we will discuss that later.

Chair Powell, in the middle of the pandemic, bank regulators have loosened capital requirements at the biggest banks. In one of its changes for the capital rules, the Fed stated the rule was meant, and I quote, "to allow banking organizations to expand their balance sheets as appropriate, to continue to serve as financial intermediaries rather than to allow banking organizations to increase capital distributions."

In other words, the Fed reduced capital standards so banks would lend more, not so they would pay dividends. But as you know, it is not what is happening. The biggest banks have gotten larger. They have gotten more profitable, but they have not increased lending. Dividends, however, have remained steady.

My question is: Mr. Chair, will you promise to the Committee that you will not extend any exemptions for capital requirements for banks and bank holding companies that have continued to pay dividends rather than invest in the real economy?

Mr. POWELL. So we are talking here really about the temporary measures we took with respect to the supplementary leverage ratio, and those expire at the end of March. We have not decided what to do there yet, and we are actually looking into that right now. I am not going to commit to connecting that decision to the payment of dividends. As a separate matter, as you know, we intervene to require the banks to limit their dividend growth to zero and also to limit their share buybacks, and the result of what you see now is a banking system that has higher capital than it did going into the pandemic, and particularly for the largest banks, and one where the banks have taken very large reserves against losses and so have proven themselves pretty resilient.

Chairman BROWN. Perhaps, but we also understand that they have not been supporting the real economy to the degree that we hoped they would, and we will continue that conversation. And I will send a written question to you on climate that we wanted to talk about.

Chairman BROWN. Senator Toomey.

Senator TOOMEY. Thank you, Mr. Chairman.

Just on this topic, let me just say I certainly hope that, to the extent that banks have adequate capital for the circumstances that they face at any point in time, any capital beyond that should absolutely be available to be returned to the people who own those banks in the form of dividends or stock buybacks, or whatever mechanism is suitable. And anything to the contrary is a terrible constraint on our economy and on economic freedom.

I also want to just observe briefly—and I am not asking for a comment on this, Chairman Powell, but if I could summarize and characterize your opening comments about the economy, I think it is fair to say that we have many areas, sectors of our economy that are performing extremely well—housing in the goods sector I think you referred to. And then we have very concentrated problems in certain relatively narrow sectors like hospitality and travel and entertainment, which are extremely depressed because of the circumstances. I think that clearly makes a very strong case that if there were to be further fiscal policy, it should address where the problem is and not where the problem is not.

But to address monetary policy for a moment or so, I think the Fed's current forecast for growth for this year is over 4 percent. I think the consensus is well over 5 percent, with some thinking it could be considerably higher than that. The unemployment rate is now at 6.3, which is about where it was in 2014 when we were not contemplating multi-trillion-dollar bills, and I do not think we were buying $120 billion worth of securities per month.

My concern is that the last two recessions were, I think, caused by asset bubbles that burst. In 2001 it was the stock market. In 2008 it was the mortgage credit market. In both cases, in my view, monetary policy contributed a great deal to the formation of those bubbles.

The Dallas Fed President, Robert Kaplan, recently acknowledged that there is a link between the record amount of liquidity being pushed into the system and these unprecedented asset valuations that we are seeing in a whole range of assets, be it GameStop or Bitcoin or real estate commodities. Across the board we are seeing quite elevated asset prices and signs of emerging inflation.

So I guess my question is: Do you believe that there is a link between the liquidity that the Fed has been providing and some of these unprecedented asset prices?

Mr. POWELL. So there is certainly a link. I would say, though, that if you look at what the market is looking at, what markets are looking at, it is a reopening economy with vaccinations; it is fiscal stimulus; it is highly accommodative monetary policy; it is savings accumulated on people's balance sheets. It is the expectations of much higher corporate profits, which matters a lot for the equity markets. So there are many factors that are contributing to what is happening in markets right now. Monetary policy I would certainly agree is one of them.

Senator TOOMEY. Yeah, I would just suggest that—right, I agree all of those things are happening, all of those indicators of growth and increasingly indicators of rising inflation. As you know, the TIPS 10-year break-even on inflation is now over 2 percent, up from six-tenths of 1 percent.

My point is that at some point we have got too much liquidity going into the system. The economy is recovering very, very well. Problems are isolated and should be addressed narrowly. And I hope that $120 billion a month of bond buying does not become a permanent situation.

One of the things I am concerned about, I wonder if you could comment on the risk that we would have an increase in inflation, an increase in bond deals that would correspond to that, but without being back at full employment, what would that imply—which I think is a very plausible scenario for later this year. What does that imply for the bond-buying program?

Mr. POWELL. Well, so what we have said about the bond-buying program is that it will continue at the current pace, at least at the current pace, until we make substantial further progress toward our goals. And we have also said that as we monitor that progress, we will communicate well in advance of any actual decisions on purchases. And so what it will take for us to begin to moderate the level of purchases, is substantial further progress toward our goals, which we have not really been making for the last 3 months, but expectations are that will pick up as the pandemic subsides.

Senator TOOMEY. Well, thank you, Mr. Chairman. I would just suggest that there are a lot of warning signs that have not been worrisome in the past but now are certainly blinking yellow. With that, I will yield.

Chairman BROWN. Thank you.

Senator Menendez.

Senator MENENDEZ. Thank you, Mr. Chairman.

Chairman Powell, at the end of this pandemic, we need to ensure that we have a more equal society. Unfortunately, we are not on a path to an equal recovery. As of January, the Black unemployment rate is 9.2 percent, the Hispanic unemployment rate is 8.6 percent, compared to 5.7 percent for White workers.

According to the New York Fed, over the course of the pandemic the black labor force exit rate has increased dramatically while the White labor force exit rate has returned to prepandemic levels. Doesn't this mean that the Black unemployment rate is likely misleadingly low compared to the White rate?

Mr. POWELL. Well, as you point out, this pandemic was particularly bad for these long-standing disparities that we have in our economy. The job losses were heavily concentrated in public-facing service sector jobs. Those job losses tend to be more skewed toward lower-paid jobs and, in many cases, minorities and women, and so that is really where the big pockets of unemployment remain. And so you are right, so the burden really has fallen more in the low- and moderate-income communities than would typically be the case. It is always the case to some extent. This particular event, though, is somehow very precisely aimed at those people, and we are well aware of that.

Senator MENENDEZ. Well, I appreciate that acknowledgment. We know from the Bureau of Labor Statistics over the course of 2020, the labor force participation rate for Black men and women fell nearly twice as much as it did for White men and women. So do you agree that minority families are bearing the brunt of the damage caused by the pandemic?

Mr. POWELL. Yes, along with others at the lower end of the income spectrum, the bottom quartile.

Senator MENENDEZ. Would you agree then that addressing this disproportionate damage needs to be a central priority in relief efforts?

Mr. POWELL. I would have thought so.

Senator MENENDEZ. Yeah, so would I. Now, as part of the Federal Reserve's mission to ensure maximum employment, what is the Federal Reserve's plan for maximizing employment for low-income and minority workers?

Mr. POWELL. So when we say that maximum employment is a broad and inclusive goal, that means we look not just at the headline numbers; we also look at different groups and we try to take all of that into account in making our assessments. So we will take into account the headline numbers, but also those for other groups as we think about reaching maximum employment.

Senator MENENDEZ. Well, I hope that in your mission that the Federal Reserve looks at this because Federal Reserve studies show that while high-income jobs mostly recovered to prepandemic levels, unemployment among low-wage workers remains 14 percent below prepandemic levels. And this is in spite of the fact that almost half of all low-wage workers are essential workers, the people who actually let us stay home when we were told to stay home to avoid the spread of the pandemic and to be infected; but they were risking their lives in the jobs that they did. And so I believe we have the tools to try to make this an equitable recovery.

So would you commit to working with Congress and the Treasury to help low-wage workers and minority workers be able to recover just as strongly as others?

Mr. POWELL. We will do that. I will say, though, that monetary policy as a tool is famously a broad—it is a broadly effective tool. It does not enable us to target particular groups. It lifts the entire economy. But we are going to be mindful, though, of the disparities that exist as we make our decisions.

Senator MENENDEZ. Then, finally, as of February 1st, an estimated 13 million adults were not caught up on their rent; another 10 million adults were not caught up on their mortgage payments. Our country is very clearly in the midst of a housing crisis. What would be the effect on the housing market and our overall economy if Congress does not provide additional resources to help families struggling to pay their rent and mortgages?

Mr. POWELL. Well, if it were to get to the point at which people were evicted—and you are talking about people's lives being disrupted in ways that are sometimes quite hard to recover from, both for renters and owners, so it is important. I think the single best thing we can do about that, of course, is to keep monetary policy accommodative to do what we can to speed the recovery so that it will be robust and complete as soon as possible.

Senator MENENDEZ. Well, millions of people losing their homes would not only affect rateable bases and their most single aspect of wealth, so I hope you will keep your eye on that.

Thank you, Mr. Chairman.

Mr. POWELL. Thank you.

Chairman BROWN. Senator Shelby.

Senator SHELBY. Good morning. Chairman Powell, thank you for your service of a number of years and how you, I believe, have done an outstanding job as Chairman of the Federal Reserve. I would like to associate myself this morning with a lot of the questions that have been asked already by Senator Toomey—the concern of inflation, the concern of the balance sheet, of where is the economy going when we get over this COVID, which we all hope and pray will be sooner than later. And I would like to add to that, Mr. Chairman, what is your view of the world economy tying into ours? Because it is an important factor as we go forward, assuming in the next, say, 6 months that we get a handle around COVID in the country, and Europe, for example, does the same thing.

Mr. POWELL. So I will take those one at a time. On inflation, let me say a couple of things. First, as the very low readings of last March and April drop out of the 12-month calculation as we move forward this year, we expect readings on inflation to move up. That is called "base effects." That will be a temporary effect, and it will not really signal anything.

More importantly, though, with all the factors we have been discussing, you could see spending pick up pretty substantially in the second half of the year. And that would be a good thing, of course, but it could also put upward pressure on prices. And I would just say that essentially it does not seem likely that would result in very large increases or that they would be persistent.

We have all been living in a world for a quarter of a century and more where all of the pressures were disinflationary, you know, pushing downward on inflation. We have averaged less than 2 percent inflation for more than the last 25 years. Inflation dynamics do change over time, but they do not change on a dime, and so we do not really see how a burst of fiscal support or spending that does not last for many years would actually change those inflation dynamics.

I will also say forecasters need to be humble and have a great deal to be humble about, frankly, so if it does turn out that unwanted inflation pressures arise and they are persistent, then we have the tools to deal with that, and we will.

Shall I continue? So on the balance sheet, you know, we are going to continue to—we are at a stage where with 10 million people—payroll employment is 10 million below where it was before the pandemic. You know, we are a long way from maximum employment. We are going to keep—the balance sheet is going to continue to provide the support that we think the economy needs. Over time, it will—the growth of it will slow, but that decision is the one that we talked about earlier, where asset purchases will continue until we make significant further progress toward our goals.

You asked about the U.S. economy and the world economy. I do think—and many forecasters agree—that once we get this pandemic under control, you know, we could be getting through this much more quickly than we had feared, and that would be terrific. But it is not done yet. That job is not done. That is the thing I keep coming back to. We have got to finish the job with the pandemic, get it under control so that the U.S. economy could really reopen. Other countries around the world have the same set of issues, but there is—if people will get vaccinated and we can get the disease under control properly, the second half of this year and thereafter, the economy could be very good, and it could be good elsewhere in the world as well.

Senator SHELBY. And the fact that the savings rate has gone up tremendously in America, does that bode well in the future as far as perhaps economic activity?

Mr. POWELL. So a lot of that just is that people have not been able to spend. They have not been able to travel and go to restaurants, so it is forced savings in a way. So they will spend some of that going forward.

You are really thinking, I think, about the fact that, you know, the U.S. needs more savings so that it will have more investment and more productivity. It would be nice if we had a higher savings rate, and it would be also nice if we did not have a lot of dissavings at the Federal level. A lot of it is that budget deficits require a lot of assets, not that we need—that is something we need to turn to again, but I think this is not the time to be thinking about that. But that time will certainly come.

Senator SHELBY. Thank you, sir.

Mr. POWELL. Thank you, Senator.

Chairman BROWN. Thank you, Senator Shelby.

Senator Tester.

Senator TESTER. Yes, thank you, Mr. Chairman. And I want to start by thanking Chairman Powell. I very much appreciate your frankness. I very much appreciate your fight to keep the Fed independent. I know that has been difficult over the past number of years, but you have stepped up. You certainly do not want a bunch of politicians to determine monetary policy, so I am glad you are at the helm.

I also think that we are going to have a debate over this $1.9 trillion package in front of you on probably every damn Committee that I am on and a bunch of others. Some of that is—well, all of it is necessary, but I do want to talk to you, because everybody makes points and I go, "Yeah, that is a good point." And it is true. The housing market in a place like Montana is hotter than hot. It is, quite frankly, booming, and there is another problem that I want to talk to you a little bit about with the housing thing. But there are other industries and there are folks out there who, quite frankly, do not have the job they used to have and may never get that job back. And there are business people out there that are up against it. Some of those businesses will go broke and never reopen. Others will.

I just kind of want to get your perspective on if you were not the head of the Fed but in the U.S. Senate, where would you pay most of your attention to? Because I agree, any money we spend needs to be focused where it will do the most good. There is no doubt about that. Where is your focus? Where would your focus be? Would it be on employment? Would it be hospitality businesses? Or would it be something more global than that?

Mr. POWELL. That is an interesting question. Maybe the grass is always greener, but our work really relates to managing the business cycle in a way. But what I always think I would focus on is more what we call the "supply side," which is really investing in things that will increase the potential growth rate of the United States economy over time and make that prosperity as broadly spread as possible.

Let me be more specific. It amounts to investing in people, and that means education, it means training. It means all those things. And that enables those people to take part fully in our great economy, and I really do think in a global economy people who are able to use and benefit from technology, there is no limit on the amount of those people who can be working in the United States because it is such a global economy.

I also think it is important for businesses as well that they have a climate where they can trust, you know, that inflation is going to be under control and that business conditions are going to be good and that they can invest, and I think the Federal Government investing in basic science over time has produced a lot of productivity-enhancing things.

But, more generally, Senator, I think focusing on things that will make a longer-run difference to our economy is what I would do.

Senator TESTER. OK. I appreciate that.

Now I want to go to housing because I do not—you know, I talk about Montana, but I think this is true all over. We do not have enough affordable housing. We do not have enough workforce housing. I think that short term and long term, by the way, this is going to be a drag on the economy.

Do you see the Fed playing any role or do you think they could have a role in increasing the amount of affordable housing that is out there? And if you do think the Fed plays a role, what would that role be?

Mr. POWELL. I do not really think we do. When it comes to a set of policies like that, that is targeting, you know, the fiscal power of the Federal Government to what is seen as a worthy cause. It is not really something we can do. We can combat housing discrimination and things like that in lending, but I do not think we are in a position of being able to allocate credit to worthy beneficiaries. That is really fiscal policy.

Senator TESTER. Getting back to the pandemic, you have implemented a lot of monetary tools during this crisis. In your opinion, have they been sufficient? And if they have—yeah, that is the first question. Have they been sufficient?

Mr. POWELL. I think they have. I think the difference really this time is that fiscal policy has really come to the table, and that is making a difference.

Senator TESTER. OK. Moving forward, have you looked at any changes to the policies, the monetary policy, the monetary and fiscal tools that we use moving forward?

Mr. POWELL. Not yet. I mean, we are looking into that. Of course, we will do—right now our focus is on providing the economy the support it needs. We will be turning to an evaluation of everything that happened in the crisis and answering that question.

Senator TESTER. OK. Thank you, Mr. Chairman. Thank you, Chairman Powell.

Mr. POWELL. Thank you, Senator.

Chairman BROWN. Thank you, Senator Tester.

Senator Scott.

Senator SCOTT. Thank you, Chairman Brown, and thank you, Chair Powell, for being here with us this morning. It is certainly an important time for us to engage in a conversation about the future of employment in our Nation, and one of the core responsibilities of the Fed, of course, has to do with unemployment.

There seems to be so few issues right now, Chairman Powell, that actually unite the left and the right. I am always stunned in Washington when we find something that unites both sides and, frankly, the minimum wage issue is an issue that has united both Republicans and Democrats on opposing having the $15 minimum wage as a part of the COVID–19 relief package. It is good to see my friends on the left coming to the conclusion that in the middle of a pandemic that, according to the Congressional Budget Office, has already shuttered—the $15 minimum wage would shutter another 1.4 million jobs. The earlier estimate went as high as 3.7 million jobs in the middle of a pandemic that has eliminated 10.7 million jobs. This seems to be common sense from my perspective, from the perspective of Democrats and the Congressional Budget Office.

My question for you, sir, is: Have the Fed's economists conducted research on the potential impacts of raising the minimum wage to $15 an hour?

Mr. POWELL. I do not know that we have looked at that question particularly. We have great labor economists who have done a lot of work on the broad area.

Senator SCOTT. Yes, sir. Are their conclusions similar to the conclusions of the Congressional Budget Office as it relates to the negative impact of raising the minimum wage during the pandemic?

Mr. POWELL. Let me say, as I must, that this is a classic issue that the Fed never takes a position on, and I am not going to take a position on it here today. It is fiscal policy. Most of the research still says that there is some tradeoff between job loss and those whose wages go up. But, actually, you know, the sort of unanimity of that finding of 30 or 40 years ago is no longer in place. There is a much more nuanced understanding of it. But, in any case, it is just an issue where we do not play a role or express a view. I can share with you the research that we have done. I would be happy to do that.

Senator SCOTT. That would be——

Mr. POWELL. That our staff has done.

Senator SCOTT. That would be very important, especially as you think of the Fed's responsibility as it relates to providing a sustainable economy that includes keeping unemployment as low as possible. The fact that the Fed is not taking a position on an increase of the minimum wage that is obviously, according to the Congressional Budget Office, going to eliminate the minimum of 1.4 million jobs I think is an important engagement from the Fed on that issue.

I will ask you a different question as it relates to the COVID relief package of $1.9 trillion. It seems to me that over the last fiscal year, we spent right around $6.5 trillion addressing the pandemic. My question for you is: As we see another $1.9 trillion on top of the $6.5 trillion that we have already spent, what is the impact on the issue of rising inflation in excess of the Fed's longer-run objective of 2 percent?

Mr. POWELL. So, of course, as I said at the beginning, I am not going to comment today on the proposal that you mentioned, the fiscal package that you mentioned, at all. Not our role.

I will say on inflation there perhaps once was a strong connection between budget deficits and inflation. There really has not been lately. That does not mean it will not return. But, again, my expectation will be that inflation will probably be a bit volatile over the next year or so due in significant amount to particular things to do with the pandemic. For example, we will see a slight increase in inflation in a few months because of the base effects that I mentioned. We will also see perhaps—we do not know this, but we may see upward pressure on prices as the economy fully reopens. A good problem to have.

I do not think that those effects should either be large or persistent, and the real reason for that is that we have had decades of well-anchored inflation expectations, meaning that we have had a very volatile economy for the last 15 years, and inflation has just kind of done what it was going to do. It did not go up.

Senator SCOTT. Thank you very much, sir. I appreciate your answer. The fact that you are unwilling and unable to answer the questions as it relates to the minimum wage is certainly you do not want to get into the politics of the $1.9 trillion package. I do not blame you. If I were you, I would not want to get into the politics of it at all, frankly, and I certainly understand your reticence to do so.

I will use my few seconds here to simply say that the Congressional Budget Office, some Democrats, all Republicans all agree that raising the minimum wage is a way to destroy jobs and an economy that is looking forward to a fragile recovery.

Thank you, Chair Brown.

Chairman BROWN. Thank you, Senator Scott.

Senator WARNER. Thank you, Mr. Chairman, and thank you for holding this hearing. Chair Powell, it is great to see you again. Thank you for the good work you are doing.

I think in response to Senator Tester's questions, when you were talking about the kind of investments we ought to be making that are long term, thinking about infrastructure, one of the areas—and understanding what my friend Senator Scott just said in your answer, that you do not want to weigh in on the President's most recent plan, I would like you, though, to comment whether you believe that broadband investments fall into that category of the kind of long-term structural change we need. I would argue over the last 11 months we have seen that broadband is a necessity. I think it is absolutely COVID-related. I hope that the current package can be changed to actually include a sizable investment in broadband. As good as our four packages, bipartisan packages, have been to date, the broadband investment has been meager or nonexistent. Experts like Tom Wheeler and Blair Levin have said somewhere in the $40 to $50 billion range, we could get about 97 percent coverage along with better affordability.

So I guess I am asking, would you agree that immediate efforts to close the broadband gap not only represent long-term investments, but also have some direct relationship to the current health care crisis?

Mr. POWELL. So as you and I have discussed on a number of occasions, I would agree that broadband is kind of a classic 21st century infrastructure and one of those things that can support growth. But I, of course, cannot go anywhere near—do not want to go anywhere near the question of what should be included in the package, if that is OK.

Senator WARNER. What about the question, though, you know, from a macroeconomic standpoint, broadband and trying to close the digital divide if we are going to have a fulsome recovery across socioeconomic groups? Could you speak to the question of the necessity for broadband to be ubiquitous if we are going to have that kind of robust recovery and comments about whether broadband is at this point a "nice to have" or an "economic necessity," whether it is telework, telehealth, or tele-education?

Mr. POWELL. So, again, as you and I have discussed on a number of occasions, I would agree that it is a classic piece of infrastructure for the modern economy, for the service economy, for the technologically advanced economy, and having it broadly available just could mean—as broadly available as possible could be a significant benefit economically.

Senator WARNER. If not broadly available, are we going to be able to see the kind of broad-based recovery that I think we are all looking for?

Mr. POWELL. Well, I think we have longer—we have a bunch of issues to deal with that relate to these persistent disparities that we see to do with education and training and all those things. But that would certainly be one of those things.

Senator WARNER. Senator Scott in his previous line of questioning raised the inflation issues, and I know we have seen about a 41-basis-point increase on some of our 10-year benchmarks. It is still relatively small. I tend to agree I think we do need to make a sizable investment right now. I am not sure—the inflation risks, I agree with you, are not as high as they potentially might be.

Could you just briefly give some of the tools you have got available as Federal Reserve Chair if you started to see inflation rise at a level that you did not feel comfortable with?

Mr. POWELL. Well, those are the classic tools that we have, and, again, I really do not expect that we will be in a situation where inflation rises to troubling levels. At this point the Federal Open Market Committee is seeking inflation running moderately above 2 percent for some time. So the real question is: As we go through this, are we going to find ourselves in a situation where inflation expectations are de-anchored and inflation is moving up and it is persistent? I think we are all very, you know, acquainted with the history of how we got into that situation in the 1970s. We did that in the 1960s. And we have no intention of repeating that.

So central banks and the Fed learned how to keep—the centrality of keeping inflation under control, and we know how to do that. That is just by not allowing the economy to just ignore constraints over time. But I think this is not a problem for this time, as near as I can figure, and if it does turn out to be, then we do have the tools we need.

Senator WARNER. We are down to my last 20 seconds, and let me just—if you want to make some general comments, I would argue that the pandemic was the first major real-world stress test we have had on our fiscal system since 2009. How do you think overall that the system has responded? And recognizing, Mr. Chairman, that will be my last question. You may want to take that one for the record, but if you want to make some general comments quickly.

Mr. POWELL. You meant financial system, I think, right?

Senator WARNER. Right, yes.

Mr. POWELL. Well, I think that the large financial institutions that are at the heart of our financial system proved resilient. They did. And they have been able to keep lending, and their capital levels have actually gone up during this period. As I mentioned, their liquidity levels are at highs. So I think the work that we did over the course of the last decade and then some has held up pretty well so far, and I expect it will continue to.

Senator WARNER. Thank you, Mr. Chairman. Thank you, Chairman Powell.

Chairman BROWN. Thank you, Senator Warner.

Senator Rounds of South Dakota.

Senator ROUNDS. Thank you, Mr. Chairman. Chairman Powell, first of all, it is good to see you again, and I appreciate your service to our country as well. Thanks for being with us today.

I would first like to ask about the SLR exclusion which is set to expire on March 31st. My colleagues have mentioned it earlier, but did not really get into the heart of the matter. The temporary patch allowed banks to exclude ultra-safe assets, U.S. Treasurys and deposits to the Fed from their balance sheets. This was important in preserving bank liquidity during last spring's flight to cash and was a commonsense move since the Fed cannot go bankrupt and the Treasury has never failed to meet its obligations.

We all agree that the economy is still in need of fiscal and monetary support. The Chairman himself said that banks should be doing more to help their workers and our broader society, but they cannot do that when we are tying their hands with excessive and challenging capital requirements. It would appear Congress is going to create even more bottlenecks in our financial plumbing by flooding the economy with about $1.9 trillion in new money that banks will have to hold capital against as soon as the Treasury starts writing the checks.

My question is: Would you agree that it makes sense to seriously consider extending the SLR exclusion given the other measures the Fed and Congress are taking to facilitate our economy's recovery?

Mr. POWELL. So I do think that the SLR exclusion—I know it expires at the end of March, and we actually have not made a decision on what to do. It is something we are in the middle of thinking about right now, and so I am just going to have to say that we will be making a decision and announcing it pretty soon here.

Senator ROUNDS. The reason for my question is that I think last time around and in the past, we have had challenges with banks that have come in and said, look, we have got folks that want to bring their assets in, they have got to have a place to put it, it is liquid, it is what we are going to have. Most certainly that has impacted our ability and the reason for the SLR in the first place, and it just seems to reason that as you talk about it and as you continue to discuss it, I hope that we really do keep an open mind and I presume you are keeping an open mind on the need for that, as this amount apparently will be put into the economy in very short order. And so I simply bring it up saying I think there are a lot of us that think that that is going to be an important part of the discussion to have.

Let me lead into another question with you, sir. We have been monitoring the increase in Treasury yields from about nine-tenths of 1 percent at the start of 2021 to approximately 1.37 percent when the market closed yesterday. I understand this reflects a view of an improving economy, but also comes with increased borrowing costs, increased inflation, and potentially a move by the Fed to increase interest rates down the line.

How do you view the increase in Treasury yields in the broader context of our economy at this point?

Mr. POWELL. So, first, we look at a broad range of financial conditions, and that is one. It is an important one. But, really, we look at the whole range of financial conditions, and it is very important to ask why are rates moving up. And so if you look at why they are moving up, it is to do with expectations of a return to more normal levels, more mandate-consistent levels of inflation, higher growth, an opening economy. In a way it is a statement of confidence on the part of markets that we will have a robust and ultimately complete recovery. So those are the reasons that are behind that, I would say.

Senator ROUNDS. Great. Well, thanks. Look, we follow the markets. We follow on a regular basis whether the markets are moving up or moving down and so forth, and I think in anticipation of what your thoughts were going to be today, I think the market was rather volatile.

I am just curious. When you walk into an opportunity like this where you are sharing your thoughts, I know that you want to be very careful in terms of the message that you send, and I think you do a very good job of being very careful in the way that you send the message, but let me just ask. In your opinion, when you prepare for this type of a discussion, knowing the markets are literally watching everything you say, what is the message that you would like to send? Are you talking we are going to have stability, it is going to be steady as she goes, we do not see changes coming up with regard to the availability of capital, we do not see changes that are going to impact inflation? What is the message that you really want to send as you share with us today and you are expected to be in front of our Committees?

Mr. POWELL. So I guess I will say a couple of things. First, the starting point is that we are 10 million jobs below where we were in February of 2020, 10 million payroll jobs. So there is a long way to go, and many of those jobs are concentrated in the lower end of the income spectrum, as I mentioned.

Many parts of the economy have recovered, but in the bottom quartile, the unemployment rate is probably in excess of 20 percent, we think. So there is a long way to go. Monetary policy is accommodative, and it needs to continue to be accommodative. We have put forward guidance out both on our asset purchases and our rates. We think that forward guidance is appropriate, and you can expect us to move patiently over time as we see better data coming in. You know, right now, we have had 3 months of 29,000 jobs a month. It is not very much progress. We expect that such progress, which we had earlier last year—we had very fast progress. We expect that will begin to return in coming months and expect us to move carefully and patiently and with a lot of advanced warning.

Senator ROUNDS. Thank you, Mr. Chairman.

Thank you, Mr. Chairman. I apologize for going over on my time.

Chairman BROWN. Thank you, Senator Rounds.

Senator Warren of Massachusetts.

Senator WARREN. Thank you, Mr. Chairman.

So our economy is suffering through a K-shaped recovery where the wealthy are doing better and better while working people are doing worse and worse. Chair Powell, you have been pretty vocal about inequality over the past few years. You have noted—I think I have got a quote here from you— that it has been a growing issue in our country and in our economy for four decades. You have talked a lot about how inequality undermines opportunity and mobility, and you have described it as something that holds our economy back.

So I take it from these comments that you believe that inequality weighs our economy down and stunts economic growth. Is that a fair statement?

Mr. POWELL. Yes, it is.

Senator WARREN. Good, and I agree with you on this, and the Fed's own data spell out the problem. I think you were just talking about it. You know, the top 1 percent of families last year received 20 percent of all the income in this country, and you think that is not good for our economic growth overall. Is that fair?

Mr. POWELL. Well, I would say that the stagnation of incomes in the lower-income area and also the low mobility that we have seen emerge, those to me are the two most important things that I focus on when I talk about inequality—stagnation of incomes and low mobility.

Senator WARREN. Right, but we are talking here about income inequality, how much people earn each year to be able to pay the rent and to be able to put food on the table. But inequality also shows up in wealth, which is what families build over time, money in the bank, home, stock. Wealth inequality is even more extreme in our Nation than income inequality. While the top 1 percent of families, this tiny slice, got 20 percent of all the income earned in the U.S. last year, the top 1 percent held 33 percent of the total wealth in this Nation. And now this pandemic is making inequality worse.

Unemployment, as you just noted, is now at about 20 percent for the bottom quartile in this country, meaning that there are a lot of folks out there who are making choices about keeping the heat on or putting food on the table. Meanwhile, the wealth of America's 660 billionaires increased by $1.1 trillion over this past year.

Inequality is felt in another way. It is felt in how people pay taxes. The 99 percent in America pay on average about 7.2 percent of their total wealth in taxes in a given year, but the top one-tenth of 1 percent pay only about 3.2 percent. That is less than half as much.

Chair Powell, does it increase inequality when the wealthiest Americans pay total taxes at less than half the rate of nearly all other American family?

Mr. POWELL. You are getting farther and farther from the kinds of inequality that we focus on and, frankly, the ones that we can do anything about with our tools. We cannot affect wealth inequality, certainly in the short term. We can affect indirectly income inequality by doing what we can to support job creation at the lower end of the market. So I would leave to you—those are really fiscal policy issues that I would not—I cannot relate those to our mandate. That is all.

Senator WARREN. I appreciate that you are trying to move sideways on this, but you have pointed out that inequality is a problem in our country, that it holds back mobility, that it holds back opportunity, and I am simply pointing out that inequality is felt not just in income. It is also felt in wealth even more so, and that our tax structure makes that inequality worse over time.

Extreme wealth inequality undermines our economy, as you have said. It undermines justice. It undermines our democracy, and our Tax Code focuses almost entirely on income and lets most of the wealth that the ultra-rich families have accumulated just slip right on through, and that just seems to me not right.

You know, it is time for a wealth tax in America, a 2-cent tax on fortunes worth more than $50 million. If your fortune is over a billion, pay a few more cents. This wealth tax will let us address the inequality that you have been very worried about as Chair of the Federal Reserve. It is how we have a chance to level the playing field and build an economy that works for everyone.

So thank you for being here, Mr. Chairman, and thank you, Chairman Brown.

Chairman BROWN. Thank you, Senator Warren.

Senator Tillis of North Carolina.

[No response.]

Chairman BROWN. If not, Senator Kennedy of Louisiana.

Senator KENNEDY. Yes, sir. Can you hear me, Mr. Chairman?

Mr. POWELL. I can, Senator. You have two "Mr. Chairman's" here.

Senator KENNEDY. Yes, sir. Mr. Chairman, the witness, what was our fourth quarter GDP growth?

Mr. POWELL. I am reluctant to guess, but it was in the—I want to say 4 percent.

Senator KENNEDY. Right. That is what my numbers show, too. What are you and your economists estimating that our GDP growth will be for 2021?

Mr. POWELL. So we will be updating our forecasting. The last forecast the staff did was in January. My guess is that the data have been a little more positive, but it will be a good number. We would be in the range that you see in the public forecast.

Senator KENNEDY. How about 6 percent?

Mr. POWELL. Could be. Could be in that range. In the range of 6 to 7 percent.

Senator KENNEDY. OK. At what point in 2021 will the level of GDP equal prepandemic levels?

Mr. POWELL. Sometime during the year. It depends on the growth rate. Could be second half of the year.

Senator KENNEDY. How about the end of January—or the end of February, rather?

Mr. POWELL. I do not know that. Are you asking the question—the prepandemic level or the prepandemic trend?

Senator KENNEDY. The prepandemic level. If you froze the GDP, the economy, in February a year ago, at what point would we be back to where we were February a year ago?

Mr. POWELL. In the first half of the year.

Senator KENNEDY. Yeah, I mean, I see a lot of economists saying at the end of February. Do you disagree with that?

Mr. POWELL. I cannot be that specific. I was answering the question about the precrisis trend, which is what we are trying to get back to.

Senator KENNEDY. Well, here is what I am getting at. You have strongly encouraged Congress to pass another coronavirus bill, $2 trillion. And I guess tell me, if you could, in just a couple of sentences why you think we need to do that if we are looking at 6 percent GDP growth this year, and as soon as the end of this month, we will be back where we were in February 2020?

Mr. POWELL. Actually, Senator, I have consistently not taken a position on this bill.

Senator KENNEDY. So you do not have an opinion about whether we ought to pass President Biden's bill?

Mr. POWELL. As I have said since the December press conference, I think, on every public occasion when I have been asked about it, I have said that it is not appropriate for the Fed to be playing a role in these fiscal discussions about particular provisions in particular laws. We did not comment on the Tax Cuts and Jobs Act. We did not comment on the CARES Act. You know, it is not our role to do that.

Senator KENNEDY. OK. So your opinion is if we do not pass the bill, you are cool with that?

Mr. POWELL. Well, that would be expressing an opinion, so that is what I am not doing, is expressing an opinion.

Senator KENNEDY. Well, would you be uncool with that?

Mr. POWELL. I think by being either cool or uncool, I would have to be expressing an opinion.

Senator KENNEDY. OK. How do you think we ought to pay all this money back that we are going to borrow and that we already have borrowed?

Mr. POWELL. I think that we will need to get back on a sustainable fiscal path, and the way that has worked when it is successful is you just get the economy growing faster than the debt. I think that we are going to need to do that, and that is going to need to happen, but it does not need to happen now. Now is the wrong time to be doing that.

Senator KENNEDY. Do you think we ought to go Catwoman on the budget and actually look for savings there?

Mr. POWELL. "Go Catwoman"? I do not know that reference. I think in the fullness of time, we will need to right-size our budget relative to our—so that the economy is growing faster in nominal terms than the debt. We will have to eventually on the path we are on.

Senator KENNEDY. Well, do you think that deficits matter?

Mr. POWELL. Certainly in the long run, I do believe they do.

Senator KENNEDY. You do not think they matter in the short run?

Mr. POWELL. Again, I think we will need to return to——

Chairman BROWN. I am going to call on Hagerty because he has waited so long.

Mr. POWELL. We will need to return to this issue, but I would not return to it now, and the way to get after this issue is to get a situation where the economy is growing faster in nominal terms than the debt is.

Senator KENNEDY. What if that becomes the case, but your spending is also growing faster than your economy?

Mr. POWELL. Well, no, that is the deficit. I mean, the question really is—the deficit is the difference between intake and spending, so it depends. It is the net of those two.

Senator KENNEDY. Let me stop you, Mr. Chairman, because I am going to have one last question quickly. M2, the money supply, is up I think about $4 trillion over the past year, or $6 trillion. Four trillion, 6 trillion, what is a few trillion? It is up 26 percent, the highest amount since 1943. What does that tell you?

Mr. POWELL. Well, when you and I studied economics a million years ago, M2 and monetary aggregates generally seemed to have a relationship to economic growth. Right now, I would say the growth of M2, which is quite substantial, does not really have important implications for the economic outlook. M2 was removed some years ago from the standard list of leading indicators, and just that classic relationship between monetary aggregates and economic growth and the size of the economy, it just no longer holds. We have had big growth of monetary aggregates at various times without inflation, so something we have to unlearn, I guess.

Chairman BROWN. Thank you, Senator Kennedy.

Senator KENNEDY. Thank you, Mr. Chairman.

Chairman BROWN. Senator Cortez Masto from Nevada.

Senator CORTEZ MASTO. Mr. Chairman, thank you. Thank you, Chairman and Ranking Member. And, Chairman Powell, thank you again for being here as usual. I so enjoy listening to you in the conversation so far.

Let me bring up a subject that you and I quite often talk about, which is Nevada, and the tourism and service industry as we all know has been so hard hit. We have the second highest unemployment rate in the Nation. In this type of labor market, there is no upward pressure on wages because when people are desperate for work, they are willing to take lower-paying jobs. But when the unemployment rate is low, employers are more willing to both raise wages to find workers as well as invest more in in-house training and retraining.

Can I just ask a question? How does a tight labor market encourage employers to invest in in-house training? Do you have any thoughts or answers to that at all?

Mr. POWELL. I do. And as we have discussed, in that last couple of years when unemployment was routinely below 4 percent, as low as 3.5 percent, and where labor force participation was high, had moved up actually, despite expectations that it would not, we saw lots of virtuous effects in the labor market. I actually talked about those a couple of weeks ago. One of them was—and I did not focus too much on it—you saw employers investing more in training. You saw employers looking for people at the margins of the labor force. You know, employers were going to prisons and getting to know people before they came out and giving them jobs as they came out. Great things happening from a tight labor market, and I just think we saw that, and that is one of the reasons we are so eager to get back to that, you know, consistent with also maintaining price stability. But we really do think—and others saw the same thing we did, which is the broad societal benefits of a tight labor market.

Senator CORTEZ MASTO. And, in particular, wouldn't you agree that Congress' investment in workforce and workforce development and helping developing those skills for that workforce would be important?

Mr. POWELL. I do. Again, I do not want to comment on any—I am not entirely sure if what you mentioned is in the current proposal, but I would say that the kinds of investment in people that enable them to be more effective in the labor force and policies that enable people to take part in the labor force, those are big things that can increase the productive capacity of our economy over time.

Senator CORTEZ MASTO. Yeah, I agree. And that is why I have introduced the Workers Act, the Pathways Act. Many of my colleagues are really focused on this investment, particularly now when we have an opportunity to have a long-term impact on jobs, so thank you for that.

Let me jump to just the unemployment in the service industry now. This is an area that I know we have been really hard hit, and we have to do more to turn this economy around in our hospitality industry. But let me ask you this: If the Congress does not extend and bolster unemployment insurance, what is the Federal Reserve's economic forecast for the impact on communities like Las Vegas that are dependent on travel and hospitality?

Mr. POWELL. So, again, I am not going to comment on—unemployment insurance is part of the bill, so I am just going to stay away from the current fiscal discussions. I really have to do that. I mean, the single most important thing for your service sector employees is to get the pandemic behind us so people can get on airplanes and go to Nevada again and take vacations. That is the single most important economic growth thing that we have.

After that, I think there will be—and it is possible that that will begin to happen relatively soon, if we can get the vaccines out and get people vaccinated and people do the right things with social distancing and masks and that kind of thing. You could see that happening relatively soon, which would be great.

Senator CORTEZ MASTO. I agree, but you would agree there is an investment that still needs to be made? I mean, we are not done here at the Federal level with our monetary and fiscal policy in addressing the economic crisis we have. It is one thing to get the pandemic under control. It is another to understand how we turn this economy around as well. Wouldn't you agree?

Mr. POWELL. I would agree, and, you know, as I have said, we will keep our policy accommodative. We think we have significant ground to cover before we get even close to maximum employment, and we hope to do everything we can to speed that process.

Senator CORTEZ MASTO [presiding]. Yeah, and let me just say one final thing, because, as you just said, it is the pandemic that has hit State after State and individual communities after individual communities, I hope we do not shift gears here about making investments when some States turn around much quicker and their economy turns around much quicker than ours, particularly in the service industry. No State should be left behind, and I hope that we would all agree to that, that we need to pull everybody with us as we address this pandemic and start to turn the economy around.

So I know my time is up. I will submit the rest of my questions for the record. I also think that Chairman Brown has had to get over to Senate Finance to ask a question. He will return. So I am going to sit in his chair temporarily, and I am going to go ahead and turn the gavel over to Senator Hagerty. Thank you.

Senator HAGERTY. Well, thank you, Senator Cortez Masto, and I want to say thank you to Chairman Brown and to Ranking Member Toomey as well for holding this hearing today as we work toward full economic recovery. And as noted, this is an important part of Congress' oversight of the Federal Reserve System.

And, Chairman Powell, I want to thank you for your time and your participation today. More generally, I want to thank you for your leadership of the Fed as we work our way through this crisis. And I want to say this, Mr. Chairman: I am very encouraged by the indications from the *Monetary Policy Report* of the progress that we are making as we come out of this downturn. We are looking at potentially north of 4 percent economic recovery, or as you and Senator Kennedy were just discussing, maybe even 6 percent growth for 2021. I find that very encouraging. Albeit an uneven recovery, I feel that it is very good news that we are on the way.

That also raises concerns that I have, and I am sure it has been discussed many, many times about the amount of liquidity that we are going to continue to pump into this economy. We have already allocated $4 trillion in coronavirus recovery relief, $1 trillion yet to be spent, and now we are talking about putting close to an additional $2 trillion into the economy. I will not belabor this anymore. It has been discussed by my colleagues, but I share their concerns about injecting that much liquidity into the economy at a time when we are in the process of recovering, particularly noting our tough and slow recovery after the 2008 recession, given the amount of funding that was injected into the economy then.

Chairman Powell, I would like to shift gears for a minute. Yesterday Treasury Secretary Yellen talked about the digital dollar, the digital dollar that is overseen by the Fed. It is tied to blockchain technology, something that she said could result in faster, safer, and cheaper payments. You and I have discussed the importance of the dollar as the world's reserve currency on previous occasions. It is a vital asset for us as Americans. I would very much appreciate, Chairman Powell, your perspective on whether the Fed should develop a digital dollar, a digital dollar that will be held directly by households, directly by businesses, and not intermediated by commercial financial institutions.

Mr. POWELL. Thank you. So we are looking carefully, very carefully, at the question of whether we should issue a digital dollar, and it is something that central banks around the world are looking at and doing so appropriately because the technology now enables us to do that, and it also enables private sector actors to create their own kind of digital quasi-money type of instruments.

So there are significant both technical and policy questions to do with how we would go about doing that. I would say that we are committed to solving the technology problems and to consulting very broadly with the public and very transparently with all interested constituencies as to whether we should do this.

I would also say we are the world's reserve currency, and we have a responsibility to get this right. We do not need to be the first. We need to get it right, but this is something we are investing time and labor in right across the Federal Reserve System. You may know that the Federal Reserve Bank of Boston has a partnership with MIT looking at one particular thing. We are doing research here at the Board. It does hold out the prospect of the things that you mentioned, very positive. It could help with financial inclusion as well. At the same time, you want to avoid creating things that might be destabilizing or that might draw funds away from the banking system. We have a banking system which intermediates between savers and borrowers. We want to be careful about what the implications are of what we do, so it is a very high priority project for us.

Senator HAGERTY. I share your concerns on the need to be careful. I also appreciate the fact that you are going to stay at the leading edge of looking at this and making certain that America does not fall behind in any respect in terms of maintaining our status as the world's leader in reserve currency.

With just a moment of time left, I want to follow up on a more technical comment that Senator Rounds made regarding the importance of looking hard at the SLR exemptions as we continue to move forward this year. I know they are coming to expiration at the end of March, but I very much appreciate your taking a hard look at that as we move forward, because there is a tremendous amount of liquidity coming in.

And on inflation, you and I have talked before about the experience in Japan of disinflation. At the same time, I share Senator Toomey's concerns about the asset price bubbles that we are seeing already occur here in America, and, again, I appreciate your role in taking a very steady hand in monitoring inflation and making sure we stay on top of it. Thank you very much, Mr. Chairman.

Mr. POWELL. Thank you, Senator.

Senator Cortez Masto. Thank you.

Next I am going to call on Senator Van Hollen. I know Senator Brown is asking a question at Finance. I am going to ask a question at ENR. So I am going to also pass the gavel to Senator Van Hollen. Thank you.

Senator VAN HOLLEN [presiding]. Thank you, Senator Cortez Masto, and welcome, Mr. Chairman. Thank you for your service.

At the outset here, I just want to underscore the importance of the Fed continuing to move ahead with the FedNow Service. As we have discussed in previous hearings, the United States' outdated payment system is inflicting large and unnecessary costs on millions of American consumers, leading to billions of dollars of unnecessary funds spent. And this does not impact people with big bank accounts who are not close to overdrawing. It impacts those who are living paycheck to paycheck. So I see that the Fed has accelerated its timetable a little bit to 2023. If you can move even faster, all the better. You will be saving millions of Americans lots of money in unnecessary costs.

I want to focus my questioning on the issue of long-term unemployment. In a speech you gave on February 10th, you pointed out that the unemployment rate would be close to 10 percent if you adjust for the Bureau of Labor Statistics, its clarifications and people who dropped out of the labor force since the pandemic. This includes over 4 million Americans who are counted in the unemployment figures, but are long-term unemployed, and millions more who have dropped out of the labor force during the pandemic, but would like to get back into the workforce. And you noted in that speech the concerns and damage from persistent long-term unemployment, what it inflicts on workers personally and their families and the negative impact on productive capacity for our entire economy. And you stressed that monetary policy alone cannot do this. It requires a fiscal response.

So here is my question: Beyond the overall impacts that the bill before us or other fiscal responses will make in terms of increasing overall economic growth, based on your experience, would you agree that it is important to very intentionally develop policies to help the long-term unemployed, individuals who even during good economic times were unable get into the workforce?

Mr. POWELL. I do, and this really is a longer-run thing, I would say, but it is particularly relevant now. As I also mentioned in those remarks, industries are always growing and shrinking, and workers are moving from one industry to another. That is just a market-based economy working. In this situation, you have that accelerated in a big way. So we may find that many of the people who are not going back to work, are not back at work now, may really struggle to find jobs because businesses are being automated. We hear that all the time, that computers and automated answers are becoming more and more common. So I think those people are really going to need help to get back into the labor force and get their lives back. That will take, I think, the kind of investments you are talking about.

Senator VAN HOLLEN. No, I appreciate that, and we are talking about a focus and an intentional investment beyond the investments that we are making for overall economic growth, right?

Mr. POWELL. Yes.

Senator VAN HOLLEN. Yeah. And I also wanted to turn really quickly to the importance of using the right kind of economic measurements to determine the well-being of American workers and families. As you noted in that same speech, unemployment among low-wage workers is 17 percent, where it was at the start of the pandemic; whereas, among high-wage workers it is only down 4 percent. So if you take the average, you are not seeing the impact, the disproportionate impact on low-wage workers.

I often give the example that if Jeff Bezos had moved to Baltimore City last year, the per capita income of Baltimore City would have gone from $53,000 per person to $175,000 per person, even though nobody was better off individually.

So what should we be doing and what is the Fed going to be doing to make sure that as our economy improves, which we all want it to do quickly, we do not overlook the continuing pain people are feeling because we are looking at averages and not looking beneath those averages?

Mr. POWELL. These people who are struggling in that way are doing so because they were employed in public-facing jobs in the service industries. So, clearly, the number one thing we can do to get them back to work is to get the pandemic behind us, and that is not something we can work on here at the Fed, but that is the top thing.

Beyond that, I just think it is up to us to continue what we can do to support the economy, really, with some patience in order so that they will have time to get across. We have talked about a bridge. Most Americans will have a bridge in the end, but there is a group that will really struggle. I think we need to be mindful of them, because, really, they did nothing wrong. This was a natural disaster. And, you know, as a country, we set out to provide support.

Senator VAN HOLLEN. I appreciate that. My hope is the Fed releases its numbers going forward. In addition to the aggregate average numbers, you also continue to provide us with the impact on lower-wage individuals. Thank you, Mr. Chairman.

Senator Tillis.

And if Senator Tillis is not with us, Senator Lummis.

And if Senator Lummis is not with us, Mr. Chairman, is Senator Tillis—I am told may be joining us soon?

Senator Moran.

Senator MORAN. Thank you, Mr. Chairman, Mr. Chairman pro tem, and, Chairman Powell, thank you for the opportunity to visit with you today, and thank you for your work at the Fed.

I just have a broad question. How do you view your job in relationship to an Administration? So a change in Administration from one President to the next, what does that mean at the Federal Reserve from your perspective? Anything? Or a lot?

Mr. POWELL. Well, our job does not change, and at the very beginning of the Administration, the personnel do not change. Of course, the one way that Administrations really do interact importantly with the Fed is with appointments, and so those will happen over time.

The second thing is, you know, it is a different group of people. We have ongoing relationships by a longstanding practice with various parts of the Treasury Department mainly, but also to a much more limited extent with the White House, and we make new relationships and continue to have the same sorts of discussions that we have. But, ultimately, the answer to your question is nothing really changes because of the election other than meeting new people.

Senator MORAN. Chairman, thank you, and thank you for your answer. During my time on the Senate Banking Committee, I have been an advocate for an independent Fed and want the Fed to make decisions based upon best policy without significant political interference, other than perhaps the Senate Banking Committee, anytime that we can take that opportunity.

Let me ask a specific question. In the most recent *Monetary Policy Report* to Congress, the central bank indicated that, and I quote here, "Commercial real estate prices remain at historically high levels despite high vacancy rates and appear susceptible to sharp declines, particularly if the pace of distressed transactions picks up or, in the longer term, the pandemic leads to permanent changes in demand."

I have great concern for the commercial property markets and would like to hear what your thoughts are. Is this something we need to wait out? Is it something that needs more attention than we have been able to provide in CARES or COVID relief before? And what does it mean to CMBS borrowers with this market?

Mr. POWELL. Well, some parts of commercial real estate—office, hotel, and some maybe retail to some extent—are under real pressure because of the pandemic. Those changes may be lasting or they may be temporary, or they may be somewhere in the middle. So this is something that we are keeping a close eye on. There is exposure to the banking system, and as you pointed out, there is significant exposure in CMBS to, I think, the hotel space in particular. So we watch these things.

Of course, as I think you also mentioned, the single best thing that can happen is to have the economy recover quickly so that offices and hotels, you know, can be filled up again.

Where it relates to offices, are more people going to work remotely, and so will the demand for office space feel some downward pressure for a while or even for the long run? That is very possible. We do not really know that, but if you talk to—we had a presentation a couple weeks ago from someone who had done a survey that suggested that there may be sort of sustained lower demand for office space in particular.

So those are things we watch very carefully. We watch it through the banking system and to see whether—most banks are OK on that, although some of the smaller banks do have a concentration in CRE. So we watch that carefully.

Senator MORAN. Mr. Chairman, thank you very much. I yield the balance of my time.

Senator VAN HOLLEN. Thank you, Senator Moran.

Senator Smith.

Senator SMITH. Thank you, Mr. Chair. Can you all hear me? I know, of course, Senator Tillis was having a hard time with his audio.

Senator VAN HOLLEN. We can hear you.

Senator SMITH. Yes, great. Thank you.

Chair Powell, it is great to see you today, and I want to start by asking you a question around climate risk and disclosing climate risk. You and I have discussed before that climate change remains one of the most pressing challenges that we face. It is an economic issue. It is a health issue. I mean, it really cuts across our entire economy. I think in some ways it is like a slow-moving pandemic, and, of course, it poses a real risk to the banks that the Fed regulates.

So I know that in December—and I think it was a great idea—that the Fed joined the Network of Central Banks and Supervisors for Greening the Financial System. I think that is a step in the right direction. But my question gets to this: A lot of public disclosure on climate risks is mostly voluntary. It varies a lot from company to company, which makes it really hard to compare risks or interpret what those disclosures mean.

So could you talk to us about whether or not you think that climate risk disclosures should be standardized? Or should we continue to allow firms to sort of make their disclosures, if they make them at all, in whatever form they choose?

Mr. POWELL. I will. If you would permit me, I would first like to say that, of course, the overall response of society to climate change, which I agree with you is a very important problem, has to come from elected officials in Congress and also in executive branch under existing law. So that is really where this comes from.

Senator SMITH. I would agree with you.

Mr. POWELL. We have a specific role on climate change, which only extends to the scope of our mandate, which is really to assure the resilience of the institutions that we regulate and supervise.

But on disclosure—and this is really an SEC issue, but I would just say in general financial institutions everywhere, particularly the larger and medium-sized ones, are working hard on this question. There has been a lot of work done with the Task Force on Climate-Related Financial Disclosure, and other groups, you know, are struggling with this question of different kinds of disclosure that varies by jurisdiction and by institution. And I do think that it is appropriate to allow some of that difference to persist for now.

In the long run, clearly we ought to be going to kind of a template and more standardized, but it seems to me we can let this process—which is very much ongoing now among our own financial institutions, we can let it bear fruit for a while. But I think in the long run that we have to be going in the direction of more standardization.

Senator SMITH. So moving toward a more standardized, reliable, comparable kind of standard of disclosure makes sense to you?

Mr. POWELL. Yes, it does, over time.

Senator SMITH. Thank you. Thank you. And I just want to also just loudly agree with you that this is primarily an opportunity where Congress and the executive need to step up and take the steps that we need to take from a policy perspective. So I agree with you on that.

I have one other thing I would like to ask you about. There has been a lot of conversation today about the unevenness of the economic recovery and how that is affecting different people differently, and I would like to hit on one point about this.

Last week, I think it was, the Minneapolis Fed came out with a report looking at recovery, people recovering their employment, and it revealed in Minnesota and in the Minneapolis Fed district a dramatic difference in women rejoining the workforce or, in this case, not rejoining the workforce, a dramatic difference between women and men and even particularly a difference between lower-wage women workers and higher-wage women workers. This is a huge challenge because in many parts of my State, we actually have a workforce shortage. So it is an economic challenge as well as, of course, a challenge for families that have lost that really significant wage earner.

So, Chair Powell, could you just talk a little bit about this unevenness, the challenges of women returning to the workforce as we move through the pandemic, and then how you see that affecting our economic recovery?

Mr. POWELL. Sure. So we know that with the closure of schools and with home schooling, you know, parents have had to stay home, and that burden has fallen significantly more on women than on men. So women in effect have had to involuntarily withdraw from the workforce. Hopefully, that will be temporary, to the extent people want to return to the workforce, but that interrupts your career. It may be difficult to get back to where you were in the workforce and replace that work life that you had and sort of limit your ability to contribute to the economy. So it is important. And, again, it is not really our policies that can accelerate that, but policies that bring the pandemic to an end as soon as possible would help and allow us to open the schools up again would certainly help. But you are right, though, that there have been disproportionate impacts, and that is one of them.

Senator SMITH. Well, I know I am out of time, but I want to just toss in there that one of the key pieces of infrastructure for our economy to work, and especially to work for women, is a child care system that is there so that their young children have a safe, affordable place to go. This has been a big really kind of collapse in the child care system during the pandemic and something that I hope to be able to work with, continue to work with my colleagues on in Congress.

Thank you.

Mr. POWELL. Thank you.

Senator VAN HOLLEN. Thank you, Senator Smith.

Senator Tillis.

Senator TILLIS. Senator Van Hollen, can you hear me?

Senator VAN HOLLEN. I can hear you. We can hear you.

Senator TILLIS. I had to reboot my PC. Sorry about that, but thank you for your indulgence.

Chairman Powell, thank you for being here, and thank you for the time that we spent on the phone a few weeks back.

We have 210 million adults, Americans over the age of 18 in this country, and now we are at a run rate of about 1.7 million vaccinations a day now that we have had the lag in January. That is the first and second vaccination. So I think in answer to Chairman Brown's question, you said the most important thing we can do is accelerate the vaccine. Now we are on pace for having well over half of the country for people who want to take the vaccine vaccinated by, let us say, June, early July timeframe.

Back when you and Treasurer Mnuchin were before us, when we were debating what a follow-up package should look like, we ultimately passed one that was over $900 billion. We were talking about a bridge. In your opening statement, you also talked about an optimistic outlook in the second half if we continue to make progress on the vaccine. I am not going to ask you questions about the fiscal policy that we are debating in a $1.9 trillion package. But I am curious if, at least at a high level, you think it would be prudent to make sure that the additional money that we expend to continue to provide that bridge or build that bridge to recovery, should it be spent on things that are truly stimulative? Do you see any stimulative value, for example, in money coming from the Federal Government that ultimately makes it into bank accounts and not back into the economy on a short-term basis?

Mr. POWELL. Again, I do not want to comment on the particulars of the bill. Clearly, some kinds of support have higher multiplier effects, and the people who get the money have different marginal propensities to consume.

Senator TILLIS. I want to follow up on a question that Senator Moran asked about CMBSs in particular. With the eviction and foreclosure moratoriums ultimately sunsetting and with the CMBSs also being linked in many cases to pension plans and their potentially being volatile, what specific proactive steps should we consider as a matter of policy or can you take to avoid what may be some tough waters for that space of investments in probably the coming year?

Mr. POWELL. You know, the kind of tools that we have are not really appropriate for addressing those kinds of situations unless they become extremely broad, and I would not expect that. So I think it would come down to whether you want to direct specific assistance.

Senator TILLIS. Well, let me go back to one other thing on asset bubbles. I am sure you are familiar with President Bullard's comments about his belief that he does not see any potential risk of bubbles. Do you share that view?

Mr. POWELL. I would not comment on what one of my colleagues said. So I guess what I would say is this: We look at a really broad range of things when we talk about financial stability. We have got how much leverage is there in the banking system, households, nonfinancial corporates. We look at funding risks, and we look at asset prices. The thing we always get asked about is asset prices, but they are only one thing. Ultimately, what you want is a situation where movements in asset prices do not disrupt the broader financial system. I think we have highly capitalized banks, and we have done a lot to shore up the parts of the financial system that did not hold up during the prior crisis.

You know, I would not comment on any particular—on bubbles. You know, we are not—no one can really identify them. For any particular asset, even now, people have different perspectives. For example, in the equity market, there are some who say there is a bubble. Others say if you look at it this way, there is a lot of—I do not have an opinion on that for this purpose.

Senator TILLIS. Final question. I cannot see the timer, so I do not know if I am out of time. I know I am close, but I think Senator Van Hollen mentioned the payment system. What is the current status of the implementation relative to the original timelines for implementation and pricing?

Mr. POWELL. So we are right on track and feeling like we will be up and running in 2023, and that is good. We said it would be 2023 or 2024. So now we are thinking 2023. That is really good, and I just think it is a project that overall is very much on track. I do not have anything for you, any news on pricing, but it is on track.

Senator TILLIS. OK. Well, I look forward to reaching out and maybe speaking with you all about the implementation and some of the issues on pricing, which have been a concern of mine. Thank you, Chairman Powell.

Mr. POWELL. Thank you, Senator.

Chairman BROWN [presiding]. Thank you, Senator Tillis. And thanks to Senator Van Hollen for, while I was voting, taking over the Committee.

Senator Sinema from Arizona.

Senator SINEMA. Well, thank you, Chairman Brown, and thank you to Ranking Member Toomey for holding this hearing. Chairman Powell, it is good to see you. Thank you for joining us today.

Now, I will admit that when I hear from Arizonans, the first question or concern they have for me is not usually about the federal funds rate. It is not about the Fed's dual mandate or the money supply curve, because right now Arizonans are concerned about getting the coronavirus under control and getting our economy back on track. We want to ramp up vaccine production and distribution, support small businesses, deliver relief to struggling Arizonans, and reopen our schools safely. So my hope is that we will get critical relief [inaudible] to think about the future, not just the present crisis. We want a strong economic recovery, and that means ensuring the Fed's work complements our legislative efforts.

On December 16th, the Federal Open Market Committee stated that it will be "appropriate to maintain the current accommodative target range of the federal funds rate until labor market conditions have reached levels consistent with maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time." So the FOMC summary of economic projections from December show that most members' projections of the longer-run unemployment rate lie between 3.9 and 4.3 percent. So, Chairman, does that mean that the FOMC will not view the U.S. as having reached conditions that are consistent with maximum employment until the unemployment rate is 4.3 percent or less?

Mr. POWELL. Yes, and it means more than that, too. When we say maximum employment, we do not just mean the unemployment rate. We mean the employment rate, which is the inverse, and we mean it as a percentage of the population, employment to population, which also takes onboard relatively high levels of participation. We look at wages. We look at many things, a broad range of indicators on maximum employment.

Senator SINEMA. I see. Now, the statement lists three conditions for raising rates: full employment, 2 percent inflation, and projections of 2 percent-plus inflation. Are all three of these conditions necessary for the FOMC to consider raising its target for the federal funds rate?

Mr. POWELL. Yes, they are.

Senator SINEMA. Oh. Well, thank you. That is very helpful, and I appreciate you clarifying that for all of us.

You know, as we work to rebuild the economy and reopen safely, we will likely see pent-up demand in the hardest-hit sectors—hotels, tourism, and restaurants. And as you know, excessive pent-up demand can cause temporary sector-specific price inflation. But temporary sector-specific price inflation is very different than persistent economywide inflation. So taking overly aggressive action on a short-term limited problem risks cutting off relief before it reaches Arizona families, and that is because such action would increase interest rates on student loans, mortgages, and other household debts when families can least afford it.

So what tools would the Fed utilize to ensure that you effectively distinguish between temporary sector-specific inflation and the real deal?

Mr. POWELL. So as I mentioned earlier, we are very aware of the history of inflation and how it was gotten under control and how it got out from under control. I would just say looking at the current situation, we do expect that inflation will move up, in part because of what you mentioned, which is enthusiastic spending as the economy reopens, but we do not expect that the effects on inflation will be particularly large or persistent, particularly from sort of a one-time amount of spending due to the current situation. So we will be watching that carefully to make sure that is right, but we will be doing that patiently. And we would expect that the longer-run inflation dynamics that we have seen for more than a quarter century, where inflation expectations are grounded and inflation does not move up very much or it does not move down in bad times, does not move up that much in good times, we think those will not go away overnight. We think they will persist. They may well evolve, but, again, we would expect inflation to perform somewhat in keeping with the history of the last few decades.

Senator SINEMA. Thank you, Chairman Powell. Again, I appreciate you being here today. Mr. Chairman, let us work together to get the economy back on track and ensure that everyone benefits from this recovery.

Thank you, and I yield back.

Mr. POWELL. Thank you.

Chairman BROWN. All right. Thank you, Senator Sinema.

Senator Lummis from Wyoming is next.

Senator LUMMIS. Well, thank you, Mr. Chairman, and, Chairman Powell, thanks so much for appearing before the Committee today.

I have two questions. The first one centers on energy. As you know, demand has dropped for energy since the pandemic started, but economists are projecting greater demand later this year and into 2022, even while production declines under the current Administration's actions to restrict oil, gas, and coal development.

My question is this: Are inflationary risks weighted to the upside or downside if a demand shock occurs and reduced production cannot keep up?

Mr. POWELL. The downside for a long time. The situation you described, let us say hypothetically that it does push up energy prices in the near term. That would move through headline inflation, but it would not necessarily—it would raise prices. It would not necessarily change the rate of underlying inflation.

Senator LUMMIS. Would a balanced energy approach, more balanced than we are looking at right now, be appropriate until the supply demand curve returns to normal?

Mr. POWELL. You know, we do not really take positions on energy supply. Those are really issues for our elected representatives, notably including you, and I know you are an expert in the energy space.

Senator LUMMIS. Well, I will switch my questions then to innovative payment instruments. FedNow and other instruments like stablecoins and central bank digital currencies have the potential for much higher monetary velocities. So how will this impact the monetary transmission mechanism and collateral availability in the markets?

Mr. POWELL. Well, we do not think they will have much of an effect on monetary transmission, actually. We have had a tremendous amount of payment sector innovation for a long time, really, and monetary policy transmission continues to be about what it is. We change interest rates, and that works its way through the economy, and that supports economic activity or restrains it, depending on where interest rates are. So we do not actually think there is going to be a tight connection between the FedNows and the stablecoins of the world. And I would agree with you it is important to have collateral, and, you know, what we see in the markets is far from a shortage of collateral. There seems to be ample collateral, if you just look at the rates that are being paid.

Senator LUMMIS. Could higher velocities from innovative payment instruments lead to a refocusing of the monetary transmission mechanism away from the securities markets and toward more of a bank-focused transmission mechanism based on demand deposits?

Mr. POWELL. Again, we do not see—the premise is—that might be right. We do not actually think, though, that there is much reason or evidence to expect, or showing that these innovations will have much of an effect on velocity, or on transmission for that matter. So we should talk about this offline. It is a very interesting question, actually. But we do not really see the premise, but I would love to hear more.

Senator LUMMIS. I will look forward to those conversations. One more question. Do we need a central counterparty for the clearing of Treasuries?

Mr. POWELL. Interesting question, and that is a proposal. We are doing a lot of thinking these days, along with colleagues from other agencies, about the structure of the Treasury market, given what happened during the acute phase of the pandemic when there was so much selling pressure and there was not the capacity to handle it. And one way to do that would be to have central clearing. It certainly has benefits, and I have been a big fan of central clearing in other parts of the economy. It is something that we are looking at. I do not know that it will wind up being part of the solution, but it is certainly worth looking into. So, again, another very interesting analysis and question.

Senator LUMMIS. Well, thank you. Senator Sinema, who previously spoke, and I have founded a Financial Innovations Caucus in the Senate, and these are some of the things that we want to explore, plus many other things. So we will look forward to addressing some of these questions through the Financial Innovations Caucus and through this Committee. So thank you so much, Chairman Powell, for being with us today and for your insights. I yield back.

Chairman BROWN. Thank you, Senator Lummis.

Senator Ossoff from Georgia, you are recognized.

Senator OSSOFF. Thank you, Mr. Chairman, and thank you, Chairman Powell, for joining us this morning and this afternoon, and for the discussion that we had several days ago.

Chairman Powell, it may not be widely known that the Fed's retail payment office, or RPO, is based in Atlanta, and the RPO is responsible for most transactions involving Americans' checking accounts, ACH transactions, direct debit. This is critical financial infrastructure vital to the functioning of our economy. Do you have concerns that cybersecurity threats to the RPO could pose a systemic risk to the U.S. economy? And will you commit to working with my office to review the cybersecurity of the Atlanta-based RPO and to improve it if necessary?

Mr. POWELL. I would agree with you that those are very important issues. I do think that the Atlanta Fed is very focused on those issues, but I would be, of course, delighted to work with your office in that respect.

Senator OSSOFF. Thank you so much. There is no doubt, Chairman Powell, that the COVID–19 pandemic is the most significant drag on economic growth and job creation, but could you step back please and comment on what you assess to be the most significant systemic threats to global or national financial stability?

Mr. POWELL. Well, you know, clearly, bringing the pandemic to an end in the United States and globally, a real decisive end, would take so much risk to the financial system end of the economy and to the people we serve off the table. So you really cannot overestimate the importance of getting that done quickly, and we can do it, but just remember—we have not done it yet, but we really can do it as a country. And it has to happen all around the world, or we will keep getting echoes of this, you know, possibly next winter, but this is where we do not want to be. We want to get this done and have it be decisive.

Beyond that, I think the advanced economies have issues around growth, around an aging population and low interest rates, low inflation, low growth, low productivity worldwide, the United States to a lesser extent than many other advanced economies. But those are issues that we face that threaten different kinds of stability. Those are big, big issues that we think about and we have to address to some extent with our policies. So I could go on.

Senator OSSOFF. Thank you, Chairman Powell. I appreciate that. And recognizing that you are, as a matter of policy, not commenting on the specific fiscal measures that Congress is considering, can you please guide us through what your thinking would be, if Congress were to engage in more ambitious fiscal expansion, with more significant or more sustained fiscal support for low- or middle-income households, without commenting on any specific legislation, how might that change the Fed's policy outlook?

Mr. POWELL. So we take fiscal policy into account. It is completely—we take it as a given, whatever fiscal policy is. And it is one of many, many factors that will affect the path of the economy. We are focused entirely on the state of the economy and the path to maximum employment and price stability. That is our focus. Anything that affects that can affect what we see. But we will be looking at the actual data in our forecast. We will not be reacting to specific policies, if that is what you mean. Again, I would say over the longer term——

Senator OSSOFF. Chairman Powell, you have acknowledged the extreme difficulty of economic conditions for low-income and low-wealth households in this hearing. Which provides more direct economic relief to low-income households who may not own stocks or hold mortgages or run businesses: direct fiscal relief or monetary expansion whose effects are mediated by money markets and the banking system?

Mr. POWELL. Well, I would just say again, without commenting on a particular bill, fiscal policy, if we are talking about targeting specific groups within society for support, that is the work of fiscal policy. Monetary policy is really not designed to do that.

Senator OSSOFF. That is right. So if trying to relieve the suffering of people who are in economically precarious situations in their household, who, again, do not own stocks, do not own businesses, do not have mortgages, direct fiscal relief will be a more effective means of relieving their suffering than the broader macroeconomic intervention of the Fed through monetary policy. Is that a correct paraphrasing of your statement?

Mr. POWELL. Yes, and that is really been the story of this recovery, is fiscal policy has really stepped up and done that. We have done what we can, too, but fiscal policy——

Senator OSSOFF. OK. I have just 20 seconds. Chairman, I want to return to systemic risk. The provision of massive liquidity to the financial system, not just since COVID but since the 2007–08 crisis, risks the emergence, as the Ranking Member noted, of asset bubbles that could pose a systemic risk to the banking system. Do you believe that we have sufficient surveillance and risk management capacity right now to identify those risks before they threaten financial stability?

Mr. POWELL. I do. We monitor financial markets very carefully and so do many others. It is not a question of lack of monitoring capacity.

Senator OSSOFF. OK. Thank you so much, Chairman Powell. Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Ossoff.

Senator Daines from Montana is recognized. Or perhaps he is not here. Senator Cramer from North Dakota has not spoken yet. He had checked in earlier. Is he here?

Senator Warnock from Georgia is recognized.

I understand people are voting. Let me ask one question. I wanted to ask—hang on a second. I apologize. I wanted to ask the Chairman a question about climate, and I had mentioned, I will do this question in writing. I would rather obviously do it now while we are waiting, and I will not keep you long if the other Members do not show up.

Chairman BROWN. We know that low- and moderate-income communities and Black and Brown communities suffer the effects of climate change disproportionately. When a hurricane hits—and always have suffered weather disasters, way out of proportion to their numbers. When a hurricane hits, when wildfires ravage an entire town and regions, entire spring planting washes down the Mississippi, local residents need Government agencies to be agile and flexible in response.

What policy changes, Mr. Chair, will the Fed implement to promote consumer protection in community development and do things like ensuring access to cash or other means of payment when these more frequent extreme weather events devastate already distressed communities or whole regions? Are you coordinating on this with the Federal Reserve Banks, among the 12 banks?

Mr. POWELL. Yes. So that is a good example, really, of the way—to the extent climate change leads to increased episodes of severe weather, we need the banking institutions that we supervise to be in a position to perform really critical functions in the aftermath of this, those of us who see that. By the way, the Federal Reserve System itself, our Reserve Banks get the cash. They take the actual physical cash and get it to those affected areas. It is something they do very well, and we need to be resilient and available to do that—able to do that, rather. And then we need the banks to be able to perform the function that they perform with their ATMs and their branches to get that cash out to people who may be in pretty dire circumstances in the wake of a natural disaster.

Chairman BROWN. Senator Daines from Montana is recognized for 5 minutes.

Senator DAINES. All right. Thanks, Mr. Chairman.

Chairman Powell, it is good to have you here. I just was looking at the T-bill chart and noticing since the 1st of February, the 1-month rates have dropped in half, from 0.06 to today 0.03; 2 months went from 0.07 to 0.02. We are starting to get into that realm here of possibly negative rates, which we saw, of course, briefly a year ago March.

I just want to get your thoughts on that. Is there any issues here of shortage collateral? What is driving this as you are watching some of these short-term rates approaching zero?

Mr. POWELL. So with T-bills in particular, this would really be a Treasury issue, but I would say, you know, it is a lot of demand for short term—there is a lot of liquidity and people want to store it to some extent in T-bills, and there is demand and, therefore, that drives down the rates that people are being paid—or are receiving for buying those assets.

From our standpoint, our policy rate is the federal funds rate. And to the extent there were to be downward pressure on that because of, for example, the Treasury general account shrinking in size, then we have tools that we can use to keep that rate in our intended policy range, and we will do that. And that should also limit the extent to which other money market instruments like T-bills would go even lower or perhaps negative.

Senator DAINES. So do you have a concern? Many of us were surprised when we saw negative rates here a year ago. These rates are getting awfully low in the short term. Is that a concern of yours then or not?

Mr. POWELL. Well, again, our principal concern is that the federal funds rate be in its intended range, the range intended by the Federal Open Market Committee. We do see that there is the possibility that other money market rates could move down. And I think to the extent we are able to keep the federal funds rate in its range, that should ameliorate some of that downward pressure. And that would be appropriate.

Senator DAINES. To follow up on that same point, Mr. Chairman, the last couple of weeks, we have seen a lot of volatility, for example, in the Texas gas markets that to a degree spread out to other markets. If there were several of these other kind of special circumstances all happening at the same time, might this lead to a shortage of collateral from T-bills, as seemed to be in the case that we saw here last March?

Mr. POWELL. It is possible. I do not really see that happening, but it is true that there is tremendous demand. And, again, the issue of supplying the demand across the curve is really one for the issuer, which is Treasury.

Senator DAINES. Is there any merit or might it be a good idea to waive the supplementary leverage ratio for, say, a year until some of these special circumstances we are seeing regarding the recovery from the pandemic in the past and when perhaps we will have less possible need for some of the dealer intermediation in the repo market and some of the other short-term markets?

Mr. POWELL. As you I am sure know, the temporary relief that we granted regarding the SLR expires at the end of March.

Senator DAINES. Right.

Mr. POWELL. And we are right in the middle of thinking about what to do about that. I do not have any news for you on that today, but we do expect to make a decision on what to do about that exemption, that change we made to SLR back last year.

Senator DAINES. Let me shift gears in looking at some of the prospects of these asset bubbles here. We are seeing signs of speculation across various portions of the economy. Stocks, of course, are trading at very high prices to earnings ratios; ag commodities moving up, economically sensitive materials, such as copper, nickel, they are soaring; Bitcoin is up 80 percent this year alone.

Mr. Chairman, how do we know when, I guess to quote—I think it was Mr. Greenspan talked about "irrational exuberance" has unduly escalated asset values, which then might become subject to unexpected and perhaps prolonged contractions?

Mr. POWELL. So as we look at those things that you cited, what many of them have in common is that they are related to expectations of and greater confidence in a stronger recovery. So that is the metals. It is not so much Bitcoin, but it is the metals that you mentioned and inflation expectations and other securities. Prices are really related to—you know, because of all the factors that are out there right now, an expectation that the recovery is going to be stronger, sooner, and more complete. And so that is OK. We saw commodity prices moved up a lot in 2008 and 2009, and people were worried about inflation. The Inflation never came. So it is a healthy sign, I think, there.

Honestly, we are focused on making sure that we are providing the support that the economy needs to get back to maximum employment and stable prices. We have still got 10 million people, fewer working now, according to the payroll statistics. And it is much worse than that among the workers in the lower quartile. So that is really our focus. Our focus in financial stability generally has been to have a banking system and financial sector that is highly resilient to shocks and——

Chairman BROWN. I am going to change the order of this.

Senator DAINES. All right, Mr. Chairman, I am over my time at the moment. So thank you. I yield back.

Chairman BROWN. Thank you, Senator Daines.

Senator Warnock from Georgia is recognized for 5 minutes. Senator Warnock.

Senator WARNOCK. Thank you so very much, Chairman Brown, and I look forward to working with you and also with Ranking Member Toomey and other Members of this Committee. I am grateful to Chairman Powell. Thank you so much for taking the time to talk to me 2 weeks ago. I look forward to working with you as we work on a recovery that embraces our whole country. And I especially look forward to working with you and Atlanta Fed President Raphael Bostic to help Georgians over the next 2 years.

Some have suggested that our COVID–19 challenges with unemployment, with homelessness, and poverty will be solved if we simply lift all local restrictions and open up the economy. But since the beginning of this crisis, I have heard you stress time and time again, and something along this order even today as you offered your testimony, that the path of the economy, you said on one occasion, continues to depend significantly on the course of the virus.

Would you mind elaborating on why this is the case? Will the economy fully recover if people do not feel safe and comfortable that the virus is contained?

Mr. POWELL. I would answer your question in the negative. It would not. We know that actually at the beginning of the pandemic, if you look at the plummeting levels of travel and going to restaurants through OpenTable, all that data, it shows that people stopped doing those things because of the coronavirus before there were governmental restrictions at the State and local level to do it, to do those things. So it really is to a significant extent just people wanting to avoid catching the coronavirus.

It is also, you know, the restrictions that are in place in some cases on the part of governments. It is not a role for us to express views on whether they should be lifted or not. That is really something for State and local governments. But, you know, clearly, if you look at the 10 million people who are out of work, a great number of them are in those sectors of the economy that have been so badly affected by COVID. And those are the ones where they gather closely and where people are still—not every person, but many people are still reluctant to go to indoor restaurants, for example. And you see sporting events, they are not having crowds. The people who worked in those areas, those are the ones who were affected, and it is going to be hard for them to go back to work until people are confident, as you say.

Senator WARNOCK. So we want the economy to fully recover, but we have got to get the virus under control, and those things work together, which is why I am glad to see $20 billion in the vaccine rollout funds and the COVID–19 stimulus package. And I am going to do everything I can to make sure that we get those funds approved and out the door so that we can reopen and do so safely and permanently.

You are tasked primarily with looking at the whole economy and with the big picture in guiding our country forward. And one of the things that you have to look at as you do that is systemic risks. You and the other Governors over at the Fed Board have to ask, well, what risks are systemic? And in that regard, I am curious how broad is your definition of systemic risk? My definition of systemic risk includes a cycle of poverty. It includes things like disparities in wages that mean women make less than men, people of color make less than their White sisters and brothers. It includes food insecurity, housing insecurity, lack of access to health care. These things feed a cycle that limits opportunity, limits upward mobility, and people's ability to reach their full potential, which then has implications for the whole economy.

How do you factor these kinds of things in as you take stock of whether the economy is working or not and for whom is the economy working?

Mr. POWELL. So you have heard us increasingly in recent years talking about these longer-run disparities and why do we feel that we can do that? It is because they weigh on the economy in the sense that if not everyone has the opportunity to participate in the economy and contribute as much as that person can contribute, given his or her talents and abilities and willingness to work and all those different things, then the economy is going to be less than it can be. And in our country, of course—and every country faces challenges. We are not alone in this, but we do face persistent, very persistent differentials that are hard to account for and that weigh on the economy. And those are along racial lines, along gender lines and other lines. And I just think it is—I would say it is widely understood now that we need to do everything we can to bring people into the economy and let them contribute and let them share in the broader prosperity.

Senator WARNOCK. Thank you, Chairman Powell. It is clear that the bottom line is that poverty, systemic inequality, wealth inequality are risks to the entire economy and have implications for all of us; that these issues cannot be siloed, which is why we have got to take this into consideration as we push forward COVID relief, and then pivot to address longstanding issues of wealth inequality in our country.

Thank you so very much.

Chairman BROWN. Thank you, Senator Warnock.

For Senators who wish to submit questions for the record, these questions are due 1 week from today, Tuesday, March 2nd.

Chair Powell, based on the change we made to our Committee rules bipartisanly, you have 45 days to respond to any questions.

I appreciated the dose of reality we heard from Chair Powell today: 10 million fewer jobs. We are only creating 29,000 new jobs a month. That is unacceptable. As you said, Mr. Chairman, when it comes to our recovery, the job is not done. Talk to any mother or essential worker or mayor. Talk to the people who own barber shops and diners and drycleaners. Everything is not fine.

Much of what we heard from my Republican colleagues today sounds pretty out of touch with the reality that the great majority of American families are living in. It is the same message we heard all last summer, last fall, the stock market is up, everything is fine. We heard it again today.

Certainly the wealthiest sliver of Americans are doing just fine, just like they were before the pandemic, but our job is not to work for them; it is to work for everyone, as you and I have discussed, Chair Powell. The Fed has multiple tools to increase employment, fight wealth inequality, create an economy that Senator Warnock just spoke about, that works for the vast majority of people who get their income from a paycheck, not an investment portfolio. You, Mr. Chair, have a responsibility to use all of those tools toward that goal. I continue and look forward to continuing to work with you to do all of that.

With that, the hearing is adjourned. Thank you so much.

[Whereupon, at 12:22 p.m., the hearing was adjourned.]

[Prepared statements, responses to written questions, and additional material supplied for the record follow:]

PREPARED STATEMENT OF CHAIRMAN SHERROD BROWN

At this Committee's first hearing, we heard from our witnesses the challenges and struggles Americans have faced over the past year.

Anyone who has been doing their jobs has heard these stories. Front line workers—like our transit workers—go to work every day worried they'll get the virus on the job, and bring it home to their families. Mayors and county commissioners and community leaders wonder how long they can hold on without starting layoffs. Renters see the bills pile up, watching their bank balance dwindle lower and lower, and wondering if this will be the month an eviction notice comes.

Today more than 4 million people are out of a job—and the trend continues upward. Last week jobless claims rose again. We are still fighting the battle against the coronavirus—nearly 500,000 of our fellow Americans have died from COVID–19.

We all know that we are facing two crises—a public health crisis, and an economic crisis. We have to be clear about that—we can't solve one without solving the other.

We know getting our economy back to full strength requires a massive, wartime level mobilization to get all Americans vaccinated.

We also know that vaccines alone will not put most workers and their families back to where they were a year ago.

We want people back to work and we want kids back in school and we want to see main streets thriving and humming with life again. That requires real Federal leadership on a level we have not seen in this country since World War II.

As Bill Spriggs alluded to when testifying before this Committee, before D-Day, General Eisenhower didn't call up the president or the Treasury Secretary and ask, can we afford to storm the beaches at Normandy? Do we have the money in our accounts?

Most people that I talk to in Ohio and around the country aren't worried about doing too much in the battle against coronavirus; they're worried about doing too little. They want us to do whatever it takes.

85 percent of Americans still need a vaccine.

Our front line workers still need PPE. Small businesses still need assistance to keep their doors open. States and cities and towns still need resources and support to open schools safely and keep buses running and libraries open and firefighters on the job.

And the experts agree that the best thing we can do for the country right now is to get resources out the door as quickly as possible, to tackle all of these interconnected problems.

Former Fed Chair, now our Treasury Secretary, Janet Yellen said that if we don't do more, we risk a permanent "scarring" of the economy into the future.

Economists from across the political spectrum—including many who have testified before this Committee—tell us that without strong fiscal support, our economy could spiral even further out of control and take years to recover.

Our witness today, Federal Reserve Board Chair Jerome Powell, has expressed some of those same concerns. Just a few weeks ago—after we passed the COVID–19 relief bill in December—he said that "support from fiscal policy will help households and businesses weather the downturn as well as limit lasting damage to the economy that could otherwise impede the recovery."

Chair Powell has talked to all of us about the risk of falling short of a complete recovery, and the damage it will do to peoples' lives and to the "productive capacity of the economy"—his words.

President Biden understands this moment, and he's risen to meet it with his bold American Rescue package. It's a plan to both rescue the economy and to save American lives.

Workers and their families need to see their Government work for them, now.

And this rescue plan must be the beginning of our work to deliver results that empower people and make their lives better, not the end. We need to rethink how our economy operates. When a hard day's work doesn't pay the bills for tens of millions of workers, and even middle class families don't feel stable, something in that system is broken.

Workers' wages have been stagnant for decades, while CEO pay has soared. Corporations get huge tax breaks, and instead of investing in their employees and communities they serve, management reward themselves and shareholders through stock buybacks and dividends.

The wealth and income gaps for women, and for Black and brown workers, are getting worse, not better. Many families still had not recovered from the Great Recession when the pandemic hit.

This didn't happen by accident. It's the result of choices made by corporations and their allies in Washington.

They've spent years rolling back consumer protections in our financial system, cutting corporate tax rates, and using Wall Street to measure the economy instead of workers.

And the same people that have been advocating for these roll backs, pushing this stock market-centered view of the economy, are the same people who say we shouldn't go big on a rescue plan. They say that there's no need for the Government to help people—the market should decide who wins and who loses.

But we all know that the market doesn't work when the game is rigged. And the corporations that have been lining their own pockets have done so with plenty of Government help and intervention.

We know that for them, short-term profits are more important than their workers. That's why we have to stop letting them run things.

Just look at what's happening in Texas, where a deregulated energy grid failed, leaving millions without power in frigid winter temperatures. People are literally freezing to death in their own homes—in the United States of America.

And without any rules, energy companies can charge consumers sky high prices. They even use automatic debits, taking thousands of dollars directly out of people's bank accounts. We know climate change is causing severe weather across our country. We need more investment in public infrastructure, not less, and we can't let corporate greed continue to stand in the way.

Our Nation's central bank plays a critical role in all of this.

The Federal Reserve can ensure that the biggest banks use their capital to invest in their workers and lend in their communities, instead of ginning up their stock prices with buybacks and dividends.

The Fed can make sure the response to economic and financial crises doesn't just help Wall Street, it helps everyone else.

It can require that financial institutions take into account the serious risks posed by the climate crisis.

It can help ensure that everyone in this country has a bank account and access to their own hard earned money. And it can start to undo the systemic racism in the financial system, and make workers the central focus of our economy.

Chair Powell, you said just a few weeks ago that, quote, the "benefits of investing in our Nation's workforce are immense. Steady employment provides more than a regular paycheck. It also bestows a sense of purpose, improves mental health, increases lifespans, and benefits workers and their families."

What that boils down to is the Dignity of Work. It means that hard work should pay off, no matter who you are or what kind of work you do. It means that we need to start measuring the success of our economy by the success of the people who make our economy work.

Chair Powell, thank you and I look forward to your testimony.

PREPARED STATEMENT OF JEROME H. POWELL

CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

FEBRUARY 23, 2021

Chairman Brown, Ranking Member Toomey, and other Members of the Committee, I am pleased to present the Federal Reserve's semiannual *Monetary Policy Report*.

At the Federal Reserve, we are strongly committed to achieving the monetary policy goals that Congress has given us: maximum employment and price stability. Since the beginning of the pandemic, we have taken forceful actions to provide support and stability, to ensure that the recovery will be as strong as possible, and to limit lasting damage to households, businesses, and communities. Today I will review the current economic situation before turning to monetary policy.

Current Economic Situation and Outlook

The path of the economy continues to depend significantly on the course of the virus and the measures undertaken to control its spread. The resurgence in COVID–19 cases, hospitalizations, and deaths in recent months is causing great hardship for millions of Americans and is weighing on economic activity and job creation. Following a sharp rebound in economic activity last summer, momentum slowed substantially, with the weakness concentrated in the sectors most adversely affected by the resurgence of the virus. In recent weeks, the number of new cases and hospitalizations has been falling, and ongoing vaccinations offer hope for a return to more normal conditions later this year. However, the economic recovery remains uneven and far from complete, and the path ahead is highly uncertain.

Household spending on services remains low, especially in sectors that typically require people to gather closely, including leisure and hospitality. In contrast, household spending on goods picked up encouragingly in January after moderating late last year. The housing sector has more than fully recovered from the downturn, while business investment and manufacturing production have also picked up. The overall recovery in economic activity since last spring is due in part to unprecedented fiscal and monetary actions, which have provided essential support to many households, businesses, and communities.

As with overall economic activity, the pace of improvement in the labor market has slowed. Over the 3 months ending in January, employment rose at an average monthly rate of only 29,000. Continued progress in many industries has been tempered by significant losses in industries such as leisure and hospitality, where the resurgence in the virus and increased social distancing have weighed further on activity. The unemployment rate remained elevated at 6.3 percent in January, and participation in the labor market is notably below prepandemic levels. Although there has been much progress in the labor market since the spring, millions of Americans remain out of work. As discussed in the February *Monetary Policy Report*, the economic downturn has not fallen equally on all Americans, and those least able to shoulder the burden have been the hardest hit. In particular, the high level of joblessness has been especially severe for lower-wage workers and for African Americans, Hispanics, and other minority groups. The economic dislocation has upended many lives and created great uncertainty about the future.

The pandemic has also left a significant imprint on inflation. Following large declines in the spring, consumer prices partially rebounded over the rest of last year. However, for some of the sectors that have been most adversely affected by the pandemic, prices remain particularly soft. Overall, on a 12-month basis, inflation remains below our 2 percent longer-run objective.

While we should not underestimate the challenges we currently face, developments point to an improved outlook for later this year. In particular, ongoing progress in vaccinations should help speed the return to normal activities. In the meantime, we should continue to follow the advice of health experts to observe social-distancing measures and wear masks.

Monetary Policy

I will now turn to monetary policy. In the second half of last year, the Federal Open Market Committee completed our first-ever public review of our monetary policy strategy, tools, and communication practices. We undertook this review because the U.S. economy has changed in ways that matter for monetary policy. The review's purpose was to identify improvements to our policy framework that could enhance our ability to achieve our maximum-employment and price-stability objectives. The review involved extensive outreach to a broad range of people and groups through a series of Fed Listens events.

As described in the February *Monetary Policy Report*, in August, the Committee unanimously adopted its revised Statement on Longer-Run Goals and Monetary Policy Strategy. Our revised statement shares many features with its predecessor. For example, we have not changed our 2 percent longer-run inflation goal. However, we did make some key changes. Regarding our employment goal, we emphasize that maximum employment is a broad and inclusive goal. This change reflects our appreciation for the benefits of a strong labor market, particularly for low- and moderate-income communities. In addition, we state that our policy decisions will be informed by our "assessments of *shortfalls* of employment from its maximum level" rather than by "*deviations* from its maximum level."[1] This change means that we will not tighten monetary policy solely in response to a strong labor market. Regarding our pricestability goal, we state that we will seek to achieve inflation that averages 2 percent over time. This means that, following periods when inflation has been running below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time. With this change, we aim to keep longer-term inflation expectations well anchored at our 2 percent goal. Well-anchored inflation expectations enhance our ability to meet both our employment and inflation goals, particularly in the current low interest rate environment in which our main policy tool is likely to be more frequently constrained by the lower bound.

We have implemented our new framework by forcefully deploying our policy tools. As noted in our January policy statement, we expect that it will be appropriate to maintain the current accommodative target range of the federal funds rate until

[1] Italics have been added for emphasis.

labor market conditions have reached levels consistent with the Committee's assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time. In addition, we will continue to increase our holdings of Treasury securities and agency mortgage-backed securities at least at their current pace until substantial further progress has been made toward our goals. These purchases, and the associated increase in the Federal Reserve's balance sheet, have materially eased financial conditions and are providing substantial support to the economy. The economy is a long way from our employment and inflation goals, and it is likely to take some time for substantial further progress to be achieved. We will continue to clearly communicate our assessment of progress toward our goals well in advance of any change in the pace of purchases.

Since the onset of the pandemic, the Federal Reserve has been taking actions to support more directly the flow of credit in the economy, deploying our emergency lending powers to an unprecedented extent, enabled in large part by financial backing and support from Congress and the Treasury. Although the CARES Act (Coronavirus Aid, Relief, and Economic Security Act) facilities are no longer open to new activity, our other facilities remain in place.

We understand that our actions affect households, businesses, and communities across the country. Everything we do is in service to our public mission. We are committed to using our full range of tools to support the economy and to help ensure that the recovery from this difficult period will be as robust as possible.

Thank you, I am happy to take your questions.

RESPONSES TO WRITTEN QUESTIONS OF CHAIRMAN BROWN FROM JEROME H. POWELL

Q.1. The Supervisory Climate Committee (SCC) will look at two of the Fed's core functions through the lens of climate risk: promoting the stability of the financial system; and promoting the safety and soundness of financial institutions and evaluating their impact on the financial system. As we have seen recently in Texas, and over the last couple of years with catastrophic wildfires in California or historic spring flooding in the Plains Sates, both in the wake of years of persistent droughts, climate change exacerbated extreme weather events can dramatically affect Americans' jobs and businesses. How will the Fed take into account climate change as part of its mandate to ensure maximum employment?

A.1. As you note, earlier this year we announced the formation of our Supervision Climate Committee (SCC), which brings together senior staff from the Federal Reserve Board (Board) and the Reserve Banks as we work to better understand potential climate-related financial risks to supervised institutions. The formation of the SCC is part of the Federal Reserve's ongoing work to help ensure the resilience of supervised firms to climate-related risks.

To best pursue our mandated monetary policy goals of maximum employment and price stability, the Federal Reserve must, and does, assess any factor that can materially affect the dynamics of the job market and inflation. While climate change is not a current consideration for monetary policy, we recognize that climate change, and the policies governments implement in response, could alter the behavior of employment and inflation over time. Researchers throughout the Federal Reserve System are actively examining the longer-run implications of climate change for the economy, financial institutions, and financial stability, and if we find important changes in these areas, we will take account of them in our analysis.

Q.2. I applaud your efforts to establish the SCC, but I am concerned that waiting for the SCC to make reports on its agenda before acting to consider climate risk in the Feds other core functions may be too late. What is your timeline to incorporate climate change as a national and global factor to be considered in carrying out all Federal Reserve functions?

A.2. Congress has assigned the Federal Reserve narrow but important mandates around monetary policy, financial stability, and supervision of financial firms, and our current work is directed at enabling us to consider the potential effects of climate change in relation to the achievement of those statutory mandates. For example, our most recent Financial Stability Report and Supervision and Regulation Report discuss at a high level how climate change may create or change risks to the financial system or to individual supervised institutions.[1]

In addition, we have been participating in climate-related projects in a number of multilateral groups, including the Financial Stability Board and the Basel Committee on Banking Supervision,

[1] See *https://www.federalreserve.gov/publications/2020-november-financial-stability-report-purpose.htm* and *https://www.federalreserve.gov/publications/2020-november-supervision-and-regulation-report.htm*.

and the Federal Reserve recently became a member of the Network for Greening the Financial System. We are taking a careful, thoughtful, and transparent approach to this work, and we will engage with Congress and the public along the way.

Q.3. In your testimony, you reiterated the Federal Open Market Committee's position that maximum employment is a broad and inclusive goal. Even before the pandemic, many workers in the United States were facing pervasive underemployment, including workers who are working part time but want to work full time. Nearly 6 million Americans are working part time for economic reasons, meaning they would normally be working full-time but are forced to work fewer hours than they would like.[2] To what extent does the Federal Reserve take into account the number of part-time underemployed workers in its assessment of the health of the economy and conduct of monetary policy? How does the number of workers who work part-time for economic reasons contribute to the racial and gender wealth and income gaps?

The Federal Open Market Committee's (FOMC) goal of maximum employment tries to capture the labor market experiences of all Americans and to account for a broad range of labor market outcomes (as opposed to simply counting how many people have jobs). Underemployment is one of the outcomes that we are concerned with. It can come in many forms, ranging from discouraged workers who no longer seek work, to those who are actively looking for work but have not found a job (the usual definition of unemployment), to those who are working part time, but would prefer a full-time job. Workers in this third category are said to be working part time for economic reasons. The number of people working part time for economic reasons is quite cyclical and surged to over 10 million during the initial stage of the pandemic. Since then, the number of those working part time for economic reasons has shrunk to about 6 million, which is still nearly 2 million above the level that prevailed prior to the onset of the pandemic. Those working part time for economic reasons tend to be disproportionately women, Blacks, or Hispanics, which means that an increase in the size of this group can contribute to greater income inequality. We consider this dimension of underemployment, along with others, in putting together our overall assessment of the health of the labor market and in determining how close we are to meeting our maximum employment goal.

Aside from the overall unemployment rate, what labor market indicators and statistics do you look at in determining full employment? Do you agree that the Federal Reserve's responsibility to ensure maximum employment means full-time employment for every worker?

A.3. To gauge the performance of the labor market we look at a wide range of aggregate measures as well as more granular and disaggregated statistics. Importantly, though, we do not think there is one single measure that captures the overall performance

[2] "Labor Market Weaker Than Headline Numbers Suggest Center on Budget and Policy Priorities" (cbpp.org); "Unemployment Rates During the COVID–19 Pandemic: In Brief", Congressional Research Service, February 15, 2021, available at: *https://crsreports.congress.gov/product/pdf/R/R46554.*

of the labor market. Among the data at the aggregate level, we examine the standard unemployment rate along with broader measures of underemployment that capture discouraged workers and those working part time who would prefer to work full time if they could find a full-time job. We also look at labor force participation and the reasons why people are not in the labor force. In addition, we monitor job openings and job-finding rates, as well as layoffs and unemployment insurance claims. Many of these same measures are available for less aggregated groups of the population; in particular, these statistics can be broken down by gender, race or ethnic identity, education level, and across rural and urban areas.

Unlike price stability, the FOMC does not have a numerical target for its maximum employment goal. This reflects the complexity of the labor market, which in turn implies that one summary statistic will not be able to capture every important element of the state of the labor market. In addition, changes over time in various features of the labor market may result in changes to the level of employment that is consistent with our maximum employment goal. For example, the labor market has been importantly affected in recent decades as the population has aged and average educational attainment has increased. In addition, technological shifts have changed the supply and demand for different types of workers. More recently, the pandemic could leave a lasting imprint on labor market performance in coming years, and we will have to use the indicators described above to assess when we reach full employment in the context of price stability.

Finally, even at maximum employment there will still be some amount of unemployment, both voluntary (as workers search for jobs that best match their skills), and involuntary (because in a dynamic economy, business downsizing or business closures will result in temporary periods of unemployment for some workers). We are committed to using our full range of tools to support the economy and to help ensure that the economy's return to maximum employment is as robust as possible.

Q.4. During the June 16, 2020, *Monetary Policy Report* hearing, I asked you if you would commit to a study about how the Federal Reserve's policies have contributed to systemic racism in this country. What progress, if any, have you made on this request since then?

A.4. Discrimination has no place in our society. Moreover, it is a weight on the economy that restricts opportunity for those who want to contribute and share in the prosperity of a robust economy. The Federal Reserve devotes considerable time and attention to analyzing disparities in income, wealth, employment, and other economic outcomes for demographic groups and geographic areas. Understanding these disparities, and their implications for the functioning of the economy, is a key input to effective policymaking. The importance the Federal Reserve places on identifying, reporting, analyzing, and engaging with the public on these important issues is evident in the body of work that is posted on our public website. [3]

[3] *https://www.federalreserve.gov/newsevents/economic-disparities-work.htm*

In addition to consideration of economic disparities in our monetary policy, research, and outreach efforts, the Federal Reserve also has supervisory authority for consumer protection and fair lending laws. We have a rigorous fair lending supervision program and evaluate fair lending risk at every consumer compliance examination, reviewing banks' practices to ensure that financial institutions under our jurisdiction fully comply with applicable Federal consumer protection laws and regulations. Further, with the increased presence of FinTech and artificial intelligence (AI) in underwriting and lending, we have been studying the benefits and challenges of the advancement of these technologies, including the potential risks of amplifying bias and inequitable outcomes. It is important that we understand how complex data interactions may skew the outcomes of algorithms in ways that undermine fairness and transparency. We also regularly discuss these issues with the other agencies and plan to issue an interagency request for information on risk management of AI in financial services to help obtain more insight into the application of various technologies in lending and other financial services activities.

Q.5. Historically, the Federal Reserve has a poor track record when it comes to a diverse workforce—one that reflects the population of the United States. What steps have you taken to diversify the workplace at the Fed? Are there specific mechanisms that you have in place to support people of color who work at the Fed?

A.5. The Board is dedicated to developing and sustaining a diverse and inclusive workforce. In support of its commitment, the Board has in place strategic objectives to attract, hire, develop, promote, and retain a highly skilled and diverse workforce. We continue to strengthen a diverse, equitable and inclusive culture and workplace through our policies and practices. We strive to learn from our experiences and adhere to best practices.

Through these and other intentional and coordinated actions we ensure our continued commitment:

- Frequent engagements and activities for the entire Board staff and for smaller groups that encourage and enable employees' sharing of experiences addressing diversity, equity, and inclusion.
- Promotion and support for Employee Resource Groups.[4] These groups hold educational events and activities, and help identify and drive talent acquisition, on-boarding, career development and culture change initiatives.
- Professional development programs, including mentoring, rotation assignments, coaching, and leadership training.
- Ongoing focus on succession and workforce planning to address future workforce needs and strengthen the diversity of the managerial pipeline and progression to leadership positions.
- Intensive recruiting to ensure diverse candidates for job vacancies. This includes outreach to diverse professional networks, usage of diversity job boards, and attendance at job fairs at

[4] The Federal Reserve—Diversity (*https://www.federalreserve.gov/careers-diversity.htm*).

Hispanic-Serving Institutions (HSIs) and Historically Black Colleges and Universities (HBCUs).

- Required training for hiring managers focused on hiring without bias.

Q.6. The lack of diversity among economists at the Federal Reserve is even starker. Only 1 percent of economists at the Federal Reserve are Black.[5] Why are there so few Black economists at the Fed, particularly as compared to the percentage of Black economists in the field as a whole? What concrete actions are you taking to address this disparity?

A.6. We are fully committed to strengthening diversity across all areas of our workforce. This is a high priority for me and our staff, and we have a tremendous amount of work going on at the Board.

We engage in extensive outreach to recruit diverse candidates, and despite challenges related to the pandemic, our engagement has continued during the past year as well. This includes participating in minority recruitment events at HBCUs, HSIs, and Hispanic professional conferences and career fairs.

More specifically, we have taken a number of targeted actions to increase diversity among our economist positions, and to strengthen the pipeline of economists from under-represented groups. Some of these actions include our collaboration with the American Economic Association (AEA) to address the state of diversity and importance of diversity and inclusion in the field of economics and in the workplace. We have an ongoing teaching and mentoring partnership with Howard University's Department of Economics, and Howard University will host the AEA Summer Program over the next five years with Board staff teaching a research methods course each year. Nearly three dozen Board staff have volunteered as instructors, teaching assistants, and research mentors for the financial literacy course offered at the Board and virtually through Howard's Department of Economics.

In addition, since 2018, the Board has hosted "Exploring Careers in Economics", an event that welcomed more than 200 students to the Board and many more virtually to discuss career opportunities and diversity in economics. And last, we are supporting research on and awareness of the factors that are holding back diversity and inclusion in economics. In November, we are hosting a conference on Diversity and Inclusion in Economics, Finance, and Central Banking, along with three other central banks. We look forward to a dynamic program and rigorous discussion on what has been done and what more can be done to increase diversity and inclusion in the economics profession.

We welcome your suggestions for how we can expand on our outreach efforts to increase diversity in our workforce, including among leadership roles.

RESPONSES TO WRITTEN QUESTIONS OF SENATOR TOOMEY FROM JEROME H. POWELL

Q.1. *Climate Change*—In the past several months, the Federal Reserve has taken steps that appear to be part of a broader effort to

[5] *https://www.nytimes.com/2021/02/02/business/economy/federal-reserve-diversity.html*

use financial regulators to address environmental policy like climate change.

Mindful of the Fed's limited statutory authority, can you explain what the Fed is doing in this area?

A.1. Climate change is an important issue, and Congress has entrusted the job of addressing the problem of climate change itself to Federal agencies other than the Federal Reserve. As you note, Congress has given the Federal Reserve narrow but important mandates around monetary policy, financial stability, and supervision of financial firms, and we consider the potential effects of climate change to the extent such effects have an impact on the achievement of our statutory mandates.

Analysis of climate-related risk to the financial system is a relatively new and evolving field. At the Federal Reserve, our work is still developing and involves investment in research and data to better understand how climate change may affect financial institutions, infrastructure, and markets. We also have been participating in climate-related projects in a number of multilateral groups, including the Financial Stability Board and the Basel Committee on Banking Supervision, and the Federal Reserve recently became a member of the Network for Greening the Financial System. We are taking a careful, thoughtful, and transparent approach to this work, and we will engage with Congress and the public along the way.

Q.2. Do you believe the Fed's financial stability responsibilities authorize you to pursue regulatory policies with the explicit goal or practical effect of reducing carbon emissions?

A.2. It has long been the policy of the Federal Reserve to not dictate to banks what lawful industries they can and cannot serve, as those business decisions should be made solely by each institution. Moreover, as I wrote in response to your first question, Congress has entrusted the job of addressing the problem of climate change itself to Federal agencies other than the Federal Reserve. Climate-related risks—like any other risk—can have implications for financial stability, and we consider those risks to the extent they have an impact on the achievement of our statutory mandates.

Q.3. *Continued Accommodative Monetary Policy*—Given that the economy has largely recovered and is on pace to reach prepandemic levels this summer, what is the rationale for continuing to inject $120 billion a month of liquidity via asset purchases?

A.3. In December 2020, the Federal Open Market Committee (FOMC) put in place outcome-based guidance on asset purchases. We reaffirmed that guidance at our January and March meetings. The guidance states that we will continue to increase our holdings of Treasury securities by at least $80 billion per month and of agency mortgage-backed securities (MBS) by at least $40 billion per month until substantial further progress has been made toward the FOMC's maximum employment and price stability goals. This guidance reinforces our strong commitment to using our full range of tools to achieve these mandates.

The increase in our balance sheet since last March has materially eased financial conditions and is providing substantial support to the economy. We see the current stance of monetary policy—including our policy regarding asset purchases—as appropriate to continue to move the economy toward our statutory goals. As always, the FOMC will closely monitor economic developments and continue to assess how our ongoing policy actions can best support achievement of maximum employment and price stability.

Q.4. Has the Fed's forward guidance created a structural speed limit to ceasing asset purchases? What is the shortest plausible timeframe in which the Fed could completely stop expanding the Fed's asset holdings?

A.4. As noted in the previous response, the guidance on asset purchases states that the FOMC will continue to increase our holdings of Treasury securities and agency MBS at least at the current pace until substantial further progress has been made toward the FOMC's maximum employment and price stability goals. This guidance embodies the point that the accommodation the FOMC intends to provide through its securities holdings depends on the progress made toward our goals. If substantial further progress toward our objectives occurs relatively quickly, the length of time over which our asset purchases would continue at the current pace would be shorter, and our securities holdings would rise by less. Conversely, if this progress happens more slowly, then our asset purchases would continue for longer, and we would correspondingly increase our securities holdings by a greater amount—thereby providing greater support to the economy.

It is important that the FOMC be transparent about our policy actions. The FOMC intends to clearly communicate its assessment of actual and expected progress toward its goals well in advance of the time when we would judge it appropriate to make a change in the pace of purchases.

Q.5. *School Reopening*—Has the Fed conducted any research on the long-term damage being done to the labor force by the school closures? If so, please provide.

A.5. Most K-12 schools were closed to in-person education at the start of the pandemic, and many schools remained closed to in-person education last fall and winter. [1] Staff research done within the Federal Reserve System suggests that the closure of in-person education had substantial effects on parents' labor force participation—especially mothers' participation—although the longer-term consequences are uncertain.

For example, analysis by Board staff finds that since March 2020, the number of parents who report being out of the labor force due to caregiving reasons has been elevated relative to previous years, especially in the fall of 2020 and thereafter. Figure 1 (below) shows the change in the fraction of parents aged 25 to 54 years with children 6 to 17 years of age who responded to the Current Population Survey (CPS) that they are not in the labor force due to caregiving reasons, for the indicated month relative to the same month in the previous year. [2] In particular, since September 2020

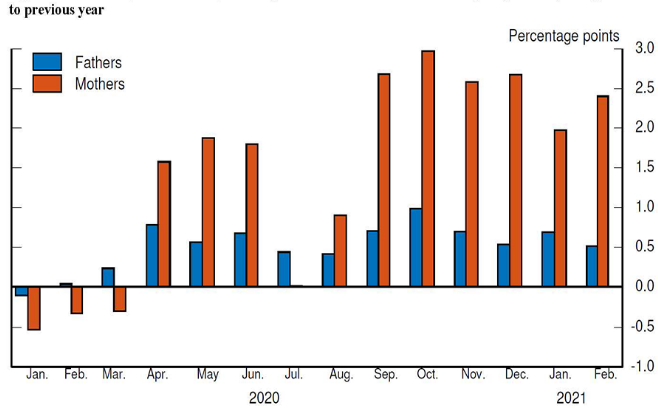
[1] Using information on virtual learning in public school districts compiled by Education Week, Board staff estimated that roughly two-thirds of public school students started the Fall 2020 school year with full or partial virtual learning.

[2] These estimates are based on calculations from publicly available CPS microdata, and are similar to those described in the box titled "Disparities in Job Loss During the Pandemic" in

the fraction of mothers out of the labor force for caregiving reasons has been 2 percentage points or more higher than it was in the same months of the previous year, while the fraction of fathers out of the labor force for caregiving reasons has been elevated by about half a percentage point. Furthermore, over this period, the increase relative to previous years has been especially large for Black and Hispanic mothers (respectively, a 5 percentage point and 3 percentage point average increase relative to the previous year, compared to a 1½ percentage point average increase for White mothers). [3]

Looking ahead, it is difficult to predict the long-term consequences of this extended disruption to parental labor supply (and at present there has been little research that attempts to quantify these effects). The eventual magnitude of the effect on the labor force will depend on a number of difficult-to-predict factors, including how quickly in-person education reopens for all students; the prevalence of job opportunities after children return to school; and the extent to which remaining pandemic-related health concerns might affect parents' ability to safely reenter the labor force, along with their interest in doing so.

Figure 1. Percent of parents who report being out of the labor force due to caregiving reasons, change relative to previous year



Source: Board staff estimates from microdata to the Current Population Survey.
Notes: Estimates are for parents age 25 to 54 with at least one child age 6 to 17. The figure displays the change in the share of these parents who report being out of the labor force due to caregiving reasons for the indicated month relative to the same month in the previous year.

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the February 2021 *Monetary Policy Report*. Similarly, other research across the Federal Reserve System has noted that employment and labor force participation have declined relatively more for parents, especially mothers. For example, see: "Parents in a Pandemic Labor Market", Federal Reserve Bank of San Francisco, Working Paper 2021-04, *https://www.frbsf.org/economic-research/publications/working-papers/2021/04/* and "Did COVID–19 Disproportionately Affect Mothers' Labor Market Activity?" Federal Reserve Bank of Chicago, Chicago Fed Letter No. 450, *https://www.chicagofed.org/publications/chicago-fed-letter/2021/450*.

[3] In addition to the CPS, a number of real-time household surveys during the pandemic have specifically asked respondents whether their employment decisions have been affected by child care responsibilities (for example, Household Pulse Survey, conducted by the Census Bureau, and the COVID Impact Survey, conducted by the National Opinion Research Center at the University of Chicago for the Data Foundation). However, these surveys' limited histories make it difficult to infer whether the responses reflect child care difficulties during the pandemic as opposed to what would be typical during normal times.

RESPONSES TO WRITTEN QUESTIONS OF SENATOR WARREN FROM JEROME H. POWELL

Q.1. *Bank Capital Requirements*—In response to questioning, you indicated that the Federal Reserve was "in the middle of thinking about" a decision on extending interim final rules that provided institutions with relief from the supplementary leverage ratio by allowing the exclusion of U.S. Treasuries and Central Bank deposits. These rules are currently scheduled to expire on March 31, 2021.

At what point did the Federal Reserve begin deliberations regarding a possible extension of these policies? Please provide, at a minimum, the month in which you began considering a potential extension or modification of temporary SLR relief at either the holding company or the depository institution level.

A.1. The Federal Reserve Board (Board) sought comment on the interim final rules issued in April 2020 [1] and May 2020 [2] to modify temporarily the supplementary leverage ratio (SLR), including specific questions for public feedback on whether the modifications from the interim final rules should be shorter or longer to achieve their intended purpose. The Board received and considered several comments from the public on this issue.

Q.2. Have any alternatives to extending the date of the SLR relief been discussed? If so, please describe them and provide any reasons why they were not chosen.

A.2. The Board announced recently that the temporary exclusions to the SLR requirement announced in April and May of 2020 would expire as scheduled on March 31, 2021. In that announcement, the Board also stated that it plans soon to seek public comment on potential measures to adjust the SLR.

Q.3. How many banks opted-in for the SLR relief at either the holding company or depository institution level?

A.3. The prior approval requirements related to the May 2020 interim final rule issued by the Board, the Office of the Comptroller of the Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC) only applied to depository institutions that opted into the relief. [3] There are no similar prior approval requirements that apply to holding companies subject to the SLR. Holding companies are subject to other pandemic-related restrictions on their capital distributions. [4] The only State member bank that opted into the SLR relief was Goldman Sachs Bank USA. The OCC and FDIC would be in the best position to provide information about any State nonmember bank or national bank that opted into the SLR relief.

For each institution that did opt-in, please provide the following for each quarter starting in 2019 Q1:

1. The institution's total leverage exposure
2. The institution's total amount of U.S. Treasuries
3. The institution's total amount of Central Bank Deposits

[1] 85 FR 20578 (April 14, 2020).
[2] 85 FR 32980 (June 1, 2020).
[3] 12 CFR 217.303(g).
[4] *https://www.federalreserve.gov/newsevents/pressreleases/bcreg20201218b.htm*

4. The institution's total amount of capital distributions
5. The institution's supplementary leverage ratio

Table 1: Requested Information - Goldman Sachs Bank USA[5]

Goldman Sachs Bank USA	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20
Total Leverage Exposure ($bn)	380.0	387.9	402.2	413.9	425.7	341.2	342.2	343.2
Supplementary Leverage Ratio	7.35%	7.31%	7.13%	7.05%	6.99%	8.77%	8.89%	8.93%
Amount of U.S. Treasuries ($bn)	19.1	29.0	35.5	56.7	30.8	76.6	67.4	69.9
Amount of Deposits at Federal Reserve Banks ($bn)	34.5	28.3	26.9	50.6	34.2	43.3	63.7	52.7
Capital Distributions ($)	0	0	0	0	0	0	0	0

Q.4. Can you commit to not finalizing any additional proposals that would reduce capital requirements for the Globally Systemically Important Banks (GSIBs) during the remainder of your term?

A.4. Consistent with previous statements, I believe the current levels of capital and of overall loss absorbency in the banking system are generally appropriate. Strengthened by a decade of improvements in capital, liquidity, and risk management, banks have continued to be a source of strength during the past year. Consistent with their systemic importance, globally systemically important banks (GSIBs) are subject to the most stringent standards, including additional capital requirements such as the GSIB surcharge.

Q.5. *Monetary Policy*—The pandemic has disproportionately affected marginalized Americans working low-income jobs.

Please describe how the Fed will use its monetary policy tools to ensure a broad-based recovery.

A.5. The dual mandate assigned to the Federal Reserve monetary policy is to achieve maximum employment and price stability. The highly accommodative monetary policy stance that the Federal Open Market Committee (FOMC) has put in place since the outbreak of the pandemic and the guidance that it is currently providing on its interest rate and balance sheet policies are designed to provide support to economic activity in order to achieve these

[5] The data included in Table 1 are based on public filings by Goldman Sachs Bank USA in its FFIEC 041 (Call Report) regulatory report submissions.

goals. Improvement in the labor market should contribute to diminishing economic inequalities, as the recovery would benefit many in low- and moderate-income (LMI) communities. Accordingly, pursuing our congressional mandate assists in promoting a broad-based recovery.

In our revised Statement on Longer-Run Goals and Monetary Policy Strategy, issued in August 2020 and reaffirmed in January 2021, the FOMC indicated that "maximum employment" is a broad and inclusive goal. Among other things, this means that we will be monitoring a broad range of indicators in assessing our progress toward maximum employment. We will remain highly attentive to disparities in the labor market of various kinds—rather than focus solely on the "headline" aggregate data. Our revised statement also indicates that our policy decisions will be informed by the FOMC's assessments of the shortfalls of employment from its maximum level. This implies that we will not tighten monetary policy solely in response to a strong labor market. Our adoption of this position reflects the widespread acceptance that a robust job market potentially can be sustained without causing an outbreak in inflation, together with our recognition of the considerable benefits brought by strong labor markets, particularly for LMI communities.

Q.6. How will the Fed react in the event that inflation starts to trend higher, but millions of Americans remain left with limited opportunities to be employed at an adequate, livable wage?

A.6. In pursuing its dual mandate, the FOMC seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. Our experience is that the goals of maximum employment and price stability are generally complementary—so that pursuing maximum employment is typically consistent with achieving our price stability goal of a longer-run inflation rate of 2 percent.

When occasions arise on which the FOMC's judgment is that the objectives are not complementary, the FOMC takes both employment shortfalls and inflation deviations into account in its decisions, as well as the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with the Federal Reserve's mandate.

With regard to the present situation, the FOMC has indicated that, as inflation has been running persistently below our longer-run 2 percent goal, we will aim to achieve inflation moderately above 2 percent for some time, so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent. The FOMC expects to maintain an accommodative stance of monetary policy until these outcomes are achieved. More specifically, we have indicated that we would not expect to raise the target range for the federal funds rate from its effective lower bound until we see labor market conditions that are consistent with our assessment of maximum employment, inflation has risen to 2 percent—and durably so, not on a transitory basis—and inflation is on track to run moderately above 2 percent for some time.

Q.7. What data or metrics will the Fed use to ensure that the recovery reaches low-wage, marginalized workers? How will these data and metrics guide your decision-making?

A.7. We will look at a large variety of indicators to assess the economy's progress toward our broad and inclusive goal of maximum employment. For example, in addition to aggregate data on the labor market, we will also be looking at labor market measures by race and ethnicity, education, and income. We recognize that in the recovery from the Great Recession, many groups only started to experience the benefits of the recovery after the aggregate unemployment rate had reached relatively low levels. In particular, it was not until 2015 and later that the labor force participation rate began to recover (with much of that recovery concentrated among individuals with less than a college degree); wage gains for low-income workers started to match and then exceed wage gains for other workers; and the unemployment rate for African Americans moved below 9 percent.

Q.8. Are there steps that Congress, the White House, or the Fed can take to get a more detailed and representative assessment of the economic conditions that working-class Americans face on a daily basis?

A.8. Collecting high-quality data that can describe the full distribution of economic experiences—not simply the average experience—is key. Two surveys conducted by the Federal Reserve help us do that. The Survey of Household and Economic Decision-Making asks individuals about important economic events and decisions in their lives. It is the source of the often-cited statistic on the share of households that do not have enough liquid savings to cover an unexpected $400 expense. The Survey of Consumer Finances (SCF) provides household-level, high-quality data on wealth, income, and consumption and is the basis of much of the recent research on increases in wealth and income inequality in the United States. We have combined data from the SCF with data from the Financial Accounts of the United States, which are published by the Federal Reserve Board, to produce the Distributional Financial Accounts (DFAs), which provide quarterly updates on the wealth of low- and middle-income households, along with that for high-income households. The DFAs also provide quarterly data on household wealth by age, education, and race or ethnicity. In addition, research by our economists uses microdata on households and individuals from the Census and other sources to describe and interpret the economic experiences of different groups of Americans. We continue to look for ways to improve and better use the data we collect ourselves or obtain from outside sources, and to sharpen our analyses of these data to create a detailed, accurate, and timely description of the economic experiences of all Americans.

Q.9. According to the Congressional Budget Office, the U.S. economy was operating above its maximum sustainable level prior to the pandemic, despite inflation remaining below the Federal Reserve's target level. What would your estimate be for the output gap in January 2020? How far from potential output do you believe the economy was at that point?

A.9. Real-time estimates of potential output, like those for the natural rate of unemployment, are highly uncertain. Indeed, this uncertainty was one of the reasons our revised Statement on Longer-Run Goals and Monetary Policy Strategy says that our policy decision will be informed by our "assessments of the shortfalls of employment from its maximum level" rather than by "deviations from its maximum level" as in our previous statement.

Regardless, I think it is fair to say that the economy was in a good place in January 2020. The economic expansion was well into its 11th year, the longest on record. The overall unemployment rate had declined to 3.5 percent, the lowest level in a half-century. The unemployment rate for African Americans, at 6 percent, had also reached historical lows. Prime-age labor force participation was the highest in over a decade, and job openings were plentiful. And while overall wage growth was moderate, wages were rising more rapidly for earners on the lower end of the scale. These encouraging statistics were reaffirmed and given voice by those we met and conferred with, including the community, labor, and business leaders; retirees; students; and others we met with during the 14 "Fed Listens" events we conducted in 2019.

Importantly, however, the strength in the labor market in 2019 and early 2020 did not result in unwanted upward pressures on inflation: In January 2020, the 12-month change in PCE inflation was 1.9 percent, a little below the FOMC's 2 percent objective. Indeed, there was every reason to expect that, had it not been for the onset of the pandemic, the labor market could have strengthened even further without causing a worrisome increase in inflation.

Of course, the situation is very different today. Despite the improvement in economic activity in recent quarters following the deep contraction caused by the pandemic, the economic recovery remains uneven and far from complete, and the path ahead is highly uncertain. And while the future path of the economy continues to depend significantly on the course of the virus and the measures undertaken to control its spread, we at the Federal Reserve are committed to using our full range of tools to support the economy and to help ensure that the recovery from this difficult period will be as robust as possible.

Q.10. Economist Larry Summers recently claimed that if President Biden's $1.9 trillion American Rescue Plan spending package was approved, we would have "an economy that is literally on fire." [6] Are you concerned that enactment of this package would cause dangerous overheating? Would the Federal Reserve likely raise interest rates if the package is passed at its current level?

A.10. With COVID–19 vaccinations becoming more widespread and good prospects for people's lives and activities to start returning to normal before long, I am hopeful that we can achieve a strong economic recovery this year. The additional fiscal support from the recently enacted American Rescue Plan (ARP) will contribute to the strength of that recovery. Professor Summers and some other respected economists have questioned whether the amount of addi-

[6] Bloomberg, "Biden Urges Fast Virus Relief as Minimum-Wage Hike Hopes Fade", Justin Sink, February 5, 2021, *https://www.bloomberg.com/news/articles/2021-02-05/biden-s-go-big-push-on-stimulus-gets-help-from-weak-jobs-senate.*

tional fiscal support provided in the ARP might overheat the economy and generate a problematic rise in inflation. While I agree that very strong growth this year could create some upward pressure on inflation for a time, I do not believe that sustained higher inflation will become a longer-lived problem.

The economy is still a long way from a full recovery, with payrolls some 9½ million below their prepandemic level. So even with the very strong economic growth that we all hope for, it will take some time to return to maximum employment. And, of course, the path ahead is still highly uncertain with considerable downside risks—including those related to emerging new variants of the virus. Moreover, the previous expansion demonstrated that a strong labor market can be sustained without inducing an unwanted increase in inflation.

Rapid growth with a reopening economy could well lead to prices moving up this year, as firms see a large increase in demand and as some production bottlenecks emerge. But I would anticipate that any such higher inflation would be temporary. Inflation has averaged less than 2 percent for a quarter of a century, and low inflation has been the norm globally as well as in the U.S. That inflation performance has become ingrained in consumer inflation expectations and psychology. We are far from the situation of the 1970s, when higher inflation could boost expectations of future inflation and become built into wage and price setting. Inflation dynamics do evolve over time, but they have not tended to change rapidly.

To be sure, no one has perfect foresight about how the economy will evolve. If, contrary to expectations, inflation were to persistently rise to unwelcome levels, we have the tools to address such a situation and will use them as needed.

Q.11. *Climate Finance*—Following the May 19, 2020, hearing of the Committee on Banking, Housing, and Urban Affairs, I submitted questions for the record, including several on climate-related financial risks, to which you responded in August 2020.[7] In your response, you wrote "Economic research to understand the specific transmission channels between climate-related risks and the financial system is essential to understanding the impact of those risks on the Federal Reserve's mission," and though the "research remain[ed] at an early stage," efforts were "active and ongoing."[8]

Please describe the efforts the Fed has taken to better inform decisions regarding the incorporation of climate-related risks into the Board's mission since your August 2020 letter and since the Fed joined the Network for Greening the Financial System in December 2020.[9]

A.11. Climate change is an important issue, and Congress has entrusted the job of addressing the problem of climate change itself to Federal agencies other than the Federal Reserve. Congress has

[7] Letter from Federal Reserve System Board of Governors Chair Jerome Powell to Senator Elizabeth Warren, August 27, 2020.

[8] Id.

[9] Board of Governors of the Federal Reserve System, "Federal Reserve Board Announces It Has Formally Joined the Network of Central Banks and Supervisors for Greening the Financial System, or NGFS, as a Member", press release, December 15, 2020, *https://www.federalreserve.gov/newsevents/pressreleases/bcreg20201215a.htm.*

given the Federal Reserve narrow but important mandates around monetary policy, financial stability, and supervision of financial firms, and we consider the potential effects of climate change to the extent such effects have an impact on the achievement of our statutory mandates.

Since August 2020, we have released a Financial Stability Report and a Supervision and Regulation Report (both published in November 2020) that include high-level discussion and analysis on how climate change may create or change risks to financial institutions or the financial system. [10]

As you note, on December 15, 2020, the Board announced that we have formally joined the Network for Greening the Financial System (NGFS). We had been attending NGFS meetings as a guest and participating in NGFS activities for more than a year prior to officially joining. Through this forum, we look forward to deepening our discussions with more than 80 central banks and supervisory authorities from around the world, sharing research and identifying best practices to ensure the financial system is resilient to climate-related risks.

In January 2021, we announced the formation of our Supervision Climate Committee (SCC), which brings together senior staff from the Board and Reserve Banks to facilitate the better understanding of potential climate-related risks to our supervised institutions. Additionally, in March, we announced the formation of our Financial Stability Climate Committee (FSCC), a Federal Reserve System-wide committee composed of Board and System staff that works to facilitate the better understanding of climate-related risks to our financial system. Our goal is to incorporate climate risk into our forward-looking monitoring of financial stability through the FSCC.

We also continue to participate in climate-related projects in a number of multilateral groups, including the Financial Stability Board (FSB) and the Basel Committee on Banking Supervision (BCBS). With respect to the FSB, a report on the financial stability implications of climate change was released in November 2020. [11] Federal Reserve staff is also cochairing the BCBS's Task Force on Climate-Related Financial Risks.

We are taking a careful, thoughtful, and transparent approach to this work, and we will engage with Congress and the public along the way.

Q.12. Please describe in detail additional steps that the Fed plans to take to address climate-related risks throughout the financial system?

A.12. As noted above, we have established the SCC, which brings together senior staff from across the Federal Reserve System to facilitate the better understanding of potential climate-related risks to our supervised institutions. In this area, we are investing in analysis to better understand the transmission channels through which climate change impacts the banking sector and are engaging with supervised institutions to strengthen our understanding of

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[10] See *https://www.federalreserve.gov/publications/2020-november-financial-stability-report-purpose.htm* and *https://www.federalreserve.gov/publications/2020-november-supervision-and-regulation-report.htm.*

[11] *www.fsb.org/2020/11/the-implications-of-climate-change-for-financial-stability/*

how they are currently assessing climate risks. We have also established the FSCC, which will undertake work to facilitate the better understanding of climate-related risks to our financial system. We are in the early stages of identifying and assessing these risks and how to incorporate them into our financial stability framework.

More broadly, we remain focused on investing in research and data to better understand how climate change may affect financial institutions, infrastructure, and markets. Robust data and rigorous analyses are essential to informing all our actions.

Q.13. In your correspondence, you also mentioned that "the Federal Reserve has considerable expertise in understanding the impact of severe weather events, ranging from economic forecasting, to financial stability monitoring, to prudential supervision, to continuity of operations." [12] News reports regarding recent extreme weather events, however, state that "As climate change worsens, severe conditions that go beyond historical norms are becoming ever more common." [13]

How has or how will the Fed work to incorporate research on climate change's impact on extreme weather events and other significant climate impacts on the economy into its work? [Sic] ensure that financial institutions are equipped to manage and address climate-related risks?

A.13. For the Federal Reserve's near-term analysis, we already take into account information on the severity of weather events. When a severe weather event occurs, we closely monitor the effects on local economies, assess the implications for broader measures of economic production and employment, and adjust our economic forecasts accordingly.

For example, our staff regularly uses daily measures of temperatures and snowfall from National Oceanic and Atmospheric Administration weather stations to better understand how severe weather may be affecting measured and real economic activity in specific areas.

More generally, to best pursue our mandated monetary policy goals of maximum employment and price stability, the Federal Reserve must, and does, assess any factor that can materially affect the dynamics of the job market and inflation. While climate change is not a current consideration for monetary policy, we recognize that climate change, and the policies governments implement in response, could alter the behavior of employment and inflation over time. Researchers throughout the Federal Reserve System are actively examining the longer-run implications of climate change for the economy, financial institutions, and financial stability, and if we find important changes in these areas, we will take account of them in our analysis.

Q.14. How will you ensure that financial institutions are equipped to manage and address climate-related risks?

[12] Letter from Federal Reserve System Board of Governors Chair Jerome Powell to Senator Elizabeth Warren, August 27, 2020.

[13] Associated Press, "U.S. Needs To Brace Itself for More Deadly Storms, Experts Say", Matthew Daly and Ellen Knickmeyer, February 18, 2021, *https://apnews.com/article/us-deadly-winter-storms-2021-df7d37d12ef13633bb5666e1151bcf9e.*

A.14. As noted above, we recently announced the formation of the SCC, which will bring together senior staff from the Federal Reserve Board and the Reserve Banks to facilitate the better understanding of potential climate-related risks to our supervised institutions. Our approach has been to invest in research and data to understand how climate change and the financial system interact.

We also welcome and benefit from engagement with international colleagues from other central banks, supervisory authorities, and standard-setting bodies. For example, we are engaged in climate-related work through the FSB, the Basel Committee's Task Force on Climate-Related Financial Risks, and the NGFS.

Q.15. Increased calls for financial regulators to tackle the issue of the climate crisis are coming from current Federal Reserve Bank leaders, top officials at the Treasury Department, and current and former members of the Federal Reserve Board of Governors. [14]

Last year, former Federal Reserve Board Governor and former Deputy Treasury Secretary Sarah Bloom Raskin stated, "when it comes to curbing the effects that climate risk will have on the economy, particularly the heightened chance that such risks will bring about economic catastrophe, leadership must exist and concerted action must be taken." [15] Do you believe that the Fed during your tenure has shown the leadership and concerted action on climate risk to the economy, as described by former Deputy Treasury Secretary Raskin?

A.15. Within the bounds of the Federal Reserve's statutory mandate, we have undertaken important new initiatives and increased our overall program of work on climate-related topics in recent years. This work, which is ongoing, includes the following:

- Establishment of the SCC;
- Establishment of the FSCC;
- Cochairing the Basel Committee's Task Force on Climate-Related Financial Risks;
- Joining the NGFS as a member;
- Participating in the ongoing FSB work to assess the implications of climate change for financial stability;
- Incorporating analysis and discussion of climate-related risks into our Financial Stability Report and Supervision and Regulation Report;
- Extensive ongoing economic research, including published papers on climate-related topics in areas such as asset pricing, consumer spending and savings behavior, industrial production, credit availability, and fiscal outcomes;
- Organizing and hosting multiple conferences on climate-related economic research and policy analysis; and [16]

[14] *New York Times*, "As Winter Sweeps the South, Fed Officials Focus on Climate Change", Jeanna Smialek, February 18, 2021, *https://www.nytimes.com/2021/02/18/business/economy/federal-reserve-climate-change-banks.html.*

[15] Ceres, "Addressing Climate as a Systemic Risk: A Call to Action for U.S. Financial Regulators", June 2020, *https://www.ceres.org/sites/default/files/reports/2020-06/Financial%20Regulators%20FULL%20FINAL.pdf.*

[16] For example, see "Economic Risks of Climate Change: Implications for Financial Regulators", Federal Reserve Bank of San Francisco, last modified on December 4, 2020; Federal Reserve Bank of New York, "Reducing Climate Risk for Low-Income Communities", press release,

- Collaborating and sharing information across the Federal Reserve System through our System Climate Network and other forums.

Q.16. Earlier this year, current Treasury Secretary and your predecessor as Federal Reserve Chair Janet Yellen stated, "Both the impact of climate change itself and policies to address it could have major impacts, creating stranded assets, generating large changes in asset prices, credit risks and so forth that could affect the financial system. These are very real risks."[17] Do you believe that the Fed during your tenure has sufficiently or adequately worked to address the impacts of climate change and policies to address it on our economy, as described by Secretary Yellen?

A.16. To appropriately address the impacts of climate change on our economy and financial system, we must first understand the risks. The Federal Reserve has made and continues to make strides in better understanding climate-related economic and financial risks. Researchers throughout the Federal Reserve System are examining the implications of climate change for the economy, financial institutions, and financial stability. The Federal Reserve is investing in data and empirical work to analyze the transmission of climate-related risks to the economy and developing methodologies to measure these risks. Our staff is also engaging with colleagues from other regulatory agencies, central banks, and standard-setting bodies. Please see the answer to 15 above for a more detailed list of activities.

Q.17. Last month, President and CEO of the Federal Reserve Bank of San Francisco stated that "[i]t is a fact that severe weather events are increasing," that "[w]e have to understand what the risks are, and think about how those risks can be mitigated," and that "[o]ur responsibility is to look forward, and ask not just what is happening today, but what are the risks."[18] Do you believe that the Fed during your tenure has worked to understand the risks of climate change and how those risks can be mitigated, as described by Dr. Daly?

A.17. As noted in the answers to the previous questions, the Federal Reserve has made and continues to make strides in better understanding climate-related economic and financial risks.

Q.18. Last month, Federal Reserve Board Governor Lael Brainard stated, "Climate change and the transition to a low-carbon economy create both risks and opportunities for the financial sector. Financial institutions that do not put in place frameworks to measure, monitor, and manage climate-related risks could face outsized losses on climate-sensitive assets caused by environmental shifts, by a disorderly transition to a low-carbon economy, or by a com-

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November 19, 2020; "Virtual Seminar on Climate Economics", Federal Reserve Bank of Richmond; "Climate Change Economics", Federal Reserve Bank of Richmond, last modified on November 20, 2020; and Galina B. Hale, Oscar Jorda, and Glenn D. Rudebusch, "The Economics of Climate Change: A First Fed Conference" (December 2019).

[17] POLITICO, "Yellen Vows To Set Up Treasury Team To Focus on Climate, in Victory for Advocates", Zachary Warmbrodt, January 19, 2021, *https://www.politico.com/news/2021/01/19/yellen-treasury-department-climate-change-460408.*

[18] *New York Times*, "As Winter Sweeps the South, Fed Officials Focus on Climate Change", Jeanna Smialek, February 18, 2021, *https://www.nytimes.com/2021/02/18/business/economy/federal-reserve-climate-change-banks.html.*

bination of both." [19] Do you believe that the Fed during your tenure has sufficiently or adequately worked to describe the frameworks to measure, monitor, and manage climate-related risks on our economy, as described by Governor Brainard?

A.18. We continue to prioritize our work to better understand and measure climate-related financial risks, including through analysis of transmission channels of climate change risk to the banking sector, measurement methodologies, and data gaps and challenges. In pursuing this work, we are actively cooperating on an ongoing basis with other agencies and authorities, including through the BCBS's Task Force on Climate-Related Financial Risks, the FSB, and the NGFS.

Q.19. *Main Street Lending Program*—What share of loans under the Main Street Lending Program have been made to nonprofit organizations? Does the Federal Reserve have up-to-date data on the financial condition of nonprofit organizations that received loans under the Program?

A.19. The total principal amount of the loan participations purchased under the Main Street Lending Program (Main Street) as of the time of its closure on January 8, 2021, was $16.586 billion. Of that amount, the total principal amount of the loan participations purchased by the Nonprofit Organization New Loan Facility or the Nonprofit Organization Expanded Loan Facility, the Main Street facilities that made loans to nonprofit organizations, was $40 million.

Main Street relied on eligible lenders (including, for example, banks, savings associations, and credit unions) to underwrite the loans whose participations were purchased by the Main Street special purpose vehicle. Under Main Street's terms, a for-profit business or nonprofit organization that received a loan must provide quarterly and annual financial data, which is used to assess borrowers' credit risk on an ongoing basis.

For more details, see the full transaction-specific disclosures on the Board's public website. [20]

RESPONSES TO WRITTEN QUESTIONS OF SENATOR CORTEZ MASTO FROM JEROME H. POWELL

Q.1. In the last few months, the Federal Reserve has joined the Network for Greening the Financial System, started discussing climate risk in their financial stability reports, and formed a Supervision Climate Committee. What is the specific mandate and scope of work for the Supervision Climate Committee?

A.1. Climate change is an important issue, and Congress has entrusted the job of addressing the problem of climate change itself to Federal agencies other than the Federal Reserve. Congress has given the Federal Reserve narrow but important mandates around financial stability and supervision of financial firms, and we consider the potential effects of climate change to the extent such ef-

[19] Board of Governors of the Federal Reserve System, "The Role of Financial Institutions in Tackling the Challenges of Climate Change", Lael Brainard, February 18, 2021, *https://www.federalreserve.gov/newsevents/speech/brainard20210218a.htm.*

[20] *http://www.federalreserve.gov/reports-to-congress-COVID-19.htm*

fects have an impact on the achievement of our statutory mandates.

The Supervision Climate Committee (SCC) brings together senior staff from the Federal Reserve Board (Board) and the Reserve Banks to facilitate the better understanding of potential climate-related risks to our supervised institutions. The SCC's work is in the early stages. The SCC is focused on engaging with a wide variety of stakeholders, including large banks, to strengthen its understanding of how banks incorporate physical and transition risks into their risk management frameworks; working to identify best practices for measuring and potentially addressing climate-related risks at banks; and investing in analysis to better understand the transmission channels through which climate change impacts individual banks and the banking sector.

Q.2. On page 30 of the *Monetary Policy Report*, the report notes that prior to the pandemic business debt levels were already high. Now, business leverage stands near historical highs.

Can you expand on the indicators the Federal Reserve considers to measure stress on businesses, business leverage, insolvency risk, commercial real estate vacancies and sales?

What indicators should local elected leaders, business owners, and the Government consider?

A.2. The Board produces the quarterly Z.1 statistical release, "Financial Accounts of the United States", which includes data on transactions and levels of financial assets and liabilities, by sector and financial instrument. It also includes balance sheets, including net worth, for nonprofit organizations, nonfinancial corporate businesses, and nonfinancial noncorporate businesses.

The Board's Financial Stability Report (FSR) has regularly included a snapshot of key statistics from the Z.1 release for the level of business credit. The FSR has focused on the ratio of nonfinancial business credit to GDP as a key measure of business leverage and has also reported statistics on gross leverage of public nonfinancial businesses—the ratio of firms' book value of total debt to the book value of total assets. The latest report is available on the Board's public website. [1]

A key measure of insolvency risk for businesses is the interest coverage ratio, the ratio of earnings before interest and taxes to interest payments. [2]

Additional indicators that Board staff consider when measuring stress on businesses, business leverage, and insolvency risk include net leverage and aggregate debt growth of nonfinancial businesses, the share of nonfinancial business debt with low interest coverage ratios, outstanding amounts of BBB- and high yield nonfinancial corporate bonds, and downgrades and expected defaults of nonfinancial businesses.

For commercial real estate vacancies and sales, we consider vacancy rates, growth rates of price indexes by property type, and changes in lending standards.

[1] *https://www.federalreserve.gov/publications/financial-stability-report.htm*

[2] See Figures 2–6 for the November 2020 FSR.

RESPONSES TO WRITTEN QUESTIONS OF SENATOR SCOTT FROM JEROME H. POWELL

Q.1. Chair Powell, you are familiar with my concerns around protecting the U.S. system of insurance regulation that has worked so well for policyholders and the market for over 150 years in terms of access and affordability. The insurance market we have here at home is the largest and most diverse in the world and supports products and services in the retirement and health space that do not exist in other jurisdictions around the world.

Protecting this system should be an apolitical objective. Despite the change in Administration and new leadership at the Treasury Department, I expect that the Federal Reserve will continue its work in ongoing negotiations at the International Association of Insurance Supervisors on the development of an Insurance Capital Standard (ICS) that does not compromise the U.S. insurance market.

Will the Federal Reserve continue fighting to ensure that U.S. insurance capital standards are recognized as outcome-comparable to the ICS?

A.1. Yes. The Federal Reserve Board (Board) advocates for the U.S. approach to insurance regulation at the International Association of Insurance Supervisors (IAIS). To assess group capital, U.S. regulators have proposed aggregating existing legal entity capital requirements. The Board proposed such an approach, termed the Building Block Approach, for depository institution holding companies significantly engaged in insurance activities. The National Association of Insurance Commissioners (NAIC) and States have proposed a similar approach, the Group Capital Calculation. The Federal Reserve will continue to advocate for these approaches to be deemed outcome comparable to the Insurance Capital Standard.

Q.2. Has the Federal Reserve communicated and coordinated with the Biden administration's Treasury Department on this important work?

A.2. We have communicated and coordinated with the Treasury Department on this issue since the change in Administration. We work closely together with U.S. Treasury's Federal Insurance Office, as well as with the State insurance regulators and the NAIC, as part of our participation at the IAIS.

Q.3. I have been closely monitoring the Federal Reserve's consideration of how to modernize the regulatory and supervisory framework for the Community Reinvestment Act (CRA). Now that the comment period has closed on the Federal Reserve's CRA ANPR, I would like to request an update the process and planned next steps.

In issuing the CRA ANPR, the Federal Reserve said that it aims to build consensus and ultimately issue a modernized CRA rule on an interagency basis. Is the Federal Reserve coordinating with the other banking regulators to develop a unified rule? When can the public expect to see a proposed rule? Historically, CRA has been very geographically focused. How can the Federal Reserve update CRA in a way that makes sense for both digital banks and traditional, branch-focused banks?

A.3. Community Reinvestment Act (CRA) modernization is a high priority for the Board. Our goal is to strengthen implementation of the law's core purpose of meeting the credit needs of low- and moderate-income (LMI) communities. We have taken several significant steps to achieve our goal of getting CRA modernization right and providing a foundation for the Federal banking agencies to develop a common approach, including issuing an Advanced Notice of Proposed Rulemaking (ANPR) and holding more than 50 listening session across the country to gather additional input.

With the benefit of input from the public and now with the Board's ANPR comment period complete, we believe there is an opportunity for a harmonized rule among the agencies. The Board remains committed to working toward a consistent approach across the agencies, and we look forward to arriving at a common approach that meets the law's intended purpose, to ensure that banks are meeting the credit needs of LMI communities. We have also sought input on how to reduce inequities in credit access and to strengthen banking services and investment in LMI communities.

We believe that putting forward a proposal that reflects extensive stakeholder feedback and provides a long comment period builds a foundation for the agencies to ultimately develop a consistent approach that has broad support.

The Board's ANPR seeks input on ways to strengthen the CRA while increasing clarity, consistency, and transparency. In addition, we would like to see a set of rules that tailors CRA evaluations to reflect differences in bank sizes and business models; uses metrics that account for changes in business conditions across economic cycles; and considers the credit needs and opportunities of local communities, accounting for factors such as the unique needs of small banks and rural areas. The ANPR specifically proposes policy approaches that recognize how banking is evolving to ensure that CRA modernization of assessment areas take into account how banks serve their customers through mobile and internet banking, while still maintaining a focus on branches, given their importance to individuals and communities.

RESPONSES TO WRITTEN QUESTIONS OF SENATOR ROUNDS FROM JEROME H. POWELL

Q.1. In 2019, the Fed, OCC, and FDIC took steps mandated by Congress to tailor banks' prudential regulations.

Now we're almost a year into the COVID–19 crisis and banks have been a critical component of the recovery of the U.S. economy. Furthermore, they have been stress tested twice in recent months. In addition, as we discussed at our recent hearing, their dividends and buybacks have been restricted. Despite the severe economic challenges of the pandemic banks have passed these rigorous tests while maintaining strong capital and liquidity reserves. There is also more liquidity in our financial system than ever before.

Do you agree that tailoring of capital and liquidity requirements to the systemic footprint of particular banking institutions is still appropriate? Are you aware of any negative impact to the U.S. economy because of regulatory tailoring?

A.1. The Federal Reserve Board's (Board) tailoring rule[1] better aligns regulatory requirements with the risk profile of an institution and implements aspects of the Economic Growth, Regulatory Relief, and Consumer Protection Act. By creating a more risk-sensitive regulatory framework, the tailoring rule ensures that prudential standards, including those for capital and liquidity, are appropriately stringent for large banking organizations.

Tailoring financial regulation to risk is good public policy and a long-standing aspect of the Board's regulatory framework. The Federal Reserve conducts periodic reviews of its rules to update them, reduce unnecessary costs, address unintended consequences, and streamline regulatory requirements, consistent with the statutory provisions underlying such rules. These efforts include considering the costs and benefits of regulations as well as exploring alternative approaches that would achieve the intended result with greater simplicity, transparency, and efficiency.

The Federal Reserve continues to closely monitor evolving risks and the potential impact of those risks on the broader financial system and assess the capital and liquidity adequacy of large banking organizations subject to the regulatory tailoring framework. Because large U.S. banking organizations are subject to robust stress testing and enhanced supervision of their capital planning processes, they currently have significant capital buffers over their existing requirements. U.S. banking organizations more generally remain well positioned to continue to lend to borrowers during the current economic conditions. In addition to encouraging banking organizations to use their capital buffers to support lending to households and businesses, the Federal Reserve is encouraging banking organizations to work constructively with borrowers in the context of the COVID–19 pandemic. We will continue to evaluate whether adjustments to the capital and liquidity frameworks are warranted as the situation progresses.

[1] See 84 FR 59032.

ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

For use at 11:00 a.m. EST
February 19, 2021

MONETARY POLICY REPORT

February 19, 2021

Board of Governors of the Federal Reserve System

LETTER OF TRANSMITTAL

BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM

Washington, D.C., February 19, 2021

THE PRESIDENT OF THE SENATE
THE SPEAKER OF THE HOUSE OF REPRESENTATIVES

The Board of Governors is pleased to submit its *Monetary Policy Report* pursuant to section 2B of the Federal Reserve Act.

Sincerely,

Jerome H. Powell

Jerome H. Powell, Chair

Statement on Longer-Run Goals and Monetary Policy Strategy

Adopted effective January 24, 2012; as amended effective January 26, 2021

The Federal Open Market Committee (FOMC) is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society.

Employment, inflation, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Monetary policy plays an important role in stabilizing the economy in response to these disturbances. The Committee's primary means of adjusting the stance of monetary policy is through changes in the target range for the federal funds rate. The Committee judges that the level of the federal funds rate consistent with maximum employment and price stability over the longer run has declined relative to its historical average. Therefore, the federal funds rate is likely to be constrained by its effective lower bound more frequently than in the past. Owing in part to the proximity of interest rates to the effective lower bound, the Committee judges that downward risks to employment and inflation have increased. The Committee is prepared to use its full range of tools to achieve its maximum employment and price stability goals.

The maximum level of employment is a broad-based and inclusive goal that is not directly measurable and changes over time owing largely to nonmonetary factors that affect the structure and dynamics of the labor market. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the shortfalls of employment from its maximum level, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments.

The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation. The Committee reaffirms its judgment that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate. The Committee judges that longer-term inflation expectations that are well anchored at 2 percent foster price stability and moderate long-term interest rates and enhance the Committee's ability to promote maximum employment in the face of significant economic disturbances. In order to anchor longer-term inflation expectations at this level, the Committee seeks to achieve inflation that averages 2 percent over time, and therefore judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time.

Monetary policy actions tend to influence economic activity, employment, and prices with a lag. In setting monetary policy, the Committee seeks over time to mitigate shortfalls of employment from the Committee's assessment of its maximum level and deviations of inflation from its longer-run goal. Moreover, sustainably achieving maximum employment and price stability depends on a stable financial system. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals.

The Committee's employment and inflation objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it takes into account the employment shortfalls and inflation deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.

The Committee intends to review these principles and to make adjustments as appropriate at its annual organizational meeting each January, and to undertake roughly every 5 years a thorough public review of its monetary policy strategy, tools, and communication practices.

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Note: This report reflects information that was publicly available as of noon EST on February 17, 2021. Unless otherwise stated, the time series in the figures extend through, for daily data, February 16, 2021; for monthly data, January 2021; and, for quarterly data, 2020:Q4. In bar charts, except as noted, the change for a given period is measured to its final quarter from the final quarter of the preceding period.

Summary

The COVID-19 pandemic continues to weigh heavily on economic activity and labor markets in the United States and around the world, even as the ongoing vaccination campaigns offer hope for a return to more normal conditions later this year. While unprecedented fiscal and monetary stimulus and a relaxation of rigorous social-distancing restrictions supported a rapid rebound in the U.S. labor market last summer, the pace of gains has slowed and employment remains well below pre-pandemic levels. In addition, weak aggregate demand and low oil prices have held down consumer price inflation. In this challenging environment, the Federal Open Market Committee (FOMC) has held its policy rate near zero and has continued to purchase Treasury securities and agency mortgage-backed securities to support the economic recovery. These measures, along with the Committee's strong guidance on interest rates and the balance sheet, will ensure that monetary policy will continue to deliver powerful support to the economy until the recovery is complete.

Economic and Financial Developments

Economic activity and the labor market. The initial wave of COVID-19 infections led to a historic contraction in economic activity as a result of both mandatory restrictions and voluntary changes in behavior by households and businesses. The level of gross domestic product (GDP) fell a cumulative 10 percent over the first half of 2020, and the measured unemployment rate spiked to a post–World War II high of 14.8 percent in April. As mandatory restrictions were subsequently relaxed and households and firms adapted to pandemic conditions, many sectors of the economy recovered rapidly and unemployment fell back. Momentum slowed substantially in the late fall and early winter, however, as spending on many services contracted again amid a worsening of the pandemic. All told, GDP is currently estimated to have declined 2.5 percent over the four quarters of last year and payroll employment in January was almost 10 million jobs below pre-pandemic levels, while the unemployment rate remained elevated at 6.3 percent and the labor force participation rate was severely depressed. Job losses have been most severe and unemployment remains particularly elevated among Hispanics, African Americans, and other minority groups as well as those who hold lower-wage jobs.

Inflation. After declining sharply as the pandemic struck, consumer price inflation rebounded along with economic activity, but inflation remains below pre-COVID levels and the FOMC's longer-run objective of 2 percent. The 12-month measure of PCE (personal consumption expenditures) inflation was 1.3 percent in December, while the measure that excludes food and energy items—so-called core inflation, which is typically less volatile than total inflation—was 1.5 percent. Both total and core inflation were held down in part by prices for services adversely affected by the pandemic, and indicators of longer-run inflation expectations are now at similar levels to those seen in recent years.

Financial conditions. Financial conditions have improved notably since the spring of last year and remain generally accommodative. Low interest rates, the Federal Reserve's asset purchases, the establishment of emergency lending facilities, and other extraordinary actions, together with fiscal policy, continued to support the flow of credit in the economy and smooth market functioning. The nominal Treasury yield curve steepened and equity prices continued to increase steadily in the second half of last year as concerns over the resurgence in COVID-19 cases appeared to have been outweighed by positive news about vaccine prospects and expectations of further fiscal support. Spreads of yields on corporate bonds over those on comparable-maturity Treasury securities narrowed significantly, partly because the credit quality of firms improved and market functioning remained stable. Mortgage rates for households remain near historical lows. However, financing conditions remain relatively tight for households with low credit scores and for small businesses.

Financial stability. While some financial vulnerabilities have increased since the start of the pandemic, the institutions at the core of the financial system remain resilient. Asset valuation pressures have returned to or exceeded pre-pandemic levels in most markets, including in equity, corporate bond, and residential real estate markets. Although government programs have supported business and household incomes, some businesses and households have become more vulnerable to shocks, as earnings have fallen and borrowing has risen. Strong capital positions before the pandemic helped banks absorb large losses related to the pandemic. Financial institutions, however, may experience additional losses as a result of rising defaults in the coming years, and long-standing vulnerabilities at money market mutual funds and open-end investment funds remain unaddressed. Although some facilities established by the Federal Reserve in the wake of the pandemic have expired, those remaining continue to serve as important backstops against further stress. (See the box "Developments Related to Financial Stability" in Part 1.)

International developments. Mirroring the United States, economic activity abroad bounced back last summer after the spread of the virus moderated and restrictions eased. Subsequent infections and renewed restrictions have again depressed economic activity, however. Relative to the spring, the current slowdown in economic activity has been less dramatic. Fiscal and monetary policies continue to be supportive, and people have adapted to containment measures that have often been less stringent than earlier.

Despite the resurgence of the pandemic in many economies, financial markets abroad have recovered since the spring, buoyed by continued strong fiscal and monetary policy support and the start of vaccination campaigns in many countries. With the abatement of financial stress, the broad dollar has depreciated, more than reversing its appreciation at the onset of the pandemic. On balance, global equity prices have recovered and sovereign credit spreads in emerging market economies and in the European periphery have narrowed. In major advanced economies, sovereign yields remained near historical low levels amid continued monetary policy accommodation.

Monetary Policy

Review of the strategic framework for monetary policy. The Federal Reserve concluded the review of its strategic framework for monetary policy in the second half of 2020. The review was motivated by changes in the U.S. economy that affect monetary policy, including the global decline in the general level of interest rates and the reduced sensitivity of inflation to labor market tightness. In August, the FOMC issued a revised Statement on Longer-Run Goals and Monetary Policy Strategy.[1] The revised statement acknowledges the changes in the economy over recent decades and articulates how policymakers are taking these changes into account in conducting monetary policy. In the revised statement, the Committee indicates that it aims to attain its statutory goals by seeking to eliminate shortfalls from maximum employment—a broad-based and inclusive goal—and achieve inflation that averages 2 percent over time. Achieving inflation that averages 2 percent

1. The statement, revised in August 2020, was unanimously reaffirmed at the FOMC's January 2021 meeting.

over time helps ensure that longer-term inflation expectations remain well anchored at the FOMC's longer-run 2 percent objective. Hence, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time. (See the box "The FOMC's Revised Statement on Longer-Run Goals and Monetary Policy Strategy" in Part 2.)

In addition, in December the FOMC introduced two changes to the Summary of Economic Projections (SEP) intended to enhance the information provided to the public. First, the release of the full set of SEP exhibits was accelerated by three weeks, from the publication of the minutes three weeks after the end of an FOMC meeting to the day of the policy decision, the second day of an FOMC meeting. Second, new charts were included that display how FOMC participants' assessments of uncertainties and risks have evolved over time.

Interest rate policy. In light of the effects of the continuing public health crisis on the economy and the associated risks to the outlook, the FOMC has maintained the target range for the federal funds rate at 0 to ¼ percent since last March. In pursuing the strategy outlined in its revised statement, the Committee noted that it expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee's assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time.

Balance sheet policy. With the federal funds rate near zero, the Federal Reserve has also continued to undertake asset purchases to increase its holdings of Treasury securities by $80 billion per month and its holdings of agency mortgage-backed securities by $40 billion per month. These purchases help foster smooth market functioning and accommodative financial conditions, thereby supporting the flow of credit to households and businesses. The Committee expects these purchases to continue at least at this pace until substantial further progress has been made toward its maximum-employment and price-stability goals.

In assessing the appropriate stance of monetary policy, the Committee will continue to monitor the implications of incoming information for the economic outlook. The Committee is prepared to adjust the stance of monetary policy as appropriate if risks emerge that could impede the attainment of the Committee's goals.

Special Topics

Disparities in job loss. The COVID-19 crisis has exacerbated pre-existing disparities in labor market outcomes across job types and demographic groups. Job losses last spring were disproportionately severe among lower-wage workers, less-educated workers, and racial and ethnic minorities, as in previous recessions, but also among women, in contrast to previous recessions. While all groups have experienced at least a partial recovery in employment rates since April 2020, the shortfall in employment remains especially large for lower-wage workers and for Hispanics, African Americans, and other minority groups, and the additional childcare burdens resulting from school closures have weighed more heavily on women's labor force participation than on men's labor force participation. (See the box "Disparities in Job Loss during the Pandemic" in Part 1.)

High-frequency indicators. The unprecedented magnitude, speed, and nature of the COVID-19 shock to the economy rendered traditional statistics insufficient for monitoring economic activity in a timely manner. As a result, policymakers turned to nontraditional high-frequency indicators of activity, especially for the labor market and consumer spending. These indicators presented a more timely and granular picture of the drop and subsequent rebound in economic activity last spring. The most recent readings obtained from those indicators suggest that economic activity began to edge up again in January, likely reflecting in part the disbursement of additional stimulus payments to households. (See the box "Monitoring Economic Activity with Nontraditional High-Frequency Indicators" in Part 1.)

Monetary policy rules. Simple monetary policy rules, which relate a policy interest rate to a small number of other economic variables, can provide useful guidance to policymakers. This discussion presents the policy rate prescriptions from a number of rules that have received attention in the research literature, many of which mechanically prescribe raising the federal funds rate as employment rises above estimates of its longer-run level. A rule that instead responds only to shortfalls of employment from assessments of its maximum level is featured to illustrate one aspect of the FOMC's revised approach to policy, as described in the revised Statement on Longer-Run Goals and Monetary Policy Strategy. (See the box "Monetary Policy Rules and Shortfalls from Maximum Employment" in Part 2.)

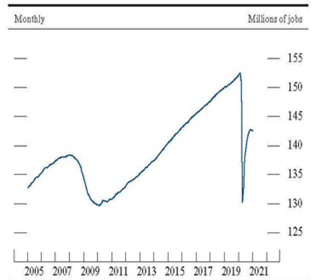
Part 1
Recent Economic and Financial Developments

Domestic Developments

The labor market has partially recovered from the pandemic-induced collapse, but the pace of improvement slowed substantially toward the end of last year...

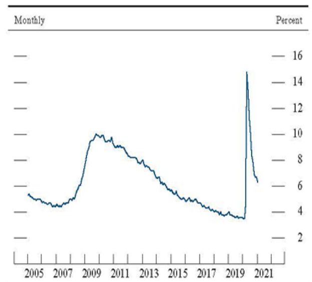
The public health crisis spurred by the spread of COVID-19 weighed on economic activity throughout 2020, and patterns in the labor market reflected the ebb and flow of the virus and the actions taken by households, businesses, and governments to combat its spread. During the initial stage of the pandemic in March and April, payroll employment plunged by 22 million jobs, while the measured unemployment rate jumped to 14.8 percent—its highest level since the Great Depression (figures 1 and 2).[2] As cases subsided and early lockdowns were relaxed, payroll employment rebounded rapidly—particularly outside of the service sectors—and the unemployment rate fell back. Beginning late last year, however, the pace of improvement in the labor market slowed markedly amid another large wave of COVID-19 cases. The unemployment rate declined only 0.4 percentage point from November through January, while payroll gains averaged just 29,000 per month, weighed down by a contraction in the leisure and hospitality sector, which is particularly affected by social distancing and government-mandated restrictions.

1. Nonfarm payroll employment



Source: Bureau of Labor Statistics via Haver Analytics.

2. Civilian unemployment rate



Source: Bureau of Labor Statistics.

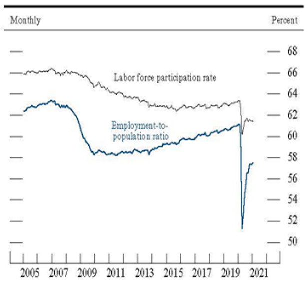
2. Since the beginning of the pandemic, a substantial number of people on temporary layoff, who should be counted as unemployed, have instead been recorded as "employed but on unpaid absence." The Bureau of Labor Statistics reports that, if these workers had been correctly classified, the unemployment rate would have been 5 percentage points higher in April. The misclassification problem has abated since then, and the unemployment rate in January was at most about ½ percentage point lower than it would have been in the absence of misclassification.

All told, the incomplete recovery left the level of employment in January almost 10 million lower than it was a year earlier, while the unemployment rate stood at 6.3 percent—nearly 3 percentage points higher than before the onset of the pandemic. Most recently, high-frequency data—including initial claims for unemployment insurance and weekly employment data from the payroll processor ADP—suggest modest further improvement in the labor market in recent weeks. (For more discussion of what high-frequency indicators are suggesting about the current trajectory of the economy, see the box "Monitoring Economic Activity with Nontraditional High-Frequency Indicators.")

. . . and the harm has been substantial

The damage to the labor market has been even more substantial than is indicated by the extent of unemployment alone. The labor force participation rate (LFPR)—the share of the population that is either working or actively looking for work—plunged in March and April, as many of those who lost their jobs were not seeking work and so were not counted among the unemployed. Despite recovering some over the summer, the LFPR remains nearly 2 percentage points below its pre-pandemic level (figure 3). A number of factors appear to have contributed to the continued weakness in the LFPR, including a lack of job opportunities, the effects of school closings and virtual learning on parents' ability to work, the health concerns of potential workers, and a spate of early retirements triggered by the crisis. All told, the employment-to-population ratio—the share of the population with jobs, regardless of the number seeking work—in January was 3.6 percentage points below the level at the beginning of 2020. Job losses last year fell most heavily on lower-wage workers and on Hispanics, African Americans, and other minority groups. As a result, the rise in unemployment and the decline

3. Labor force participation rate and employment-to-population ratio



NOTE: The labor force participation rate and the employment-to-population ratio are percentages of the population aged 16 and over.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

Monitoring Economic Activity with Nontraditional High-Frequency Indicators

The unprecedented magnitude, speed, and nature of the COVID-19 shock to the economy rendered traditional statistics insufficient for monitoring economic activity in a timely manner. As a result, policymakers around the world turned to nontraditional indicators of activity, both those based on private-sector "big data" and those newly developed by official statistical agencies. Because some of the most salient characteristics of these indicators are their timeliness and the time span they cover (such as daily or weekly), they are often called "high-frequency indicators."

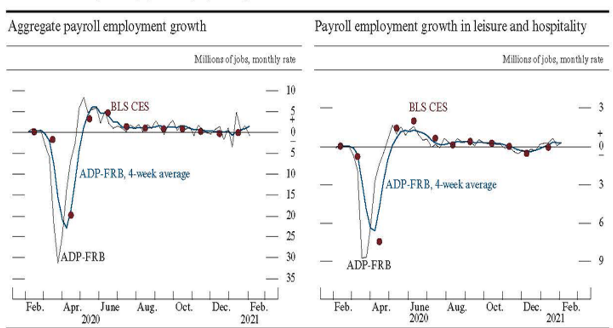
An important example of the usefulness of high-frequency indicators is the case of payroll employment. The Bureau of Labor Statistics' (BLS) monthly measure of payroll employment is one of the most reliable, timely, and closely watched business cycle indicators. However, during the onset of the pandemic in the United States, even the BLS Current Employment Statistics (CES) data were published with too long of a lag to track the dramatic dislocations in the labor market in a timely manner. Specifically, from the second half of March through early April, the economy was shedding jobs at an unprecedented rate, but those employment losses were captured only in the employment situation release issued on May 8, 2020. Because of this lag, economists looked to various private data sources to gain insights about the current state of the labor market.[1] An important example is data from the payroll processor ADP that cover roughly 20 percent of private U.S. employment, a sample size similar to the one used by the BLS to construct the CES. Estimates of changes in employment constructed from ADP data have tracked the official CES data remarkably well since the start of the pandemic recession, and the ADP data possess the important benefits of being available earlier and at a weekly frequency (figure A, left panel).[2]

(continued on next page)

1. See, for example, Raj Chetty, John N. Friedman, Nathaniel Hendren, Michael Stepner, and the Opportunity Insights Team (2020), "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data," NBER Working Paper Series 27431 (Cambridge, Mass.: National Bureau of Economic Research, November), https://www.nber.org/papers/w27431; and Alexander W. Bartik, Marianne Bertrand, Feng Lin, Jesse Rothstein, and Matt Unrath (forthcoming), "Measuring the Labor Market at the Onset of the COVID-19 Crisis," *Brookings Papers on Economic Activity.*

2. For further analysis of the ADP employment series, see Tomaz Cajner, Leland D. Crane, Ryan A. Decker, John Grigsby, Adrian Hamins-Puertolas, Erik Hurst, Christopher Kurz, and Ahu Yildirmaz (forthcoming), "The U.S. Labor Market during the Beginning of the Pandemic Recession," *Brookings Papers on Economic Activity.* Note that the ADP employment series referenced in this discussion differ from the ADP National Employment Report, which is published monthly by the ADP Research Institute in close collaboration with Moody's Analytics.

A. Estimates of private payroll employment growth



NOTE: ADP data are weekly and extend through February 6, 2021. BLS data are monthly.
SOURCE: Federal Reserve Board staff calculations using ADP, Inc., Payroll Processing Data; Bureau of Labor Statistics (BLS), Current Employment Statistics (CES).

Monitoring Economic Activity *(continued)*

Weekly employment estimates based on ADP data were particularly valuable not only last spring when employment plummeted and then quickly rebounded, but also during the renewed COVID-19 wave that started this past fall. In particular, high-frequency ADP employment data indicate that the fall and winter virus wave had a smaller effect on the labor market than was seen last spring, likely because there were fewer mandated shutdowns of businesses than in the spring, because many businesses implemented adaptations that made it easier for them to continue to operate (for example, curbside pickup), and because many individuals changed their behavior (for example, by wearing masks such that more economic activities are deemed safer now than in the spring). Most recently, the BLS data show that private payroll employment remained little changed through its survey week in mid-January, and the ADP data indicate that employment improved modestly through early February. Additionally, the latest ADP data indicate that the leisure and hospitality sector—which includes hotels, restaurants, and entertainment venues and is particularly affected by government-mandated restrictions and social distancing—started adding jobs again in recent weeks after experiencing a temporary downturn at the end of last year (figure A, right panel).

Outside of the labor market, several new high-frequency indicators have been useful in monitoring the massive effects of the COVID-19 pandemic on consumer spending. Weekly data from NPD (a market analytics firm) on nonfood retail sales captured in real time the dramatic and sudden drop in consumption in mid-March; the monthly Census Bureau data recorded that decline only with a lag (figure B, left panel).[3] The NPD data also reflected how the income support payments to families, provided by the Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, rapidly affected consumer spending in mid-April. More recently, the NPD data showed some decline in consumption late last year, followed by a pickup in January after the passage of the most recent fiscal stimulus package. Several nontraditional data sources illustrate that services spending remains depressed as social distancing continues to restrain in-person activity (figure B, right panel).[4]

With rapid changes in the economic environment, many statistical agencies also developed high-frequency

(continued)

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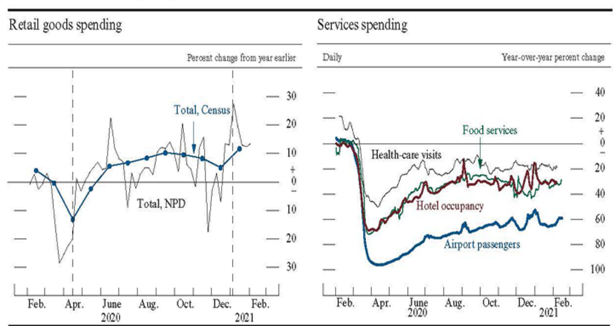
4. Services spending accounts for roughly one-half of aggregate spending, but it is measured with some lag. In particular, the services spending information folded into gross domestic product comes from the revenue information sourced from the Census Bureau's Quarterly Services Survey (QSS). The advance QSS (early data for a subset of industries found in the full QSS) and full QSS are released two and three months, respectively, after a given quarter ends.

B. Indicators of consumption growth



NOTE: NPD data are weekly and extend through February 6, 2021, and Census data are monthly. All series show nominal spending on nonfood retail goods. Dashed lines represent the first and second waves of stimulus tranche.
SOURCE: NPD Group; Census Bureau.

NOTE: Year-over-year percent change in 7-day moving average. Health-care visits data extend through February 7, 2021; food services data extend through February 15, 2021; and hotel occupancy data extend through February 6, 2021.
SOURCE: SafeGraph, Inc.; Fiserv, Inc.; STR, Inc.; Transportation Security Administration.

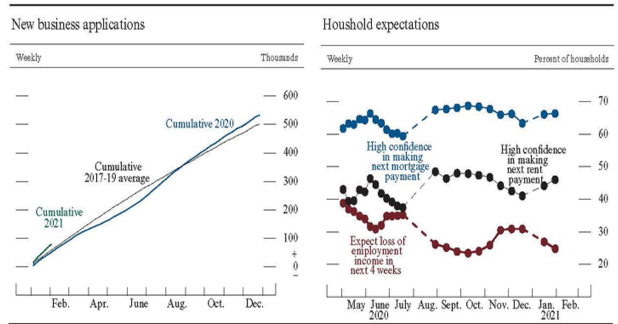
indicators. For example, the Census Bureau released data on weekly new business applications (figure C, left panel). During the initial stage of the pandemic recession, new business applications fell compared with previous years, a typical pattern during economic downturns. However, new business applications started to rebound notably during the summer, and for the year as a whole, they were higher than the average over the previous three years, a pattern that differs dramatically from previous business cycles.[5] The increase in applications appears to be concentrated in industries that rapidly adapted to the landscape of the pandemic, such as online retail, personal services, information technology, and delivery. It remains unclear, however, whether these business applications will lead to actual job creation at the same rate as in the past.[6] As another example, the Census Bureau developed high-frequency survey statistics that contain information about the financial struggles of households (figure C, right panel). These data indicate that the financial stress of households increased late last year as households were becoming less confident about being able to make their next mortgage or rent payment as well as more likely to expect income loss over the next four weeks, but households' financial expectations improved somewhat in January.

Overall, nontraditional high-frequency indicators have served several purposes over the past year. First, they provide timely alternative estimates that complement official statistics and can also be used to verify movements in official statistics. Second, they are often helpful for assessing economic developments more quickly and with greater granularity than what can be found in official statistics. Third, high-frequency indicators without a direct counterpart in official statistics give a different perspective and help enhance our understanding of economic developments. These nontraditional indicators are also subject to several potential limitations, such as systematic biases due to nonrepresentativeness of data or small (and possibly nonrandom) samples. Importantly, only time will tell if such indicators will continue to provide a signal above and beyond traditional indicators as the high-frequency shocks associated with the pandemic dissipate. Overall, however, the use of nontraditional high-frequency indicators over the past year has amply shown that they can yield large benefits, especially when economic conditions are changing rapidly.

5. For further discussion, see Emin Dinlersoz, Timothy Dunne, John Haltiwanger, and Veronika Penciakova (forthcoming), "Business Formation: A Tale of Two Recessions," *American Economic Review Papers and Proceedings*.

6. The link between applications and job creation in the pre-pandemic period is studied in Kimberly Bayard, Emin Dinlersoz, Timothy Dunne, John Haltiwanger, Javier Miranda, and John Stevens (2018), "Early-Stage Business Formation: An Analysis of Applications for Employer Identification Numbers," Finance and Economics Discussion Series 2018-015 (Washington: Board of Governors of the Federal Reserve System, March), https://dx.doi.org/10.17016/FEDS.2018.015.

C. High-frequency indicators by official statistical agencies



NOTE: The cumulative 2021 data extend through February 6, 2021. The data are derived from Employer Identification Number applications with planned wages.
SOURCE: Business Formation Statistics, Census Bureau via Haver Analytics.

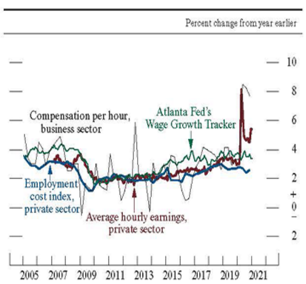
NOTE: Data extend through February 1, 2021. Dashed lines represent pauses in Household Pulse Survey data collection.
SOURCE: Household Pulse Survey, Census Bureau via Haver Analytics.

4. Unemployment rate, by race and ethnicity

NOTE: Unemployment rate measures total unemployed as a percentage of the labor force. Persons whose ethnicity is identified as Hispanic or Latino may be of any race. Small sample sizes preclude reliable estimates for Native Americans and other groups for which monthly data are not reported by the Bureau of Labor Statistics.

SOURCE: Bureau of Labor Statistics via Haver Analytics.

5. Measures of change in hourly compensation



NOTE: Business-sector compensation is on a 4-quarter percent change basis. For the private-sector employment cost index, change is over the 12 months ending in the last month of each quarter; for private-sector average hourly earnings, the data are 12-month percent changes and begin in March 2007; for the Atlanta Fed's Wage Growth Tracker, the data are shown as a 3-month moving average of the 12-month percent change.

SOURCE: Bureau of Labor Statistics; Federal Reserve Bank of Atlanta, Wage Growth Tracker; all via Haver Analytics.

in the employment-to-population ratio were particularly evident among those groups (figure 4). (For more discussion of the pandemic's effects on the labor market outcomes of various groups, see the box "Disparities in Job Loss during the Pandemic.")

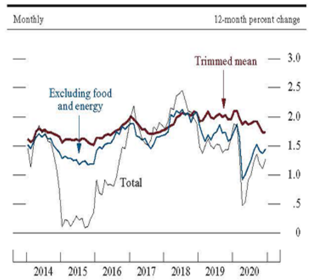
Aggregate wage growth appears to be little changed despite the weakness in the labor market

Although weakness in the labor market generally puts downward pressure on overall wages, the best available measures suggest that wage growth in 2020 was little changed from 2019. Total hourly compensation as measured by the employment cost index, which includes both wages and benefits, rose 2.6 percent during the 12 months ending in December, only slightly below pre-pandemic rates (figure 5). Wage growth as computed by the Federal Reserve Bank of Atlanta, which tracks the median 12-month wage growth of individuals responding to the Current Population Survey, was about 3½ percent during 2020, similar to the growth rate in 2019.[3] The continued gains in aggregate wages mask important heterogeneity, however; according to the Atlanta Fed data, workers with lower earnings and nonwhites experienced larger decelerations in wages than other groups last year.

Price inflation remains low despite rebounding since last spring

As measured by the 12-month change in the price index for personal consumption expenditures (PCE), inflation fell from 1.6 percent in December 2019 to a low of 0.5 percent in April, as economic activity dropped sharply (figure 6). Since then, inflation has partially recovered along with the pickup in demand, but it was only 1.3 percent in December—still well below the Federal Open Market Committee's (FOMC) objective of 2 percent. After excluding consumer food and energy prices, which are often quite volatile, the 12-month measure of core PCE inflation was 1.5 percent in December. An alternative way to abstract from transitory influences on measured inflation is provided by the trimmed mean measure of PCE price inflation constructed by the Federal Reserve Bank of Dallas.[4] The 12-month change in this measure declined to 1.7 percent in December

6. Change in the price index for personal consumption expenditures



NOTE: The data extend through December 2020.
SOURCE: For trimmed mean, Federal Reserve Bank of Dallas; for all else, Bureau of Economic Analysis; all via Haver Analytics.

3. Some other common wage measures are providing misleading signals at present because they are dominated by compositional effects: Pandemic-related job losses fell most heavily on lower-wage workers, which mechanically increased measures of average wages. For example, average hourly earnings from the payroll survey rose more than 5 percent over the 12 months ending in January. Similarly, the fourth-quarter reading on compensation per hour, which includes both wages and benefits, was 7.7 percent above its year-ago level. Output per hour, or productivity, has also been affected by the same composition effects, rising 2.5 percent over the four quarters of 2020, the fastest pace in a decade.

4. The trimmed mean price index excludes whichever prices showed the largest increases or decreases in a given month. Over the past 20 years, changes in the trimmed mean index have averaged ¼ percentage point above core PCE inflation and 0.1 percentage point above total PCE inflation.

Disparities in Job Loss during the Pandemic

Although employment has improved substantially since its trough in April 2020, the labor market recovery remains far from complete: As of January 2021, the employment-to-population (EPOP) ratio, a broad measure that encompasses both increased unemployment and decreased labor force participation, was still 3.6 percentage points below its February 2020 level. All industries, occupations, and demographic groups experienced significant employment declines at the start of the pandemic, and, over the ensuing months, all groups have experienced at least some partial recovery. That said, employment declines last spring were steeper for workers with lower earnings and for Hispanics, African Americans, and other minority groups, and the hardest-hit groups still have the most ground left to regain.

Although disparities in labor market outcomes generally widen during recessions, certain factors unique to this episode—in particular, the social-distancing measures taken by households, businesses, and governments to limit in-person interactions—have profoundly shaped the incidence of recent job losses in different segments of the labor market. Because jobs differ in the degree to which they involve personal contact and physical proximity, in whether they can be performed remotely, and in whether they are deemed to serve "essential" functions, social-distancing measures have had disparate effects across industries and occupations. To illustrate this point, figure A reports net changes in employment in 11 broad industry categories, both during the period of acute job losses last spring (column 1) and over the longer interval since the start of the pandemic (column 2). Net job losses through January have been especially severe in the leisure and hospitality industry—in which employment is still 22.9 percent below pre-pandemic levels (line 11)—and in other services, a category that includes barber shops and beauty salons (line 12).[1] By contrast, employment in most other broad industries is now 5 percent or less below pre-pandemic levels. Job losses have thus been disproportionately concentrated in lower-wage consumer service industries, in which business operations are strongly affected by social-distancing measures and relatively few workers are able to work from home.[2]

A. Changes in private-sector employment, by industry

Industry	Percent change since Feb. 2020	
	(1) As of Apr. 2020	(2) As of Jan. 2021
1. Total private	−16.5	−6.6
2. Mining and logging	−9.9	−11.7
3. Manufacturing	−10.8	−4.5
4. Construction	−14.6	−3.3
5. Wholesale trade	−6.9	−4.5
6. Retail trade	−15.2	−2.5
7. Transp., warehousing, and utilities	−9.1	−2.7
8. Information and financial activities	−4.8	−2.8
9. Professional and business services	−11.1	−3.8
10. Education and health services	−11.6	−5.4
11. Leisure and hospitality	−48.6	−22.9
12. Other services	−23.7	−7.8

NOTE: The data are seasonally adjusted.
SOURCE: Bureau of Labor Statistics.

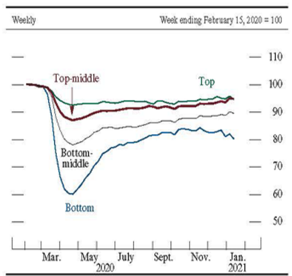
In keeping with the sectoral composition of recent job losses, workers in lower-wage jobs have been hit especially hard. Figure B uses data from the payroll processor ADP to plot employment indexes for four job tiers defined by hourly wages. Between February and April of last year, employment fell most sharply for jobs in the bottom quartile of the pre-pandemic wage distribution. Between April and June, employment rose most quickly for these lowest-paying jobs. In subsequent months, job gains moderated substantially for all groups, and as of mid-January, employment in the lowest-paying jobs was about 20 percent below its

(continued)

1. Net job losses have also been pronounced in mining and logging (line 2), which is unique among these industries in having experienced further contraction in employment between April 2020 and January 2021.

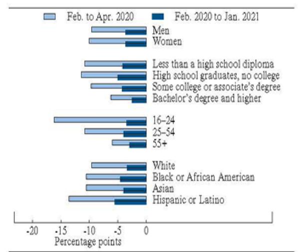
2. For instance, in the January 2021 round of the Current Population Survey, 41 percent of those employed in the professional and business services industry reported working from home during the previous four weeks as a result of the pandemic, compared with about 7 percent of those employed in leisure and hospitality. See Bureau of Labor Statistics (2021), "Supplemental Data Measuring the Effects of the Coronavirus (COVID-19) Pandemic on the Labor Market," Current Population Survey, January, https://www.bls.gov/cps/effects-of-the-coronavirus-covid-19-pandemic.htm.

B. Employment declines for low-, middle-, and high-wage workers



NOTE: The data are seasonally adjusted by the Federal Reserve Board and extend through January 16, 2021. Wage quartiles are defined using the February 2020 wage distribution.
SOURCE: Federal Reserve Board staff calculations using ADP, Inc., payroll processing data.

C. Change in employment-to-population ratio, by demographic group



NOTE: The data are seasonally adjusted. Small sample sizes preclude reliable estimates for Native Americans and other groups for which monthly data are not reported by the Bureau of Labor Statistics.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

pre-pandemic level. In comparison, employment in the higher-paying job tiers is now about 10 percent or less below pre-pandemic levels.

Similar disparities are apparent across demographic groups. Figure C shows the change in each group's EPOP ratio. Between February 2020 and January 2021, the EPOP ratio fell by a similar amount for both men and women; in contrast, during many previous recessions the EPOP ratio declined substantially more for men. (In fact, given that men's employment rate was substantially higher than women's before the pandemic, the decline in employment for women as a percentage of pre-recession employment has been larger, which contrasts even more starkly with previous recessions.) Since February 2020, the EPOP ratio has fallen more for people without a bachelor's degree than for those with at least a bachelor's degree, more for prime-age individuals than for those under age 25 or over age 55, and more for Hispanics, African Americans, and Asians than for whites.[3] In general, the groups experiencing the largest declines in employment since last February are more commonly employed in the industries that have experienced the greatest net employment declines to date, such as leisure and hospitality; these demographic groups are also less likely to report being able to work from home.[4]

(continued on next page)

3. The decline in employment also appears to have been relatively large for Native Americans, based on annual average data for 2020. (Monthly data are not available for this group because of small sample sizes and are not shown in figure C for that reason.)

4. For more information on the groups with the largest employment declines since February 2020, see Kenneth A. Couch, Robert W. Fairlie, and Huanan Xu (2020), "Early Evidence of the Impacts of COVID-19 on Minority Unemployment," *Journal of Public Economics*, vol. 192 (December), pp. 1–11; Guido Matias Cortes and Eliza C. Forsythe (2020), "The Heterogeneous Labor Market Impacts of the Covid-19 Pandemic," Upjohn Institute Working Paper Series 20-327 (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, May), https://research.upjohn.org/cgi/viewcontent.cgi?article=1346&context=up_workingpapers; and Titan Alon, Matthias Doepke, Jane Olmstead-Rumsey, and Michèle Tertilt (2020), "This Time It's Different: The Role of Women's Employment in a Pandemic Recession," NBER Working Paper 27660 (Cambridge, Mass.: National Bureau of Economic Research, August), https://www.nber.org/papers/w27660.

Additional details on differences across demographic groups in the ability to work from home can be found in the Current Population Survey. For example, in January, around 23 percent of white workers reported working from home in the previous four weeks because of the pandemic, compared with 19 percent of African Americans and 14 percent of Hispanics; 43 percent of those with a bachelor's degree or higher reported working from home, compared with 16 percent or less for those with lower levels of education. See Bureau of Labor Statistics, "Supplemental Data," in box note 2.

Disparities in Job Loss *(continued)*

Since the start of the pandemic, another important impediment to individuals' ability to work or look for work has been the absence of in-person education for many K–12 students.[5] Because many working parents are unable to work from home while monitoring their children's virtual education (depending on the nature of their jobs and the availability of other caregivers), the widespread lack of K–12 in-person education may also explain some of the differences across groups. For example, among mothers aged 25 to 54 with children aged 6 to 17, the fraction who said they are not working or looking for work for caregiving reasons was 2½ percentage points higher in the three months ending January 2021 than over the year-earlier period, compared with a ½ percentage point increase for fathers. Relative to white mothers, the increase was about twice as large for Hispanic mothers and more than twice as large for African American mothers, and it was also more than twice as large for mothers without any college education as for mothers with more education.[6]

As the spread of COVID-19 is contained and a growing share of the population is immunized, some of the unique factors that have exacerbated disparities since the start of the pandemic will likely ease. For example, as COVID becomes less prevalent, businesses offering in-person services (for example, in the leisure and hospitality industry) will move closer to pre-pandemic levels of employment. In addition, as more schools return to offering in-person education, childcare constraints will become less acute.

Even as labor market impediments specific to the pandemic subside, however, the speed at which the labor market moves toward full employment will be important for narrowing the disparities that have widened since the start of the pandemic, as research has consistently shown that strong labor markets especially benefit lower-wage and disadvantaged workers.[7] The pace of labor market gains will also depend on how many unemployed workers have the opportunity to return to their original jobs. In January 2021, 2.2 percent of labor force participants (representing 34.6 percent of unemployed workers) reported being unemployed because of a permanent job loss, up from 1.3 percent of the labor force (8.8 percent of unemployed workers) in April 2020.[8] Research has shown that workers who return to their previous employers after a temporary layoff tend to earn wages similar to what they were making previously, whereas laid-off workers who do not return to their previous employer experience a longer-lasting decline in earnings.[9]

5. According to the Census Bureau's Household Pulse Survey, 85 percent of parents surveyed in early January reported that their children's classes for the 2020–21 school year were moved to virtual learning.

6. The findings are Federal Reserve Board staff estimates based on publicly available Current Population Survey microdata.

7. For example, see Stephanie R. Aaronson, Mary C. Daly, William L. Wascher, and David W. Wilcox (2019), "Okun Revisited: Who Benefits Most from a Strong Economy?" *Brookings Papers on Economic Activity*, Spring, pp. 333–75, https://www.brookings.edu/wp-content/uploads/2019/03/aaronson_web.pdf; and Tomaz Cajner, Tyler Radler, David Ratner, and Ivan Vidangos (2017), "Racial Gaps in Labor Market Outcomes in the Last Four Decades and over the Business Cycle," Finance and Economics Discussion Series 2017-071 (Washington: Board of Governors of the Federal Reserve System, June), https://dx.doi.org/10.17016/FEDS.2017.071.

8. The data are Federal Reserve Board staff calculations from published Bureau of Labor Statistics estimates. By comparison, the number of permanent job losers peaked at 4.4 percent of labor force participants (representing 44.8 percent of unemployed workers) during the Great Recession.

9. See Louis S. Jacobson, Robert J. LaLonde, and Daniel G. Sullivan (1993), "Earnings Losses of Displaced Workers," *American Economic Review*, vol. 83 (September), pp. 685–709; Shigeru Fujita and Giuseppe Moscarini (2017), "Recall and Unemployment," *American Economic Review*, vol. 107 (December), pp. 3875–916; and Marta Lachowska, Alexandre Mas, and Stephen A. Woodbury (2020), "Sources of Displaced Workers' Long-Term Earnings Losses," *American Economic Review*, vol. 110 (October), pp. 3231–66.

from 2 percent a year earlier, a similar decrease to those in total and core PCE inflation.

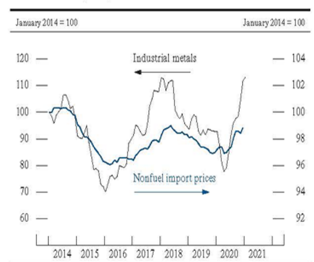
The low level of consumer price inflation in 2020 partly reflected the deterioration in economic activity. For example, inflation in tenants' rent and owners' equivalent rent, which tend to be sensitive to overall economic conditions, softened in 2020 from the rates observed during the preceding few years. Low inflation also reflected the net effect of a number of pandemic-driven shifts in specific sectors of the economy, such as a decline in gasoline prices that resulted from a collapse in oil prices in the early part of the year, which only partially reversed in the second half. Similarly, airfares and hotel prices fell markedly, driven by huge reductions in demand due to the pandemic. In contrast, food prices increased at an unusually fast pace last year, given stronger demand at retail grocery stores and, at times, some pandemic-related supply chain disruptions. In addition, prices for some durable goods, such as motor vehicles and home appliances, rose sharply during the summer and remained somewhat elevated at the end of the year, in part because of a pandemic-induced shift in demand away from services and toward these goods.

Prices of imports and oil have also rebounded

The partial rebound in inflation later in 2020 also stemmed from a firming of import prices. After declining in the first half of last year, nonfuel import prices increased in the second half, as the dollar depreciated and the recovery in global demand put upward pressure on non-oil commodity prices—a substantial component of nonfuel import prices (figure 7). Prices of both agricultural commodities and industrial metals increased considerably, and nonfuel import prices are now higher than they were a year ago.

Early in the pandemic, benchmark oil prices fell below $20 per barrel, a level not breached since 2002. While prices have now nearly

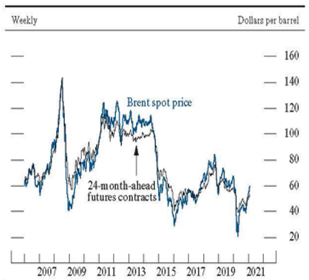
7. Nonfuel import prices and industrial metals indexes



NOTE: The data for nonfuel import prices are monthly and extend through December 2020. The data for industrial metals are monthly averages of daily data and extend through January 29, 2021.

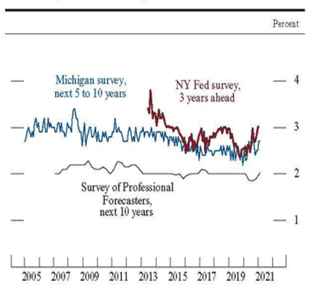
SOURCE: For nonfuel import prices, Bureau of Labor Statistics; for industrial metals, S&P GSCI Industrial Metals Spot Index via Haver Analytics.

8. Spot and futures prices for crude oil



NOTE: The data are weekly averages of daily data. The data begin on Thursdays and extend through February 10, 2021.
SOURCE: ICE Brent Futures via Bloomberg.

9. Surveys of inflation expectations



NOTE: The series are medians of the survey responses. The Michigan survey data are monthly and extend through February 2021; the February data are preliminary. The Survey of Professional Forecasters data for inflation expectations for personal consumption expenditures are quarterly, begin in 2007:Q1, and extend through 2021:Q1. The NY Fed survey data are monthly and begin in June 2013.
SOURCE: University of Michigan Surveys of Consumers; Federal Reserve Bank of New York, Survey of Consumer Expectations; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters.

recovered, oil consumption and production are still well below pre-pandemic levels (figure 8). Although global economic activity has picked up since last spring, oil demand has not fully recovered, held back by the slow recovery in travel and commuting. Weak demand has been met by reductions in supply: U.S. production has fallen dramatically relative to a year ago, while OPEC (Organization of the Petroleum Exporting Countries) and Russia have only slightly increased production after making sharp cuts last spring.

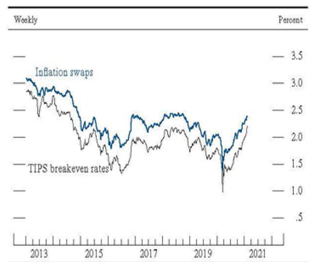
Survey-based measures of long-run inflation expectations have been broadly stable . . .

Despite the volatility in actual inflation last year, survey-based measures of inflation expectations at medium- and longer-term horizons, which likely influence actual inflation by affecting wage- and price-setting decisions, have been little changed on net (figure 9). In the University of Michigan Surveys of Consumers, the median value for inflation expectations over the next 5 to 10 years was 2.7 percent in January and early February. In the Survey of Consumer Expectations, conducted by the Federal Reserve Bank of New York, the median of respondents' expected inflation rate three years ahead was 3.0 percent in January, somewhat above its year-earlier level. Finally, in the first-quarter Survey of Professional Forecasters, conducted by the Federal Reserve Bank of Philadelphia, the median expectation for the annual rate of increase in the PCE price index over the next 10 years was 2.0 percent, close to the level around which it had typically hovered in previous years.

. . . and market-based measures of inflation compensation have retraced earlier declines

Inflation expectations can also be inferred from market-based measures of inflation compensation, although the inference is not straightforward because these measures are affected by changes in premiums that provide compensation for bearing inflation and liquidity risks. Measures of longer-term inflation compensation—derived either from differences between yields on nominal Treasury securities and those on comparable-maturity Treasury Inflation-Protected Securities (TIPS), or from inflation swaps—dropped sharply last March, partly reflecting a reduction in the relative liquidity of TIPS compared with nominal Treasury securities (figure 10). Both measures rebounded in the next couple of months as liquidity improved, before drifting up further through the remainder of 2020 and early 2021. The TIPS-based measure of 5-to-10-year-forward inflation compensation and the analogous measure from inflation swaps are now about 2¼ percent and 2½ percent, respectively, a bit above the average levels seen in 2019.[5]

10. 5-to-10-year-forward inflation compensation

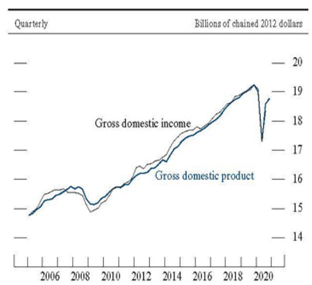


NOTE: The data are weekly averages of daily data and extend through February 12, 2021. TIPS is Treasury Inflation-Protected Securities.
SOURCE: Federal Reserve Bank of New York; Barclays; Federal Reserve Board staff estimates.

The plunge and rebound in gross domestic product reflected unusual patterns of spending during the pandemic

After contracting with unprecedented speed and severity in the first half of 2020, gross domestic product (GDP) rose rapidly in the third quarter and continued to pick up, albeit at a much slower pace, in the fourth quarter (figure 11). The rebound in activity reflected a relaxation of voluntary and mandatory social distancing, as well as unprecedented fiscal and monetary support. Nevertheless, the recovery remains incomplete: At the end of 2020, GDP was 2.5 percent below its level four quarters earlier. This incomplete recovery reflected weakness in services consumption and overall exports that resulted largely from ongoing social-distancing measures to contain the virus, both at home and abroad. The concentration of the recession in services is unprecedented in the United States. Indeed, the sectors that are typically responsible for the cyclical dynamics of GDP have shown remarkable resilience: Activity in the housing market and consumer spending on goods were both above their

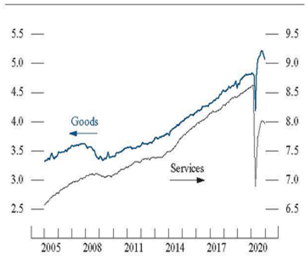
11. Real gross domestic product and gross domestic income



NOTE: Gross domestic income extends through 2020:Q3.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

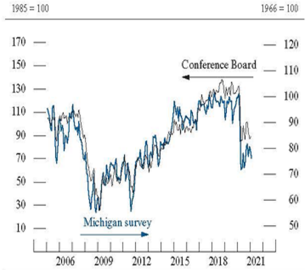
5. As these measures are based on consumer price index (CPI) inflation, one should probably subtract about ¼ percentage point—the average differential between CPI and PCE inflation over the past two decades—to infer inflation compensation on a PCE basis.

12. Real personal consumption expenditures



NOTE: The data are monthly and extend through December 2020.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

13. Indexes of consumer sentiment



NOTE: The data are monthly. Michigan survey data extend through February 2021; the February data are preliminary.
SOURCE: University of Michigan Surveys of Consumers; Conference Board.

pre-pandemic levels in the fourth quarter, and business fixed investment and manufacturing output also recovered rapidly from their initial plunges.

Consumer spending, particularly on goods, bounced back in the second half of 2020 . . .

Household consumption rebounded rapidly during the late spring and summer from its COVID-induced plunge, and it continued to make gains through the fourth quarter, ending the year 2.6 percent below its year-earlier level. Notably, purchases of both durable and nondurable goods rose above their pre-COVID levels in the second half of 2020, as spending shifted away from services curtailed by voluntary and mandatory social distancing (figure 12). Within durable goods, sales of light motor vehicles moved up quickly in the second half and are now close to their pre-pandemic level; any residual weakness in sales may be attributable to low supply, as production has failed to keep pace with demand. Services spending also rebounded from the extraordinarily low level seen in April, but it remained well below its pre-pandemic pace through the fourth quarter, as concerns about the virus continued to limit in-person interactions. Notably, consumer sentiment has also remained well below pre-pandemic levels (figure 13).

. . . assisted by government income support . . .

Consumer spending has been bolstered by government income support in the form of unemployment insurance and stimulus measures targeted at households. These payments were largest in the spring and summer of last year, but even in the fourth quarter aggregate real disposable personal income (DPI) was 3.7 percent above the level prevailing in late 2019, despite the low level of employment.[6] The still-elevated level of DPI,

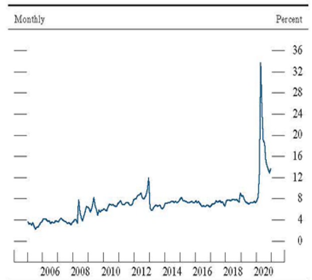
6. The Consolidated Appropriations Act, 2021, which was enacted in late December, should provide a

combined with the low level of consumption, resulted in an aggregate saving rate of more than 13 percent in the fourth quarter, nearly double its level from a year earlier (figure 14).[7] That said, these aggregate figures mask important variation across households, and many low-income households, especially those whose earnings declined as a result of the pandemic and recession, have seen their finances stretched.[8]

. . . but spending fell back late in the year

As COVID cases began rising again in November, some states retightened restrictions, and many households likely cut back voluntarily on their activities, leading to a retrenchment in spending on services such as restaurants and travel. Spending on durable goods also stepped down late in the fourth quarter, possibly in part because many households had already purchased durable items such as furniture and electronics earlier in the year. Further, while higher-income households accrued substantial savings over the course of 2020, some lower-income consumers likely began to reduce their spending toward the end of the year, as support provided by the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) waned. More recently, however, retail sales data and high-frequency indicators suggest that consumer spending

14. Personal saving rate



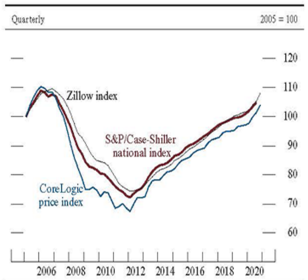
NOTE: The data extend through December 2020.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

substantial further boost to DPI in the first quarter of this year.

7. The saving rate reached 26 percent in the second quarter of 2020—by far the highest level since World War II—before falling back as consumption rebounded and government transfers declined over the course of the year. Even so, the saving rate in the fourth quarter remained higher than in any other period since the 1970s.

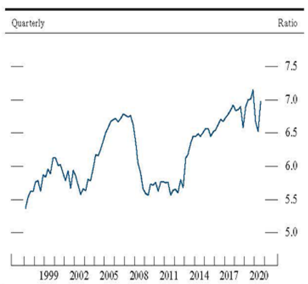
8. Food pantries saw a significant increase in demand in 2020, and there was a sharp increase in the number of families reporting that they did not have sufficient money to buy food. See, for example, Marianne Bitler, Hilary W. Hoynes, and Diane Whitmore Schanzenbach (2020), "The Social Safety Net in the Wake of COVID-19," NBER Working Paper Series 27796 (Cambridge, Mass.: National Bureau of Economic Research, September), https://www.nber.org/system/files/working_papers/w27796/w27796.pdf.

15. Real prices of existing single-family houses



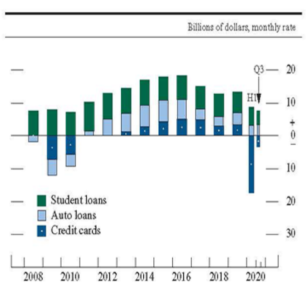
NOTE: The data for the S&P/Case-Shiller index extend through 2020:Q3. Series are deflated by the personal consumption expenditure price index.
SOURCE: CoreLogic Home Price Index; Zillow; S&P/Case-Shiller U.S. National Home Price Index. The S&P/Case-Shiller index is a product of S&P Dow Jones Indices LLC and/or its affiliates. (For Dow Jones Indices licensing information, see the note on the Contents page.)

16. Wealth-to-income ratio



NOTE: The series is the ratio of household net worth to disposable personal income. Data extend through 2020:Q3.
SOURCE: For net worth, Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; for income, Bureau of Economic Analysis via Haver Analytics.

17. Consumer credit flows



NOTE: The data are seasonally adjusted by the Federal Reserve Board.
SOURCE: Federal Reserve Board, Statistical Release G.19, "Consumer Credit."

rose appreciably in January, likely in part because of additional fiscal support from the Consolidated Appropriations Act, 2021, which was enacted in late December.

Soaring equity and house prices have pushed aggregate household wealth to record highs

Stock markets rallied after plunging in the spring and, more recently, have reached record highs, largely reflecting the arrival of effective vaccines, optimism about further fiscal stimulus, and notable improvement in the outlook for corporate earnings. House prices—which are of particular importance for the value of assets held by many households—have also soared, boosted by strong demand from record-low mortgage rates, a shift in demand from multifamily to single-family homes during the pandemic, and a shortage of inventory (figure 15). As a result, aggregate household wealth is elevated relative to income, which is supporting consumption, particularly of relatively well-off households (figure 16).

Lending standards for households are less accommodative than before the pandemic, but credit is still available to households with good credit profiles

Consumer lending standards remain less accommodative than before the pandemic, on balance, and are particularly tight for individuals with low credit ratings. Banks tightened lending standards substantially in the first half of 2020, but the tightening moderated in the second half and credit remains available to higher-score borrowers. Banks also reported considerably weaker demand for consumer credit on balance. Credit card lending volumes have been weak, consistent with the incomplete recovery in overall consumer spending, but auto lending has been stronger amid the rapid recovery in motor vehicle sales to consumers (figure 17). Mortgage lending has also been robust, boosted both by record-low mortgage interest rates and by mortgage credit that is generally available to those with good credit scores who are seeking traditional mortgage products (figure 18). Overall, loan defaults have remained low despite the weak labor market, supported by various forbearance programs.

The housing sector made a remarkable recovery in the second half of 2020 . . .

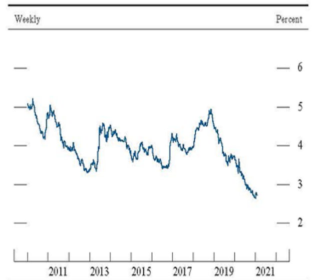
Residential investment grew at a robust pace of 14 percent over the four quarters of 2020, as booming home sales and housing construction in the second half more than offset the outsized declines in the second quarter that resulted from the COVID-19 outbreak and mitigation efforts. Historically low mortgage rates and the swift adaptation of the real estate sector to the pandemic boosted housing activity later in the year, with both single-family housing starts and existing home sales rising to their highest levels since the mid-2000s (figures 19 and 20).[9] The burst of housing demand has left inventories of both new and existing homes at all-time lows, putting upward pressure on home prices and supporting new construction. Some of these patterns in the data likely reflect changes in preferences during the pandemic, with households opting for larger homes and housing in less dense areas, but the degree to which these changes will persist remains unclear.

. . . and business fixed investment also rebounded rapidly . . .

Business fixed investment—that is, private expenditures for equipment, structures, research and development, and other intellectual property—contracted sharply in the first half of 2020 but largely retraced its decline in the second half. The recovery in business investment has been centered in equipment and intellectual property, which rose 2.4 percent over the four quarters of 2020, supported by stronger business sentiment, improved financing conditions, and the

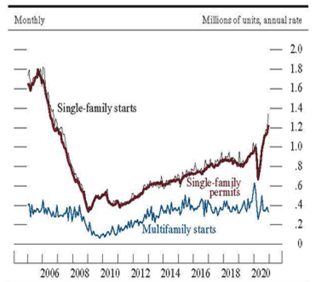
9. In particular, during the pandemic, the real estate sector has made increased use of virtual tours, remote closings, and waivers on inspections and appraisals.

18. Mortgage rates



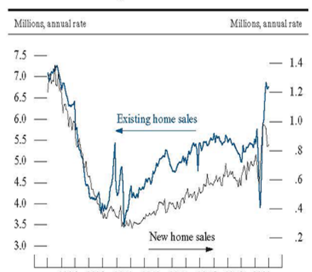
NOTE: The data extend through February 11, 2021.
SOURCE: Freddie Mac Primary Mortgage Market Survey.

19. Private housing starts and permits



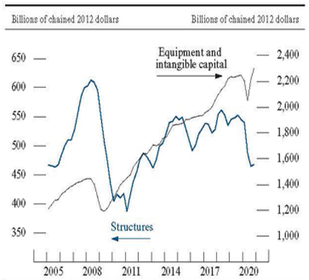
NOTE: The data extend through December 2020.
SOURCE: Census Bureau via Haver Analytics.

20. New and existing home sales



NOTE: Data are monthly and extend through December 2020. New home sales include only single-family sales. Existing home sales include single-family, condo, and co-op sales.
SOURCE: For new home sales, Census Bureau; for existing home sales, National Association of Realtors; all via Haver Analytics.

21. Real business fixed investment

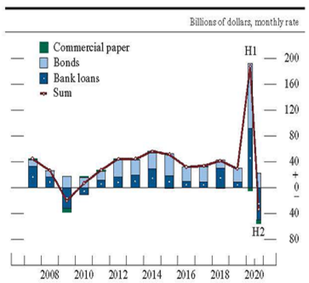


NOTE: Business fixed investment is known as "private nonresidential fixed investment" in the national income and product accounts. The data are quarterly.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

unwinding of direct disruptions from social distancing (figure 21). In addition, the health crisis and the shift to widespread teleworking have led to a surge in investment in both medical equipment and computers. In contrast, investment in nonresidential structures continued to decline sharply in the second half. Drilling investment was particularly hard hit and fell 30 percent in 2020 as a result of declines in energy demand and oil prices. Investment in nondrilling structures also fell, although more moderately. Long build times imply that the decline in new construction projects started in the first half of 2020 led to less ongoing spending in the second half; moreover, firms likely remain uncertain about future demand for many types of structures in the wake of the pandemic.

. . . amid notable improvements in corporate financing conditions

22. Selected components of net debt financing for nonfinancial businesses



SOURCE: Mergent Inc., Fixed Income Securities Database; S&P Global, Leveraged Commentary & Data; DTCC Solutions LLC, an affiliate of The Depository Trust & Clearing Corporation. This publication includes data licensed from DTCC Solutions LLC, an affiliate of The Depository Trust & Clearing Corporation. (For the DTCC licensing disclaimer, see the note on the Contents page.)

Financing conditions for nonfinancial firms through capital markets have improved notably since June. In particular, interest rates have remained very low and corporate bond spreads have narrowed. Gross issuance of nonfinancial corporate bonds was solid in the second half of the year, although it slowed from the exceptional pace in the second quarter (figure 22). In contrast, aggregate bank lending to businesses contracted in the second half, reflecting lower demand for new loans, the repayment of outsized draws on credit lines earlier this year, the forgiveness of some loans under the Paycheck Protection Program, and tighter bank credit standards. In part because of policy actions to foster smooth market functioning, corporations have been able to take advantage of favorable funding conditions in capital markets to refinance debt and bolster their balance sheets; as a result, corporate cash holdings are at record levels. In the small business sector, privately financed lending also picked up over the summer, and loan performance improved, supported by the Paycheck Protection Program. Nevertheless, credit availability for small businesses remains fairly tight, demand for such credit is weak, and default risk is still elevated.

Exports remain lower, but imports have recovered

U.S. exports remain well below pre-pandemic levels. With many foreign economies still weak, U.S. exports of goods have not quite fully recovered from their earlier sharp declines, while exports of services remain depressed because of the continued suspension of most international travel. In contrast, imports have regained most of their lost ground. Reduced imports of services have been offset by a full rebound of goods imports, which reflects strong U.S. demand for household goods (figure 23). Both the nominal trade deficit and current account deficit, relative to GDP, widened since 2019 (figure 24).

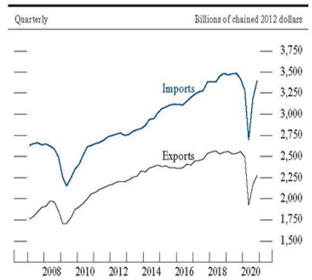
Federal fiscal stimulus provided substantial support to economic activity while also significantly boosting the budget deficit and debt

Federal fiscal policy measures enacted in response to the pandemic continue to provide crucial income support to households and businesses, as well as grants-in-aid to state and local governments. These measures have also facilitated loans to businesses, households, states, and localities.[10] In total, the Congressional Budget Office projects that in fiscal years 2020 and 2021, the additional federal government expenditures and foregone revenues from these policies will total roughly $3 trillion—around 15 percent of nominal GDP.[11] In addition, the decline in economic

10. These policy measures include the CARES Act from last spring and the Consolidated Appropriations Act, 2021, enacted in December. Passage of additional fiscal support remains under discussion.

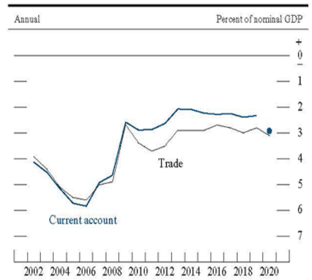
11. The CBO's projection and estimate can be found at Congressional Budget Office (2020), *An Update to the Budget Outlook: 2020 to 2030* (Washington: CBO, September 2), https://www.cbo.gov/publication/56517; and Congressional Budget Office and Joint Committee

23. Real imports and exports of goods and services



SOURCE: Bureau of Economic Analysis via Haver Analytics.

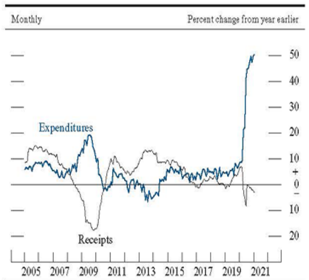
24. U.S. trade and current account balances



NOTE: GDP is gross domestic product. The data for the trade balance extend through 2020. The data for the current account balance extend through 2019. The blue dot refers to the average current account balance for 2020:Q1–2020:Q3.

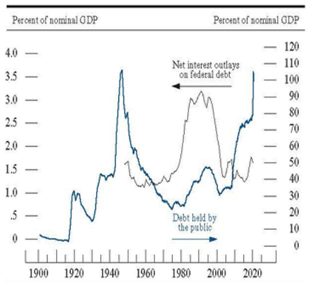
SOURCE: Bureau of Economic Analysis via Haver Analytics.

25. Federal receipts and expenditures



NOTE: The data are 12-month moving sums.
SOURCE: Office of Management and Budget via Haver Analytics.

26. Federal government debt and net interest outlays



NOTE: The data for net interest outlays are annual, begin in 1948, and extend through 2020. Net interest outlays are the cost of servicing the debt held by the public. Federal debt held by the public equals federal debt less Treasury securities held in federal employee defined-benefit retirement accounts, evaluated at the end of the quarter. The data for federal debt begin in 1900 and are annual from 1900 to 1951 and quarterly thereafter. The data for gross domestic product (GDP) and federal debt extend through 2020:Q3.
SOURCE: For GDP, Bureau of Economic Analysis via Haver Analytics; for federal debt, Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

activity has pushed down tax receipts while pushing up outlays for certain transfer programs—most notably for unemployment insurance and Medicaid (figure 25). These tax decreases and transfer increases (referred to as automatic stabilizers) worked in tandem with the discretionary stimulus to support aggregate demand and blunt the extent of the economic downturn.

The combination of the discretionary stimulus measures and the automatic stabilizers caused the budget deficit in fiscal 2020 to rise to 15 percent of nominal GDP—the largest deficit as a share of GDP in the post–World War II era—up from its already elevated level of 4½ percent in fiscal 2019. Consequently, the ratio of federal debt held by the public to nominal GDP rose from 79 percent in fiscal 2019 to 100 percent by the end of fiscal 2020, the highest debt-to-GDP ratio since 1947 (figure 26). Even so, the cost of servicing the federal debt is not particularly elevated by historical standards, because Treasury rates are extremely low.

State and local governments are facing challenging fiscal conditions

State and local governments are confronting challenging budget conditions because of weak tax collections and extraordinary expenses related to the pandemic. Nominal state government tax collections in 2020 were about 1 percent below their 2019 level and well below levels generally expected before the pandemic (figure 27).[12] The magnitude of

on Taxation (2021), "H.R. 133, Summary Estimate for Divisions M Through FF Consolidated Appropriations Act, 2021 Public Law 116–260," cost estimate, January 14, https://www.cbo.gov/publication/56963.

12. State tax collection data are available through November 2020. For additional details, see Urban Institute (2020), "State Tax and Economic Review," State and Local Finance Initiative, November, https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/projects/state-tax-and-economic-review (accessed January 2021).

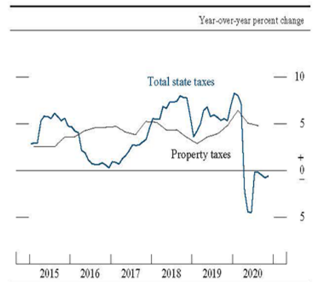
Although depressed, tax receipts have not fallen as significantly as economic activity, for several reasons. First, some of the federal fiscal aid to households (for these revenue shortfalls varied considerably across states, with the largest shortfalls in states that rely heavily on sales taxes, tourism, and energy production. In contrast, property taxes—the principal local government tax—have continued to rise apace, and state and local governments have received federal aid that has assisted with COVID-related expenses and helped ease budget strains. Meanwhile, bond market conditions for state and local governments have been generally accommodative in the second half of the year, as robust municipal bond issuance has been supported by historically low yields and tax-exempt municipal bond funds have seen solid inflows. Even so, in response to social-distancing restrictions (including virtual learning), current budget pressures, and concerns over future budgetary challenges, state and local governments have cut payrolls—particularly in the education sector—an unprecedented 6½ percent over the past year (figure 28). Notably, public-sector employment is down significantly in nearly all states, including those that have experienced relatively smaller revenue shocks.

Vaccines offer hope of an end to the pandemic, but risks to the outlook are still substantial

The economic outlook presented in Part 3 depends crucially on the course of the COVID-19 pandemic. The vaccination campaign now under way offers the prospect of a return to more normal conditions by the end of this year. But the pace of vaccinations, the rate of decline in the spread of the virus, and the speed with which people return to normal activities all remain highly uncertain, particularly given the emergence of new, apparently more contagious strains. The longer-run economic effects of the pandemic are also difficult to predict. Many

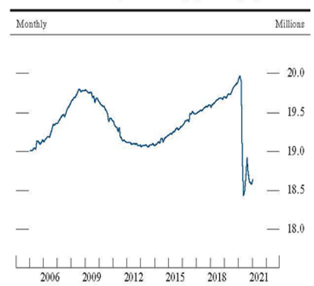
example, unemployment benefits) is taxable. Second, goods consumption, which is likelier to be subject to sales taxes than services, has largely held up. Finally, unemployment has been concentrated among low-income individuals, who pay less in income taxes.

27. State and local tax receipts



NOTE: State tax data are 12-month percent changes of 4-quarter moving averages, extend through November 2020, and are aggregated over all states except Wyoming, for which data are not available. Revenues from Washington, DC, are also excluded. Data for October and November are missing for New Mexico, as this state has longer reporting lags than others. Property tax data are 4-quarter percent changes of 4-quarter moving averages, extend through 2020:Q3, and are primarily collected by local governments.
SOURCE: State Tax and Economic Review Project; State and Local Finance Initiative at Urban Institute; Census Bureau.

28. State and local government payroll employment



NOTE: The data are seasonally adjusted.
SOURCE: Bureau of Labor Statistics, National Compensation Survey.

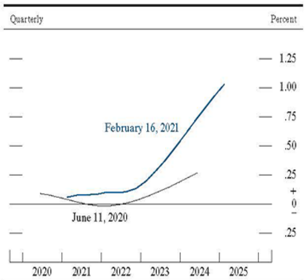
small businesses have shut down and may not reopen. Some pandemic-driven shifts in economic activity, such as from in-person to online shopping and from office-based to remote work, may prove to be permanent. These shifts could increase productivity by substituting remote interactions for costly travel and commuting, but they could also put persistent upward pressure on unemployment, as affected workers may need to seek new jobs and perhaps new occupations. The pandemic has also disrupted schooling at all levels, which could have persistent negative effects on educational attainment and economic outcomes for affected students.

Financial Developments

The expected level of the federal funds rate over the next few years has remained near zero

Economic forecasters and financial market participants expect the federal funds rate over the next several years to remain at the effective lower bound. Market-based measures of federal funds rate expectations over the next few years have increased moderately since June and remain below 0.25 percent until the second quarter of 2023 (figure 29).[13] According to the results of the Survey of Primary Dealers and the Survey of Market Participants, both conducted by the Federal Reserve Bank of New York in January, the median respondent views the most likely path of the federal funds rate as remaining in its current range of 0 to ¼ percent until the first half of 2024.[14]

29. Market-implied federal funds rate path



NOTE: The federal funds rate path is implied by quotes on overnight index swaps—a derivative contract tied to the effective federal funds rate. The implied path as of June 11, 2020, is compared with that as of February 16, 2021. The path is estimated with a spline approach, assuming a term premium of 0 basis points. The June 11, 2020, path extends through June 2024 and the February 16, 2021, path through January 2025.

SOURCE: Bloomberg; Federal Reserve Board staff estimates.

13. These measures are based on a straight read of market quotes and are not adjusted for term premiums.

14. The results of the Survey of Primary Dealers and the Survey of Market Participants are available on the Federal Reserve Bank of New York's website at https://www.newyorkfed.org/markets/primarydealer_survey_questions.html and https://www.newyorkfed.org/markets/survey_market_participants, respectively.

Yields on longer-term U.S. nominal Treasury securities increased markedly . . .

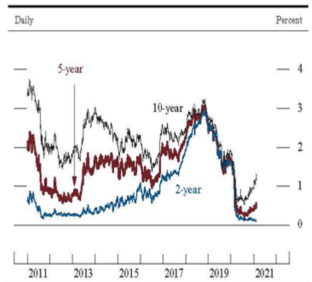
Yields on nominal Treasury securities at longer maturities increased markedly since mid-2020 after falling sharply in late February and early March as investors' concerns regarding the implications of the COVID-19 outbreak for the economic outlook led to both falling policy rate expectations and flight-to-safety flows (figure 30). The increase in yields on longer-term Treasury securities followed news of the imminent arrival of multiple highly effective COVID-19 vaccines in the fall of 2020 and expectations of further fiscal support, as well as an increase in the issuance of longer-term Treasury securities. Near-term uncertainty about longer-dated nominal Treasury yields—as measured by volatility of near-term swaptions of 10-year interest rates—has remained low.

. . . while spreads of other long-term debt to Treasury securities narrowed . . .

Despite the rise in Treasury yields, yields on 30-year agency mortgage-backed securities (MBS)—an important determinant of mortgage interest rates—decreased somewhat, on balance, amid the Federal Reserve's ongoing purchases of MBS and have remained near their historical lows (figure 31). Thus, the spread between yields on 30-year agency MBS and comparable-maturity Treasury yields has narrowed.

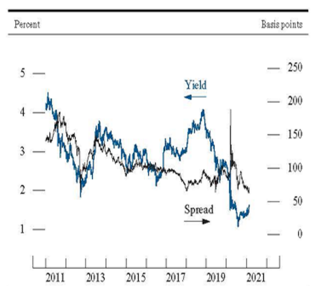
Approval of the effective vaccines late last year, optimism about further fiscal support, and notable improvement in the outlook for corporate earnings boosted investors' optimism, and improvement in the credit quality of firms drove declines in yields on investment- and speculative-grade corporate bonds (figure 32). As with mortgage securities, spreads on corporate bond yields over comparable-maturity nominal Treasury yields have narrowed considerably since the end of June—as corporate bond yields declined and yields on nominal Treasury

30. Yields on nominal Treasury securities



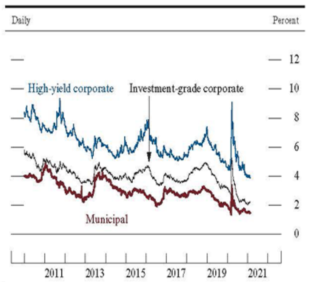
SOURCE: Department of the Treasury via Haver Analytics.

31. Yield and spread on agency mortgage-backed securities



NOTE: The yield is on mortgage-backed securities from Fannie Mae through May 31, 2019, and from uniform mortgage-backed securities thereafter. Data are daily.
SOURCE: Department of the Treasury; J.P. Morgan. Courtesy of J.P. Morgan Chase & Co., Copyright 2021.

32. Corporate bond yields, by securities rating, and municipal bond yield



NOTE: Investment-grade corporate is the 10-year triple-B, which reflects the effective yield of the ICE BofAML 7-to-10-year triple-B U.S. Corporate Index (C4A4). High-yield corporate is the 10-year high yield and reflects the effective yield of the ICE BofAML 7-to-10-year U.S. Cash Pay High Yield Index (J4A0). Municipal is the Municipal Market Advisors 20-year yield.

SOURCE: ICE Data Indices, LLC, used with permission; Municipal Market Advisors.

securities increased—and have returned to levels observed before the pandemic. Yields on municipal debt continued to decline in the second half of 2020, and spreads on municipal bonds over comparable-maturity nominal Treasury yields have narrowed substantially since the end of June, as nominal Treasury yields increased and investors grew more optimistic about further fiscal stimulus and aid to state and local governments. The year-end expiration of lending facilities that were authorized under section 13(3) of the Federal Reserve Act and that use CARES Act funding did not lead to upward pressure on corporate or municipal bond spreads.

. . . and market functioning for Treasury securities, corporate bonds, mortgage-backed securities, and municipal bonds continued to improve . . .

After having improved substantially in the spring of last year, measures of market liquidity for Treasury securities—such as measures of market depth and trade sizes—continued to improve somewhat in the second half of 2020 and moved closer to pre-pandemic levels, especially for shorter-dated Treasury securities. However, measures of liquidity for longer-dated Treasury securities and in some portions of the MBS market—notably for those securities excluded from Federal Reserve open market purchases—remained somewhat below pre-pandemic levels. Measures of market functioning of the corporate bond market continued to improve as bid-ask spreads narrowed considerably and returned to their pre-pandemic levels and issuance of corporate bonds in primary markets was robust. Measures of market functioning of the municipal bond market—such as robust issuance of municipal bonds in primary markets and round-trip transaction costs—indicate that market conditions remained stable in the second half of 2020.

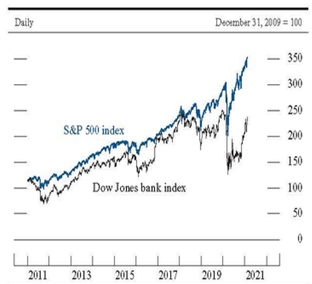
. . . while conditions in short-term funding markets remained stable

The effective federal funds rate and other secured and unsecured short-term rates continued to trade within the target range of the federal funds rate, as ample liquidity, primarily due to substantial increases in reserves, has kept markets functioning smoothly. Since June, measures of stress in short-term funding markets—including trading volumes, issuance, and spreads to overnight index swaps—have remained stable at or near pre-pandemic levels, and year-end funding pressures were minimal.

Broad stock prices have risen notably

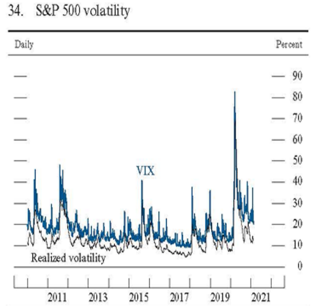
After starting to rebound last spring from their COVID-related declines, broad stock prices have risen notably further since mid-2020, as the arrival of effective vaccines, optimism about further fiscal support, and notable improvement in the outlook for corporate earnings outweighed investor concerns regarding the rise in COVID-19 cases (figure 33). The prospect of an economic recovery aided by effective vaccines and fiscal support led to outsized price gains in some cyclical sectors, such as the consumer discretionary, materials, and information technology sectors. Similarly, stock prices of smaller corporations considerably outperformed large-cap stock price indexes. After experiencing depressed levels through early fall, bank stock price indexes increased considerably in late 2020, boosted by positive vaccine news, a generally improved investor outlook for loan losses and bank profitability, and the release of favorable stress-test results in late 2020. Measures of realized and implied stock price volatility for the S&P 500 index—the 20-day realized volatility and the VIX—decreased sharply from their very high levels at the end of the second quarter but remained moderately above their historical medians, respectively (figure 34). (For a discussion of financial stability issues, see the box "Developments Related to Financial Stability.")

33. Equity prices



SOURCE: S&P Dow Jones Indices LLC via Bloomberg. (For Dow Jones Indices licensing information, see the note on the Contents page.)

34. S&P 500 volatility



NOTE: The VIX is a measure of implied volatility that represents the expected annualized change in the S&P 500 index over the following 30 days. For realized volatility, 5-minute S&P 500 returns are used in an exponentially weighted moving average with 75 percent of weight distributed over the past 20 days.

SOURCE: Cboe Volatility Index® (VIX®) via Bloomberg; Federal Reserve Board staff estimates.

Developments Related to Financial Stability

This discussion reviews vulnerabilities in the U.S. financial system since the COVID-19 outbreak and summarizes recent actions and developments at facilities established by the Federal Reserve to support the flow of credit throughout the economy.[1] The framework used by the Federal Reserve Board for assessing the resilience of the U.S. financial system focuses on financial vulnerabilities in four broad areas: asset valuations, business and household debt, leverage in the financial sector, and funding risks.

Overall, asset valuation pressures, which were elevated before the COVID-19 outbreak in the United States, briefly subsided at the onset of the outbreak as asset prices plummeted but have since retraced in most markets. In particular, prices in equity, corporate bond, and residential real estate (RRE) markets have returned to or exceeded pre-pandemic levels, buoyed in part by recent developments related to vaccines. Equity prices have more than recovered from the steep declines at the onset of the pandemic, with investor appetite broadly rebounding across most sectors. Equity market volatility remains high, indicating persistent uncertainty regarding the pandemic and the related course of economic activity. Yields on corporate bonds over comparable-maturity Treasury securities have narrowed considerably. Treasury yields across the maturity spectrum declined at the onset of the pandemic and remain near historical lows. The credit quality of outstanding leveraged loans deteriorated early this year, but investor appetite remains strong and new issuance has increased in the second half of 2020. RRE prices also rose rapidly in the second half of 2020, outpacing rent increases. Commercial real estate prices remain at historically high levels despite high vacancy rates and appear susceptible to sharp declines, particularly if the pace of distressed transactions picks up or, in the longer term, the pandemic leads to permanent changes in demand.

Vulnerabilities associated with business and household debt increased over the course of 2020. Business debt has risen from levels that were already elevated before the outbreak of the pandemic. Business leverage now stands near historical highs. While near-term risks associated with debt service may be limited by large cash balances at large firms, low interest rates, and recently improved earnings prospects, insolvency risks at small and medium-sized firms, as well as at some large firms, remain considerable. The household sector entered the downturn with relatively low debt but experienced significant financial strains because of the unprecedented spike in unemployment and business closures. Government programs—including expanded unemployment insurance and direct stimulus payments in the Coronavirus Aid, Relief, and Economic Security Act, or CARES Act—and a rebound in economic activity in the second half of 2020 reduced economic hardship for households and mitigated the deterioration in household credit quality.

In the financial sector, bank profitability and capital positions, which were strained by the outbreak of the pandemic, improved in the second half of 2020 because of a combination of lower-than-expected losses, a better economic outlook, and restrictions imposed by the Federal Reserve on capital distributions by the largest banks. In particular, the capitalization of U.S. global systemically important banks, or G-SIBs, exceeds pre-pandemic levels. In addition, the results of stress tests released in June and December 2020 indicated that banks would generally remain well capitalized under extremely severe recession scenarios. Leverage at broker-dealers changed little over 2020 and remains at historically low levels. While the liquidity deterioration across dealer-intermediated markets in March 2020 demonstrated potential fragility despite dealers' low leverage, this fragility has been likely mitigated by emergency lending facilities and the supervisory action of the Federal Reserve. By contrast, leverage at life insurance companies has risen to post-2008 highs. Vulnerabilities from leverage at hedge funds remain elevated. Finally, securitization volumes increased after coming to a halt in March 2020 but remain significantly below pre-pandemic levels.

Over the course of 2020, banks relied only modestly on short-term wholesale funding and maintained significant levels of high-quality liquid assets. By contrast, developments at the onset of the pandemic demonstrated significant structural vulnerabilities at money market mutual funds and open-end investment funds, particularly those that invest substantially in

(continued)

1. The *Financial Stability Report* published in November 2020 presents the most recent, detailed assessment of U.S. financial system vulnerabilities and a summary of Federal Reserve actions and developments at facilities during the COVID-19 crisis. See Board of Governors of the Federal Reserve System (2020), *Financial Stability Report* (Washington: Board of Governors, November), https://www.federalreserve.gov/publications/files/financial-stability-report-20201109.pdf.

corporate and municipal debt. These funds experienced large, sudden redemptions in March 2020, which contributed to strains in broader short-term funding markets and fixed-income debt markets. Federal Reserve actions, including emergency lending facilities, have mitigated these vulnerabilities for now, but without structural reforms, the vulnerabilities demonstrated in March 2020 will persist and could significantly amplify future shocks.

The outlook for the pandemic and economic activity remains uncertain globally. In response to the economic disruptions caused by the pandemic, many foreign governments have ramped up spending to support households and businesses. Nevertheless, financial systems in some foreign economies are more vulnerable than before the pandemic, and these vulnerabilities may grow in the near term. Risks from widespread and persistent stresses in emerging markets and dollar funding markets could interact with risks associated with the course of COVID-19 for the U.S. financial system. In turn, these risks could be amplified by the vulnerabilities identified in this discussion and produce additional strains for the U.S. financial system and economic activity.

Developments Associated with Facilities to Support the Economy during the COVID-19 Crisis

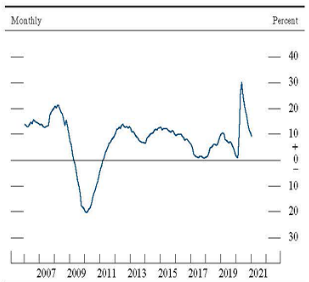
In the immediate wake of the pandemic, the Federal Reserve took forceful actions and established emergency lending facilities, with the approval of the Secretary of the Treasury as needed. These actions and facilities have supported the flow of credit to households and businesses and have served as backstop measures that have given investors confidence that support will be available should conditions deteriorate substantially.

Some of the facilities established at the onset of the pandemic are still operational. The Commercial Paper Funding Facility (CPFF), the Money Market Mutual Fund Liquidity Facility (MMLF), and the Primary Dealer Credit Facility (PDCF) stabilized short-term funding markets and improved the flow of credit to households and businesses. Although balances in the PDCF, CPFF, and MMLF have fallen from their initial highs to low levels, the facilities will continue to serve as important backstops against further market stress until their scheduled expiration at the end of March 2021. The Paycheck Protection Program Liquidity Facility (PPPLF) was established to extend credit to lenders that participate in the Paycheck Protection Program of the Small Business Administration (SBA), which has provided payroll support for small businesses. Through mid-January 2021, the Federal Reserve has made nearly 15,000 PPPLF advances to more than 850 banking institutions, totaling more than $110 billion in liquidity.

The Federal Reserve has taken actions that reduce spillovers to the U.S. economy from foreign financial stresses. Temporary U.S. dollar liquidity swap lines were established in March 2020, in addition to the preexisting standing lines, and have improved liquidity conditions in dollar funding markets in the United States and abroad by providing foreign central banks with the capacity to deliver U.S. dollar funding to institutions in their jurisdictions during times of market stress. The FIMA (Foreign and International Monetary Authorities) Repo Facility has helped support the smooth functioning of the U.S. Treasury market by providing a temporary source of U.S. dollars to a broad range of countries, many of which do not have swap line arrangements with the Federal Reserve. The temporary swap lines and the FIMA Repo Facility will continue to serve as liquidity backstops until their scheduled expiration at the end of September 2021.

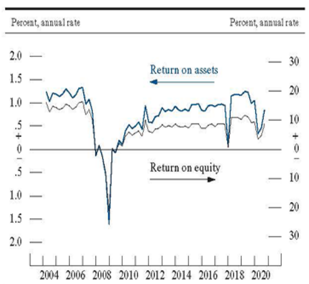
Other facilities established at the onset of the pandemic expired either at the end of December 2020 or at the beginning of January 2021. The Primary Market Corporate Credit Facility, the Secondary Market Corporate Credit Facility, and the Municipal Liquidity Facility were established to improve the flow of credit through bond markets, where large firms and municipalities obtain most of their long-term funding. The Term Asset-Backed Securities Loan Facility was also set up to support the issuance of securities backed by student loans, auto loans, credit card loans, loans backed by the SBA, and certain other assets. Altogether, before expiring at the end of 2020, these facilities brought rapid improvements to credit markets, with only modest direct interventions. The Main Street Lending Program (Main Street) expired at the beginning of January 2021. In its period of operation, Main Street purchased about 1,800 loan participations, totaling more than $16 billion, which helped small and medium-sized businesses from some of the hardest-hit areas of the country and covered a wide range of industries.

35. Commercial and industrial loan growth



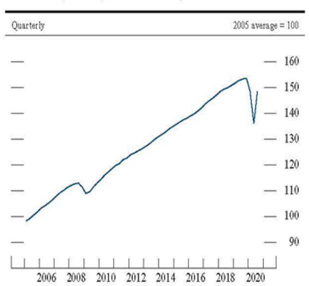
NOTE: Data are calculated as monthly year-over-year growth rates.
SOURCE: Federal Reserve Board, Statistical Release H.8, "Assets and Liabilities of Commercial Banks in the United States."

36. Profitability of bank holding companies



NOTE: The data are quarterly, extend through 2020:Q3, and are seasonally adjusted.
SOURCE: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Bank Holding Companies.

37. Foreign real gross domestic product



NOTE: The data extend through 2020:Q3. Foreign GDP computed on a representative sample of 40 countries and aggregated using U.S. trade weights.
SOURCE: Federal Reserve Bank of Dallas, Database of Global Economic Indicators, https://www.dallasfed.org/institute/dgei/gdp.aspx.

Bank credit contracted, while bank profitability improved

In contrast with strong debt issuance through securities markets, outstanding bank loan balances across most major loan categories have contracted since mid-June amid generally weak borrower demand and tight lending standards. Commercial and industrial (C&I) loans at banks declined sharply in the second half of 2020, reflecting the repayment of large credit-line draws made earlier in the year and the forgiveness of some loans under the Paycheck Protection Program, as well as generally weak borrower demand for such loans and tighter bank lending standards. However, overall C&I loan balances at banks remained higher compared with a year earlier (figure 35). Measures of bank profitability, such as return on assets and return on equity, rebounded in the second half of 2020 following very low readings in the second quarter, when banks significantly increased their loan loss provisions, but have remained below pre-pandemic levels (figure 36). Delinquency rates on bank loans remained low, as banks' loss-mitigation and forbearance programs allowed many borrowers to stay current on their loans. Large banks posted higher-than-expected earnings in the fourth quarter, bolstered by capital market activity and loan loss reserve releases, while low rates continued to weigh on profit margins.

International Developments

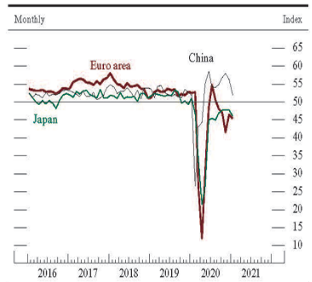
Economic activity abroad snapped back in the third quarter . . .

As in the United States, foreign GDP partially rebounded in the third quarter of 2020 (figure 37). Nonetheless, foreign economic activity remains well below its pre-pandemic level, as a resurgence of infections in many economies has recently led to renewed social-distancing restrictions. The accompanying slowdown in economic activity appears to have been less dramatic than that in the spring, as economies have adjusted to function better under social-distancing restrictions. In addition, many current containment measures have been less stringent relative to those in the spring, and fiscal and monetary policies continue to support the path to recovery.

Since last spring, manufacturing has generally recovered more than services, which remain depressed because consumers have avoided socially intensive activities, especially in the hospitality and leisure sectors (figure 38). Some higher-income Asian economies, where infections are more under control, experienced relatively better GDP growth than many advanced economies and benefited from increased export demand in the second half of 2020. Most notably, China's GDP was 6.5 percent higher in the fourth quarter of 2020 compared with a year ago. In many Latin American countries and advanced foreign economies (AFEs), fourth-quarter GDP contracted relative to a year earlier (figure 39).

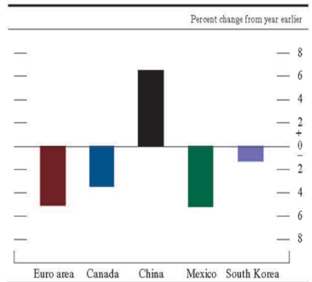
Although the ongoing spread of the virus—including new variants—is concerning, many AFEs have already started immunizing their populations and have commitments to purchase substantial stocks of vaccines. Controlling the virus globally, however, will be challenging, in part because many emerging market economies (EMEs) have more limited access to vaccines and face greater distribution challenges.

38. Services purchasing managers index in selected foreign economies



NOTE: For the foreign services output purchasing managers index (PMI), values greater than (less than) 50 indicate better (worse) business conditions, on average, for the participants surveyed relative to conditions at the time of the previous survey.
SOURCE: IHS Markit, Global Sector PMI.

39. Real gross domestic product in selected foreign economies

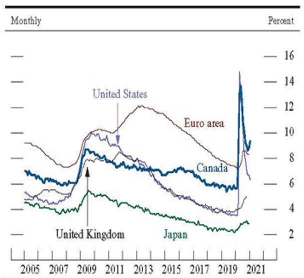


NOTE: The data are for 2020:Q4. For Canada, the euro area, and Mexico, the values correspond to flash estimates of GDP. For South Korea, the value is the advance GDP estimate. For China, the value corresponds to preliminary GDP.
SOURCE: For the euro area, Eurostat; for Canada, Statistics Canada; for China, National Bureau of Statistics of China; for Mexico, Instituto Nacional de Estadística y Geografía; for South Korea, Bank of Korea; all via Haver Analytics.

40. 24-month policy expectations for selected advanced foreign economies

NOTE: The data are weekly averages of daily 24-month market-implied central bank policy rates. The 24-month policy rates are implied by quotes on overnight index swaps tied to the policy rates. The data begin on Thursdays and extend through February 10, 2021.
SOURCE: Bloomberg; Federal Reserve Board staff estimations.

41. Unemployment rate in selected advanced economies



NOTE: The data for the United Kingdom extend through October 2020 and are centered 3-month averages of monthly data. The data for the euro area and Japan extend through December 2020.
SOURCE: For the United Kingdom, Office for National Statistics; for Japan, Ministry of Health, Labour, and Welfare; for the euro area, Statistical Office of the European Communities; for Canada, Statistics Canada; for the United States, Bureau of Labor Statistics; all via Haver Analytics.

. . . with considerable policy support and subdued inflation

Efforts to contain the virus's resurgence in the fourth quarter prompted some foreign central banks and fiscal authorities to provide additional support to households and businesses, particularly in the AFEs. High debt levels limited the fiscal space in some EMEs, and emergency aid to sustain employment and household spending expired in some EMEs with elevated fiscal concerns. Monetary policy across foreign economies was highly accommodative, and financing conditions remained supportive of growth, with a few major AFE central banks introducing new stimulus measures late last year. Indeed, market-implied policy paths for the Japanese, U.K., and European central banks signal a prolonged period of monetary accommodation (figure 40).

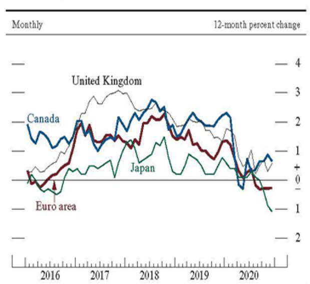
Even with substantial policy support, AFE unemployment rates at the end of 2020 are higher than they were before the pandemic. Unemployment rates in Europe and Japan rose moderately during the spring and have remained relatively unchanged (figure 41). Canada, however, endured a large and rapid increase in unemployment during the spring and a commensurate decline by year-end, similar to the U.S. experience. The country-specific dynamics of unemployment partly reflect differences in labor market structures, employment protection regulations, and the expansion of wage subsidy programs. In general, unemployment rates in the EMEs increased since the start of the pandemic, and some Asian economies adopted direct wage subsidies to avert large dislocations in their labor markets.

Despite the recovery in activity and employment in some sectors of the economy, lower overall demand and continued uncertainty about the path of the virus helped keep inflation subdued abroad. In many foreign economies, inflation remains below central banks' targets. In the euro area and Japan, the consumer price index fell in 2020, reflecting subdued inflation expectations and persistent economic slack (figure 42).

Longer-term sovereign yields remained low, while risk sentiment improved . . .

Longer-term sovereign yields in major AFEs have moved up, on net, but remained near historically low levels amid continued monetary policy accommodation (figure 43). Foreign equity markets rebounded in the second half of 2020, reflecting not only supportive monetary and fiscal policies, but also the development of effective vaccines. Although AFE stock markets largely recovered, they still underperformed U.S. equities, with greater restrictions on activity abroad and a lower share of companies that benefited from the digital economy (figure 44).

42. Consumer price inflation in selected advanced foreign economies

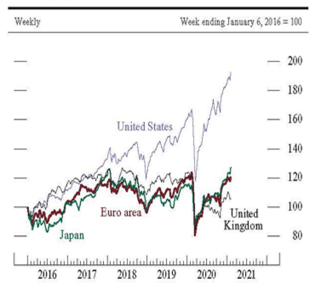


NOTE: The data extend through December 2020.
SOURCE: For the United Kingdom, Office for National Statistics; for Japan, Ministry of Internal Affairs and Communications; for the euro area, Statistical Office of the European Communities; for Canada, Statistics Canada; all via Haver Analytics.

43. Nominal 10-year government bond yields in selected advanced economies

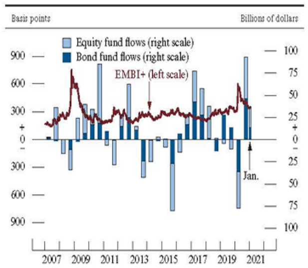
NOTE: The data are weekly averages of daily benchmark yields. The data begin on Thursdays and extend through February 10, 2021.
SOURCE: Bloomberg.

44. Equity indexes for selected advanced economies



NOTE: The data are weekly averages of daily data. The data begin on Thursdays and extend through February 10, 2021.
SOURCE: For euro area, DJ Euro Stoxx Index; for Japan, TOPIX Stock Index; for United Kingdom, FTSE 100 Stock Index; for United States, S&P 500 Index; all via Bloomberg. (For Dow Jones Indices licensing information, see the note on the Contents page.)

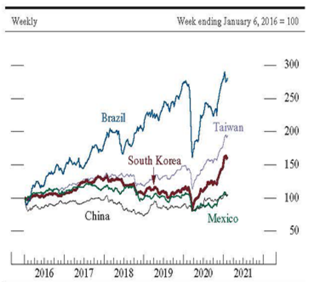
45. Emerging market mutual fund flows and spreads



NOTE: The bond and equity fund flows data are semiannual sums of weekly data from December 28, 2006, to December 30, 2020, and a monthly sum of weekly data from December 31, 2020, to January 26, 2021. Weekly data span Thursday through Wednesday, and the semiannual and monthly values are sums over weekly data for weeks ending in that half year or month. The fund flows data exclude funds located in China. The J.P. Morgan Emerging Markets Bond Index Plus (EMBI+) data are weekly averages of daily data. The weekly data begin on Thursdays and extend through February 10, 2021. The EMBI+ data exclude Venezuela.

SOURCE: For bond and equity fund flows, EPFR Global; for EMBI+, J.P. Morgan Emerging Markets Bond Index Plus via Bloomberg.

46. Equity indexes for selected emerging market economies



NOTE: The data are weekly averages of daily data. The data begin on Thursdays and extend through February 10, 2021.

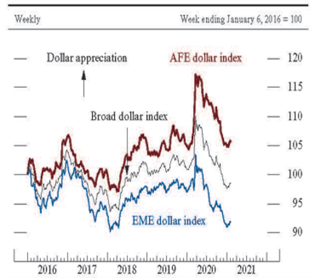
SOURCE: For China, Shanghai Composite Index; for Brazil, Bovespa Index; for South Korea, Korean Composite Index; for Mexico, IPC Index; for Taiwan, TAIEX; all via Bloomberg.

EME equity markets have recovered since the spring, with recent strong capital inflows (figure 45). Asian equity indexes rose well above pre-pandemic levels, while those in Latin America posted modest gains relative to a year ago, largely reflecting Asian economies' lower infection rates, better fundamentals, and larger fiscal space to provide additional stimulus (figure 46). Along with the improvement in equity markets, sovereign borrowing spreads generally narrowed, although they are still above pre-pandemic levels.

. . . and the broad dollar depreciated

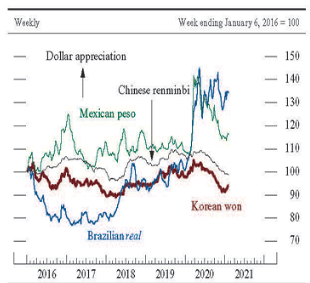
The broad dollar index—a measure of the trade-weighted value of the dollar against foreign currencies—fell in the second half of last year. Both the continued improvement in market conditions following the stresses of last March and highly accommodative U.S. monetary policy contributed to dollar depreciation. On balance, the dollar has depreciated about 3.5 percent relative to a year ago (figure 47). The dollar broadly weakened against AFE currencies, notably the euro. The dollar also fell against some Asian emerging market currencies, particularly the Chinese renminbi and Korean won (figure 48).

47. U.S. dollar exchange rate indexes



NOTE: The data, which are in foreign currency units per dollar, are weekly averages of daily values of the broad dollar index, advanced foreign economies (AFE) dollar index, and emerging market economies (EME) dollar index. The dat begin on Thursdays and extend through February 10, 2021. As indicated by the leftmost arrow, increases in the data reflect U.S. dollar appreciation and decreases reflect U.S. dollar depreciation.
SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

48. Exchange rate indexes for selected emerging market economies



NOTE: The data, which are in foreign currency units per dollar, are weekly averages of daily data. The weekly data begin on Thursdays and extend through February 10, 2021. As indicated by the leftmost arrow, increases in the data reflect U.S. dollar appreciation and decreases reflect U.S. dollar depreciation.
SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

Part 2
Monetary Policy

The Federal Open Market Committee maintained the federal funds rate near zero as it seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run . . .

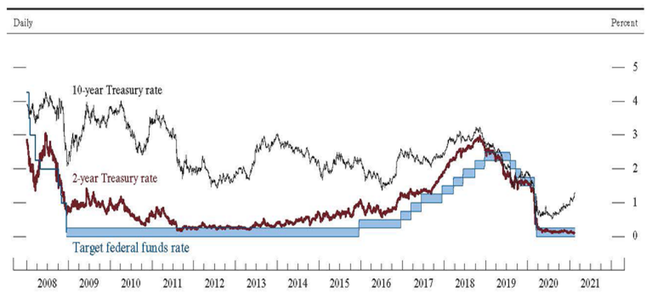
In light of the effects of the continuing public health crisis on the economy and the associated risks to the outlook, the Federal Open Market Committee (FOMC) has maintained the target range for the federal funds rate at 0 to ¼ percent since March 2020, when the global pandemic led the Committee to quickly lower the target range to the effective lower bound (figure 49).[15] In its revised Statement on Longer-Run Goals and Monetary Policy Strategy, issued in August, the Committee reaffirmed its commitment to achieving maximum employment and inflation at the rate of 2 percent over the longer run and noted that "following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time" so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent. (See the box "The FOMC's Revised Statement on Longer-Run Goals and Monetary Policy Strategy.") The Committee expects to maintain an accommodative stance of monetary policy until these outcomes are achieved and has indicated that it expects it will be appropriate to maintain the target range for the federal funds rate at 0 to ¼ percent until labor market conditions have reached levels consistent with the Committee's assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time.

. . . and the Committee increased the holdings of Treasury securities and agency mortgage-backed securities in the System Open Market Account

In addition, the Federal Reserve has continued to expand its holdings of Treasury securities by $80 billion per month and its holdings of

15. See the FOMC statements issued since the March meetings, which are available (along with other postmeeting statements) on the Monetary Policy portion of the Board's website at https://www.federalreserve.gov/monetarypolicy.htm.

49. Selected interest rates



Note: The 2-year and 10-year Treasury rates are the constant-maturity yields based on the most actively traded securities.
Source: Department of the Treasury; Federal Reserve Board.

The FOMC's Revised Statement on Longer-Run Goals and Monetary Policy Strategy

On August 27, 2020, the Federal Open Market Committee (FOMC) issued a revised Statement on Longer-Run Goals and Monetary Policy Strategy.[1] This document, first released in January 2012, lays out the Committee's goals, articulates its framework for monetary policy, and serves as the foundation for its policy actions. The revised statement encapsulates the key conclusions from the Federal Reserve's review of the monetary policy strategy, tools, and communication practices it uses to pursue its statutory dual-mandate goals of maximum employment and price stability.

The review, which commenced in early 2019, was undertaken because the U.S. economy has changed in ways that matter for monetary policy. In particular, the neutral level of the policy interest rate—the policy rate consistent with the economy operating at full strength and with stable inflation—has fallen over recent decades in the United States and abroad. This decline in the neutral policy rate increases the risk that the effective lower bound (ELB) on interest rates will constrain central banks from reducing their policy interest rates enough to effectively support economic activity during downturns. In addition, during the economic expansion that followed the Global Financial Crisis—the longest U.S. expansion on record—the unemployment rate hovered near 50-year lows for roughly 2 years, resulting in new jobs and opportunities for many who have typically been left behind. At the same time, with brief exceptions, inflation ran below the Committee's 2 percent objective.

The revised statement begins by reaffirming the Committee's commitment to its statutory mandate from the Congress to promote maximum employment, price stability, and moderate long-term interest rates. It also describes the benefits of explaining policy actions to the public as clearly as possible. The statement then outlines important changes to the characterization of the Committee's policy framework for achieving its dual-mandate goals of maximum employment and price stability. After stating that economic variables fluctuate in response to disturbances and that monetary policy plays an important role in stabilizing the economy, the statement notes that the Committee's primary means of adjusting policy is through changes in the policy interest rate (the target range for the federal funds rate). Furthermore, because the neutral level of the policy rate is now lower than its historical average, "the federal funds rate is likely to be constrained by its effective lower bound more frequently than in the past." Therefore, "the Committee judges that downward risks to employment and inflation have increased." The statement then notes that the "Committee is prepared to use its full range of tools to achieve its maximum employment and price stability goals," indicating that it could deploy other policy tools, such as forward guidance and asset purchases, when the policy rate is at its ELB.

In its revised statement, the Committee characterizes maximum employment as a "broad-based and inclusive goal" in addition to saying—as it did in the 2012 statement—that maximum employment is not directly measurable and that it changes over time and depends largely on nonmonetary factors. During the *Fed Listens* events that were a pillar of the review of monetary policy strategy, tools, and communication practices, policymakers heard from a broad range of stakeholders in the U.S. economy about how monetary policy affects peoples' daily lives and livelihoods.[2]

(continued)

1. The FOMC's revised Statement on Longer-Run Goals and Monetary Policy Strategy, which was unanimously reaffirmed at the FOMC's January 2021 meeting, appears in the front matter of this report. Additional information about the Federal Reserve's review of monetary policy strategy, tools, and communication practices and the revised statement is available on the Board's website at https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications.htm.

2. Between February 2019 and May 2020, the Federal Reserve System hosted 15 *Fed Listens* events with representatives of the public. See Board of Governors of the Federal Reserve System (2020), *Fed Listens: Perspectives*

A key takeaway from these events was that a strong labor market during the late stages of an economic expansion—conditions that were in effect in 2019 and early 2020—offers significant benefits to residents of low- and moderate-income communities, primarily by providing employment opportunities for people who have had difficulty finding jobs in the past.

The revised statement says that "the Committee's policy decisions must be informed by assessments of the *shortfalls* [emphasis added] of employment from its maximum level" rather than by "deviations"—the word used in the earlier statement.[3] In previous decades, inflation tended to rise noticeably in response to a strengthening labor market. It was sometimes appropriate for the Fed to tighten monetary policy as employment rose toward its estimated maximum level in order to stave off an unwelcome rise in inflation. The change to "shortfalls" clarifies that, in the future, the Committee will not have concerns when employment runs at or above real-time estimates of its maximum level unless accompanied by signs of unwanted increases in inflation or the emergence of other risks that could impede the attainment of the dual-mandate goals.

The Committee's longer-run goal for inflation remains 2 percent, unchanged from the 2012 statement.[4] The revised statement emphasizes that the FOMC's policy actions to achieve maximum employment and price stability will be most effective if longer-term inflation expectations remain well anchored at 2 percent. However, if inflation runs below 2 percent following economic downturns but never moves above 2 percent even when the economy is strong, then, over time, inflation will average less than 2 percent. Households and businesses will come to expect this result, meaning that inflation expectations would tend to move below the 2 percent inflation goal and pull down realized inflation. Lower inflation expectations also pull down the level of nominal interest rates, further diminishing the scope for monetary policy to reduce the policy rate during a downturn and further worsening economic outcomes. To prevent inflation expectations from falling below 2 percent and the adverse cycle that could ensue, the statement indicates that "the Committee seeks to achieve inflation that averages 2 percent over time, and therefore judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time."

The revised statement acknowledges that "sustainably achieving maximum employment and price stability depends on a stable financial system." Therefore, as with the 2012 statement, the Committee's policy decisions will take into account "its assessments of the balance of risks, including risks to the financial system that could impede the attainment" of the statutory goals.

The Committee concludes its revised statement by indicating its intention to undertake a review of the Federal Reserve's monetary policy strategy, tools, and communication practices roughly every five years. Conducting a review at regular intervals is a good institutional practice, provides valuable feedback, and enhances transparency and accountability.

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from the Public (Washington: Board of Governors, June), https://www.federalreserve.gov/publications/files/fedlistens-report-20200612.pdf. In addition, see the box "Federal Reserve Review of Monetary Policy Strategy, Tools, and Communication Practices" in Board of Governors of the Federal Reserve System (2020), *Monetary Policy Report* (Washington: Board of Governors, February), pp. 40–41, https://www.federalreserve.gov/monetarypolicy/files/20200207_mprfullreport.pdf.

3. The most recent version of the 2012 statement is available on the Board's website at https://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals_201901.pdf.

4. The inflation goal is measured by the annual change in the price index for personal consumption expenditures. The statement says: "The Committee reaffirms its judgment that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate."

agency mortgage-backed securities (MBS) by $40 billion per month. These asset purchases help foster smooth market functioning and accommodative financial conditions, thereby supporting the flow of credit to households and businesses. The Committee's current guidance regarding asset purchases indicates that increases in the holdings of Treasury securities and agency MBS in the System Open Market Account will continue at least at this pace until substantial further progress has been made toward its maximum-employment and price-stability goals. In addition, the minutes of the January 2021 FOMC meeting noted the importance attached to clear communications about the Committee's assessment of progress toward its longer-run goals well in advance of the time when progress could be judged substantial enough to warrant a change in the pace of purchases.[16]

The FOMC is committed to using its full range of tools to promote maximum employment and price stability

The ongoing public health crisis continues to weigh on economic activity, employment, and inflation, and it poses considerable risks to the economic outlook. The Federal Reserve is committed to using its full range of tools to support the U.S. economy in this challenging time, thereby promoting its maximum-employment and price-stability goals. The Committee will continue to monitor the implications of incoming information for the economic outlook and is prepared to adjust the stance of monetary policy as appropriate if risks emerge that could impede the attainment of the Committee's goals. The Committee's assessments will take into account a wide range of information, including readings on public health, labor market conditions, inflation pressures and inflation expectations, and financial and international developments.

In addition to evaluating a wide range of economic and financial data and information gathered from business contacts and other informed parties around the country, policymakers routinely consult prescriptions for the policy interest rate provided by various monetary policy rules. Such prescriptions can provide useful benchmarks for the FOMC. Although simple rules cannot capture the complexities of monetary policy and many practical considerations make it undesirable for the FOMC to adhere strictly to the prescriptions of any specific rule, some principles of good monetary policy can be illustrated by these policy rules (see the box "Monetary Policy Rules and Shortfalls from Maximum Employment").

The size of the Federal Reserve's balance sheet has grown since the end of June, reflecting continued asset purchases of U.S. Treasury securities and agency mortgage-backed securities

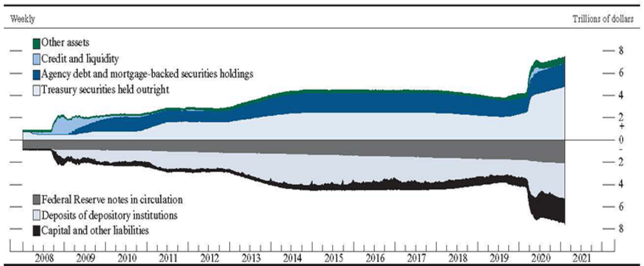
The Federal Reserve's balance sheet has grown to $7.4 trillion from $7 trillion at the end of June, reflecting continued asset purchases to help foster accommodative financial conditions and smooth market functioning, thereby supporting the flow of credit to households and businesses (figure 50). The Federal Reserve has continued rolling over at auction all principal payments from its holdings of Treasury securities. Principal payments received from agency MBS and agency debt continue to be reinvested into agency MBS. Agency commercial mortgage-backed securities purchases have also continued, but in very small amounts.

The increase in asset holdings on the Federal Reserve's balance sheet due to Treasury securities and agency MBS purchases has been partially offset by declines in several other asset categories. Outstanding balances at many of the Federal Reserve's emergency liquidity and credit facilities have declined since June.[17]

16. The minutes for the January 2021 FOMC meeting are available on the Board's website at https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm.

17. A list of funding, credit, liquidity, and loan facilities established by the Federal Reserve in response to COVID-19 is available on the Board's website at https://www.federalreserve.gov/funding-credit-liquidity-and-loan-facilities.htm.

50. Federal Reserve assets and liabilities



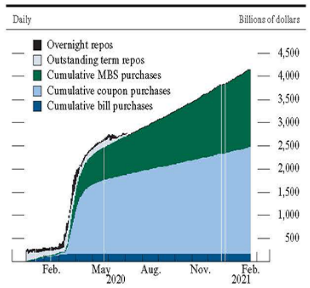
NOTE: "Agency debt and mortgage-backed securities holdings" includes agency residential mortgage-backed securities and agency commercial mortgage-backed securities. "Credit and liquidity facilities" consists of primary, secondary, and seasonal credit; term auction credit; central bank liquidity swaps; support for Maiden Lane, Bear Stearns Companies, Inc., and AIG; and other credit and liquidity facilities, including the Primary Dealer Credit Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Commercial Paper Funding Facility, the Term Asset-Backed Securities Loan Facility, the Primary and Secondary Market Corporate Credit Facilities, the Paycheck Protection Program Liquidity Facility, the Municipal Liquidity Facility, and the Main Street Lending Program. "Other assets" includes repurchase agreements, FIMA (Foreign and International Monetary Authorities) repurchase agreements, and unamortized premiums and discounts on securities held outright. "Capital and other liabilities" includes reverse repurchase agreements, the U.S. Treasury General Account, and the U.S. Treasury Supplementary Financing Account. The data extend through February 10, 2021. Key identifies shaded areas in order from top to bottom.

SOURCE: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

In particular, outstanding balances for the Primary Dealer Credit Facility, Commercial Paper Funding Facility, and Money Market Mutual Fund Liquidity Facility have all fallen to near zero. Draws on central bank liquidity swap lines have decreased substantially, and, despite continued large-scale offerings, usage of repurchase operations has been essentially zero since their minimum bid rate was increased in mid-June (figure 51).

The expansion in the balance sheet was accompanied by a substantial increase in Federal Reserve liabilities, including reserve balances held by depository institutions as well as nonreserve liabilities such as currency and other deposits.

51. Federal Reserve open market operations



NOTE: The data are at a business-day frequency, excluding federal holidays. The data begin January 1, 2020. Repo is repurchase agreement. MBS is mortgage-backed security. Key identifies bars in order from top to bottom.

SOURCE: Federal Reserve Bank of New York; Federal Reserve Board staff calculations.

The Federal Reserve concluded the review of its strategic framework for monetary policy in the second half of 2020

Over 2019 and 2020, the Federal Reserve conducted a broad review of the monetary policy strategy, tools, and communication practices it uses to pursue its statutory dual-mandate goals of maximum employment and price stability. In addition to the release of the revised Statement on Longer-Run Goals and Monetary Policy Strategy in August (see the box "The FOMC's Revised Statement on Longer-Run Goals and Monetary Policy Strategy"), analytical work that was prepared by Federal Reserve System staff and that served as background to the review was released to the public.[18]

In December, two changes were made to the Summary of Economic Projections (SEP) to enhance the information provided to the public. First, the release of the full set of SEP exhibits was accelerated by three weeks: Starting with the December 2020 meeting, the FOMC began releasing all SEP exhibits on the day of the policy decision (following the conclusion of an FOMC meeting) rather than with the release of the FOMC meeting minutes. As such, the written summary of the projections that had been included as an addendum to the minutes of the corresponding FOMC meeting was discontinued. Second, two new exhibits were added that display a time series of diffusion indexes for participants' judgments of uncertainty and risks. These diffusion indexes illustrate how FOMC participants' assessments of uncertainties and risks have evolved over time.

18. A report on the *Fed Listens* initiative, a key component of the review process, was released in June 2020 and is available on the Board's website at https://www.federalreserve.gov/publications/files/fedlistens-report-20200612.pdf. The analytical materials prepared by System staff are accessible from the Board's main webpage on the review (https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications.htm).

Monetary Policy Rules and Shortfalls from Maximum Employment

Simple interest rate rules relate a policy interest rate, such as the federal funds rate, to a small number of other economic variables—typically including the deviation of inflation from its target value and a measure of resource slack in the economy. Policymakers consult policy rate prescriptions derived from a variety of policy rules as part of their monetary policy deliberations without mechanically following the prescriptions of any particular rule. Most rules analyzed in the research literature respond to deviations—both positive and negative—of resource utilization from its longer-run level because their design was informed by historical periods and economic models in which high resource utilization and a strong labor market are accompanied by inflation pressure and in which policy rates remain well above the effective lower bound (ELB).

Economic performance in recent decades, including during the previous economic expansion, has demonstrated that a strong labor market can be sustained without inducing an unwanted increase in inflation. During that expansion, the unemployment rate fell to low levels—it remained at or below 4 percent from early 2018 until the start of the pandemic—bringing many benefits to families and communities that, all too often, had been left behind, with no sign of excessive pressures on prices. The lack of undue inflation pressures during this period illustrates that a strong labor market, by itself, need not cause concern unless accompanied by signs of unwanted increases in inflation or the emergence of other risks that could impede the attainment of the Committee's goals. In addition, the expansion reinforced the view that assessments of the maximum level of employment are imprecise and may change over time.[1] Tightening monetary policy in the absence of evidence of excessive inflation pressures may result in an unwarranted loss of opportunity for many Americans, whereas if an undue increase in inflation were to arise, policymakers would have the tools to address such an increase. Reflecting these considerations, the Federal Open Market Committee's (FOMC) revised Statement on Longer-Run Goals and Monetary Policy Strategy refers to "shortfalls of employment" from the Committee's assessment of its maximum level rather than the "deviations of employment" used in the previous statement.[2] This change has important implications for the design of simple interest rate rules.

This discussion examines the prescriptions from a number of commonly studied monetary policy rules, along with the prescriptions from a modified simple rule that, all else being equal, would not call for increasing the policy rate as employment moves higher and unemployment drops below its estimated longer-run level. This modified rule aims to illustrate, in a simple way, the Committee's focus on shortfalls of employment from assessments of its maximum level. Other key changes to the Committee's monetary policy strategy, including the aim of having inflation average 2 percent over time to ensure that longer-term inflation expectations remain well anchored, are not incorporated in the simple rules analyzed in this discussion.

Policy Rules: Some Key Design Principles and Limitations

In many stylized models of the economy, desirable economic outcomes can be achieved by following a monetary policy rule that incorporates key principles of good monetary policy. One such principle is that monetary policy should respond in a predictable way to changes in economic conditions, thus fostering public understanding of policymakers' goals and strategy.[3] A second principle is that, to stabilize inflation, the policy rate should be adjusted over time in response to persistent increases or decreases in inflation to an extent sufficient to ensure a return of inflation to the longer-run objective.

(continued on next page)

1. In recent years, forecasters covered by the Blue Chip Survey, as well as FOMC participants in the Summary of Economic Projections, have substantially reduced their implied estimates of the unemployment rate that is sustainable in the longer run. For a discussion, see the box "Monetary Policy Rules and Uncertainty in Monetary Policy Settings" in Board of Governors of the Federal Reserve System (2020), *Monetary Policy Report* (Washington: Board of Governors, February), pp. 33–37, https://www.federalreserve.gov/monetarypolicy/files/20200207_mprfullreport.pdf.

2. See the box "The FOMC's Revised Statement on Longer-Run Goals and Monetary Policy Strategy" (earlier in Part 2) for a discussion of this change and other changes made to the statement.

3. The effectiveness of monetary policy is enhanced when it is well understood by the public. For a discussion of how the public's understanding of monetary policy matters for the effectiveness of monetary policy, see Janet L. Yellen (2012), "Revolution and Evolution in Central Bank Communications," speech delivered at the Haas School of Business, University of California, Berkeley, November 13, https://www.federalreserve.gov/newsevents/speech/yellen20121113a.htm.

Monetary Policy Rules *(continued)*

Simple monetary policy rules also have important limitations. A first limitation is that many formulations of simple rules do not recognize that the ELB limits the extent that the policy rate can be lowered to support the economy, which may impart a downward bias to both inflation and inflation expectations. As part of the FOMC's revised strategy to mitigate the challenges posed by the ELB and anchor longer-term inflation expectations at 2 percent, the Committee states that it "seeks to achieve inflation that averages 2 percent over time, and therefore judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time." None of the simple rules analyzed in this discussion take into account average inflation performance or developments in measures of inflation expectations. As such, they do not reflect this important aspect of the FOMC's monetary policy strategy.[4]

A second limitation is that simple rules respond to only a small set of economic variables and thus necessarily abstract from many of the considerations taken into account by the FOMC. For example, a simple rule might respond to movements in a specific labor market indicator, such as the overall unemployment rate. However, no single labor market indicator can precisely capture the size of the shortfall from maximum employment or identify when a strong labor market can be sustained without putting undue upward pressure on inflation.[5] A third limitation of simple rules for the policy rate is that they generally do not recognize the fact that the monetary policy toolkit includes other tools—notably, large-scale asset purchases and forward guidance, which are especially relevant when the policy rate is near or at the ELB.

Policy Rules: Historical Prescriptions

Economists have analyzed many monetary policy rules, including the well-known Taylor (1993) rule, the "balanced approach" rule, the "adjusted Taylor (1993)" rule, and the "first difference" rule.[6] In addition to these rules, figure A shows a "balanced approach (shortfalls)" rule, which represents one simple way to illustrate the Committee's focus on shortfalls from maximum employment. All of the policy rules analyzed in this discussion embody the key principles of good monetary policy previously noted. They are also subject to the associated limitations. Thus, the balanced-approach (shortfalls) rule, as is the case with all simple rules, does not fully capture the monetary policy strategy that the FOMC announced in August 2020.

All five rules feature the unemployment rate gap, measured as the difference between an estimate of the rate of unemployment in the longer run (u_t^{LR}) and the current unemployment rate; the first-difference rule includes the change in the unemployment rate gap rather than its level.[7] All of the rules abstract from the uncertainty affecting estimates of the unemployment rate gap. In addition, all of the rules include the

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4. For a discussion of policy strategies that seek to make up for past inflation shortfalls, see Jonas Arias, Martin Bodenstein, Hess Chung, Thorsten Drautzburg, and Andrea Raffo (2020), "Alternative Strategies: How Do They Work? How Might They Help?" Finance and Economics Discussion Series 2020-068 (Washington: Board of Governors of the Federal Reserve System, August), https://dx.doi.org/10.17016/FEDS.2020.068; and James Hebden, Edward P. Herbst, Jenny Tang, Giorgio Topa, and Fabian Winkler (2020), "How Robust Are Makeup Strategies to Key Alternative Assumptions?" Finance and Economics Discussion Series 2020-069 (Washington: Board of Governors of the Federal Reserve System, August), https://dx.doi.org/10.17016/FEDS.2020.069.

5. See Lael Brainard (2020), "Achieving a Broad-Based and Inclusive Recovery," speech delivered at "Post-COVID—Policy Challenges for the Global Economy," Society of Professional Economists Annual Online Conference (via webcast), October 21, https://www.federalreserve.gov/newsevents/speech/brainard20201021a.htm.

6. The Taylor (1993) rule was suggested in John B. Taylor (1993), "Discretion versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy,* vol. 39 (December), pp. 195–214. The balanced-approach rule was analyzed in John B. Taylor (1999), "A Historical Analysis of Monetary Policy Rules," in John B. Taylor, ed., *Monetary Policy Rules* (Chicago: University of Chicago Press), pp. 319–41. The adjusted Taylor (1993) rule was studied in David Reifschneider and John C. Williams (2000), "Three Lessons for Monetary Policy in a Low-Inflation Era," *Journal of Money, Credit and Banking,* vol. 32 (November), pp. 936–66. The first-difference rule is based on a rule suggested in Athanasios Orphanides (2003), "Historical Monetary Policy Analysis and the Taylor Rule," *Journal of Monetary Economics,* vol. 50 (July), pp. 983–1022. A review of policy rules is in John B. Taylor and John C. Williams (2011), "Simple and Robust Rules for Monetary Policy," in Benjamin M. Friedman and Michael Woodford, eds., *Handbook of Monetary Economics,* vol. 3B (Amsterdam: North-Holland), pp. 829–59. The same volume of the *Handbook of Monetary Economics* also discusses approaches other than policy rules for deriving policy rate prescriptions.

7. The original Taylor (1993) rule represented slack in resource utilization using an output gap (the difference between the current level of real gross domestic product (GDP) and the level that GDP would be if the economy were operating at maximum employment, measured in percent of the latter). The rules in figure A represent slack in resource utilization using the unemployment rate gap instead, because that gap better captures the FOMC's statutory goal to promote maximum employment. However, movements in these alternative measures of resource utilization are highly correlated. For more information, see the note below figure A.

A. Monetary policy rules

Taylor (1993) rule	$R_t^{T93} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t)$
Balanced-approach rule	$R_t^{BA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2(u_t^{LR} - u_t)$
Balanced-approach (shortfalls) rule	$R_t^{BAS} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2min\{(u_t^{LR} - u_t), 0\}$
Adjusted Taylor (1993) rule	$R_t^{T93adj} = max\{R_t^{T93} - Z_t, \text{ELB}\}$
First-difference rule	$R_t^{FD} = R_{t-1} + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t) - (u_{t-4}^{LR} - u_{t-4})$

NOTE: R_t^{T93}, R_t^{BA}, R_t^{BAS}, R_t^{T93adj}, and R_t^{FD} represent the values of the nominal federal funds rate prescribed by the Taylor (1993), balanced-approach, balanced-approach (shortfalls), adjusted Taylor (1993), and first-difference rules, respectively.

R_t denotes the realized nominal federal funds rate for quarter t, π_t is the four-quarter price inflation for quarter t, u_t is the unemployment rate in quarter t, and r_t^{LR} is the level of the neutral real federal funds rate in the longer run that is expected to be consistent with sustaining maximum employment and inflation at the FOMC's 2 percent longer-run objective, denoted π^{LR}. In addition, u_t^{LR} is the rate of unemployment expected in the longer run. Z_t is the cumulative sum of past deviations of the federal funds rate from the prescriptions of the Taylor (1993) rule when that rule prescribes setting the federal funds rate below an ELB of 12.5 basis points.

The Taylor (1993) rule and other policy rules are generally written in terms of the deviation of real output from its full capacity level. In these equations, the output gap has been replaced with the gap between the rate of unemployment in the longer run and its actual level (using a relationship known as Okun's law) to represent the rules in terms of the unemployment rate gap. The rules are implemented as responding to core PCE inflation rather than to headline PCE inflation because current and near-term core inflation rates tend to outperform headline inflation rates as predictors of the medium-term behavior of headline inflation. Box note 6 provides references for the policy rules.

difference between inflation and the FOMC's longer-run objective of 2 percent. All but the first-difference rule include an estimate of the neutral real interest rate in the longer run (r_t^{LR}).[8]

By construction, the balanced-approach (shortfalls) rule prescribes identical policy rates to those prescribed by the balanced-approach rule at times when the unemployment rate is above its estimated longer-run level. However, when the unemployment rate is below that level, the balanced-approach (shortfalls) rule is more accommodative than the balanced-approach rule because it does not call for the policy rate to rise as the unemployment rate drops further.

Contrary to the other simple rules featured here, the adjusted Taylor (1993) rule recognizes that the federal funds rate cannot be reduced materially below the ELB. To make up for the cumulative shortfall in accommodation following a recession during which the federal funds rate has fallen to its ELB, the adjusted Taylor (1993) rule prescribes only a gradual return of the policy rate to the (positive) levels prescribed by the standard Taylor (1993) rule after the economy begins to recover.

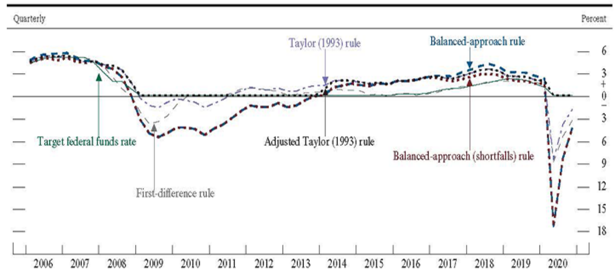
Figure B shows historical prescriptions for the federal funds rate from the five rules. For each period, the figure reports the policy rates prescribed by the rules, taking as given the prevailing economic conditions and estimates of u_t^{LR} and r_t^{LR} at the time. The four rules whose formulas do not impose the ELB imply prescriptions of strongly negative policy rates in response to the pandemic-driven recession, well below their respective troughs in the 2008–09 recession. These deeply negative prescribed policy rates show the extent to which policymakers' ability to support the economy through cuts in the policy rate was constrained by

(continued on next page)

8. The neutral real interest rate in the longer run (r_t^{LR}) is the level of the real federal funds rate that is expected to be consistent, in the longer run, with maximum employment and stable inflation. Like u_t^{LR}, r_t^{LR} is determined largely by nonmonetary factors. The expression of the first-difference rule shown in figure A does not involve an estimate of r_t^{LR}. However, this rule has its own shortcomings. For example, research suggests that this sort of rule often results in greater volatility in employment and inflation relative to what would be obtained under the Taylor (1993) and balanced-approach rules.

Monetary Policy Rules *(continued)*

B. Historical federal funds rate prescriptions from simple policy rules



Note: The rules use historical values of the federal funds rate, core personal consumption expenditure inflation, and the unemployment rate. Quarterly projections of longer-run values for the federal funds rate and the unemployment rate are derived through interpolations of the biannual projections from Blue Chip Economic Indicators. The longer-run value for inflation is taken as 2 percent.

Source: Federal Reserve Bank of Philadelphia; Wolters Kluwer, Blue Chip Economic Indicators; Federal Reserve Board staff estimates.

the ELB during the pandemic-driven recession—a constraint that helped motivate the FOMC's other policy actions at the time, including forward guidance and asset purchases.

Regarding the recovery from the 2008–09 recession, all of the simple rules shown here prescribe departure from the ELB well before the FOMC determined that it was appropriate to do so. The FOMC's judgment that it was appropriate to maintain a more accommodative path of the federal funds rate than prescribed by these rules was informed by a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

The balanced-approach (shortfalls) rule calls for lower policy rates than the balanced-approach rule at times when unemployment is below its estimated longer-run level, thus providing somewhat more policy accommodation during the 2006–07 period and from late 2016 until the start of the pandemic. The fact that the policy rate prescriptions for the balanced-approach and balanced-approach (shortfalls) rules coincide from the 2008–09 recession up to the end of 2016 reflects the slow recovery in this period, during which unemployment remained above real-time estimates of its longer-run level.

Although these two rules prescribe identical policy rates over most of the period shown, including departure from the ELB about two years before the actual departure in December 2015, one should not conclude that they generally offer a similar degree of policy accommodation. Had the previous economic expansion not been cut short by the pandemic, the balanced-approach (shortfalls) rule would likely have continued to prescribe a lower policy rate than the balanced-approach rule. In addition, knowledge on the part of households and businesses that policymakers will respond to shortfalls rather than deviations from maximum employment can, in practice, help foster more accommodative financial conditions even when employment is below its maximum level because financial conditions are affected by the expected path of the policy rate. Expectations of lower policy rates in the future—once employment has recovered—can reduce longer-term interest rates, support accommodative financial conditions, and encourage aggregate spending in the present. These observations underline the importance of communication about future policy actions and demonstrate how a shift in focus to employment shortfalls, in the context of a simple rule, can provide more policy accommodation—even during times like today when employment remains depressed.

Part 3
Summary of Economic Projections

The following material was released after the conclusion of the December 15–16, 2020, meeting of the Federal Open Market Committee.

In conjunction with the Federal Open Market Committee (FOMC) meeting held on December 15–16, 2020, meeting participants submitted their projections of the most likely outcomes for real gross domestic product (GDP) growth, the unemployment rate, and inflation for each year from 2020 to 2023 and over the longer run. Each participant's projections were based on information available at the time of the meeting, together with her or his assessment of appropriate monetary policy—including a path for the federal funds rate and its longer-run value—and assumptions about other factors likely to affect economic outcomes. The longer-run projections represent each participant's assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy. "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the statutory mandate to promote maximum employment and price stability.

Beginning with the December 2020 FOMC meeting, all Summary of Economic

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, December 2020

Percent

Variable	Median[1]					Central tendency[2]					Range[3]				
	2020	2021	2022	2023	Longer run	2020	2021	2022	2023	Longer run	2020	2021	2022	2023	Longer run
Change in real GDP	-2.4	4.2	3.2	2.4	1.8	-2.5–-2.2	3.7–5.0	3.0–3.5	2.2–2.7	1.7–2.0	-3.3–-1.0	0.5–5.5	2.5–4.0	2.0–3.5	1.6–2.2
September projection	-3.7	4.0	3.0	2.5	1.9	-4.0–-3.0	3.6–4.7	2.5–3.3	2.4–3.0	1.7–2.0	-5.5–1.0	0.0–5.5	2.0–4.5	2.0–4.0	1.6–2.2
Unemployment rate	6.7	5.0	4.2	3.7	4.1	6.7–6.8	4.7–5.4	3.8–4.6	3.5–4.3	3.9–4.3	6.6–6.9	4.0–6.8	3.5–5.8	3.3–5.0	3.5–4.5
September projection	7.6	5.5	4.6	4.0	4.1	7.0–8.0	5.0–6.2	4.0–5.0	3.5–4.4	3.9–4.3	6.5–8.0	4.0–8.0	3.5–7.5	3.5–6.0	3.5–4.7
PCE inflation	1.2	1.8	1.9	2.0	2.0	1.2	1.7–1.9	1.8–2.0	1.9–2.1	2.0	1.1–1.4	1.2–2.3	1.5–2.2	1.7–2.2	2.0
September projection	1.2	1.7	1.8	2.0	2.0	1.1–1.3	1.6–1.9	1.7–1.9	1.9–2.0	2.0	1.0–1.5	1.3–2.4	1.5–2.2	1.7–2.1	2.0
Core PCE inflation[4]	1.4	1.8	1.9	2.0		1.4	1.7–1.8	1.8–2.0	1.9–2.1		1.3–1.5	1.5–2.3	1.6–2.2	1.7–2.2	
September projection	1.5	1.7	1.8	2.0		1.3–1.5	1.6–1.8	1.7–1.9	1.9–2.0		1.2–1.6	1.5–2.4	1.6–2.2	1.7–2.1	
Memo: Projected appropriate policy path															
Federal funds rate	0.1	0.1	0.1	0.1	2.5	0.1	0.1	0.1	0.1–0.4	2.3–2.5	0.1	0.1	0.1–0.4	0.1–1.1	2.0–3.0
September projection	0.1	0.1	0.1	0.1	2.5	0.1	0.1	0.1	0.1–0.4	2.3–2.5	0.1	0.1	0.1–0.6	0.1–1.4	2.0–3.0

Note: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 15–16, 2020. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the September 15–16, 2020, meeting, and one participant did not submit such projections in conjunction with the December 15–16, 2020, meeting.

1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable in each year.
3. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.
4. Longer-run projections for core PCE inflation are not collected.

Table 2. Average historical projection error ranges
Percentage points

Variable	2020	2021	2022	2023
Change in real GDP[1]	±0.8	±1.5	±1.9	±2.0
Unemployment rate[1]	±0.1	±0.8	±1.4	±1.9
Total consumer prices[2]	±0.2	±0.9	±1.0	±0.9
Short-term interest rates[3]	±0.1	±1.4	±2.0	±2.4

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 2000 through 2019 that were released in the winter by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, consumer prices, and the federal funds rate will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2017), "Gauging the Uncertainty of the Economic Outlook Using Historical Forecasting Errors: The Federal Reserve's Approach," Finance and Economics Discussion Series 2017-020 (Washington: Board of Governors of the Federal Reserve System, February), https://dx.doi.org/10.17016/FEDS.2017.020.

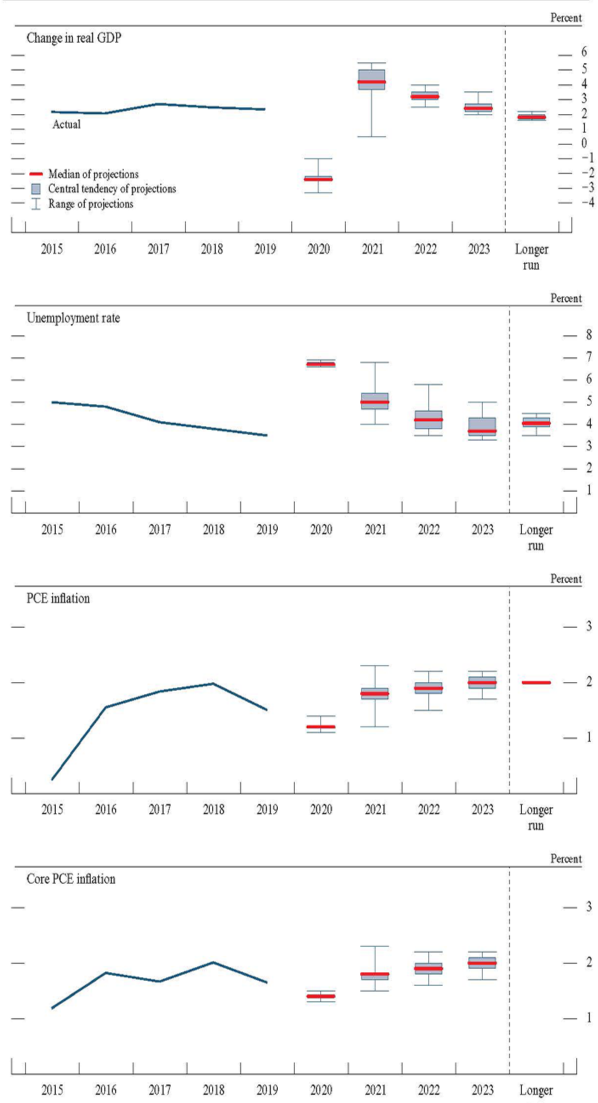
1. Definitions of variables are in the general note to table 1.

2. Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projections are percent changes on a fourth quarter to fourth quarter basis.

3. For Federal Reserve staff forecasts, measure is the federal funds rate. For other forecasts, measure is the rate on 3-month Treasury bills. Projection errors are calculated using average levels, in percent, in the fourth quarter.

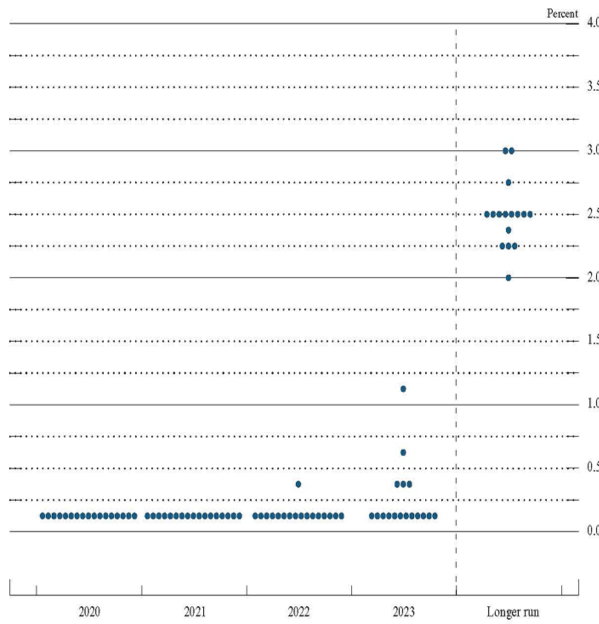
Projections charts and tables previously released with the minutes of a meeting will be released following the conclusion of an FOMC meeting. That is, the release of the distribution of participants' projections (Figures 3.A. through 3.E.), participants' assessments of uncertainty and risks associated with the projections (Figures 4.A. through 4.C. and Figure 5), and Table 2 and associated box, which describe projection error ranges, have been accelerated by three weeks. Two new exhibits, Figures 4.D. and 4.E., have been added to further enhance the information provided on uncertainty and risks by showing how FOMC participants' assessments of uncertainties and risks have evolved over time.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2020–23 and over the longer run



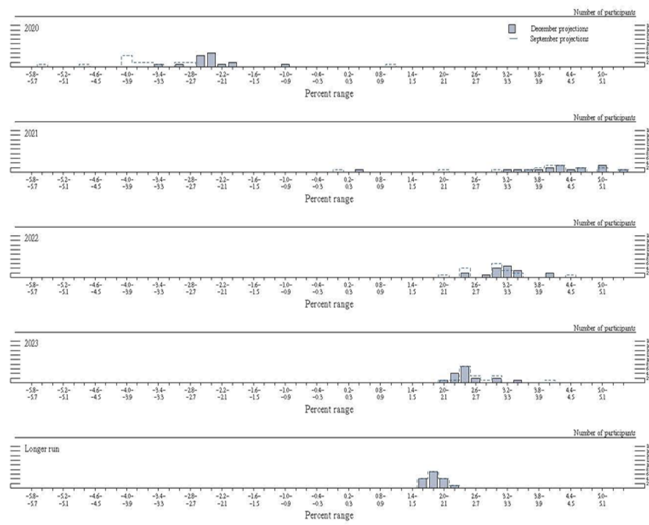
NOTE: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



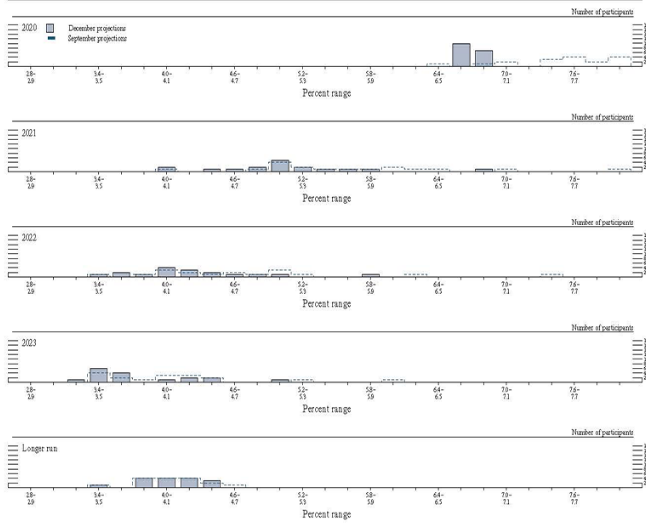
NOTE: Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. One participant did not submit longer-run projections for the federal funds rate.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2020–23 and over the longer run



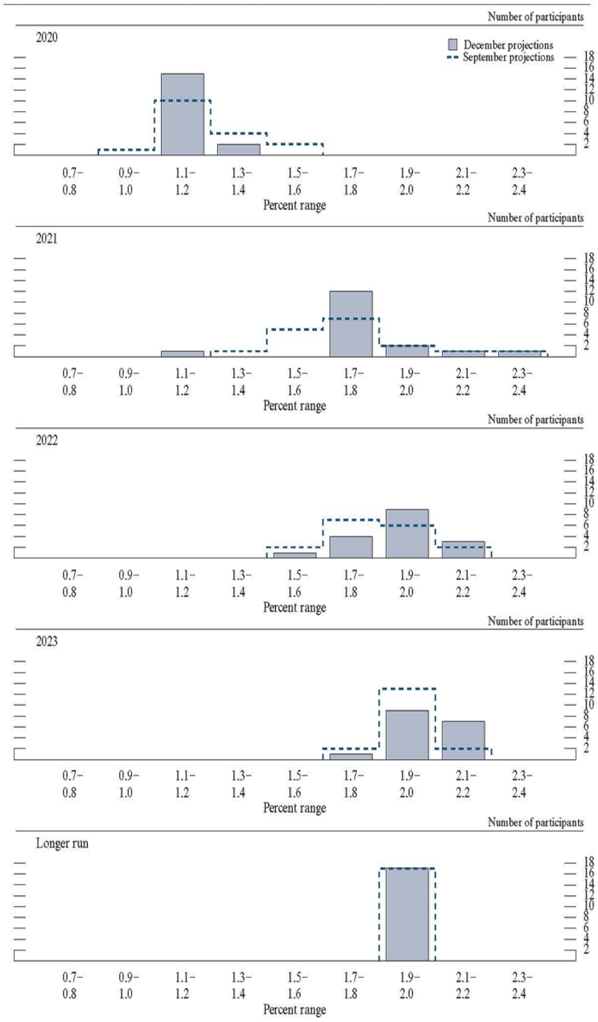
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2020–23 and over the longer run



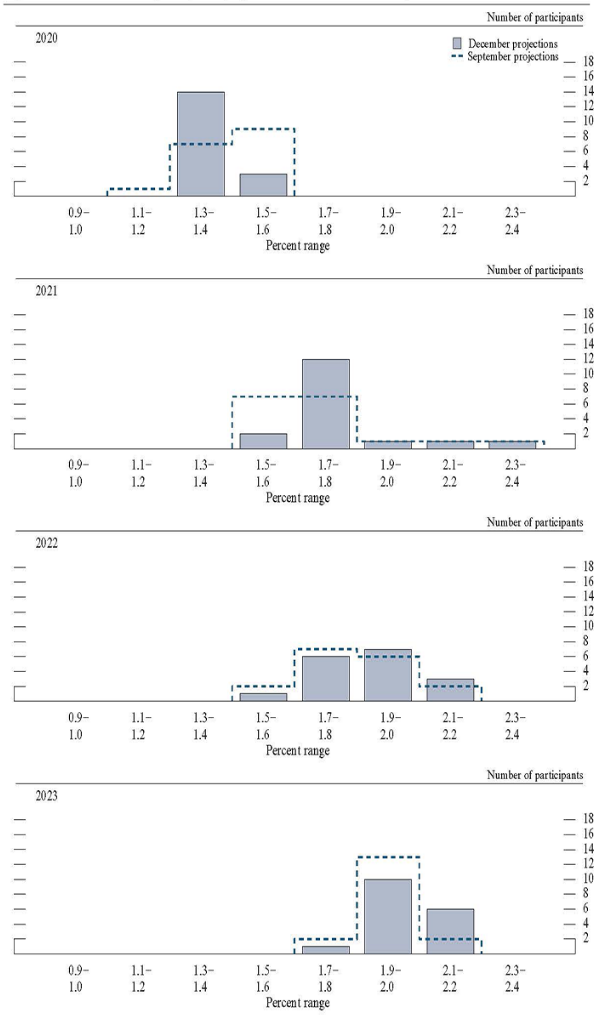
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2020–23 and over the longer run



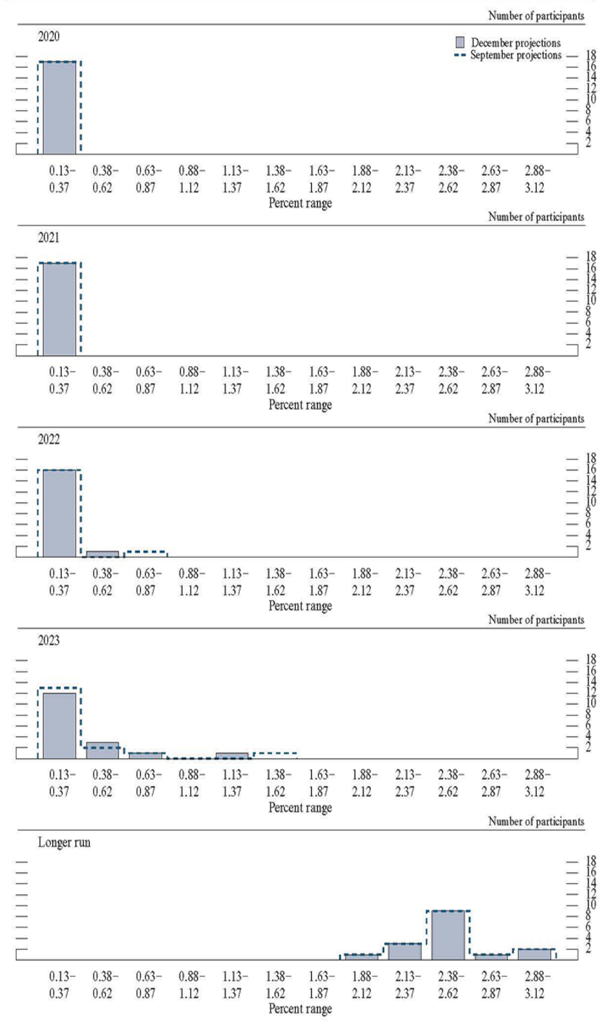
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2020–23



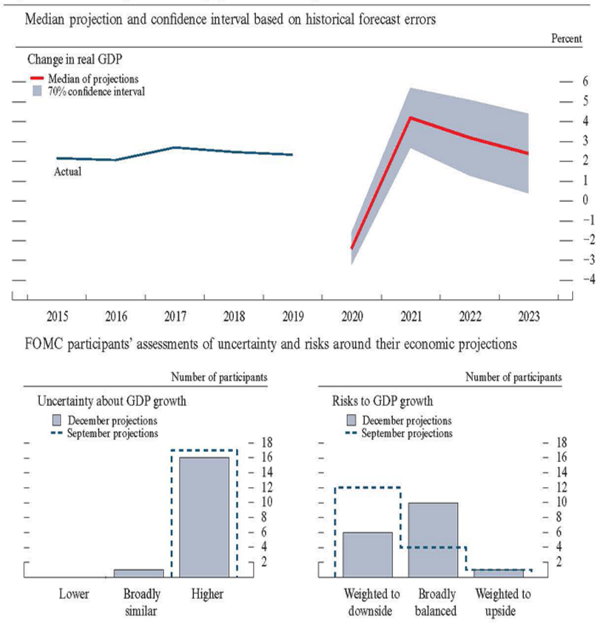
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2020–23 and over the longer run



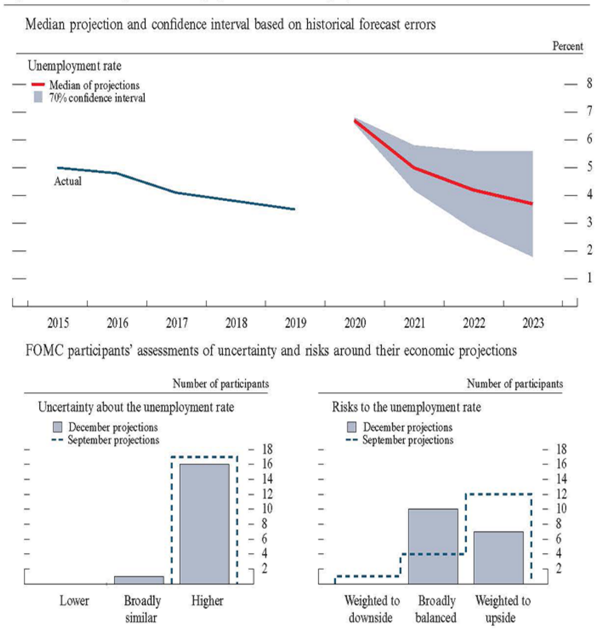
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 4.A. Uncertainty and risks in projections of GDP growth



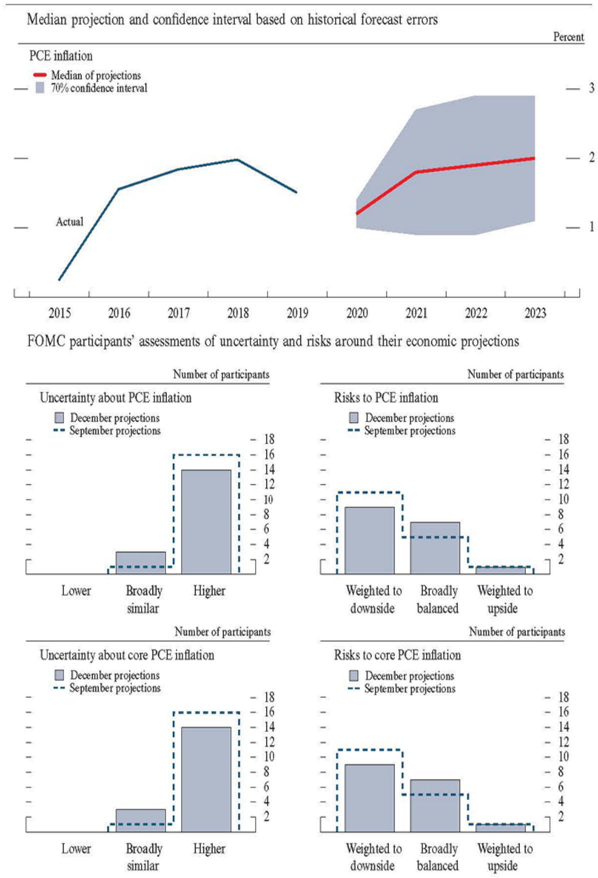
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.B. Uncertainty and risks in projections of the unemployment rate



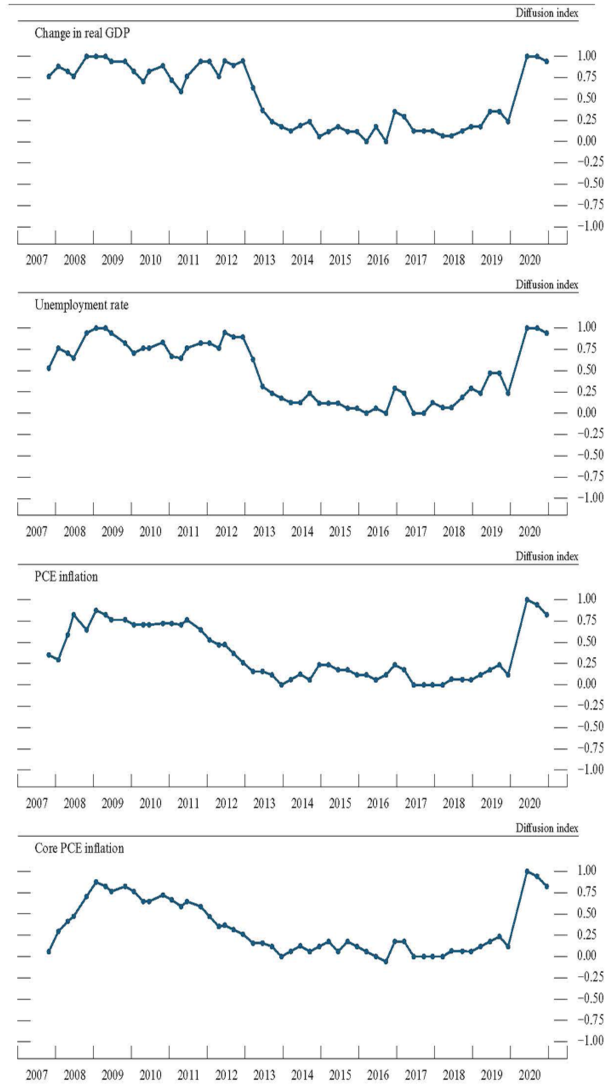
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.C. Uncertainty and risks in projections of PCE inflation



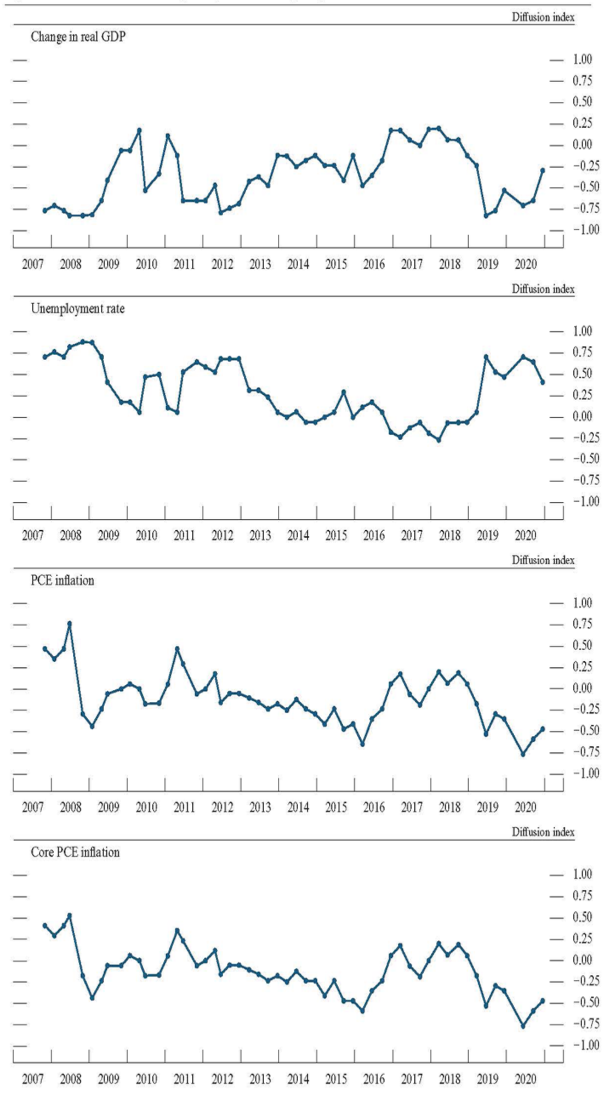
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.D. Diffusion indexes of participants' uncertainty assessments



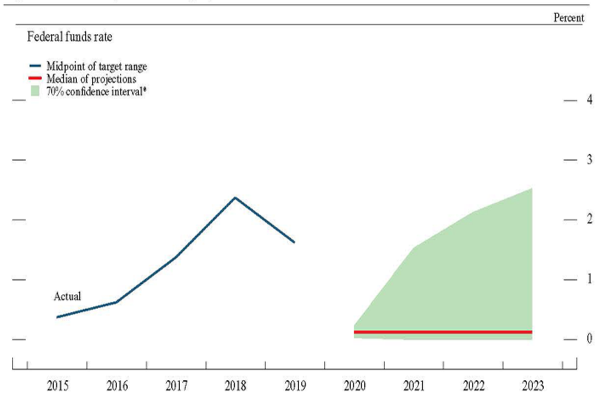
Note: For each SEP, participants provided responses to the question "Please indicate your judgment of the uncertainty attached to your projections relative to the levels of uncertainty over the past 20 years." Each point in the diffusion indexes represents the number of participants who responded "Higher" minus the number who responded "Lower," divided by the total number of participants. Figure excludes March 2020 when no projections were submitted.

Figure 4.E. Diffusion indexes of participants' risk weightings



NOTE: For each SEP, participants provided responses to the question "Please indicate your judgment of the risk weighting around your projections." Each point in the diffusion indexes represents the number of participants who responded "Weighted to the Upside" minus the number who responded "Weighted to the Downside," divided by the total number of participants. Figure excludes March 2020 when no projections were submitted.

Figure 5. Uncertainty and risks in projections of the federal funds rate



Note: The blue and red lines are based on actual values and median projected values, respectively, of the Committee's target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants' individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to onset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero - the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee (FOMC). The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 2.2 to 3.8 percent in the current year, 1.5 to 4.5 percent in the second year, 1.1 to 4.9 percent in the third year, and 1.0 to 5.0 percent in the fourth year. The corresponding 70 percent confidence intervals for overall inflation would be 1.8 to 2.2 percent in the current year, 1.1 to 2.9 percent in the second year, 1.0 to 3.0 percent in the third year, and 1.1 to 2.9 percent in the fourth year. Figures 4.A through 4.C illustrate these confidence bounds in "fan charts" that are symmetric and centered on the medians of FOMC participants' projections for GDP growth, the unemployment rate, and inflation. However, in some instances, the risks around the projections may not be symmetric. In particular, the unemployment rate cannot be negative; furthermore, the risks around a particular projection might be tilted to either the upside or the downside, in which case the corresponding fan chart would be asymmetrically positioned around the median projection.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each economic variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty seen in the past 20 years, as presented in table 2 and reflected in the widths of the confidence intervals shown in the top panels of figures 4.A through 4.C. Participants'

(continued)

current assessments of the uncertainty surrounding their projections are summarized in the bottom-left panels of those figures. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, are weighted to the downside, or are broadly balanced. That is, while the symmetric historical fan charts shown in the top panels of figures 4.A through 4.C imply that the risks to participants' projections are balanced, participants may judge that there is a greater risk that a given variable will be above rather than below their projections. These judgments are summarized in the lower-right panels of figures 4.A through 4.C.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward. The final line in table 2 shows the error ranges for forecasts of short-term interest rates. They suggest that the historical confidence intervals associated with projections of the federal funds rate are quite wide. It should be noted, however, that these confidence intervals are not strictly consistent with the projections for the federal funds rate, as these projections are not forecasts of the most likely quarterly outcomes but rather are projections of participants' individual assessments of appropriate monetary policy and are on an end-of-year basis. However, the forecast errors should provide a sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that would be appropriate to offset the effects of shocks to the economy.

If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the fan chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention; it would not have any implications for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate. In such situations, the Committee could also employ other tools, including forward guidance and asset purchases, to provide additional accommodation.

While figures 4.A through 4.C provide information on the uncertainty around the economic projections, figure 1 provides information on the range of views across FOMC participants. A comparison of figure 1 with figures 4.A through 4.C shows that the dispersion of the projections across participants is much smaller than the average forecast errors over the past 20 years.

Abbreviations

AFE	advanced foreign economy
BLS	Bureau of Labor Statistics
CARES Act	Coronavirus Aid, Relief, and Economic Security Act
CES	Current Employment Statistics
C&I	commercial and industrial
COVID-19	coronavirus disease 2019
CPFF	Commercial Paper Funding Facility
CPI	consumer price index
DPI	disposable personal income
ELB	effective lower bound
EME	emerging market economy
EPOP ratio	employment-to-population ratio
FIMA	Foreign and International Monetary Authorities
FOMC	Federal Open Market Committee; also, the Committee
GDP	gross domestic product
G-SIBs	global systemically important banks
LFPR	labor force participation rate
Main Street	Main Street Lending Program
MBS	mortgage-backed securities
MMLF	Money Market Mutual Fund Lending Facility
OPEC	Organization of the Petroleum Exporting Countries
PCE	personal consumption expenditures
PDCF	Primary Dealer Credit Facility
PPPLF	Paycheck Protection Program Liquidity Facility
QSS	Quarterly Services Survey
repo	repurchase agreement
RRE	residential real estate
SBA	Small Business Administration
SEP	Summary of Economic Projections
TIPS	Treasury Inflation-Protected Securities
VIX	implied volatility for the S&P 500 index