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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 PURSU-
ANT TO THE FULL EMPLOYMENT AND BALANCED GROWTH ACT OF 1978

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THE SEMIANNUAL MONETARY POLICY REPORT TO THE CONGRESS

THURSDAY, JULY 15, 2021

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

The Committee met at 9:31 a.m., in room 538, Dirksen Senate Office Building, Hon. Sherrod Brown, Chairman of the Committee, presiding.

OPENING STATEMENT OF CHAIRMAN SHERROD BROWN

Chairman BROWN. The Senate Committee on Banking, Housing, and Urban Affairs will come to order.

Today, our economy is growing because of the American Rescue Plan and the Biden–Harris administration’s leadership. We are putting shots in arms and money in pockets. Families have a little bit extra to help pay the bills. Beginning today, July 15th, most parents will see a 250 or 300-dollar monthly payment in their bank account for each child. In my State, 92 percent of children are eligible.

Small businesses are reopening their doors. Workers are safely going back to work, often at higher wages. Last month, we added 850,000 jobs to the economy. Since President Biden took office, we have gained three million jobs, more than any—more than in the first 5 months of any presidency in modern history. It is not only the jobs numbers; it is the quality of these jobs.

For the first time in decades, workers are starting to gain some power in our economy: the power to negotiate higher wages, the power to get better working conditions, the power to have more control over their schedules and stronger benefits and more opportunities for career advancement.

The *Washington Post* reported in the past 3 months rank-and-file employees have seen some of the fastest wage growth since the early 1980s. Think about that. The fastest wage growth since Ronald Reagan said it was “Morning in America.” That is what happens when we invest in our greatest asset, the American people.

Instead of hoping money trickles down from large corporations—it never does, and pretty much every Senator sitting on both sides of the aisle here knows that—we invested directly in our workers and our small businesses and our communities. When workers win, our economy wins. When everyone—as one of Senator Smith’s predecessors used to say, when everyone does better, everyone does better.

Chair Powell, you said the Fed can help make the economy work for everyone by ensuring a strong and competitive labor market, one where everyone can get a job, one where employers actually compete for workers. I agree. Those efforts, combined with President Biden's recent actions to increase competitiveness, are increasing worker power in the economy. We must build on this progress with investment in infrastructure that creates millions of jobs, increases our economic competitiveness, and spurs growth in communities of all sizes, all over the country.

I have been all over my State in the past few weeks, talking with local leaders, seeing mayors in both parties, in big cities and small towns. I have heard the same thing from all of them. They need more investment in infrastructure, like housing and transit, to build a stronger local economy. These are the places often overlooked or, worse, preyed on by large corporations and Wall Street banks.

Many of these communities have watched for decades as investment has dried up, as storefronts have emptied. Companies closed down factories and moved good-paying union jobs abroad—in Pennsylvania and Ohio, especially. Private equity firms, big investors buy up the houses and jack up the rent. Small businesses struggle to compete against big-box chains. Big banks buy up smaller ones, only to close branches, leaving check cashers and payday lenders as families' only options. Think about the opportunity and growth we can unleash in this country if we gave these communities the investment to fulfill that potential.

Of course, we know what happens whenever the economy starts to grow. The largest corporations and biggest banks throw all their efforts and their resources in finding ways to direct those gains to themselves. Last year, during the global pandemic and deep, deep recession, CEOs paid themselves 299 times what their average worker made, an even bigger gap than before the pandemic.

Now imagine the kind of windfall they will try to rake in during this boom. We have seen it over and over. Consumers spend, driving up revenue for companies. They spend it on stock buybacks while complaining about workers' demanding higher wages. Big banks rake in cash. They spend it on executive compensation and dividends and buybacks, and the Fed has usually allowed them to, Mr. Chairman, instead of lending in communities or increasing capital to reduce risk. The Fed should be fighting this trend, protecting our progress from Wall Street greed and recklessness, not making it worse.

During your tenure, Chair Powell, the Fed has rolled back important safeguards, making it easier for the big banks to pump up the price of their stock and boost their already enormous power in our economy. Wall Street would have you believe that removing those protections has increased lending in support of the real economy. We have been assured that the banks have plenty of capital to withstand a crisis.

But, during the pandemic, it was community banks and it is credit unions, not the megabanks, that increased lending. The Fed supported the biggest banks to the tune of hundreds of billions of dollars. They spent it, shockingly, on themselves while small busi-

nesses trying to get PPP loans could not sometimes get their phone calls returned.

We ought to try something different. We need a banking system that works for everyone. We cannot allow the biggest banks to funnel their extra cash into stock buybacks that juice their profits instead of investing in the real economy. We cannot let big banks merge into bigger and bigger megabanks, making it harder for small banks to compete and leaving rural and Black and Brown communities behind. We need to strengthen the Community Reinvestment Act so that banks serve the communities still scarred—still scarred—by the legacy of Black Codes and Jim Crow and redlining.

And we cannot allow repeat performance of the years during the last recession. Wall Street destroyed our economy, cost families their jobs and their homes and their savings, then came roaring back. Families limped along behind them. For the vast majority of Americans who get their money from a paycheck and not a brokerage account, the economy never looked all that great in the years that followed.

Stable prices, moderate long-term interest rates are not enough if every decade a financial crisis hits and strips away what people have worked so hard for. Low unemployment is not enough if the jobs pay rock-bottom wages and workers have no power. GDP growth is not enough if it only benefits those at the top and not the workers who made it possible. We need to create a different system, one that is stable for the long run, one where workers, not Wall Street, reap the benefits of a strong economy.

Chair Powell, you are charged with ensuring both financial stability and with overseeing the biggest banks. Both of those jobs are equally important. Each affects workers' jobs and paychecks and communities.

And as public servants, our responsibility—yours, mine, Ranking Member Toomey, our responsibility—is to the people who make this country work. It is up to us to grow an economy that delivers for them, not just those at the top.

Ranking Member Toomey.

OPENING STATEMENT OF SENATOR PATRICK J. TOOMEY

Senator TOOMEY. Thank you, Mr. Chairman.

Welcome back, Chairman Powell.

The economy certainly has come roaring back from COVID. GDP is above its prepandemic levels now, and the Fed forecasts GDP will grow by an amazing 7 percent this year. The unemployment rate is already at 5.9 percent, which the Fed expects to fall to 4.5 percent by the end of the year. And to put that in context, the average unemployment rate for the last 20 years before the pandemic was 6 percent.

So with these conditions, the Fed's rationale for continuing negative real interest rates and \$1.4 trillion in annual bond purchases is puzzling. The Fed's policy is especially troubling because the warning siren for problematic inflation is getting louder. Inflation is here, and it is more severe than most, including the Fed itself, expected. And it is more than offsetting the wage gains, so leaving workers worse off despite their nominal wage increases.

For the third month in a row, the Consumer Price Index was higher than expectations. Core CPI, which excludes volatile categories like food and energy, was up 4.5 percent in June, the highest reading in almost 30 years. And to be clear, this is beyond the so-called base effects. The 2-year change in core CPI was at a 25-year high.

And with housing prices absolutely soaring in many places to completely unaffordable levels, I have to ask: Why on Earth is the Fed still buying \$40 billion in mortgage-backed bonds each month?

Now the Fed assures us that this inflation is transitory, but its inflation projections over the last year have not inspired confidence. Last June, the Fed projected that PCE, one standard measurement of inflation, would be 1.6 percent for the 12 months ending 2021. Then in December, the Fed raised that figure up to 1.8 percent. And now, the Fed's most recent PCE forecast for 2021 year-end is 3.4 percent, more than double what the Fed thought inflation would be a year ago. But in coming months, the Fed is almost certain to revise that projection up yet again because so far this year PCE has already risen by 6.1 percent on an annualized basis. So for the rest of the year, inflation would need to be nearly zero for the Fed's latest projection to be proven correct.

I am very concerned that the Fed's current paradigm almost guarantees that it will be behind the curve if inflation does become problematic and persistent for several reasons. The first, as I pointed out, the Fed has consistently and systematically underestimated inflation over the last year. Second, the Fed has announced that it will allow inflation to run above its 2 percent target level. Well, it is already well above 2 percent. And third, the Fed insists that the inflation we are experiencing now is transitory despite the fact that recent unprecedented monetary accommodation has certainly driven the inflation that we are witnessing.

And since the Fed has proven unable to forecast the level of inflation, why should we be confident that the Fed can forecast the duration of inflation?

And after all, you can only know that something is in fact transitory after it has ended. What if it does not end? If it is wrong, by the time the Fed knows and acknowledges that it has gotten it wrong, we could have a big problem on our hands. And past experience has shown it is very difficult to get the inflation genie back in the bottle once it is out. The Fed may have to respond by raising interest rates much more aggressively to rein in significant inflation, and that could have severe adverse economic consequences.

So the Fed's current monetary approach seems based on the premise that it needs to prioritize maximum employment over price stability despite the fact that employment policies enacted by Congress are clearly impeding our ability to get back to maximum employment. But I would argue it is not the Fed's job to attempt to offset flawed congressional policies at the expense of its price stability mandate. And when the Fed subordinates its price stability mandate to try to maximize employment, the Fed runs the risk of failing on both fronts because you need stable prices in order to achieve a strong economy and maximize employment.

This is not a partisan argument. Prominent Democratic economists, including President Clinton's treasury secretary, Larry Sum-

mers, President Obama's CEA chairman, Jason Furman, and many others have expressed their concern about the risk—the risk—of rising and persistent inflation.

Last, I just want to acknowledge the unique and crucial role played by the Fed in our economy and some of the responsibilities that attend to that. The ability to direct interest rates and control the money supply is, of course, an extraordinary power, and Congress has given the Fed a great deal of operational independence in order to isolate it from political interference.

But Congress also gave the Fed a narrowly defined mission. I am troubled by the Fed, especially some of the regional banks, misusing this independence to wade into politically charged areas like global warming and racial justice. I would suggest that instead of opining on issues that are clearly beyond the Fed's mission and expertise it should focus on an issue that clearly is its mandate, controlling inflation. If it does not, the Fed will find that its credibility and independence may also have turned out to be transitory.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Toomey.

We have an 11 o'clock vote. I informed the Ranking Member and the Chair we will work straight through and not break during that 11 o'clock vote. So we will just figure that out.

I will introduce today's witness. Today, we will hear from Federal Reserve Chair Jerome Powell on the Fed's monetary policy and the State of the U.S. economy. Under law, he comes in front of us twice a year at minimum. The Federal Reserve plays a key role in making sure our economy and banking system work for all Americans.

Chair Powell, thanks for your years of Government service and for your testimony today. You are recognized.

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

Mr. POWELL. Thank you. Chair 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 Fed, we are strongly committed to achieving the monetary policy goals that Congress has given us: maximum employment and price stability. We pursue these goals based solely on data and objective analysis, and we are committed to doing so in a clear and transparent manner. Today, I will review the current economic situation before turning to monetary policy.

Over the first half of 2021, ongoing vaccinations have led to a reopening of the economy and strong economic growth supported by accommodative monetary and fiscal policy. Real GDP this year appears to be on track to post its fastest rate of increase in decades. Household spending is rising at an especially rapid pace, boosted by strong fiscal support, accommodative financial conditions, and the reopening of the economy. Housing demand remains very strong, and overall business investment is increasing at a solid pace.

As described in the *Monetary Policy Report*, supply constraints have been restraining activity in some industries, most notably in the motor vehicle industry, where the worldwide shortage of semiconductors has sharply curtailed production so far this year.

Conditions in the labor market have continued to improve, but there is still a long way to go. Labor demand appears to be very strong. Job openings are at a record high. Hiring is robust. And many workers are leaving their current jobs to search for better ones. Indeed, employers added 1.7 million workers from April through June.

However, the unemployment rate remains elevated in June, at 5.9 percent, and this figure understates the shortfall in employment, particularly as participation in the labor market has not moved up from the low rates that have prevailed for most of the past year. Job gains should be strong in coming months as public health conditions continue to improve and as some of the other pandemic-related factors currently weighing them down diminish.

As discussed in the *Monetary Policy Report*, the pandemic-induced declines in employment last year were the largest for workers with lower wages and for African Americans and Hispanics. Despite substantial improvements for all racial and ethnic groups, the hardest hit groups still have the most ground left to regain.

Inflation has increased notably and will likely remain elevated in coming months before moderating. Inflation is being temporarily boosted by base effects as the sharp pandemic-related price declines from last spring drop out of the 12-month calculation. In addition, strong demand in sectors where production bottlenecks or other supply constraints have limited production has led to especially rapid price increases for some goods and services, which should partially reverse as the effects of the bottlenecks unwind. Prices for services that were hard hit by the pandemic have also jumped in recent months as demand for these services has surged with the reopening of the economy.

To avoid sustained periods of unusually low or high inflation, the FOMC monetary policy framework seeks longer-term inflation expectations that are well anchored at 2 percent, the Committee's longer-run inflation objective. Measures of longer-term inflation expectations have moved up from their pandemic lows and are in a range that is broadly consistent with the FOMC's longer-run inflation goal. Two boxes in the July *Monetary Policy Report* discuss recent developments in inflation and inflation expectations.

Sustainably achieving maximum employment and price stability depends on a stable financial system, and we continue to monitor vulnerabilities here. While asset valuations have generally risen with improving fundamentals, as well as increased investor risk appetite, household balance sheets are, on average, quite strong, business leverage has been declining from high levels, and the institutions at the core of the financial system remain resilient.

Turning now to monetary policy, at our June meeting, the FOMC kept the Federal funds rate near zero and maintained the pace of our asset purchases. These measures, along with our strong guidance on interest rates and our balance sheet, will ensure that monetary policy will continue to deliver powerful support to the economy until the recovery is complete.

We continue to expect that it will be appropriate to maintain the current target range for the Fed 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. As the Committee reiterated in our June policy statement, with inflation having run persistently below 2 percent, 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.

As always, in assessing the appropriate stance of monetary policy, we will continue to monitor the implications of incoming information for the economic outlook and would be prepared to adjust the stance of monetary policy as appropriate if we saw signs that the path of inflation or longer-term inflation expectations were moving materially and persistently beyond levels consistent with our goal.

In addition, we are continuing to increase our holdings of Treasury securities and agency MBS securities at least at their current pace until substantial further progress has been made toward our maximum employment and price stability goals. These purchases have materially eased financial conditions and are providing substantial support to the economy.

At our June meeting, the Committee discussed the economy's progress toward our goals since we adopted our asset purchase guidance last December. While reaching the standard of substantial further progress is still a ways off, participants expect that progress will continue. We will continue these discussions at coming meetings. As we have said, we will provide advance notice before announcing any decision to make changes to our purchases.

We understand that our actions affect communities, families, and businesses across the country. Everything we do is in service to our public mission. The resumption of our Fed Listens initiative will further strengthen our ongoing efforts to learn from a broad range of groups about how they are recovering from the economic hardships brought on by the pandemic. We at the Fed will do everything we can to support the recovery and foster progress toward our goals of maximum employment and stable prices.

Thank you. I will look forward to our discussion.

Chairman BROWN. Thank you, Chair Powell, for your testimony.

Our economy looks a whole lot better today than it did last year. We still have a long way to go. Yet, many of my Republican colleagues have been stoking inflation fears, demanding that we pump the brakes on our economic recovery, complaining that we are just investing too much money in the American people. If my colleagues are suddenly concerned about the costs that have been rising for workers and families for decades, they can join Democrats in the fight to raise wages, to lower the cost of health care, to make housing more affordable, to pass the American Jobs Plan. Of course, most of them will not say aloud what all this inflation alarmism is really all about. It is simply they do not want workers to have more power.

In reality, the biggest risk to our economy, Mr. Chairman, is not doing enough to empower workers and not doing enough to curb Wall Street greed and excess.

So, Chair Powell, my question is you supported Vice Chair Quarles, as the Vice Chair of Supervision, his efforts to weaken capital requirements at the largest banks through revisions to the

stress capital buffer, and you oversaw weakened CCAR stress tests which only decide how leveraged the biggest banks are.

Governor Brainard has pushed back against your efforts to weaken financial regulations. President Rosengren of the Boston Fed made the case that strong financial regulation enables the Fed to be more aggressive in its full employment mandate. President Mester of the Cleveland Fed, President Kashkari of the Minneapolis Fed are outspoken on the need for the board to keep its eye on financial stability. Weakening financial safeguards does not help working families. It just increases the risk of a financial crisis, wiping out everything they have worked so hard for.

We are finally making progress, as I said earlier, and workers are getting a better seat at the table. We can make the economy safer and fairer with higher capital requirements for the biggest banks.

My question, Mr. Chair, is: Why have you been against stronger capital requirements and using the countercyclical capital buffer in curbing runaway executive bonuses and stock buybacks?

Mr. POWELL. So I guess I would say, with the stress tests, the severity of the stress capital buffer overall was to raise capital requirements for the largest firms. And they did manage to get through the recent pandemic and the acute phase of it and the recovery and did their jobs during it.

So I think by and large, our financial institutions are well capitalized. We limited their distributions during the pandemic, and their capital levels actually rose quite materially during the course of the pandemic. So the financial system is strong, and the banks are strong.

I have felt, and I have said on a number of occasions, that the level of loss-absorbing capital in the system is about right. I think the experience of the pandemic bears that out. I would be prepared to deploy the countercyclical capital buffer if I thought that the conditions we laid out were triggered, but I have not so far felt that way.

Chairman BROWN. Every time the Fed has—thank you for that answer. Every time the Fed has taken action to lower capital standards, it claims that doing so would increase lending in the economy and otherwise promote economic growth. That has not been what has happened. Instead, buybacks, dividends, executive compensation have continued to go up even during the pandemic.

We empower workers by maintaining tight labor markets and strong financial regulations. I believe strong financial regulation enables the Fed to be more aggressive in helping workers and that should be your mission. It is time, Mr. Chair, respectfully, you change the way you think about regulating the biggest banks.

One other question, Mr. Chair. In addition to adopting pro-worker financial stability policies, the Fed can further help communities of color by leading the push for a strong update to the Community Reinvestment Act. We have seen some good developments there with a different Comptroller of the Currency. Last year, the Fed unanimously released a framework for modernizing CRA that was well received by representatives of the civil rights community and by banks.

My question, Mr. Chair, is the Federal Reserve still committed to full, not piecemeal, full CRA modernization with an interagency approach, and what is the timing?

Mr. POWELL. We are very much committed to that outcome, and I actually feel—I feel good about where we are on this. We are resuming our interagency discussions on it. And I am optimistic that we will come out with something that has broad support among the community of intended beneficiaries and, by the way, also among the financial institutions, and that it will be a good, solid updating after many years into the more technologically enabled era that will help all—help the intended beneficiaries quite a bit.

Chairman BROWN. And the timing, Mr. Chair?

Mr. POWELL. Working on it now. I think you will see—you will see we are reacting to a very large—analyzing a very large quantity of comments and discussing that with—particularly with the OCC. But also, the FDIC, it is not clear what their role will be at this time, but we hope they will join in.

I think we will be making visible progress in coming months. I cannot give you a finish date yet, but I think we are moving now.

Chairman BROWN. Good. Thank you. We will be watching.

Senator Toomey.

Senator TOOMEY. Thank you, Mr. Chairman.

Chairman Powell, in your testimony, you said that substantial further progress is still a ways off for the economic recovery, and I think you cite that as a justification for the extremely accommodative policy that you have. I do not think you are referring to the need for substantial further progress in GDP growth. I think it is employment that you are thinking of. The unemployment rate has declined dramatically, but it has not reached the prepandemic lows. And I think that you have also made references to the workforce participation rate.

I guess my question is: Is it not entirely possible that for a variety of factors, not the least of which is legislation that we have passed, the labor force participation rate may not get back to the record highs that we recently saw and we have made it more difficult for the unemployment rate to get back to the record lows that we were at before? And, do you take that into account when you determine how much progress we have made toward full employment?

Mr. POWELL. So what was happening toward the end of the very long expansion, longest expansion, was that people were staying in the labor force later into their careers, and so labor force participation consistently remained above all estimates of where it was going to be. Then what happened in the pandemic was a lot of those people retired.

Senator TOOMEY. Right.

Mr. POWELL. So there have been really significant amounts of retirement.

So the truth is we do not know where that is going to settle out, and it will take a period of years for us to really understand what the new trend is. I do not see that as a problem for the standard we have set for tapering asset purchases, which is substantial further progress. We are not going to need to know the answers to those questions to make a decision that we have made substantial

further progress. It will be more of a consideration for raising rates, where we have set a higher bar.

Senator TOOMEY. OK. I just hope there is a focus on the distinct possibility that we are just not going to get to those levels anytime soon.

Let me turn to housing prices a bit. The Case-Shiller Home Price Index showed housing prices across the U.S. as a whole increased in May by more than 15 percent from the previous year. And that was not a base effect. There was no big decline in May of last year. Fifteen percent clearly is making housing less affordable, more out of reach for more people.

So a number of voices within the Fed seem to be increasingly concerned about this. The St. Louis Fed President, James Bullard, said just this week that he is “a little bit concerned that we are feeding into an incipient housing bubble.” Dallas Fed President Robert Kaplan said that the Fed should begin tapering to begin offsetting “some of these excesses and imbalances.” The Boston Fed President, Eric Rosengren, raised alarms that the Fed’s mortgage-backed security purchases may be contributing to the current boom in real estate prices, citing the potential financial stability implications.

I guess you know I have been clear for a long time. I have been very skeptical about the ongoing mortgage-backed purchases. Are you at all concerned about the unintended consequences that are associated with \$40 billion worth of mortgage-backed security purchases that continue month after month?

Mr. POWELL. So housing prices are going up, as you mentioned, around 15 percent. This is a very high rate of increase. A number of factors are contributing. Monetary policy is certainly one of those factors. There are also other factors. People have very strong balance sheets, so they are able to make downpayments. There are also supply factors that are constraining the supply, at least temporarily.

So you know, our best—my best thinking is that the difference between Treasury purchases and MBS purchases for this purpose is not a large one. Probably MBS purchases are somewhat more supportive of housing. That is not their intent, but that may be the effect.

Really, the larger point is that monetary policy is supporting this, and that is something—that is a discussion we are going to be having as—on an ongoing basis. We talked about some of these things at our last meeting, and we will talk at the next meeting in a couple of weeks.

Senator TOOMEY. I think that is important.

Let me close with a question on a central bank digital currency. During your testimony yesterday, I sensed what I was not sure but thought might be a change in your tone about the virtues of a central bank digital currency being issued by the Fed. One of the things you said yesterday is that one of the stronger arguments in favor of a CBDC is that, “You would not need stablecoins; you would not need cryptocurrencies if you had a digital U.S. currency.”

Of course, is not the reverse also true? If you have stablecoins, cryptocurrencies in use, then maybe there is no need for a central bank digital currency.

I guess my—two points. One is it is my view that the development of a central bank digital currency by the Fed would require congressional authorization. I am wondering if you share that view. And second, it is still not clear to me what problem a central bank digital currency would solve, and I wonder if you think there are problems that only a central bank digital currency can solve.

Mr. POWELL. First, I am legitimately undecided on whether the benefits outweigh the costs, or vice versa, on a CBDC. Yesterday, I was answering a direct question about a particular argument. I said, in favor, that would be one of the stronger arguments.

Senator TOOMEY. OK.

Mr. POWELL. I would agree that the more direct route would be to appropriately regulate stablecoins, which were not—we do not do right now, and that is going to be a very important thing that we do do.

So in terms of congressional authorization, you know, there are different views on that. I have said publicly, and I think this is right, that we would want very broad support in society and in Congress, and ideally, that would take the form of authorizing legislation as opposed to a very careful reading of ambiguous law to support this. It is a very, very important initiative, and I do think we should ideally get authorization.

In terms of what the problem is to solve, that is—I think that is exactly the right question. And you know, I think our obligation is to explore both the technology and the policy issues over the next couple of years. That is what we are going to do, so that we are in a position to make an informed recommendation. But my—again, my mind is open on this, and I honestly do not have a preconceived answer to these questions.

Senator TOOMEY. Thank you, Mr. Chairman.

Chairman BROWN. Senator Menendez of New Jersey is recognized.

Senator MENENDEZ. Chairman Powell, as the Federal Reserve seeks to fulfill its mandate of maximum employment, I want to discuss with you the tremendous impact that immigration has on the labor force. Is it not true that over the past 10 years the immigrant labor force participation rate has been consistently higher than that of native-born workers?

Mr. POWELL. I believe that is right.

Senator MENENDEZ. Yes. And let me help you verify that. The St. Louis Fed noted in their study that as of June 2021 the foreign-born labor force participation rate is 3 percent higher than the native-born rate and that gap has not ever been lower than nearly 2 percent for the past 10 years.

And an important, but often overlooked, characteristic of these immigrants is their youth. According to the Bureau of Labor Statistics, 71.8 percent of foreign-born workers are between 25 and 54 years of age compared to 62.2 percent of the native labor force.

So as the American labor force ages, will immigrants and, therefore, immigration policy play an increasingly important role in maintaining a healthy U.S. labor force, therefore, a healthy economy?

Mr. POWELL. Senator, I am going to stay away from making any recommendations on immigration policy. It is not in our wheel-

house. I will say that labor force growth is one of the two things that can drive the top line, the other being productivity growth. And you know, in recent years, immigration has been a significant part of—counted for a significant part of growth in the workforce.

Senator MENENDEZ. Well, I appreciate that. I am not asking you about immigration policy. What I am saying is that one of the newest studies shows that nearly 1 in 4 Americans is projected to be 65 years of age or older by 2060. So while America gets older, the overall population is growing at a slower rate than it has in almost a century, leaving unfilled job openings in a future American economy. And I think we should be looking at our immigration policy, whatever that might ultimately be—I have my own idea, the U.S. Citizenship Act—as a source of dealing with the labor market.

Now let me continue on the question of the labor market. One part of the Fed's dual mandate is to maximize employment and understanding what factors inhibited people's ability to work as a key to helping achieve that goal. On page 7 of your *Monetary Policy Report*, and I will quote directly from it, "The effect of the pandemic on employment was largest for workers with lower wages, for workers with lower educational attainment, and for African Americans and Hispanics, and these hard-hit groups still have the most ground left to regain. And the pandemic seems to have taken a particularly large toll on the labor force participation of mothers, especially Hispanic mothers." That is very much true. So have disruptions in childcare due to the pandemic had a negative effect on employment?

Mr. POWELL. Yes, they have, and also schools being closed. Caretakers generally are having a hard time getting back into the labor force for that reason.

Senator MENENDEZ. Yes. The Federal Reserve's data shows that the pandemic's effects on childcare caused 9 percent of all parents to be unable to work late last year and an additional 14 percent of parents had to decrease their hours, and this effect was especially pronounced among Black, Hispanic, and low-income households. So is the effect of childcare on employment isolated only to the COVID pandemic?

Mr. POWELL. Sorry?

Senator MENENDEZ. Is the effect of the availability of childcare that is affordable on employment isolated only to the COVID-19 pandemic?

Mr. POWELL. I am going to guess really that the answer to that would be "no."

Senator MENENDEZ. Yes. And it is "no." Studies have shown that working families pay for childcare 35 percent of their income, on average, 5 times more than what the Department of Health considers affordable. So it seems to me that increasing the availability of high-quality, affordable childcare, like what President Biden proposes in the American Families Plan, has a positive effect on employment, enables businesses to more easily find qualified workers, and ultimately helps address the supply bottlenecks.

The same Fed study I just cited notes that reducing or offsetting the cost of childcare has a particularly strong employment effect on Black, Hispanic, and low-income families. The pandemic showed all of the inequalities in our Nation, highlighted in a way so dramati-

cally, and particularly communities of color. Now, the employment challenges. We all talk about wanting to get people to work. The employment challenges that people have in being able to work, and they, as I have shown in the St. Louis Fed's statistics, more, more gainfully employment than native-born. It seems to me we should be working on making the pathway easier so that businesses can have qualified workers.

Thank you, Mr. Chairman.

Chairman BROWN. Senator Rounds of South Dakota is recognized for 5 minutes.

Senator ROUNDS. Thank you, Mr. Chairman.

Chairman Powell, once again, it is good to see you, sir, and I have most certainly appreciated the time that you spent trying to not only educate us but also to work with us. I understand that clearly you have made it your mission to adhere to the guidance for the Fed in which you work to maintaining 2 percent inflation over a period of time as well as full unemployment, or full employment. And when we talk about it, it is always a combination of which one you are more focused on and how you maintain that while at the same time responding appropriately, and in a non-political way, to the actions of Congress and the Administration.

I am just curious. With regard to today's position, we are coming out of a pandemic. We have put a lot of fuel into the economy with direct payments and so forth, and people are trying to get back to work right now. And yet, we have got inflation which right now, in this current state, seems to be above a 2 percent rate.

Can you talk a little bit about the measurement time period that you believe is appropriate for shooting for a 2 percent goal and if there is a concern that you would express, or that you follow up with, when we talk about over-inflating or perhaps putting fuel in, what concerns you would have and how you would respond to congressional activity?

Mr. POWELL. So the inflation that we have today, what we said is that if inflation runs below 2 percent for an extended period we want inflation to run moderately above 2 percent for some time. This is not moderately above 2 percent by any stretch; this is well above 2 percent, and we understand that. And it is also not tied to, you know, the things that inflation is usually tied to, which is a tight labor market, a tight economy, that kind of thing. This is a shock going through the system associated with reopening of the economy, and it has driven inflation well above 2 percent. And, you know, of course, we are not comfortable with that.

In terms of the test that we articulated, we said we wanted inflation to average 2 percent over time. We did not tie ourselves to a formula. What we really want is inflation expectations to be anchored at 2 percent because if they are not there is not much reason to think that inflation will average 2 percent. So that is really how we are thinking about it.

The challenge we are confronting is how to react to this inflation, which is larger than we had expected or that anybody had expected. And to the extent it is temporary, then it would not be appropriate to react to it. But to the extent it gets longer and longer, we will have to continue to reevaluate the risks that would affect

inflation expectations and will be of a longer duration, and that is what we are monitoring.

Senator ROUNDS. You have been very careful, and I have appreciated the fact that you have done your best to be apolitical in this regard. And yet, at the same time, we are going to have a debate about whether or not we need to add additional fuel to the economy in terms of additional payments to individuals. And as we make that discussion, recognizing that you are going to do your best to be apolitical and simply to respond based upon your goals of the long-term goal of 2 percent inflation and full employment, how do you see this right now? With inflation right now being the focal point and yet the possibilities of more dollars being put into this economy in this recovery stage, what concern would you express, if any?

And I know that your job is not to give us advice, but rather to respond to. What are the tools available for you to try to maintain that long-term goal of 2 percent during a time in which Congress may very well be adding additional fuel to the fire, so to speak, for inflation?

Mr. POWELL. So the way it works is we watch what Congress is talking about, and then it reaches a point at which our staff will say that looks like it has got a good chance of happening, and then we will put something into—the staff will put something into the forecast, and all of us will make our own judgment about whether that was the right thing to do, whether it is too big or too small. And we never then take that into the public sphere and say, you know, please do not do that for this reason or that reason. It is really not up to us to play a role, as you know.

Senator ROUNDS. But the tool, the tool that you would use would be within monetary policy of the price of money.

Mr. POWELL. Always, the tools we have are, you know, in monetary policy, is to raise interest rates, to tighten financial conditions more broadly, to slow demand down. And that is how you get control of inflation, and that is—and that is what you do.

At a time like this, though, policy is so accommodative. You know, it will still be accommodative after we slow asset purchases, ultimately stop them, and then raise interest rates. It will be accommodative for quite a while. But that is what we do, and that is what we will do when and as we need to.

In the meantime, we are trying to understand. This particular inflation is just unique in history. We do not have, you know, another example of the last time we reopened a \$20 trillion economy with lots of fiscal and monetary support. So we are just trying to—we are humble about what we understand, but we are—you know, we are trying to both understand the base case and also the risks.

Senator ROUNDS. Mr. Chairman, thank you very much for your response.

And, Mr. Chairman, thank you.

Chairman BROWN. Thank you, Senator Rounds.

Senator Warner from Virginia is recognized.

Senator WARNER. Thank you, Mr. Chairman.

And, Chairman Powell, it is great to see you. Thank you for your good work.

You know, one of the issues that we have, you and I, spent a lot of time talking about over the last year-plus has been access to capital issues. And as we know, COVID disproportionately hit communities of color. We lost 440,000 Black-owned businesses last year.

And as we have discussed in the past, you know, I have been a big advocate with many on this Committee, on both sides of the aisle, to promote investment into minority depository institutions, into community development financial institutions. And actually, working with former Secretary Mnuchin, we got \$12 billion into the relief package back in December. Some of that will go into, as you know, tier one capital into the CDFIs, which could actually increase their lending capacity by about 50 percent. But getting that access to capital to low and moderate-income communities is really, really important.

Is there more that the Fed can do—let me give you a two-part question—the Fed can do to support CDFIs? And is there anything similar to programs like the Fed’s Paycheck Protection Program, the PPP program liquidity facility, which could also potentially be used? I know again we have discussed some of these things, but like to see if—what your current thinking has been on this issue.

Mr. POWELL. So we do see, and we saw particularly during the pandemic, the good that CDFIs and also minority depository institutions can do and were doing. And we try to provide whatever resources we can, and a lot of it is just engagement and things like that and also including the CDFIs in the PPP liquidity facility and doing everything we could to incorporate them in a way that was useful to them. So all of those things are good.

I think if we could think of more things to do within our mandate, given our authorities, we would do them because we do see the good that they do in reaching communities that are not necessarily reached by other banks.

Senator WARNER. And I do hope, you know, beyond CRA that we can, you know, look at—I have got a lot of community banks as well that want to try to get into this market. And I have got some ideas I would like to come back to you and the Fed on because I think sometimes there is a feeling that there is not enough regulatory discretion if they want to kind of lean into lending to low and moderate-income communities.

I want to raise one other issue I think we have all seen. We all know housing prices are up dramatically. Matter of fact, the Federal Housing Finance Agency’s House Price Index showed that house prices were up 13.9 percent over the 12 months ending in March 2021. And there is a lot discussion around inflation here. Obviously, if the housing market is overheated, that poses a huge issue. You know, how overheated do you think the housing market is at this point, and what kind of tools do you have that could help deal with that problem?

Mr. POWELL. Price increases are very strong in housing, and it is right across the country. And we see that; we hear that, everywhere. And there—as I mentioned, there are a number of factors at work there, both demand and supply. There is a lot of demand because household balance sheets are just in very strong—in the aggregate, in very strong shape.

Monetary policy is clearly supportive of people who want to get mortgages now although most of the people getting the mortgages have very high credit ratings. It is very different than it was before the global financial crisis.

There are also, you know, both supply constraints on, and this predates the pandemic. And this problem is still going to be there when every other problem is solved, which is difficulty in getting zoning, in getting trained workers. The raw material shortages and high prices and bottlenecks will probably abate over time, but it was—it is not—I have heard from many of you that this was a problem before the pandemic, and I think that is probably going to remain the case.

Senator WARNER. Well, I agree. I think the supply issue is something we have to address, and you know, Chairman Brown has been working on this. I have been working on some ideas. I also think one of the things we have got to grapple with if we go back again to the kind of wealth gap issues, particularly racial wealth gap, 10 to 1 Black versus White families. A lot of that goes to home ownership. But I think it is also a challenge not only for Black families but for first generation home buyers anywhere.

You know, I have been working on an idea that somebody else brought to me that would say can we effectively using Ginnie Mae, with a slight interest rate subsidy, almost provide for the same payments you would have on a 30-year mortgage, a 20-year mortgage product. We have called it the Lift Up Program. And I think my time has expired, but I would love to share more of that with you and as I will share with my colleagues.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Warner.

Senator Kennedy from Louisiana is recognized for 5 minutes.

Senator KENNEDY. Mr. Chairman, I want to begin by thanking you once again and your colleagues, some of whom are sitting behind you. We all remember well spring of 2020, when the world economy almost melted down. It did not in substantial part because of the actions that you and your colleagues took. You kept this thing in the middle of the road. Now some days you had to do it with spit and happy thoughts, but you kept it in the middle of the road.

I remember particularly your currency swap lines. I did not read a lot about it. But I can understand when the world is melting down if other countries seek out treasuries, but when they do not like treasuries they want hard, cold, American dollars. That is scary. So I want to thank you.

This is my question. We have spent—not just during the Biden administration, but during President Trump's administration, we have spent an enormous amount of money. I mean, it is breathtaking. And now some agree, whether some disagree with it, but some say you should not have done it. Some say we had to do it. It is probably a little bit of both. A lot of it was not paid for.

And I look around, and President Biden is asking us in the next, I do not know, 6 months to spend what? Another \$5.5 trillion? And there is a lot of talk about pay-fors, but it will not all be paid for. We know that.

At what point do these deficits matter? Are we living in a different world? I mean, it—I know you will probably say, well, deficits always matter. But at what point does the marginal benefit of the extra deficit spending become less than the marginal cost?

Mr. POWELL. I do not think there is a precise point that I can identify. I will say that we are not on a sustainable path. We actually have not been for a long time. That just meaning that the debt is growing substantially faster than the economy. In the long run, that is not sustainable.

The laws of gravity have not been repealed. We will need to get back on a sustainable path at some point. I think the time to do that is when the economy is strong, unemployment is low, taxes are rolling in. That is the time to do it and to do it, you know, with a longer-term plan that matches up our spending needs and our revenues. That is what we are going to need to do.

Senator KENNEDY. When do you think that will be?

Mr. POWELL. We will eventually have to do that.

Senator KENNEDY. When do you think that will be?

Mr. POWELL. I wish I knew. I would say, you know, the dollar is the world's reserve currency. People are buying our paper around the world. I do not think there is, you know, any issue of being able to fund our deficits in the near term, in the medium term. There is no evidence that there is, but you know, we should not wait until the urgent need arises.

Senator KENNEDY. Yes. It is too late then. Well, I mean, everybody seems to be a Keynesian now, and that is fair. Dr. Keynes was brilliant. But some people forget about that chapter in one of his books where he said, OK, you deficit spend, and you borrow to stimulate your economy, but when it is better, you pay it back. He said that very clearly—you pay it back.

The other thing that—none of us wants inflation, but it is not just inflation as you know much better than I do. It is inflation expectations. I worry that if we spend this extra \$6 trillion or \$5.5 trillion that President Biden wants us to spend that the private sector is going to say, you know, we are going to have more inflation. I do not care what they say at the Fed. We are going to have more inflation, and we are going to start raising prices. I mean, you do not have to be Einstein's cousin to figure that out. Do you not think that is something we have to consider?

Mr. POWELL. Well, I would agree with you that inflation expectations are really central to—what we think are central to what creates actual inflation. We see them now being—they have moved up. They moved down at the beginning of the pandemic. They have moved back up roughly to where they had been in recent years. So they are not at a troubling level.

Senator KENNEDY. OK.

Mr. POWELL. But it is something we will be carefully watching.

Senator KENNEDY. All right, last point. I am not expecting a response. Resist the pressure. You are going to be asked by a lot of people to get involved in social policy, in cultural matters, and in what some will call economic policy that really has nothing to do with the Fed's mission. And it is not just happening here; it is happening all over the world. Do not let us become Turkey, where the whole central banking system is politicized. Please resist.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Kennedy.

Senator Smith from Minnesota is recognized for 5 minutes.

Senator SMITH. Thank you, Chair Brown and Ranking Member Toomey.

And thanks so much, Chair Powell, for being with us. I appreciated the chance to have a longer conversation with you earlier this week.

I want to try to touch on two issues that are important to me. The first is just following up briefly on Senator Brown's questions around the Community Reinvestment Act, and then I want to go to the systemic risks that climate change poses.

So earlier this week, you and I had a chance to talk about this, and you know, I see the Community Reinvestment Act as the main rules that govern how banks provide services in low and moderate-income communities and communities of color, which have experienced systemic and severe lack of access to capital and lending and financial services due to discrimination. I am glad to hear you think that you will be seeing some updates in the coming months, and I wonder if you could just tell us a little bit more about what the Fed has learned from all the comments that you have received from the CRA proposal that you released last year.

Mr. POWELL. So quite voluminous comments, as you can imagine, from all corners. And you know, I think we are learning a lot, and we are going to incorporate improvements. But broadly speaking, this proposal, this approach, has the support of the intended beneficiary community and also, to a significant extent, the support of the banks, who want—you know, they are—they want CRA to be effective. They want it to be well measured. You know, they are committed to having it being an effective program, so I believe.

And so generally, you know, we are in the middle of setting up to try to write something that reflects those—you know, the appropriate comments, and then we will publish that again. But it will take some time, and we hope—we do hope to get all the banking agencies on board for that. As I mentioned, I am optimistic that this is going to a pretty good place.

Senator SMITH. That is great. I am glad to hear that. I think that a well-functioning and modernized CRA is just absolutely crucial to making sure that all sectors of our economy, for all people, are growing and working. And as Senator Brown says, that you know, we fulfill that promise. That we all do better when we all do better, I think, is at the heart of the CRA. So thank you.

Let me just move to this question of the risks posed by climate change. Yesterday, in your testimony before the House, you indicated that the Fed is in the beginning stages of working on a program that will engage with financial institutions on climate risk. And the last time you came before the Committee, you said that you believed it was important longer-term for firms to publicly disclose their climate-related risks.

And since then, the SEC has received hundreds of comments. Vice Chair Quarles has highlighted the importance of climate risk disclosure, and I believe SEC Chair Gensler has signaled his intention to begin rulemaking around climate disclosure.

So can you comment on how you see the role of the Fed on climate risk disclosure for financial institutions?

Mr. POWELL. I guess I would start by saying that really the foundations of all of this are that we need to get good data on the implications of climate change and how to think about that in terms of the risks that the financial institutions and other parts of the economy are running. And so that is a very basic exercise, and you know, we do not have that yet. Once you have the data, then disclosure is going to be important because markets are going to work. Markets are going to be very, very important, and the world investor community will be very interested in this. So, those two things.

And those are—you know, the Fed can help with research and data collection, things like that. The disclosure issues are really squarely in the province of the SEC, and I know they are working very hard on those. But around the world there is a lot of progress and focus on these things. I just think they are quite central to anything that we are ultimately able to accomplish here.

Senator SMITH. So I think it is fair to say that the European central banks have led the way here. What can we learn from the approach that they have taken?

Mr. POWELL. I think one thing I would point to is the climate stress scenarios that have been developed by the Network for Greening the Financial System, and a number of the major European central banks are running climate stress scenarios, very distinct from stress tests. And what they are really trying to do is, with financial institutions, look at what the effect over a long period of time on their business and on their business model could be from, you know, reasonably plausible, you know, outcomes for the evolving climate. And it is proving to be, I think, a very profitable exercise both for the financial institutions and for regulators. So that is one thing.

We have—we have not decided to do that yet. We are in the process of looking very carefully at that. My guess is that is a direction we will go in that we are not ready to do yet.

Senator SMITH. Thank you.

Mr. Chair, I realize I am out of time. I want to just note that I think that some would say that climate risk is a political issue. I see it as a systemic financial risk just like other systemic financial risks that big banks and small—medium-sized banks have to address. So I think that it is extremely important.

I urge the Fed to continue to look at these impacts and to move with alacrity because I think, as you say, Chair Powell, I believe that the markets are looking for clarity about how to measure and how to assess these risks for the good of investors and for everybody. Thank you.

Chairman BROWN. Thank you, Senator Smith.

Senator Hagerty of Tennessee is recognized for 5 minutes.

Senator HAGERTY. Thank you, Chairman Brown and Ranking Member Toomey. I appreciate your holding this important hearing that has to do with our critical job of overseeing the Federal Reserve.

And, Chair Powell, I want to thank you for being here with us again. Today, I would like to talk with you about inflation. Inflation is the insidious tax that the Biden administration is imposing

on everyday working people here in America right now, and it is a great concern.

Back in February, I discussed with you about how the U.S. economy at that point was forecast to see 6 percent growth this year, and at that point, I expressed serious concerns about the Democrats' nearly \$2 trillion of additional partisan spending on an economy that was already recovering very rapidly thanks to the effects of Operation Warp Speed and also thanks to the policies that had been in place during the previous 4 years that had put our Nation on a solid footing in terms of tax cuts, fair and reciprocal trade, and deregulation.

The Federal Reserve's challenging and dual mandate is to realize price stability and maximum employment, but runaway Democrat spending and policies that they are imposing are making your job harder than it already is. The bill the Democrats ran through in March spent roughly 10 percent of our GDP, and now they are looking to spend maybe another 20 percent of U.S. GDP on a purely partisan basis. They are throwing around trillions of dollars like it was simply Monopoly money when really what it is doing is taxing Americans' hard-earned paychecks. It is very irresponsible. It is creating inflation outcomes that many of us have not seen in our adult lifetimes, certainly not since Jimmy Carter was President.

Echoing what Ranking Member Toomey has said of the concerns that he has raised about inflation, I worry, too, that things may spiral out of control if we do not show some restraint. At the same time, President Biden and the Democrats are imposing policies that work against maximum employment. They are giving away employment incentives. They are raising taxes on job creators, throwing away our energy independence, and freezing American investment.

The Fed has more direct control over inflation and price stability than it does over employment. Businesses create jobs, and price stability allows American businesses and families to make business decisions and to plan their everyday finances.

But now Americans have a sense of scarcity and, I believe, a sense of panic over inflation. The policies that are being imposed are causing families in my home State of Tennessee and all across America to make financial decisions with soaring inflation in mind. Price stability is not a 12 percent annualized inflation jump like the one we just saw from May to June. People in Tennessee are seeing their buying power eroded like never before, and they do not see this as transitory. And I am sure people in Chairman Brown's home State of Ohio and Ranking Member Toomey's home State of Pennsylvania are feeling exactly the same way.

As you know, inflation expectations can be self-fulfilling. Inflation and price instability at this level is bad for America.

Chairman Powell, this environment suggests to me that the emergency posture that I understand the Fed adopted back during the depths of the pandemic seriously needs to be reconsidered right now, and I am very worried that the Fed's continued level of asset purchases and balance sheet expansion is facilitating this runaway spending that the Democrats are imposing upon us and adding to the inflationary pressures that these trillions of additional dollars are going to continue to add to our economy and continue to add to the debt that our children are going to continue to bear. And it

is amazing to me that not one Democrat in Congress is willing to speak out about this.

So, Chairman Powell, why is the Fed maintaining its emergency monetary policy posture right now, and why do I understand that it may continue well into 2023?

Mr. POWELL. So where we are is we are watching the evolution of the economy. We are noting that there is still an elevated level of unemployment. We note that inflation is well above target, and we have discussed that. And we have said that we would begin to reduce our asset purchases when we feel that the economy has achieved substantial further progress measured from last December. So we are in active consideration of that now.

We had a full meeting last June, last month, to discuss that. Then we have got another meeting coming up in 2 weeks. So we will be making that assessment, and as we assess the progress of the economy toward that goal, we will begin to reduce our asset purchases. We have set a separate test for raising interest rates, which is a higher test. And so that is how we are thinking about this today.

Senator HAGERTY. The policy positions that have been undertaken by this Administration go far beyond the transitory nature that you described. And again, if I think about the expectations of the people in my home State, they are very, very concerned about inflation. So I would like to pass that along.

I would also like to ask you just a very simple question. Does continued Government stimulus spending at this point make your job in terms of sustaining price stability more difficult?

Mr. POWELL. So we are not in the business of giving Congress advice on fiscal policy, and I just have to leave that to you. We take whatever you do, and we put it into our considerations of policy, but we do not—we do not comment on it one way or another.

Senator HAGERTY. Thank you, Mr. Chairman.

Thank you, Chairman Brown.

Chairman BROWN. Thank you, Senator Hagerty.

Senator Warren from Massachusetts is recognized.

Senator WARREN. Thank you, Mr. Chairman.

So the Chairman of the Federal Reserve has two basic jobs: monetary policy, which everybody likes to talk about, and regulatory oversight, which is often way down in the weeds but keeps our economy safe from another banking meltdown.

You have been Chair for 4 years now and have gone through the process of what you describe as, quote, tailoring the regulations put in place after the 2008 financial crisis. Now there were a lot of changes, but I want to talk about a couple in particular. To prevent taxpayer bailouts, banks are required to have living wills. This means that banks must be able to show every single year how they could be shut down without wrecking the entire economy. In 2019, you changed the rules so that the 13 banks with \$250 billion to \$700 billion in assets could submit full living wills only once every 6 years instead of every year. So that test is now weaker.

Chair Powell, has the Fed done anything over the past 4 years to make living will requirements stronger?

Mr. POWELL. To make living will—we have done a lot of things to strengthen regulation and capital, but I think—

Senator WARREN. Yes, but on living wills. So just——

Mr. POWELL. Living wills. No.

Senator WARREN. OK.

Mr. POWELL. Maybe I can explain what we——

Senator WARREN. So let us move to another regulation, the Volcker Rule, the rule that works sort of like Glass-Steagall “light” to separate commercial banking from Wall Street risk taking. In 2019, you exempted more short-term trading holdings from the rules so banks could take on a little more risk. Now that weakened the rule. Then in 2020, you eased up the rules to let banks invest more of their assets in high-risk private equity and hedge funds. So the Volcker Rule got weaker again.

So let me ask, Mr. Chairman, during the past 4 years, has the Fed done anything to make the Volcker Rule stronger and limit risky trading for the largest banks?

Mr. POWELL. I think by clarifying it we made it more effective at what it is supposed to do, which is just what you said.

Senator WARREN. Well, I have to say it is whether or not you did anything to make it stronger, not just whether or not you made it clearer. It is whether or not you made it stronger or harder for banks to engage in speculative trading. So I am taking it that the answer here is “no.”

I have highlighted two examples of weakening regulations, but there are a whole lot more: reducing capital requirements, easing liquidity requirements, shrinking margin requirements, scaling back on supervision, weakening the stress tests. It is a long list. And I realize that you think these are good changes, but I am trying to look at this from a regulatory perspective. Is the Chairman of the Federal Reserve making banking rules stronger or weaker?

So tell me, Mr. Chairman, is there a big rule change that I missed? Can you name a change that strengthened the rules and made the actual rules tougher?

Mr. POWELL. Well, let me say we did not weaken capital requirements for the largest banks, and we—I actively resisted any move in that direction. And in fact, the stress capital buffer which we implemented quite recently, after years of consideration, raises capital standards——

Senator WARREN. So——

Mr. POWELL ——for the largest banks by the way. Stress tests. They are really bound by the stress tests. We maintained the very high stringency of the stress tests through this period.

Senator WARREN. But I was asking about anything tougher.

Look, what I am looking for is that the Fed’s record over the past 4 years, I see one move after another to weaken regulation over Wall Street banks, and that worries me. There is no doubt that the banks are stronger today than they were when they crashed the economy in 2008, but that is the wrong standard. The question is whether or not they are strong enough to withstand the next crisis and whether the Fed is tough enough to protect the American economy and the American taxpayer.

In 2020, the giant banks that are the beneficiary of these weakened rules made it through the crisis, but the researchers from the Minneapolis Fed found that the banks would have faced up to \$300 billion in losses if not for fiscal stimulus from the Government. In

other words, the current Fed rules were not strong enough for the banks to withstand the pandemic without, once again, calling on American taxpayers to back them up. And that is the heart of my concern. I understand that the next crisis may feel far away, but like the pandemic, it may come at us fast and from an unexpected direction.

It is the job of the Federal Reserve, and specifically the job of the Chair of the Federal Reserve, to use the regulatory tools that Congress has created in order to make sure that banks remain strong and that taxpayers will never be called on again for a bailout.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Warren.

Senator Tillis from North Carolina is recognized for 5 minutes.

Senator TILLIS. Thank you, Mr. Chair.

Chairman, thank you for being here. I wanted to go back and maybe give you an opportunity to respond to one question. You were going to explain the work on living wills. Would you like to—

Mr. POWELL. Yes.

Senator TILLIS —explain the work you have done there?

Mr. POWELL. I would just say we—you know, that was an incredibly labor-intensive and taxing issue that we went through, cycle after cycle after cycle, and really the marginal gains from doing it every year diminished quite a lot. So we concluded that for the largest banks we would not require a full resubmission except every other year. And—but they have to—anything that is material they must resubmit. I do not think in any way we have weakened our understanding of the resolvability or anything like that.

I would also say we did—we raised capital standards on the largest banks, full stop, in the stress capital buffer. They are higher now than they were. I would say that.

Senator TILLIS. And with respect to the Volcker Rule, you were talking about clarifications. I mean, is the Fed fully enforcing the Volcker Rule based on congressional intent?

Mr. POWELL. Absolutely. Look, I think it is important. More broadly, I would completely agree that our job is to maintain the strength of these large financial institutions so that we never have to worry about bailing them out again, and I am strongly committed to that.

You know, we need them to be very, very strong so that they can perform the roles that they are supposed to perform even in a severe crisis. And I think that they, by and large, did, admittedly with a lot fiscal support and a lot of—a lot of monetary support, too. We can always—you know, we can always do better, but we are committed; I am committed to that.

Senator TILLIS. Thank you. I have got to beat the inflation drum for just a minute here. The FOMC members insist inflation is transitory, but it has not inspired a lot of confidence in me. There was a statement, a couple of statements, by President Mary Daly. In February, she declared the pressures on inflation now are downward. In May, when inflation readings were at 3.9 percent, she said the higher inflation readings would be—would mean 2.4 to 2.6 percent. In June, she was predicting that inflation could go above 3 percent. And despite months of relatively low-ball projections, in

response to Tuesday's high inflation reading, she confidently declared we expect a pop in inflation like this. So I hope, from our perspective, you could see that we are skeptical about some of the inflation projections.

And I have heard—I have spoken with a number of people in the financial services industry, and when I ask them the question about “transitory,” I am getting more of a response now of “transitory-ish.” So can you give me a reason why you believe the Fed's position on it being transitory, that it will snap back, why that is still well founded?

Mr. POWELL. Sure. So let me start by saying that no one has any experience of what it is to reopen the economy after what we went through, and so all of us are going to have to be guided by data and have—you know, our views are going to have to be——

Senator TILLIS. Yes, Chairman, let me interrupt you for a second. I would also like for you to answer that question in the context of the flow of money that has been passed in the prior COVID relief packages. And we had an announcement this week from the Speaker of the House and Senator Schumer that they have an agreement on another 3.5 trillion. I am a part of a working group for infrastructure that could add about another 600 billion. So answer the question in the context of how that future, according to the leadership of Congress, outcome is going to occur. How does that all fit into the credibility of future inflation projections?

Mr. POWELL. So when we look at inflation, we look in the basket of things that—and we say which of the hundred-plus things in the CPI basket are causing the inflation, high inflation reading. And it comes down to really a handful of things, all of which are tied to the reopening. It is used, rented and new cars. It is airplane tickets. It is hotel rooms, and it is a handful of other things. And they account for essentially all of the overshoot.

So—and we think that those things are clearly temporary. We do not know when they will end, but they will go away. So we do not know when they will go away. We also do not know whether there are other things that will come forward and take their place.

You know, if we—what we do not see now is broad inflation pressures showing up in a lot of categories. The concern would be if we did start to see that. We do not see that now. We will be watching carefully.

And we will not have to wait, you know, a tremendously long time, I do not think, to know whether our basic understanding of this is right. We will know because we will see other more—if we see inflation spreading more broadly, that will give us information.

Senator TILLIS. OK. I just want to get one more in. I appreciate that, and I listened to your responses from some of the other Members. With the LIBOR transition, do you still view—I think you publicly stated Ameribor is a reasonable choice for regional and community institutions. Do you still stand by that?

Mr. POWELL. You know, we do not like to bless individual rates, but I would just say market participants have the freedom to choose—to choose the rates that they want to choose. We are not—we are not forcing them to use. This is for—this is for just use.

Senator TILLIS. But I am confirming——

Mr. POWELL. And it uses LIBOR.

Senator TILLIS —in some public comments, you have said it is an appropriate rate for banks and funds through the financial—American Financial Exchange. You still stand by that statement.

Mr. POWELL. I saw—I saw that. I do not remember saying that, but if people—it was in a letter, I think.

Senator TILLIS. OK.

Mr. POWELL. So I must have done it.

Senator TILLIS. Thank you, Mr. Chairman. Appreciate your work.

Mr. POWELL. Thank you.

Chairman BROWN. Thank you, Senator Tillis.

Senator Tester of Montana is recognized for 5 minutes.

Senator TESTER. Yes, thank you, Chairman Brown.

And I want to thank Chairman Powell for being here today. A lot of chairmen around here.

But look, I have appreciated you, and I have appreciated your work during your tenure and especially as we look back over an incredibly difficult period of time, where you were having to take a lot of issues that we had not seen in, you know, 80 years under consideration, getting attacked, trying to politicize the Fed. I just want to thank you. I appreciate it. I think your expertise and your knowledge has shown through. The cream has risen to the top, so to speak. So thank you.

Look, there is a lot of talk about infrastructure needs, and I think that you would probably agree that China is trying to take over our role in this world of being the economic superpower. And I am one that believes in infrastructure and investments in infrastructure is critically important if we are going to maintain our position as a worldwide economic power. “The” worldwide economic power.

My question for you is: As you look at infrastructure investments and how that affects our economy, where would you put your focus?

Mr. POWELL. I do not have any—I mean, I would just say that well-spent, well-invested infrastructure money does have the ability, and it is really up to you to make those decisions. But you know, it is the kind of thing that can actually raise the growth rate, the potential growth rate, of the country over time. But I guess I need to leave the details——

Senator TESTER. So I think that there are several proposals out there. There are proposals to invest in roads and bridges and broadband and grid, which some of us in this room are a part of, that I think is really, really important. I think there are other proposals that are also very important, but they are investing in a different infrastructure, like childcare and workforce housing and those kinds of things.

I do not mean to put you on the spot, but I do value your opinion. Where do you think those things fall? Are they equally as important, or do you think that—do you think the economy is fine without any investment in those kinds of things, like housing and childcare and, you know, that kind of stuff?

Mr. POWELL. I do not want to get into—I would not get into the debate over whether those are——

Senator TESTER. No.

Mr. POWELL —infrastructure or not, but there is a——

Senator TESTER. Right. No, no. Just from an economic standpoint.

Mr. POWELL. You know, from an economic standpoint, take childcare. You know, we used to have the highest female labor force participation rate among the advanced economies. Now we are close to the bottom of the pack. And one of the differences economic researchers point to—there is a lot of research on this—is just a different approach on childcare. And it is really up to you to look at that and see whether that makes any sense in the U.S. context. We do not have an opinion on that.

Senator TESTER. OK.

Mr. POWELL. But that is a basic economic trend where we used to lead and we do not anymore.

Senator TESTER. OK. So let me ask you this. I do not know. I know that many in the Fed have done some work on issues in Indian Country, and one of the issues in Indian Country is housing. They have a different situation because of their sovereignty and because of, you know, not having the kind of collateral that folks who own property have. The land under reservation I am talking about. Do you have any thoughts on that, on what we could be doing? Outside of the whole infrastructure conversation, just what can we do to impact Indian Country when it comes to housing? Because, man, it is woefully, woefully bad.

Mr. POWELL. That is a hard question, and as you know, we have—we have four or five reserve banks that are—that are involved, particularly Minnesota, Minneapolis, in Indian Country issues. You know, we are not—we are not allowed to spend—we do not spend taxpayer money on things directly like that, but I think we would agree that there is a significant housing issue in Indian Country. And I—you know. I mean, I am not sure I have the answer—

Senator TESTER. So if you—look, if you have any ideas that pop into your head about how we can—I do not know if “incentivize” is the right word, but how we can engage the private sector to do some—to do some housing so that they would be more inclined.

And look, I get their point of view. It is not traditional. You know, they do not have the kind of collateral that they would have with—you know, with, well, fee property. So it is an issue.

Look, I appreciate what you are doing. I am about out of time, but I just want to thank you for your work. I appreciate you being in front of the Committee today and good luck.

Mr. POWELL. Thank you, Senator.

Chairman BROWN. Thank you, Senator Tester.

Senator Shelby from Alabama is recognized for 5 minutes.

Senator SHELBY. Thank you. Chairman Powell, we have been talking about inflation. And it is not going to go away, I think, for a while. So we are going to continue to talk about it, and you will be concerned with it.

In June, U.S. inflation accelerated at its fastest pace in 13 years. Consumer prices increased by 5.4 percent from a year ago. Americans are now paying higher prices for many of the goods and services that they cannot do without. The buying power of the dollar has diminished over the past 40 years. Give me some—I will give you some examples. You know all this.

According to the Bureau of Labor's Consumer Price Index, one dollar today is seven times less valuable than it was in 1970, three-and-a-half times less valuable than in 1980, half as valuable as 1990, and one-and-a-half times less valuable than 2000, which seems like yesterday.

Recently, the price of commodities, as you know, has increased swiftly. The price of agricultural goods and commodities has increased corn by 50 percent from a year ago, wheat by 17 percent, soybeans by 54 percent. The price of metals has risen. For example, copper, which is used everywhere, has increased 43 percent. Aluminum has increased by 47 percent.

Energy prices, as you know again, have grown. The price of crude oil has increased by 70 percent. Gas prices are up 45 percent.

In the automotive industry, prices for used cars rose 45 percent in the past year, 10.5 percent in June alone. Airline tickets are up 25 percent. The cost of milk is up 7.5 percent.

All of this on the rise. At this point, the Biden administration continues to claim that the increases in inflation are temporary. I, along with others, believe that this could be the sign of things to come. We hope not. For instance, economists surveyed by the *Wall Street Journal* this month forecasted higher inflation for the next couple of years. Throughout the seventies, as you will recall, high inflation crippled consumers with rapid and sudden price increases. Many of those conditions exist today, such as loose monetary policy and significant Government spending.

If we fail to take inflation seriously, Mr. Chairman, I am concerned that our Nation could be faced with the same challenges of years ago. Yet, in the midst of the increase in consumer prices, which I have just related, the Biden administration is proposing trillions more in Government spending. The Fed's ability to maintain price stability is threatened, I believe, by actual inflation or the expectation of inflation.

Chair Powell, my question is this: Taking all this into consideration, which you have data that we probably do not have, do you believe that this Nation, our Nation, is facing a real problem with inflation, and if not, why not? How do you—how do you justify?

Mr. POWELL. I think we are experiencing a big uptick in inflation, bigger than many expected, bigger than certainly I expected, and we are trying to understand whether it is something that will pass through fairly quickly or whether, in fact, we need to act. One way or the other, we are not going to be going into a period of high inflation for a long period of time because, of course, we have tools to address that. But we do not want to use them in a way that is unnecessary or that interrupts the rebound of the economy. We want to put—we want people to get back to work, and there are a lot of people who are not back to work yet.

So—but we are—let me say, very well aware of the risks for inflation, watching very carefully, and you know, if we come to the view that—or if we see inflation expectations or the path of inflation moving up in a way that is troubling, then we will react appropriately.

Senator SHELBY. Are you concerned about all of the things that I just related, all the price increases unprecedented in recent years, or are you just putting that aside?

Mr. POWELL. No. I mean, we are—of course, we are—we are—you know, night and day, we are all thinking about that—

Senator SHELBY. Sure.

Mr. POWELL —and really asking ourselves whether we have the right frame of reference, the right framework for understanding this.

Senator SHELBY. Last, do you agree with the economists that I referenced, that the *Wall Street Journal* polled, who forecast higher inflation rates for the next couple of years, notwithstanding?

Mr. POWELL. So that was—that was the headline writer really got a little carried away there because the actual forecast showed that the median for 2022 was 2.3 percent PCE inflation and for 2023, 2.2 percent PCE inflation, which is not at all different from the forecasts of really of the people on the Federal Open Market Committee. So those are higher than for the last 30 years, but they are not that high. So that forecast was not—was not really as problematic as the headline suggested.

Senator SHELBY. Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Shelby.

Senator Cortez Masto is recognized for 5 minutes.

Senator CORTEZ MASTO. Thank you, Mr. Chairman.

Chairman Powell, welcome back. Let me follow up on this. Are you confident that you have the tools that you need to address any type of inflation, whether it is transitory or for the future, that we are looking at right now?

Mr. POWELL. Yes, I am.

Senator CORTEZ MASTO. Thank you. And can I ask, in considering inflation, how should we compare costs to last summer, when prices were well below their current levels because of the pandemic?

Mr. POWELL. I think it is actually—in the spirit of your question, it is better to compare prices to prices where they were in February. And if you look at inflation since then, that captures both the decrease and the increase, and you get much lower numbers if you do that. There are a lot of people doing that right now. So you get—you get inflation in the mid-2s, which is still above our target, but that sort of 16-month inflation on an annualized basis is a 2.5 percent kind of thing, not 5 percent.

Senator CORTEZ MASTO. Thank you. And then for purposes of the COVID relief packages, all of them, including the most recent one, the American Rescue Plan, is that the sole cause for what you see with respect to the minimum increase in inflation?

Mr. POWELL. I think a lot of things go into it. You know, the main thing is that we have demand rebounding very, very strongly. That is partly monetary policy. It is partly fiscal policy. And what we see on the supply side is the supply side just cannot keep up with this demand and all these bottlenecks. And by the way, it is happening everywhere in the world. So it is a combination of factors.

Senator CORTEZ MASTO. And so unlike the last recession that we lived through in 2014, 2010 to 2014, would you—I am curious. Would you—and this is my interpretation of it is that when our economy opened up from that it was a gradual, gradual opening-up of our economy again, and this is more of a kind of a light

switching on with the economy opening up quickly. And that is why we see some of the concerns with supply and demand on so many different areas, and that is why we see highly concentrated sectors where there is a demand like you have touched on tonight, or today. Is that accurate?

Mr. POWELL. It is accurate, and I would add that this—the response, both from fiscal and monetary policy, in this episode is just orders of magnitude different from what has happened in the past. So we are back to pre-COVID levels of economic output, and we are on a path to be above the prior trend actually within a year, if forecasts prove out.

Senator CORTEZ MASTO. Thank you. You know, in Nevada, our employment rate has fallen sharply since the pandemic last spring. Unfortunately, we are still fourth in the Nation for unemployment. But as I watch our economy open up again, and particularly—you and I have talked about this—is the tourism and travel industry is starting to rebound again, which is fantastic. Last month, more than 130,000 people applied for 6,000 positions at a new resort in Las Vegas.

Part 5 of the Federal Reserve *Monetary Policy Report* notes that “Payroll employment increased by 3.2 million jobs in the first half of 2021, driven by a 1.6 million job gain in the leisure and hospitality sector, where the largest employment losses occurred last year.” The May 2021 Federal Reserve research paper, however, found that the extra jobless benefits that were provided during the pandemic, quote, and I quote this, “likely had little or very small labor supply induced impact on the unemployment rate.” Can you elaborate on that?

Mr. POWELL. So I think that was Reserve Bank research and I think it was referring to 2020. It is too soon to really say what the facts are going to be here. In fact, we are going to—we will be able to learn something because many States, as you know, have stopped the additional benefits, and we will be able to look and see whether that had any effect on people going to back to work. It is way too early to say. There is not enough data.

Senator CORTEZ MASTO. And thank you for saying that because that was my next question. You will be studying that data to see the difference between those States that cut it off early versus those that kept it going, whether that truly was an impact or not on—

Mr. POWELL. Yes, we are—everyone is looking to see whether there will be a meaningful difference between the two, and again, too early to say on that.

Senator CORTEZ MASTO. I appreciate that. Thank you. And then finally, we touched on housing. We are seeing these home prices are up more than 15 percent since last year. How much of the rise in home prices do you think are due to the Federal Reserve’s purchase of mortgage-backed securities versus the supply issues?

Mr. POWELL. I think that our purchases of Treasuries and MBS are what is holding down and also holding interest rates low. The overall picture of accommodative monetary policy is contributing to what is happening in the housing market. I think mortgage-backed securities are contributing probably a little more than Treasury se-

curities, but ultimately, they—it is roughly the same order of magnitude. So, sorry, was that your question?

Senator CORTEZ MASTO. Yes. Thank you. No, I appreciate that. That answers my question. Thank you very much.

Mr. POWELL. Thank you.

Chairman BROWN. Thank you, Senator Cortez Masto.

Senator Daines of Montana is recognized for 5 minutes.

Senator DAINES. Thank you, Mr. Chairman.

And, Chairman Powell, good to have you here today and thanks for keeping a steady hand here during these rather tumultuous times.

I want to start by joining my colleagues in expressing my concern with the inflation we are seeing in the economy. This week, we received two inflation readings. They were the highest increases we have seen in over a decade and reflect what Montana families are already feeling, and that is prices for everyday necessities, they are going up. At the same time, Majority Leader Schumer, Senator Sanders, Senate Democrats proposing another massive, partisan, \$3.5 trillion tax-and-spend package. I truly believe this is reckless. It threatens short, medium, and long-term prosperity of our country. And I sincerely hope my colleagues on the other side will reverse course. With that, I would like to turn to my questions.

Chairman Powell, the unemployment rate has consistently fallen since the height of the pandemic, now at 5.9 percent, down from a pandemic high of 14.8 percent back in April 20. I am truly grateful, I know you are, to see this rate fall, more Americans getting back to work.

However, we are digging into this and have concerns about the labor force participation rate, which now sits at 61.6 percent. It has remained in a narrow band between about 61.4 and 61.7 percent since June 20. The current labor force participation rate is 1.7 percentage points lower than it was prepandemic, in February 20. A significant percentage of those folks who have dropped out of the labor force are over the age of 55, and recent data shows that they are not reentering the workforce. A lot of those folks, as they are already nearing retirement age, may never reenter the workforce.

And my question, Chairman Powell, is: Do you expect the labor force participation rate for those 55 and older to recover to prepandemic levels, and if so, why?

Mr. POWELL. So you very accurately described the situation. People—toward the end of the last expansion, older people were staying in the labor force longer, and as a result, for years and years we were seeing higher readings on participation than we expected, which was a good, we thought. You know, we want the U.S.—the U.S. has a low participation rate compared to our peers, surprisingly, but it does.

So the question is: What is this going to—and then a lot of those people retired. Three million people left the labor force, and it tended to be older people actually retiring.

And the question is: What is going to be the equilibrium once the economy is going full bore again? Labor force participation tends to lag—recovery tends to lag, you know, unemployment recovery. So when labor markets get tight, we tend to see this.

So I would just say, first of all, a lot of humility is appropriate here. We do not know what the trend labor force participation rate is, but you know, we went through 8 years of watching labor force participation be higher than we expected. And I fully—I fully took that on board, and I think the U.S. can do much better in terms of labor force participation. So I am not going to close my mind to the idea that we might get back, though.

Senator DAINES. Yes. Well, thanks for the thoughtful answer. I guess if the—if that rate, participation rate, for those 55 and older permanently remains below the prepandemic levels, how might you see that impacting the time it might take the economy to get back to full employment, and what impact might that have as it relates to inflation?

Mr. POWELL. Well, if there is less labor supply, then you will hit full employment earlier. As you know, obviously, we consider a broad range of indicators, not just unemployment, also participation, wages, and those things. But presumably, if there is less labor supply and lower participation structurally, then you would see that in the form of higher wages and higher inflation. We would be able to see that.

Senator DAINES. Chairman Powell, thank you. I want to get to my last question here, and that is regarding the balance sheet of the Federal Reserve. It recently eclipsed \$8 trillion, which is more than double where it was before the pandemic. When, if ever, do you think the Fed's balance sheet will fall below \$8 trillion, and could you describe what the risks are if the balance sheet remains at this elevated level for an extended period of time?

Mr. POWELL. So we have the last cycle as an example. What we did was we slowed the pace of asset purchases and then we froze the size of the balance sheet for a period of years. And as the economy grows relative to the balance sheet, you know, the size of the balance sheet relative to the economy becomes smaller. So we did quite a bit of that. And then for a couple of years, we actually let the balance sheet run off and shrink. As securities matured, we stopped reinvesting them, and we let the balance sheet shrink at the margin.

We have not made those kinds of decisions yet, but it is a reasonable starting place to think that we might hold the balance sheet constant for some time and then perhaps allow it to shrink under \$8 trillion. In the meantime, it becomes smaller as a portion of the economy, and that is the same thing as shrinking in a way.

Senator DAINES. Good. Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Daines.

Senator Van Hollen of Maryland is recognized for 5 minutes.

Senator VAN HOLLEN. Thank you, Mr. Chairman, Ranking Member Toomey.

And, Mr. Chairman, welcome. I have heard the term “unprecedented” used to describe the jump in inflation. I think what is truly unprecedented is the number of jobs we have seen generated since President Biden took office, three million jobs, the highest rate of job growth of any President in United States history, as we work seriously to defeat the pandemic and as we pass the American Rescue Plan, to give confidence to people in the future of the U.S. economy.

I do want to dig a little deeper into the inflation issue because you have made the point clearly here today that you believe it is a temporary increase and if you look at long-term projections they are closer to your targets. And that is also the expectation of, you know, folks in the financial markets as well. Is that not the case?

Mr. POWELL. Yes, broadly speaking.

Senator VAN HOLLEN. And it is interesting how a short period of time changes things. I am looking at remarks you made in May 2019, when people were afraid that the inflation rate was too low and below your targets. And at that time you made the point you thought it was transitory, and you were right. And you used the different measure of trimmed-mean CPI to describe your thinking. Can you just talk a little bit about what that measure is?

Mr. POWELL. Sure. So there—one thing that people do at times like this is they chop off the tails and just look at the middle of the distribution because sometimes the overall inflation measure can be distorted by just a couple of categories. So if you did that here—this is the Dallas trimmed-mean, and the Cleveland does a version of this—you know, it is going to show inflation that is in the low 2s because you are getting rid of that small group of categories. You know, the risk is that you shop for whatever inflation measure that is appropriate at the moment, so we try not to do that. But, just clearly, trimmed-mean is sending a signal that this is more idiosyncratic than broad across the economy.

Senator VAN HOLLEN. Right. And is it not the case that the increased prices of used cars rose by 10 percent in June alone and accounted for more than one third of the entire increase in the CPI in June?

Mr. POWELL. Yes, it is.

Senator VAN HOLLEN. Right. So I mean, those are the kind of anomalies you are referring to, right?

Mr. POWELL. It is used cars, new cars, rental cars. It is airplane tickets. It is hotels. It is all things that have a story that is clearly related to the pandemic. At least, that is what it is now.

Senator VAN HOLLEN. Right. So look, I think rather than rush to create alarm about inflation I think we should all be together in focusing on important increases in job growth and wages that we are seeing. I know you said yesterday that we—you expect that we should be able to get back to 3.5 percent unemployment as we move forward. I know Secretary Yellen has talked about maybe this time next year.

I am worried—and we have discussed this in the past—about persistent, long-term unemployment. And if you look at the June numbers, the long-term unemployed—and these are individuals who have been jobless for more than 27 weeks or more—increased by 230,000 to 4 million total. That followed a decline in long-term unemployment in May. So my question is: Is there any way we can get back to 3.5 percent unemployment if we do not get this number down when it comes to the long-term unemployed?

Mr. POWELL. We saw that what a really strong labor market does is it pulls those people in and also pulls people in who are on the sidelines or keeps people from leaving. So there is just so much to like about a really strong labor market.

Senator VAN HOLLEN. And I agree with you, Mr. Chairman. If you look even before the pandemic, though, in February before the pandemic, 3.5 percent unemployment, we had over a million Americans who were long-term unemployed. So, yes, we hope that the growing economy will be a magnet. I am sure it will. It is going to bring a lot of people into the job force. I think all of us are concerned about labor force participation. I think a stronger economy will address that.

But there is this, you know, group of long-term unemployed. And my concern is, as you well know, the data shows the longer you are unemployed the harder it becomes to get back into the workforce, and you know, then you get in at a lower wage which stays with you throughout your career.

Do you believe it is worth the Congress considering—I know this is not your domain to be specific about what—deliberate policies, like wage subsidies, which we used successfully back in 2008, those kinds of deliberate policies to make sure that the persistently unemployed, long-term unemployed, can get back in the labor force.

Mr. POWELL. I would—again without trying to endorse anything in particular, we lag all of our peers in labor force participation now, which is not where we want to be as a country. And I do think that is a classic supply side policy is to try to find ways to connect people to—give them some help in connecting to the labor force, and then you need a strong job market to pull them in and keep them there.

Senator VAN HOLLEN. Right.

Mr. POWELL. But I do think those things are worth looking at.

Senator VAN HOLLEN. No, I appreciate that. Thank you, Mr. Chairman. Hope we will do that.

Chairman BROWN. Thank you, Senator Van Hollen.

Senator Cramer of North Dakota is recognized for 5 minutes.

Senator CRAMER. Thank you, Chairman Brown and Ranking Member Toomey.

Thank you, Chairman Powell, for being here. First of all, let me add my voice to the chorus of people to thank you for your cool head through this process, particularly for resisting the pressures to lower rates when it was not necessary so we had some room when it became very necessary. Appreciate that very much.

Now I want to—I was interested in a lot of the discussion going on. I was particularly interested in listening to your exchange with Senator Hagerty, where you used the line that I have heard you use many times, when he asked a question about what Congress ought to be doing, and you said—and I think this is a direct quote—“We are not in the business of giving” fiscal advice to Congress either way. And again, it is similar to what you have said many times.

Yesterday, thinking about this, I did a quick search engine review of the words “Fed Chair urges Congress,” and this will not surprise you. And by the way, there is not a person in this room that does not have some sympathy over headlines that are not quite accurate or even quotes. But one report in May of last year said: The Fed Chairman asked Congress to consider more stimulus. October of last year: Jerome Powell is putting out the call to Congress. More money now. November of last year: Powell still thinks

U.S. needs more stimulus for full recovery. Even in December of last year: Fed Chair, Treasury, urged Congress to give U.S. a stimulus bridge.

In other words, you have not always resisted the temptation to give us fiscal advice. And by the way, thank you for it. I think it was good advice.

Maybe we look back and say, well, maybe we did too much, but we were in a crisis. You did what you needed to do. We did what we needed to do. And I do not think there is a lot of regret about that.

Now a number of my colleagues have pointed to what has gone on lately and what has been suggested going forward. In addition to the \$3.5 trillion package, it includes a lot of tax increases, like 7 times more increase than the cuts from 2017, that built the foundation for this quick recovery, I might add. You add in the 1.9 trillion, totally unpaid for, earlier this year, the 0.6 trillion in new spending as part of the \$1.2 trillion bipartisan package that is being discussed. You know you get to 6 trillion-plus really, really fast.

What people are not talking about is if we end up at the end of this fiscal year passing a 1-year CR or something similar to a 1-year continuing resolution, we are going to spend another \$6.845 trillion, 3 trillion of which will be deficit spending. Deficit spending.

Now my question to you is very direct, and that is just simply: Does the economy need another 6 trillion-plus, another \$6.8 trillion spent this year to enhance the recovery, and is there not a detrimental effect to all of that, including the tax increases, when we are in fact in—call it whatever you want. Type of an inflationary time. But it is uncertain, and there is concern, if not alarm.

Mr. POWELL. If I can answer that by saying, you know, we did a lot of things. I did a lot of things last year that we had never done before, and that one in particular had a lot of encouragement from the Administration and the leadership on both sides of the Hill and both parties. But I swore it off, and I do think we should go back to regular order, which is the Fed does not play a role in fiscal policies.

It is not a national emergency like it was at the time, and I just—I do not—I have been trying very hard, so far this year succeeding in not getting involved in giving fiscal advice. So I am just going to have to—whatever you do, we take it into account in our policies, but we do not—we do not come out and then comment on whether we think this is a good idea or bad idea. Sorry.

Senator CRAMER. Well, OK. I appreciate that. Maybe just one other quick question. We notice that the Fed is continuing to pour some or pump in some liquidity through the purchases, mortgage purchases, particularly, the obviously, Fannie and Freddie. Is that—do you see that as continuing to be necessary? Obviously, you are doing it, but why?

Mr. POWELL. So as you know, we are looking at that right now. We are looking at—my colleagues and I on the Federal Open Market Committee are having a second meeting about that in a couple of weeks, and we are going to talk about the composition of our asset purchases and the path to beginning to reduce them. And I would not want to prejudge that—

Chairman BROWN. I am going to go vote.

Mr. POWELL —but this is something that is very much on the table.

Senator CRAMER. I might just add real quickly, with regard to climate risk that you have heard a lot about today, whether it is political or true risk, I would just want to remind my colleagues that when we assess climate risk, in terms of the U.S. economy or U.S. investment, do not forget that every time we do not invest in energy or climate manufacturing issues in the United States another country that does not do it as well as us does not do it as well. And this is—climate change is a global issue, so let us think about risk in the global—in the global context.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Cramer.

I am going to go vote. Senator Ossoff is next, and Republican Senator Lummis we think is coming back, or perhaps Senator Crapo maybe, and then Senator Reed will go. But Senator Reed will chair, and Senator Ossoff is recognized for 5 minutes.

Senator OSSOFF. Thank you, Chairman Brown, Ranking Member Toomey.

Thank you, Chairman Powell, for your service and your testimony today. Obviously, over the last 18 months, the COVID-19 pandemic has been the most significant shock to our economy and the financial system. But stepping back, what do you assess to be the most significant systemic threats to financial stability over the medium term, either limited to the U.S. or globally?

Mr. POWELL. I would have to say that the thing that worries me the most is really cyberrisk. You know, it is a constant concern, and we—you know, we spend lots of time and resources on it, so does the private sector. But that is the one where we have a play-book for—you know, for bad lending and bad risk management, and we have a lot of capital in the system. But you know, the cyber, as you see with the—with the ransomware issues now, is just an ongoing race really to keep up. And we have not had to face a significant cyberevent from a financial stability standpoint, and I hope we do not, but that is the thing I worry the most about.

Senator OSSOFF. And in terms of threats to financial stability following cyber, what next preoccupies your attention or concern?

Mr. POWELL. You know, the economy is coming out of this globally, coming out of this pandemic. So I would worry about if we do not succeed in vaccinating people all over the world really we are creating time and space for the development of new—of new strains of the virus, which can be more virulent and more difficult to fight. And I worry that could—that could undermine the economy and, ultimately, financial stability.

The last thing I will say is, you know, we are at the point in the risk cycle where people are looking out four or 5 years and they are seeing a pretty good economy. You know, we are heading to, I think, a strong labor market, highest GDP in 7 years. This is the time when risk takers can begin to forget that there is a bad state of the economy out there, waiting for them at some future date, and take too much risk. And so from a supervisory and regulatory perspective, we are very mindful that it is time to—it is a time when we need to keep people focused on risk management.

Senator OSSOFF. That is a great segue to my next question, which is: Given the extraordinary provision of liquidity, not just since COVID-19 but over the last 15 years, how concerned are you that credit committees at major financial institutions and others allocating capital are acting with sufficient prudence given the easy access to capital?

Mr. POWELL. You know, financial conditions are highly accommodative. People are getting things financed. SPACs and things like that are getting done. We see Bitcoin going up in value and down in value. So it is—you know, it is a—at times, it has felt like a somewhat frothy market, and you know, you do worry about that.

At the same time, you know, we are very focused on the real economy. Our jobs are maximum employment and price stability, and also financial stability, but we have got a long way to go. So we want to be careful about, you know, tending to our main mandate while we also think about, you know, financial stability issues.

Senator OSSOFF. What is your level of confidence that there are not risks lurking in the nonbank financial system, hedge funds, private equity, SPACs you mentioned, given the provision all this liquidity and the reduced visibility that regulators have into some of those institutions?

Mr. POWELL. So there is lots of risk-taking going on in the nonbank financial sector. Much of it can take care of itself. Private capital can absorb losses. We know from the experience of the last crisis and the one before that there are structural aspects of nonbank—of the nonbank financial sector that really need some—you know, need better regulation and better structures, and that is particularly money market funds, which twice have had to be bailed out in the acute phase of the crisis.

I think we saw that the Treasury market really lost functionality. The most important financial market, it lost functionality significantly during the acute phase of the crisis, and we are doing a, you know, very careful analysis and thinking about whether there needs to be some structural strengthening there, and other aspects as well.

Senator OSSOFF. Turning finally to climate change, the Fed's most recent Financial Stability Report cited climate change as a potential threat to financial stability. The National Oceanic and Atmospheric Administration, our country's foremost meteorological agency, states that impacts from climate change are happening now. They cite risks, including changes to water resources, floods, and water quality problems, challenges for farmers and ranchers, increases in waterborne diseases, rising sea levels that put coastal areas at greater risk. The Department of Defense identifies climate change as a critical national security threat. What is your assessment of the risk that climate change may pose to financial stability or to your dual mandate of full employment and price stability in the long run?

Mr. POWELL. I think it has implications for all of those things in the long run. We are very focused on the risks that individual financial institutions are taking and working with them to make sure they understand the risks they are running and can manage them and address them in their business model.

More broadly, in financial stability, financial markets generally, and nonbank financial institutions, it is much the same. We know that, you know, the transition, for example, to a lower carbon economy may lead to sudden repricings of assets or entire industries, and we need to think about that carefully in advance and understand and be in a position to deal with all of that.

We are—you know, we are doing all of that work as are other researchers and central banks and Governments around the world. There is a lot of work going on, on this end. You know, it is a high priority but a longer-term issue in terms of the financial stability. I mean, I think the manifestations of climate change are here now, but the financial stability issues are really coming.

Senator OSSOFF. Thank you, Chairman Powell.

I yield, Mr. Chairman.

Senator REED [presiding]. Thank you. On behalf of Chairman Brown, let me recognize Senator Lummis.

Senator LUMMIS. Thank you very much, Mr. Chairman.

And, welcome. Good to see you again. My first question, as you might guess, is about digital assets. You had testified yesterday in front of the House Financial Services Committee that one of the stronger arguments in support of a central bank digital currency was its potential to render stablecoins and virtual currencies unnecessary, but in March, you acknowledged that Bitcoin, Ethereum, and other virtual currencies are essentially a substitute for gold rather than the dollar. So I want to talk a little bit about the difference between the two.

So it is pretty clear that Bitcoin, Ethereum, and other virtual currencies are investment commodities and not payment instruments. The SEC and CFTC have said as much in court cases and regulatory actions.

So I think what you were trying to get at is one of the best arguments for a central bank digital currency is that stablecoins could be rendered unnecessary. But legally speaking, stablecoins and virtual currencies are not synonymous because stablecoins do not increase in value generally and are used as substitute payment instruments, whereas Bitcoin, Ethereum, and other virtual currencies are investment assets. There is research from Fidelity, Deutsche Bank, and Credit Suisse, and others that call Bitcoin an emerging store of value. Goldman Sachs has also said the same about Ethereum.

And so my question is: Because stablecoins and a central bank digital currency are more synonymous with the dollar as an instrument of payment and Bitcoin, Ethereum, and other virtual assets are more an investment commodity, like gold, when you spoke to the Financial Services Committee in the House yesterday, did you mean that stablecoin would be unnecessary if we had a central bank digital currency?

Mr. POWELL. Basically, you are right. But let me say, though, with cryptocurrencies it is not that they did not aspire to be a payment mechanism; it is that they have completely failed to become one except for people who desire anonymity, of course, for whatever reason. So that is why I included them.

But I would completely agree. Really, the question is stablecoins. And my point with stablecoins was that they are like money funds,

they are like bank deposits, and they are growing incredibly fast but without appropriate regulation. And if we are going to have something that looks just like a money market fund or a bank deposit or a narrow bank, and it is growing really fast, we really ought to have appropriate regulation, and today we do not.

Senator LUMMIS. And I would—thank you for that. I would assume that you would agree that some common definitions and kind of a clear legal framework would help us understand the opportunities associated, and the risks associated, with financial innovation.

Mr. POWELL. Yes, I could certainly agree with that.

Senator LUMMIS. Thank you. Thanks so much. Now I want to turn to monetary policy, and I would like to draw your attention to this chart. Federal Reserve and Bureau of Economic Analysis M2 data shows that deposits and close substitutes held by households have generally averaged 51 percent of GDP from 1952 to 2021. But then data from the end of quarter one of 2021 shows that households are sitting on deposits and close substitutes of approximately 79 percent of GDP today. So that is roughly 28 percent or trillions of dollars above the historic average. So going back to 1952, there has never been a higher percentage of household deposits to GDP. Monetary policy also has been highly accommodative over the last 16 months to the tune of 32 percent increase in the M2 money supply.

So I have not heard anybody talking about this hidden stimulus. And when households start to spend this cash, combined with the enormous liquidity already out there, it seems there is real potential for inflation to continue to overshoot. We have already seen it this week as the core Consumer Price Index number was nearly double what economists had predicted.

So here is my question: Is it really wise to continue to have accommodative policy when there is still trillions of household cash that will flow into the economy soon?

Mr. POWELL. So this—I think the main factors driving this up are really that people have been sitting at home for a year-and-a-half not able to travel and go on vacation and spend money in restaurants and things like that, and also, combine that with the major fiscal transfers that Congress made. And that is—so that there is a lot of cash. As you know, there is a great deal of cash on household balance sheets, and that is what—that is what this is representing.

You know, is it appropriate for us to continue accommodative policy? We think it is, but as you know, we are looking now. We are in the process of evaluating, you know, when it will be appropriate for us to taper, which is to say reduce, our asset purchases. We are having a second meeting that will address that topic directly in a couple of weeks.

So—but for the time being, the other thing I would point out is there are still a lot of unemployed people out there that are—and we think it is appropriate for monetary policy to remain, you know, accommodative and supportive of economic activity for now.

Senator LUMMIS. Thank you for your responses.

Thank you, Mr. Chairman. I yield back.

Senator REED. Thank you, Senator.

On behalf of Senator Brown, I will recognize myself, and in concluding my comments I will yield to Senator Warnock, and by that time I presume Senator Brown will be back to conclude the hearing.

I will ask first—so first of all, thank you, Mr. Chairman, for your remarkable service over these many challenging months. I appreciate it very much. One of the aspects of the pandemic has been an indication of the potential for technological displacement of workers. I think we are all now familiar with Zoom. In fact, it is a blessing and a curse, simultaneously. But as you look forward, how are you factoring in this notion of technological displacement in terms of the workforce and employment?

Mr. POWELL. We began hearing very early in the recovery period that companies were looking at ways to use technology really more aggressively in their business models. And a lot of the people who lost their jobs during the pandemic, of course, were people in service industries, relatively low-paid, public, customer-facing businesses: hotels, travel, entertainment, and things like that.

So I think we are going to see—and that—by the way, the technology coming into these industries has been a trend. I think we are going to see that accelerated, and you will see more technology and maybe fewer people. And I think the implication of that is that we need to be—we need to work as a society to make sure that people find their way back into the labor force even if they cannot find their way back into their old job.

Senator REED. What I think that does is stress the need for improving human capital, so that they can be competitive in jobs that they might otherwise not be. That is education. That is a lot of the things that—and I know you do not comment on fiscal affairs, but a lot of the aspects of the President's American Family Plan: preschool education, 2 years post-secondary education, significant job training, et cetera. But just in terms of the future, we are going to have to make those investments. Otherwise, my sense would be we are going to have a lot of people who want to work but whose skills are not up to the new technological opportunities. Is that fair?

Mr. POWELL. It may well be, and that has been a long-run trend. If people can keep up with evolving technology, that lifts all incomes and lifts their incomes. And if they cannot, they tend to fall behind.

Senator REED. Let me change subjects slightly here. Labor force participation. One of the other illustrations from the pandemic was that many, particularly women, were unable to continue in the workforce because of their childcare responsibilities. Have you and the Fed looked at this factor as one of those inhibiting issues for labor force participation, and is it a factor?

Mr. POWELL. It is a factor. If you include broadly caretaking, it is a big factor. If you just include children and schools being closed and caretaking at home and that kind of thing, it is still a medium-size factor that is holding back participation.

Senator REED. So with reasonable and available daycare, that should contribute to increased labor force participation.

Mr. POWELL. I think it is daycare coming back and reopening, being available. It is also schools reopening in the fall, which should help as well.

Senator REED. Right. We have all—I think all of us touched one way or the other on inflation issues, and some of these seem to be sort of one-off effects of the pandemic. Lumber went out of sight because people were sitting home and decided to redecorate and renovate. Lumber futures are down now, I believe. So we can see that leveling off hopefully in the future prices. There was a chip shortage which caused new cars to be expensive, which drove up the price of used cars. My sense is your view is that these are transitory effects that are somewhat related to the pandemic or other causes, but they do not represent a trend. Is that fair?

Mr. POWELL. Yes. We can identify a half-dozen things just like that, and they look very much like temporary factors that will abate over time. What we do not know is are there other things coming along to replace them. We do hear of pressures across the economy. We do not really see price pressures, prices moving up broadly across the economy at this point, but we are watching carefully for that.

Senator REED. And just a final point and echoing something Senator Ossoff said, climate change every day becomes much more pronounced and much more obvious to all of us, and the impact on the economy is something that I think is not transitory. It will be with us. Simple things like food when there is no water for irrigation, more complicated things like the displacement of homes because of rising waters or a lack of food—water, rather. And I am pleased to see that you are beginning to focus in on that.

My sense is, though, every day there will be another challenge and it will be more—the news will be more upsetting; let me put it that way. I hope that is a fair comment.

Thank you, Mr. Chairman.

Chairman BROWN [presiding]. Thank you, Senator Reed. Thank you for presiding.

Senator Warnock from Georgia is recognized for 5 minutes.

Senator WARNOCK. Thank you so much, Chairman Brown.

And thank you, Chairman Powell. I am a strong advocate for working families and successfully pushed, along with Senator Brown and Senator Booker, Senator Bennett, and others, expansion of the vital child tax credit program in the American Rescue Plan. The expanded child tax credit essentially provides a tax cut for middle-class families, cutting childhood poverty nearly in half nationwide and is generally available to most American families with children, including families with little to no income.

Today is a great day because many of them will see that tax cut hit their bank accounts today, and I am happy to see hardworking families across Georgia and across the country see the benefit of this to help with the rising costs of raising our children. In my home State of Georgia alone, more than 1.2 million families will receive these payments, providing much needed relief to over 2 million children across the State.

In previous remarks, Chairman Powell, you stated that, quote, “The widespread vaccinations, along with unprecedented fiscal policy actions, are providing strong support to the economic recovery.”

With families now beginning to receive their child tax credit payments today, how does direct financial support to families help sustain an ongoing economic recovery?

Mr. POWELL. Well, of course, we try not to comment on fiscal policy measures, particularly such as the one you have mentioned. But I will just say generally, in the recovery from the pandemic, that fiscal policy really did step in strongly and support people in their time of need, and I think the record will show that.

Senator WARNOCK. Thank you. I have another quick question about a housing bill I am currently working on, which I hope will be a bipartisan bill. One of the other challenges that I have worked hard to address is the widening racial wealth gap in our country, a wealth gap that has been further exacerbated during the pandemic. In particular, I focused on the persistent disparities that exist in the undervaluation of Black and Brown homeowners within our appraisal market, which, as we all know, is a key contributor to creating generational and middle-class wealth. Most people's wealth is in their homes. This is directly tied to the value of their homes and, thus, their ability to pass on wealth to their children.

I am glad to see the Biden administration, the Fed, and other Federal banking and housing agencies taking action, as well as banks, credit unions, the appraisal industry, and other stakeholders, leaning in collectively together to help solve this long-standing issue. Now it seems to me it is time for Congress to join the effort.

Chairman Powell, do you agree that addressing racial disparities within the appraisal market can help our economy and help close the racial wealth gap?

Mr. POWELL. Well, I do think that there is no place for racial discrimination in our banking sector, in our housing sector, certainly in the appraisal, and there is a big focus now on appraisals, as you point out. And you know, we will use the authorities that we have in supervising institutions, enforcing CRA, to, you know, try to eliminate that kind of discrimination.

Senator WARNOCK. Do you think it will help close the racial wealth gap?

Mr. POWELL. I think over time. I think a lot of the racial wealth gap is traceable to housing, as you point out. So that should be the outcome.

Senator WARNOCK. Thank you. In April, our colleagues on the House Financial Services Committee unanimously passed the Real Estate Valuation Fairness and Improvement Act on a bipartisan voice vote. Not only would this bill be a great step in improving appraisal practices and mitigating racial bias, it seems to me it would also help increase and diversify the appraiser pipeline, and increase the number of trained appraisers in rural communities. And so I am planning to introduce this legislation, along with Senator Klobuchar and Chairman Brown here in the Senate, and I hope to do so with a few of my colleagues from across the aisle because I believe we can work together in a bipartisan manner to tackle this critical issue that impacts not only these homeowners but impacts the economy as we close the racial gap. We all have a stake in that.

One final question on a topic that I am also very interested in. Chairman Powell, as you know, the Community Reinvestment Act

addresses how banks must meet the credit and capital needs of the communities they serve. Back in May, I asked your colleague, Mr. Quarles, about the Fed's intention to issue a joint rule along with the OCC and FDIC, and he expressed that it was the Fed's objective to work with the OCC and the FDIC to issue a joint CRA rule that protects and strengthens our most vulnerable communities. Could you please provide us with an update on the status of this CRA rulemaking?

Mr. POWELL. I would be glad to. We are working through the process of reviewing a really quite extensive group of comments and now engaging with the OCC to go forward and try to sort through that and come out with appropriate changes to what we proposed. I cannot speak exactly to the FDIC. I think they are considering whether to take part in this process. We, of course, would really like to get the three agencies together on a CRA proposal, and I am very optimistic. There is a lot of work to do, but I am very optimistic that the work product will be a very good one.

Senator WARNOCK. Thank you so much.

Chairman BROWN. Thank you, Senator Warnock.

I understand the Chair cannot comment on the immense importance of child tax credit, but I can. And I thank Senator Warnock for bringing it up and thank him for his leadership, even in his first 6 months in the Senate, on an issue that is going to make a huge difference to 39 million families, 52 million children. Ninety-two percent of children in my State will benefit from it.

We do not quite have everybody getting checks today or direct deposits today, tomorrow, and Saturday. We encourage people to go to "taxcredit.gov," the people that have not—that are eligible. And that is, as I said, 92 percent of the children in my State.

So, Senator Warnock, thank you for your work on that.

Chair Powell, thank you for being a witness today and providing testimony today.

For Senators who wish to submit questions for the record, those questions are due 1 week from today, on Thursday, July 22nd.

Chair Powell, if you would, you have 45 days to respond to any questions. Thank you again.

With that, the hearing is adjourned.

[Whereupon, at 11:46 a.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

Today, our economy is growing because of the American Rescue Plan and the Biden–Harris administration’s leadership.

We’re putting shots in arms and money in pockets. Families have a little bit extra to help pay the bills—beginning today, most parents will see a \$250 or \$300 monthly payment in their bank accounts for each child. Small businesses are reopening their doors. Workers are safely going back to work—often at higher wages.

Last month, we added 850,000 jobs to the economy. Since President Biden took office, we’ve gained three million jobs—more jobs than in the first 5 months of any presidency in modern history.

And it’s not only the jobs numbers—it’s also the quality of those jobs.

For the first time in decades, workers are starting to gain some power in our economy—power to negotiate higher wages, better working conditions, more control over their schedules, stronger benefits, opportunities for career advancement.

The *Washington Post* reported that, “In the past three months, rank-and-file employees have seen some of the fastest wage growth since the early 1980s.”

Think about that—the fastest wage growth since Ronald Reagan said it was “morning in America.”

That’s what happens when we invest in our greatest asset: the American people.

Instead of hoping money trickles down from large corporations—it NEVER does, and pretty much every senator knows that—we invested directly in our workers, small businesses, and communities.

When workers win, our economy wins. When everyone does better, everyone does better.

Chair Powell, you’ve said that the Fed can help make the economy work for everyone by ensuring a strong and competitive labor market—one where everyone can get a job, and employers compete for workers.

I agree, and those efforts, combined with President Biden’s recent actions to increase competitiveness, are increasing worker power in the economy.

We must build on this progress, with investment in infrastructure that creates millions of jobs, increases our economic competitiveness, and spurs growth in communities of all sizes, all over the country.

I’ve been all over Ohio over the past few weeks, talking with local leaders—mayors of both parties, in big cities and small towns. And I heard the same thing from all of them: they need more investment—in infrastructure, like affordable housing and reliable transit—to build a stronger local economy.

These are the places that are too often overlooked or preyed on by large corporations and Wall Street banks.

Many of these communities have watched for decades as investment has dried up and storefronts emptied.

Companies close down factories and move good-paying, union jobs abroad. Private equity firms and big investors buy up the houses and jack up the rent. Small businesses struggle to compete against big box chains. Big banks buy up smaller ones, only to close branches, leaving check cashers and payday lenders as families’ only options.

Think about the opportunity and the growth we could unleash around the country, if we gave these communities the investment to fulfill their potential.

Of course, we know what happens whenever the economy starts to grow—the largest corporations and the biggest banks throw all their efforts and their resources into finding ways to direct all of those gains to themselves.

Last year, during a global pandemic and deep recession, CEOs paid themselves 299 times more than their average workers—an even bigger gap than before the pandemic.

Now imagine the kind of windfall they’ll try to rake in during a boom.

We’ve seen it over and over.

Consumers spend, driving up revenue for companies—and they spend it on stock buybacks, while complaining about workers demanding higher wages.

Big banks rake in cash—and they spend it on executive compensation and dividends and buybacks, instead of lending in communities or increasing capital to reduce risk.

The Fed should be fighting this trend, protecting our progress from Wall Street greed and recklessness—not making it worse.

Chair Powell, during your tenure, the Fed has rolled back important safeguards, making it easier for the biggest banks to pump up the price of their stock and boost their already enormous power in our economy.

Wall Street would have you believe that removing those protections has increased lending and supported the real economy. We've been assured that the banks have plenty of capital to withstand a crisis.

But during the pandemic, it was community banks and credit unions—not megabanks—that increased lending. The Fed supported the biggest banks, to the tune of hundreds of billions of dollars—and they spent it on themselves, while small businesses trying to get PPP loans couldn't get their phone calls returned.

It's time to try something different.

We need a banking system that works for everyone.

We can't allow the biggest banks to funnel their extra cash into stock buybacks that juice their profits instead of investing in the real economy.

We can't let big banks merge into bigger and bigger megabanks, making it harder for small banks to compete and leaving rural and Black and Brown communities behind.

We need to strengthen the Community Reinvestment Act, so that banks serve the communities still scarred by the legacy of Black Codes, Jim Crow, and redlining.

And we cannot allow a repeat performance of the years following the last recession.

Wall Street destroyed our economy, costing families their jobs and their homes and their savings—and then came roaring back, while families limped along.

For the vast majority of Americans who get their money from a paycheck and not a brokerage account, the economy never looked all that great in the years that followed.

Stable prices and moderate long-term interest rates aren't enough, if every decade a financial crisis hits and strips away what people have worked so hard for.

Low unemployment isn't enough, if the jobs pay rock-bottom wages and workers have no power.

GDP growth isn't enough, if it only benefits those at the top, and not the workers who made it possible.

We need to create a different system—one that's stable for the long-run. One where workers—not Wall Street—reap the benefits of a strong economy.

Chair Powell, you are charged with ensuring both financial stability and with overseeing the biggest banks.

Both of these jobs are equally important, and both affect workers' jobs and paychecks and communities.

As public servants, our responsibility is to the people who make this country work. It's up to us to grow an economy that delivers for them—not just those at the very top.

PREPARED STATEMENT OF SENATOR PATRICK J. TOOMEY

Thank you, Mr. Chairman.

The economy has come roaring back from COVID. GDP is above its prepandemic level, and the Fed forecasts GDP will grow by a robust 7 percent this year. The unemployment rate is already at 5.9 percent, which the Fed expects to fall to 4.5 percent by the end of the year.

To put that in context, the average unemployment rate for the 20 years before the pandemic was 6 percent. With these conditions, the Fed's rationale for continuing negative real interest rates and \$1.4 trillion in annual bond purchases is puzzling.

The Fed's policy is especially troubling because the warning siren for problematic inflation is getting louder. Inflation is here, and it's more severe than most—including the Fed itself—expected.

For the third month in a row, the Consumer Price Index was higher than expectations. Core CPI, which excludes volatile categories like food and energy, was up 4.5 percent in June—the highest reading in almost 30 years. And to be clear, this is beyond so-called base effects: the 2-year annual change in core CPI was at a 25-year high.

With housing prices soaring—in many places to unaffordable levels—I'm led to ask: why on earth is the Fed still buying \$40 billion in mortgage-backed bonds each month?

Although the Fed assures us that this inflation is transitory, its inflation projections over the last year do not inspire confidence. Last June, the Fed projected that PCE—one standard measure of inflation—would be 1.6 percent for the 12 months ending 2021. Then in December the Fed revised that figure up to 1.8 percent. And now the Fed's most recent PCE forecast for 2021 year-end is 3.4 percent more than double what the Fed thought inflation would be a year ago.

But in coming months, the Fed is almost certain to revise that prediction upward—again—because so far this year PCE has risen by 6.1 percent on an annualized basis. For the rest of the year, inflation would need to be nearly zero for the Fed’s latest projection to be proven correct.

I’m concerned that the Fed’s current paradigm almost guarantees that it will be behind the curve if inflation becomes problematic and persistent—for three reasons.

First, the Fed has been consistently and systematically underestimating inflation over the past year.

Second, the Fed has announced it will allow inflation to run above its 2 percent target level—it’s already well above 2 percent.

Third, the Fed insists the inflation we’re experiencing now is transitory, despite the fact that recent unprecedented monetary accommodation has certainly caused the inflation we’re witnessing.

But since the Fed has proven unable to forecast the level of inflation, why should we be confident that the Fed can forecast the duration of inflation? You can only know that something is, in fact, transitory after it ends. What if it isn’t?

By the time the Fed knows that it’s gotten it wrong, if it does get it wrong, we could have a big problem on our hands. As past experience shows us, it’s very difficult to get the inflation genie back in the bottle once she is out.

The Fed may have to respond by raising interest rates much more aggressively to rein in significant inflation. Doing so would have severe economic consequences.

The Fed’s current monetary approach seems based on the misguided premise that it must prioritize maximum employment over controlling inflation. Employment policies enacted by Congress are inhibiting our ability to get back to maximum employment. But it’s not the Fed’s job to attempt to offset flawed policies at the expense of its price stability mandate.

When the Fed subordinates its price stability mandate to try and maximize employment, the Fed runs the risk of failing on both fronts because you need stable prices to achieve a strong economy and maximum employment. This is not a partisan argument. Prominent Democrat economists, including President Clinton’s Treasury Secretary Larry Summers and President Obama’s CEA Chair Jason Furman, have expressed their concerns about the risk of rising inflation.

I’d like to end by acknowledging the crucial role played by the Fed in our economy. The ability to direct interest rates and control the money supply is extraordinarily important. As a result, Congress has given the Fed a great deal of operational independence to isolate it from political interference.

However, Congress also gave the Fed narrowly defined monetary mission. I’m troubled by the Fed, especially the regional Fed banks, misusing this independence to wade into politically charged areas like global warming and racial justice.

I’d suggest that instead of opining on issues that are clearly beyond the Fed’s mission and expertise, it should focus on an issue that is in its mandate: controlling inflation. If it doesn’t, the Fed will find that its credibility and independence were also “transitory.”

PREPARED STATEMENT OF JEROME H. POWELL

CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

JULY 15, 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. We pursue these goals based solely on data and objective analysis, and we are committed to doing so in a clear and transparent manner. Today I will review the current economic situation before turning to monetary policy.

Current Economic Situation and Outlook

Over the first half of 2021, ongoing vaccinations have led to a reopening of the economy and strong economic growth, supported by accommodative monetary and fiscal policy. Real gross domestic product this year appears to be on track to post its fastest rate of increase in decades. Household spending is rising at an especially rapid pace, boosted by strong fiscal support, accommodative financial conditions, and the reopening of the economy. Housing demand remains very strong, and overall business investment is increasing at a solid pace. As described in the *Monetary Policy Report*, supply constraints have been restraining activity in some industries,

most notably in the motor vehicle industry, where the worldwide shortage of semiconductors has sharply curtailed production so far this year.

Conditions in the labor market have continued to improve, but there is still a long way to go. Labor demand appears to be very strong; job openings are at a record high, hiring is robust, and many workers are leaving their current jobs to search for better ones. Indeed, employers added 1.7 million workers from April through June. However, the unemployment rate remained elevated in June at 5.9 percent, and this figure understates the shortfall in employment, particularly as participation in the labor market has not moved up from the low rates that have prevailed for most of the past year. Job gains should be strong in coming months as public health conditions continue to improve and as some of the other pandemic-related factors currently weighing them down diminish.

As discussed in the *Monetary Policy Report*, the pandemic-induced declines in employment last year were largest for workers with lower wages and for African Americans and Hispanics. Despite substantial improvements for all racial and ethnic groups, the hardest-hit groups still have the most ground left to regain.

Inflation has increased notably and will likely remain elevated in coming months before moderating. Inflation is being temporarily boosted by base effects, as the sharp pandemic-related price declines from last spring drop out of the 12-month calculation. In addition, strong demand in sectors where production bottlenecks or other supply constraints have limited production has led to especially rapid price increases for some goods and services, which should partially reverse as the effects of the bottlenecks unwind. Prices for services that were hard hit by the pandemic have also jumped in recent months as demand for these services has surged with the reopening of the economy.

To avoid sustained periods of unusually low or high inflation, the Federal Open Market Committee's (FOMC) monetary policy framework seeks longer-term inflation expectations that are well anchored at 2 percent, the Committee's longer-run inflation objective. Measures of longer-term inflation expectations have moved up from their pandemic lows and are in a range that is broadly consistent with the FOMC's longer-run inflation goal. Two boxes in the July *Monetary Policy Report* discuss recent developments in inflation and inflation expectations.

Sustainably achieving maximum employment and price stability depends on a stable financial system, and we continue to monitor vulnerabilities here. While asset valuations have generally risen with improving fundamentals as well as increased investor risk appetite, household balance sheets are, on average, quite strong, business leverage has been declining from high levels, and the institutions at the core of the financial system remain resilient.

Monetary Policy

I will now turn to monetary policy. At our June meeting, the FOMC kept the Federal funds rate near zero and maintained the pace of our asset purchases. These measures, along with our strong guidance on interest rates and on our balance sheet, will ensure that monetary policy will continue to deliver powerful support to the economy until the recovery is complete.

We continue to expect that it will be appropriate to maintain the current target range for 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. As the Committee reiterated in our June policy statement, with inflation having run persistently below 2 percent, 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. As always, in assessing the appropriate stance of monetary policy, we will continue to monitor the implications of incoming information for the economic outlook and would be prepared to adjust the stance of monetary policy as appropriate if we saw signs that the path of inflation or longer-term inflation expectations were moving materially and persistently beyond levels consistent with our goal.

In addition, we are continuing 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 maximum-employment and price-stability goals. These purchases have materially eased financial conditions and are providing substantial support to the economy.

At our June meeting, the Committee discussed the economy's progress toward our goals since we adopted our asset purchase guidance last December. While reaching the standard of "substantial further progress" is still a ways off, participants expect that progress will continue. We will continue these discussions in coming meetings.

As we have said, we will provide advance notice before announcing any decision to make changes to our purchases.

We understand that our actions affect communities, families, and businesses across the country. Everything we do is in service to our public mission. The resumption of our Fed Listens initiative will further strengthen our ongoing efforts to learn from a broad range of groups about how they are recovering from the economic hardships brought on by the pandemic. We at the Federal Reserve will do everything we can to support the recovery and foster progress toward our statutory goals of maximum employment and stable prices.

Thank you. I am happy to take your questions.

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

Q.1. At the Banking Committee’s July 15, 2021, hearing, you testified that the Treasury markets lost functionality during the worst phases of the market turmoil resulting from the COVID–19 crisis last year.

In your view, what are the most immediate concerns with respect to the efficiency and resiliency of the Treasury cash and futures markets?

A.1. Treasury markets are currently functioning in the efficient manner that we expect and that the stability of the financial system requires. Given the importance of Treasury markets, the Federal Reserve Board (Board) is actively working with the other agencies in the Inter-Agency Working Group on Treasury Market Surveillance (IAWG) to ensure that these markets remain resilient.¹ The IAWG has publicly set out several areas of work on Treasury market resilience, focusing on five specific areas:²

1. Improving data quality and availability.
2. Improving resilience of market intermediation.
3. Evaluating expanded central clearing.
4. Enhancing trading venue transparency and oversight.
5. Examining effects of leverage and fund liquidity risk management practices.

The related work streams are still at a preliminary stage. The Federal Reserve is committed to working with other agencies and with market participants to ensure a resilient market for U.S. Treasury securities.

Q.2. What are the Federal Reserve’s intentions with addressing those concerns?

A.2. In addition to its work with the IAWG, the Federal Reserve is actively examining steps that we can take to improve Treasury market resilience.

As you are aware, the Federal Open Market Committee (FOMC) recently established both a domestic standing repo facility and a standing repurchase agreement facility for foreign and international monetary authorities (the FIMA Repo Facility). We believe these facilities can help address pressures in money markets that could impede effective implementation of monetary policy. By acting as a backstop, these facilities can also reduce stresses in U.S. Treasury securities and Treasury repo markets and help promote Treasury market resilience while helping prevent these stresses from spilling over more broadly to other U.S. financial markets.

The Federal Reserve also continues to consider ways to adapt the supplementary leverage ratio to the current higher-reserves environment. The Board has long preferred for leverage requirements to be a backstop to risk-based capital requirements. When leverage requirements instead are a firm’s most stringent capital require-

¹Members of the IAWG include the Board of Governors, the Commodity Futures Trading Commission, the Federal Reserve Bank of New York, the Securities and Exchange Commission, and the U.S. Department of the Treasury.

²See, <https://home.treasury.gov/news/press-releases/jy0116#3>.

ment, it may create incentives for the firm to substitute out of low-risk assets and toward higher-risk assets and could also disincentivize intermediation in Treasury markets.

The Federal Reserve is also working to finalize a rule that would require certain banks to report their Treasury and agency debt and mortgage-backed securities transactions to the Financial Industry Regulatory Authority's Trade Reporting and Compliance Engine to help increase resilience of Treasury markets.

Q.3. Are there reforms or actions that other Federal financial regulators with oversight responsibilities for the Treasury cash and futures markets should be pursuing?

A.3. Several of the workstreams proposed by the IAWG will largely involve other agencies. The Securities and Exchange Commission (SEC) has primary oversight of many Treasury market trading venues and has already proposed and received comment on potential rule changes that would subject certain trading platforms that are dedicated to trading in Treasury or agency debt to more stringent reporting and disclosure requirements. The IAWG is also considering whether expanded central clearing of Treasury cash and repo transactions would promote greater resilience. The SEC will play a key role in this workstream as well given its role as the primary regulator of the Fixed Income Clearing Corporation—the entity that centrally clears both Treasury cash and repo transactions.

Q.4. SEC Chairman Gary Gensler has stated that his agency is examining whether the settlement cycle for equities securities should be faster than the current T+2 standard. Reducing the settlement time would decrease risks associated with the settlement process and reduce the amounts needed to be posted as collateral.

Do you support efforts to reduce the settlement cycle timeframe for equities?

A.4. The Federal Reserve recognizes the critical role that payments, clearing, and settlement activities play in the functioning of the financial system, and we support efforts that promote the safety and efficiency of core infrastructure supporting these markets, including equities. We will continue to monitor developments by market participants and the Depository Trust and Clearing Corporation (DTCC) as this effort moves forward.

Q.5. Will there need to be any changes to coordinate with the payments settlement cycle overseen by the Federal Reserve?

A.5. At this time, we are not aware of any necessary changes with the payments systems overseen by the Federal Reserve needed to facilitate a move from a T+2 to a T+1 settlement cycle for equities.

Q.6. During the Banking Committee's July 15, 2021, hearing, you distinguished climate scenario analysis (i.e., an exercise not tied to capital requirements) from traditional stress testing, which the Federal Reserve uses to set minimum capital requirements for large banks. While I was glad to hear you do not intend to change capital requirements based on climate-related risks, I remain concerned that you believe climate scenario analysis is "a direction we'll go in." Too often, proposals to assess climate-related risks are based on highly uncertain climate models. In July 2021, the Financial Stability Board acknowledged this uncertainty, stating in a re-

port that “financial institutions’ exposures to climate-related risks are generally subject to greater uncertainty than those relating to other financial risks.” This report underscores the fact that financial regulators have neither the experience nor expertise to develop accurate climate scenarios.

Given these limitations, what benefits do you believe would be generated by climate scenario analysis conducted by the Federal Reserve that could not be produced by similar exercises conducted by private institutions?

A.6. Congress has assigned the Federal Reserve narrow but important mandates around monetary policy, financial stability, and supervision of financial firms. Consistent with our statutory mandates, the Federal Reserve expects supervised firms to manage all material risks, including those relating to climate change. We are taking a transparent, data-driven approach in assessing the potential for these risks to impact the macroeconomy, financial institutions, and the financial system more broadly, and observing how supervised firms are identifying, assessing, and monitoring these risks.

Climate scenario analysis is one of many tools that certain large banks and certain international supervisory authorities are developing to better understand the resiliency of banks to a range of potential climate-related risks. As I stated at the hearing in July, climate scenario analysis is distinct from existing regulatory stress tests for banks. Regulatory stress tests are used to assess capital adequacy under specific shocks in the short term and have specific consequences for capital and supervisory ratings. By contrast, climate-related scenarios analysis is typically longer-term and exploratory in nature and used to understand and evaluate the potential impact of climate change on a bank’s risk profile and strategy across a range of plausible scenarios.

Just as it is proving useful for large financial institutions and other central banks, climate scenario analysis could be useful in relation to our supervisory mandate and our focus on financial stability by informing our own understanding of the potential economic and financial impact of different Government policies and technological innovation related to climate change. There are, however, many challenges to this work. For example, the links between emissions, temperature rise, and economic impact are all uncertain and difficult to model, especially over a long-time horizon.

We are building our understanding in this area by engaging with financial institutions, academics, and other central banks and institutions.

Q.7. During the first round of quantitative easing (QE) in the wake of the 2008 recession, Federal Reserve Chairman Ben Bernanke made it clear that QE was not monetizing the debt. He said “Monetizing the debt means using money creation as a permanent source of financing for Government spending. In contrast, we are acquiring Treasury securities on the open market and only on a temporary basis, with the goal of supporting the economic recovery through lower interest rates. At the appropriate time, the Federal Reserve will gradually sell these securities or let them mature, as needed, to return its balance sheet to a more normal size.” How-

ever, as we know, the Federal Reserve did not return its balance sheet to its precrisis trend.

Is the current period of QE somehow different or is it fair to characterize the current use of QE as having been used to monetize the debt?

A.7. Our asset purchases are neither intended nor designed to monetize the Federal Government debt. They have been and will continue to be determined by the needs to foster smooth market functioning and accommodative financial conditions, in order to promote our dual-mandate objectives. In early to mid-March 2020, amid extreme volatility across the financial system, the functioning of Treasury and agency mortgage-backed securities (MBS) markets became severely impaired. The Federal Open Market Committee (FOMC) recognized that continued dysfunction in these markets would have led to an even deeper and broader seizing up of credit markets and ultimately worsened the financial hardships that many Americans were experiencing as a result of the pandemic. The FOMC responded quickly and decisively with substantial purchases of Treasury securities and agency MBS. These purchases helped market conditions to improve significantly over the spring of last year and, with these improvements, the Federal Reserve slowed its pace of purchases. Then, to help foster continued smooth market functioning and accommodative financial conditions, thereby supporting the flow of credit to households and businesses as the economy recovered from the pandemic shock, the FOMC continued securities purchases over the past several quarters. After the FOMC's most recent meeting, I said that the Committee reviewed some considerations around how our asset purchases might be adjusted, including their pace and composition, once economic conditions warrant a change. In coming meetings, the Committee will again assess the economy's progress toward our goals, and the timing of any change in the pace of our asset purchases will depend on the incoming data. As we've said, we will provide advance notice before making any changes to our purchases.

Q.8. Many have raised concerns that the Federal Reserve's purchases of Treasury bonds and mortgage-backed securities have contributed to increased inflation, especially in the housing market, while others argue that it has boosted affordability through lower mortgage rates. In your view, which effect is stronger?

A.8. Our purchases of Treasury securities and agency mortgage-backed securities have led to a material decrease in mortgage rates, reducing the cost of borrowing to purchase a home. The resulting increase in housing demand has contributed to strong house price growth over the past year-and-a-half. Shortages of labor and materials have constrained the housing supply in many parts of the United States. Although the decline in rates in 2020 was a significant factor boosting home sales and residential investment last year, the impact would have been greater absent these supply constraints. Housing activity has remained elevated in 2021 relative to prepandemic levels.

House prices do not affect inflation directly because they are not used in calculating commonly used price indexes such as the Consumer Price Index or the price index for Personal Consumption Ex-

penditures. That said, strong housing demand may have boosted inflation through other channels.

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

Q.1. What research initiatives are underway at the Federal Reserve to consider the impact of the expansion of the Earned Income Tax Credit and the Child Tax Credit on families, local communities, and the national economy?

A.1. Decisions on the appropriate size and structure of the Earned Income Tax Credit (EITC) and Child Tax Credit (CTC) are the responsibility of Congress and the Administration.

Federal Reserve system staff in recent years have researched various ways in which the EITC and CTC can affect families, local communities, and the national economy. Publications focused on these topics can be found on the Board's public website and websites of the Reserve Banks, and a sample of recent writings is provided below:

Aladangady, Aditya, Shifrah Aron-Dine, David Cashin, Wendy Dunn, Laura Feiveson, Paul Lengermann, Katherine Richard, and Claudia Sahm (2018). "High-Frequency Spending Responses to the Earned Income Tax Credit", FEDS Notes, June 21. Board of Governors of the Federal Reserve System.

Anderson, Nathan (2021). "Advance Child Tax Credit Payments: Increasing Support for Families With Children", Community Development and Policy Studies Blog, July 14. Federal Reserve Bank of Chicago.

Isaacson, Maggie, and Hannah Rubinton (2021). "Childhood Income Volatility", *Economic Synopses*, iss. 8. Federal Reserve Bank of St. Louis.

McGranahan, Leslie (2016). "Tax Credits and the Debt Position of U.S. Households", Working Paper Series, WP-2016-12. Federal Reserve Bank of Chicago.

Neumark, David, and Peter Shirley (2020). "Long-Run Effects of the Earned Income Tax Credit", Federal Reserve Bank of San Francisco Economic Letter, vol. 2020, iss. 1.

Q.2. What research initiatives are underway regarding the hospitality sector during and after the pandemic?

A.2. The leisure and hospitality sector was hard-hit by the pandemic, as activity in this industry was particularly affected by the spread of COVID-19. Specifically, employment in this sector dropped by more than 8 million jobs in the early stages of the pandemic. Moreover, despite seeing notable gains since then, employment in the leisure and hospitality sector in July 2021 remained 1.7 million jobs below its prepandemic level and accounted for more than one-third of the overall difference in private employment relative to its February 2020 level.

In light of the important role that this industry has played in driving swings in overall employment during the pandemic, the Federal Reserve staff's regular monitoring and analysis of labor

market conditions has paid particularly close attention to developments in this sector.

Some of this analysis was presented in the February 2021 *Monetary Policy Report*.¹ In addition, a number of research efforts across the Federal Reserve System have focused on various aspects of the leisure and hospitality sector. A sample of recent writings is listed below:

Sly, Nicholas, and Bethany Greene (2021), “Recovery in Rocky Mountain Leisure and Hospitality Employment”, Federal Reserve Bank of Kansas City.

Knotek II, Edward S., Michael McMain, Raphael Schoenle, Alexander Dietrich, Kristian Ove R. Myrseth, and Michael Weber (2021), “Expected Post-Pandemic Consumption and Scarred Expectations From COVID-19”, Federal Reserve Bank of Cleveland.

Garcia Luna, Erick (2021), “Hospitality and Janitorial Workers in the Twin Cities Have Faced Disproportionate Challenges During COVID-19”, Federal Reserve Bank of Minneapolis.

Q.3. What research initiatives are underway regarding job quality—jobs with living wages, good benefits, stable hours and flexibility—during and after the pandemic?

A.3. There are several research initiatives within the Federal Reserve System that touch on various aspects of job quality. One particularly relevant example is the initiative “Increasing the Quality of Jobs” that was led by the Federal Reserve Bank of Boston. The initiative involves both research and outreach activities aimed at promoting improvements in job quality.² As part of its research activities, the initiative convened a Job Quality Research Consortium that was composed of scholars working on this topic, with the goal of sharing ongoing analysis and identifying areas for further study. Some of the analysis the initiative has generated (listed below for reference) include, respectively, a study on the potential for more-equitable paid sick leave, a study on the downstream benefits of higher incomes and wages, and a study on access to health care among essential frontline workers in the early stages of the pandemic.

Chaganti, Sara (2021), “Pandemic Response Reveals Potential for More Equitable Paid Sick Leave Coverage in the Northeast”, Community Development Issue Briefs 21-2, Federal Reserve Bank of Boston.

Godoy, Anna, and Ken Jacobs (2021), “The Downstream Benefits of Higher Incomes and Wages”, Community Development Discussion Papers 21-1.

Chaganti, Sara, Amy Higgins, and Marybeth J. Mattingly (2020), “Health Insurance and Essential Service Workers in New England: Who Lacks Access To Care for COVID-19?” Community Development Issue Briefs 20-3, Federal Reserve Bank of Boston.

¹ See the boxes “Monitoring Economic Activity With Nontraditional High-Frequency Indicators” and “Disparities in Job Loss During the Pandemic” in the February 2021 *Monetary Policy Report*, available at <https://www.federalreserve.gov/monetarypolicy/2021-02-mpr-summary.htm>.

² See, <https://www.bostonfed.org/community-development/expanding-employment-opportunities/increasing-the-quality-of-jobs.aspx>.

Q.4. The Federal Reserve’s *Monetary Policy Report* does not mention poverty. What research has the various Federal Reserve Banks published on the impact of fiscal policy in response to the COVID–19 pandemic—the American Rescue Plan, CARES, the appropriations bill, etc.—have on poverty rates for American families?

A.4. The Federal Reserve has devoted considerable effort to understanding how the recession caused by the COVID–19 pandemic has affected low-income U.S. households. For instance, the June 2020 *Monetary Policy Report* contains analysis documenting the disproportionately large employment losses suffered by low-wage workers during the pandemic.³ Another example is the Federal Reserve’s Survey of Household Economics and Decisionmaking (SHED). The results of a supplemental version of the SHED, fielded in April of 2020, reveal significantly greater job loss among households with incomes of less than \$40,000 as compared to all households.⁴ The 2020 annual edition of the survey reveals that adults with less than a high school degree fell further behind those with higher levels of education in terms of financial well-being; the 2020 SHED also shows that the financial hardship caused by the pandemic appears to have been importantly counterbalanced by financial relief and stimulus measures, including the Coronavirus Aid, Relief, and Economic Security Act (CARES Act).⁵

Unfortunately, both data and research tend to lag events on the ground and the official U.S. poverty statistics are currently only available through 2019—a fact which limits the amount of research currently available on U.S. poverty since the onset of COVID–19.

Below is a selected list of research publications by Federal Reserve System staff on fiscal policy and low income/poverty in the COVID era:

Dettling, Lisa J., and Lauren Lambie-Hanson (2021). “Why Is the Default Rate So Low? How Economic Conditions and Public Policies Have Shaped Mortgage and Auto Delinquencies During the COVID–19 Pandemic”, *FEDS Notes*, March 4. Board of Governors of the Federal Reserve System.

Falcattoni, Elena, and Vegard Nygaard (2021). “Acts of Congress and COVID–19: A Literature Review on the Impact of Increased Unemployment Insurance Benefits and Stimulus Checks”, *FEDS Notes*, February 24. Board of Governors of the Federal Reserve System.

Larrimore, Jeff, Jacob Mortenson, and David Splinter (2021). “Earnings Shocks and Stabilization During COVID–19”, Finance and Economics Discussion Series 2021-052. Board of Governors of the Federal Reserve System.

Lee, Donghoon, Rajashri Chakrabarti, Andrew F. Haughwout, Joelle Scally, William Nober, and Wilbert Van der Klaauw (2020). “Debt Relief and the CARES Act: Which Borrowers Benefit the Most?” *Liberty Street Economics*, August. Federal Reserve Bank of New York.

³ See the box titled “Disparities in Job Loss During the Pandemic” in *Monetary Policy Report*, Federal Reserve Board, June 12, 2020.

⁴ See, “Report on the Economic Well-Being of U.S. Households in 2019, Featuring Supplemental Data From April 2020”, Federal Reserve Board, May 2020.

⁵ See, “Economic Well-Being of U.S. Households in 2020”, Federal Reserve Board, May 2021.

Mattiuzzi, Elizabeth, and Eileen Hodge (2020). “COVID–19 Impacts on Housing Stability in the Twelfth Federal Reserve District”, Community Development Research Brief, vol. 2020, iss. 06. Federal Reserve Bank of San Francisco.

Rajan, Aastha, and Ezra Karger (2020). “Heterogeneity in the Marginal Propensity to Consume: Evidence From COVID–19 Stimulus Payments”, Working Paper Series, WP-2020-15. Federal Reserve Bank of Chicago.

Tran, Thao, and Ying Lei Toh (2020). “Pandemic Relief Has Aided Low-Income Individuals: Evidence From Alternative Financial Services”, *Economic Bulletin*, December. Federal Reserve Bank of Kansas City.

Q.5. Some analysts anticipate economic growth as high as 7 percent. If we experience an economic boom, which reports has the Federal Reserve published—or currently writing—which provides some options of approaches that could give us a unique chance to experience robust economic growth that benefits all workers, families, and the environment?

A.5. Our new monetary policy framework is designed to promote the achievement of price stability and maximum employment, the dual mandate assigned to us by Congress. In particular, the Federal Open Market Committee (FOMC) has a broad-based and inclusive goal for maximum employment that focuses on minimizing shortfalls of employment from its maximum level and reflects our belief that a robust labor market can be sustained without causing an outbreak of inflation.⁶ As we observed in the latter stages of the 2009 to 2019 expansion, pushing the economy toward maximum employment allows all workers and families, especially the economically disadvantaged, to benefit from economic growth. Materials describing the review of monetary policy strategy that led to our current framework can be found on our website.⁷

The Federal Reserve publishes a number of reports assessing the economic well-being of Americans that can be informative for policymakers designing economic policies to benefit all workers and families. The Survey of Household and Economic Decisionmaking, for example, 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 would not be able to use liquid savings to cover an unexpected \$400 expense. The SCF provides high-quality data on household wealth, income, and consumption and is the source of much of the recent research on increases in inequality in wealth and income in the United States. In addition, we have combined data from the SCF with our Financial Accounts data to produce the Distributional Financial Accounts (DFAs), which provide quarterly updates on the wealth of low-, middle-, and high-income households. The DFAs also report quarterly data on household wealth by age, education, and race.

⁶See the FOMC’s Statement on Longer-Run Goals and Monetary Policy Strategy for a description of the Federal Reserve’s monetary policy framework.

⁷See, “Review of Monetary Policy Strategy, Tools, and Communication”.

Q.6. Please provide any research from the Federal Reserve Banks regarding best practices in helping homeowners recover from delinquency and avoid foreclosure?

A.6. Over the years, the Federal Reserve System has dedicated significant research efforts regarding mortgage delinquency and foreclosure, including best practices to support homeowners in recovering from delinquency and avoiding foreclosure. Many of the studies analyze the impacts on homeowners and implications of policies and practices designed to support mortgage borrowers who are struggling to make payments.

Research related to these issues is publicly available on the Board's and the Reserve Bank's websites. Please see below, a sample of recent research published by economists and researchers at the Board and Reserve Banks:

An, Xudong, and Lawrence R. Cordell (2019). "Mortgage Loss Severities: What Keeps Them so High?" Working Papers 19-19. Federal Reserve Bank of Philadelphia.

Calem, Paul S., Lauren Lambie-Hanson, Leonard I. Nakamura, and Jeanna Kenney (2018). "Appraising Home Purchase Appraisals", Working Papers 18-28. Federal Reserve Bank of Philadelphia.

Garriga, Carlos, and Aaron Hedlund (2019). "Crises in the Housing Market: Causes, Consequences, and Policy Lessons", Working Papers 2019-33. Federal Reserve Bank of St. Louis.

Lazaryan, Nika, and Urvi Neelakantan (2016). "Monetary Incentives and Mortgage Renegotiation Outcomes", *Economic Quarterly*, vol. 102, no. 2, pp. 147–168. Federal Reserve Bank of Richmond.

Q.7. The *Monetary Policy Report* mentions retirements from baby boomers as a reason for a lower workforce participation rate. An employment-to-population ratio that adjusts for aging could capture those that are undercounted by the unemployment rate. Would the Federal Reserve consider incorporating an age measure into their quarterly projections and public assessments of maximum employment?

A.7. When the FOMC revised its Statement of Longer-Run Goals and Monetary Policy Strategy (consensus statement) in August 2020, we unanimously agreed that our statutory goal of "maximum employment" is "a broad-based and inclusive goal that is not directly measurable and changes over time owing largely to non-monetary factors that affect the structure and dynamics of the labor market." The role of the retirements of baby boomers in contributing to the reduction in the labor force participation rate is one example of such a nonmonetary factor. It is, however, just one example.

In the pursuit of maximum employment as a broad-based and inclusive goal, we routinely consult research, analyses, and commentary on a wide range of indicators about different aspects of the labor market. In judging the performance of the labor market relative to our goal of maximum employment, the lengthy list of variables the FOMC might assess includes measures of unemployment, labor force participation, wages, and other variables both at

the aggregate level and across different demographic groups.⁸ Because the list is long, and because the variables that deserve the most weight can change over time, adding prominence to one particular variable could hinder the FOMC's communications, and indirectly, its policy deliberations. Moreover, while the Summary of Economic Projections (SEP) is helpful for conveying information to the public regarding individual FOMC participants' views of the economic outlook, participants can differ on the importance they attach to various labor market indicators.

**RESPONSES TO WRITTEN QUESTIONS OF SENATOR SINEMA
FROM JEROME H. POWELL**

Q.1. How is the current rise in coronavirus cases, primarily driven by the delta variant, factoring into the Fed's outlook for economic growth? What, if any, epidemiological modeling is the Fed using to inform that outlook, if applicable?

A.1. Throughout the pandemic, my colleagues and I at the Federal Reserve have said that the economic outlook importantly depends on the course of the virus; that remains the case. In addition, we have observed that the economic implications of successive waves of COVID-19 infections have tended to diminish. At least two factors may be at play here. First, vaccinations appear to reduce its severity among the vaccinated, leading to increased comfort with resuming normal activities. Second, we are learning how to better cope with the virus in our everyday life. For example, many people have adjusted their behaviors to reduce the risk of infection, and many businesses have found new ways of operating.

Even so, it is plausible that the spread of the delta variant could be having an adverse effect on economic activity (or that other variants could do so in the future). The spread of the delta variant and the associated increase in case counts may be leading some people to pull back from travel or dining out because of the risk of infection, and it may be leading some people to delay their return to the labor force, particularly if schools alter their plans for reopening in the coming weeks.

To inform our thinking about the economic outlook, we continue to closely monitor data on COVID-19 cases, hospitalizations, and deaths in the U.S. and abroad, as well as a variety of high-frequency economic indicators. We pay considerable attention to what epidemiologists are saying about the transmissibility and the severity of the COVID-19 variants, the efficacy of vaccines in the face of those variants, and the pace of vaccinations. We also monitor the responses of public health authorities, as the actions they take may have economic consequences.

Although a significant share of the population has been vaccinated, further progress on this front is key, as the economy is unlikely to fully recover until most people are confident that it is safe to resume activities involving groups of people.

⁸ See, <https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20210728.pdf>.

**RESPONSES TO WRITTEN QUESTIONS OF SENATOR DAINES
FROM JEROME H. POWELL**

Q.1. Many have raised concerns that the Federal Reserve's purchases of Treasury Bonds and Mortgage Backed Securities have fed inflation, especially in the housing market. Other argue that those actions have boosted affordability. Can you say which effect is stronger?

The limited supply of housing is a national issue and is also feeding inflation. Would the Fed's efforts to ease rates have a more robust effect if supply was in balance?

A.1. Our purchases of Treasury securities and agency mortgage-backed securities have led to a material decrease in mortgage rates, reducing the cost of borrowing to purchase a home. The resulting increase in housing demand has contributed to strong house price growth over the past year-and-a-half. Shortages of labor and materials have constrained the housing supply in many parts of the United States. Although the decline in rates in 2020 was a significant factor boosting home sales and residential investment last year, the impact would have been greater absent these supply constraints. Housing activity has remained elevated in 2021 relative to prepandemic levels.

House prices do not affect inflation directly because they are not used in calculating commonly used price indexes such as the Consumer Price Index or the price index for Personal Consumption Expenditures. That said, strong housing demand may have boosted inflation through other channels.

Q.2. Given positive changes to bank balance sheets throughout the pandemic-induced downturn, and their strong state today, how do you think the leverage ratio and other regulatory requirements based on balance sheet size and growth should be adjusted?

A.2. The Federal Reserve Board (Board) has long maintained that leverage capital requirements are most effective as a backstop to risk-based capital requirements. Where a leverage requirement serves as a firm's binding capital requirement, it can skew incentives for the firm to substitute low-risk assets for high-risk ones.

Prior to the onset of COVID-19, the levels of capital and of overall loss absorbency in the banking system were 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 pandemic. We continuously evaluate the resiliency of banks and monitor financial and economic conditions to help determine the effectiveness of the regulatory framework. As we continue to engage in these efforts, we will consider changes in balance sheet size and growth while aiming to maintain the overall strength of bank capital requirements.

Q.3. What potential threats do you see to America and to the world from China's development of a Digital Yuan? Will this topic be addressed in the Fed's upcoming research report on digital currencies?

A.3. Every country approaches decisions about whether and when to issue a central bank digital currency (CBDC) based on dynamics unique to its own context. For example, many of the motivations

cited by other jurisdictions, such as rapidly declining cash use, weak financial institutions, and underdeveloped payment systems, are not shared by the United States.

The global appeal of the dollar is rooted in the United States' transparent and accountable institutions, reliable rule of law, deep financial markets, flexible exchange rate, and open capital account. New technological designs of other currencies will not alter the importance of nor change these features, especially in the near term.

That said, given the dollar's important role globally, we recognize that it is essential that the United States remain on the frontier of research and policy development regarding CBDC. We continue to closely monitor many central banks' progress on CBDC, including that of China.

Our forthcoming discussion paper will cover a broad range of issues related to digital payments and CBDC and will invite public comment. We are committed to hearing a wide range of voices to inform any decision on whether or how to move forward with a U.S. CBDC, taking account of the broader risks and opportunities.

Irrespective of the conclusion we ultimately reach, we expect to play a leading role in developing international standards for CBDCs, engaging actively with central banks in other jurisdictions as well as regulators and supervisors here in the United States throughout that process.

Q.4. You mentioned during the hearing that cyberthreats to the financial system are among your biggest worries. Could you provide an overview of what recent actions the Federal Reserve has taken, and what the Fed is currently doing, to ward off future cyberattacks?

A.4. The Board views the security of the financial system as a high priority and recognizes the risks posed by malicious cyberactors to the Federal Reserve, other financial institutions and the broader financial system.

The Board actively engages on cybersecurity issues with key stakeholders including the Federal banking agencies, other Government agencies, and industry. We routinely monitor cybersecurity threats and ensure appropriate responses to incidents that could affect the operations of the Federal Reserve or supervised institutions.

The Board is also an active participant and leader in international groups addressing the cyber resiliency of the global financial system, including the Financial Stability Board, the Basel Committee on Banking Supervision, the Committee on Payment and Market Infrastructures (and its joint efforts with the International Organization of Securities Commissions), the International Association of Insurance Supervisors, and the Group of Seven. The Board closely coordinates with other international agencies, governance bodies, financial regulators, and industry, to share information and best practices.

Additionally, the Board regulates and supervises certain financial institutions to ensure that they operate in a safe and sound manner and comply with all applicable laws and regulations. We continue to emphasize that financial institutions should monitor and mitigate cyberthreats and remain vigilant and resilient.

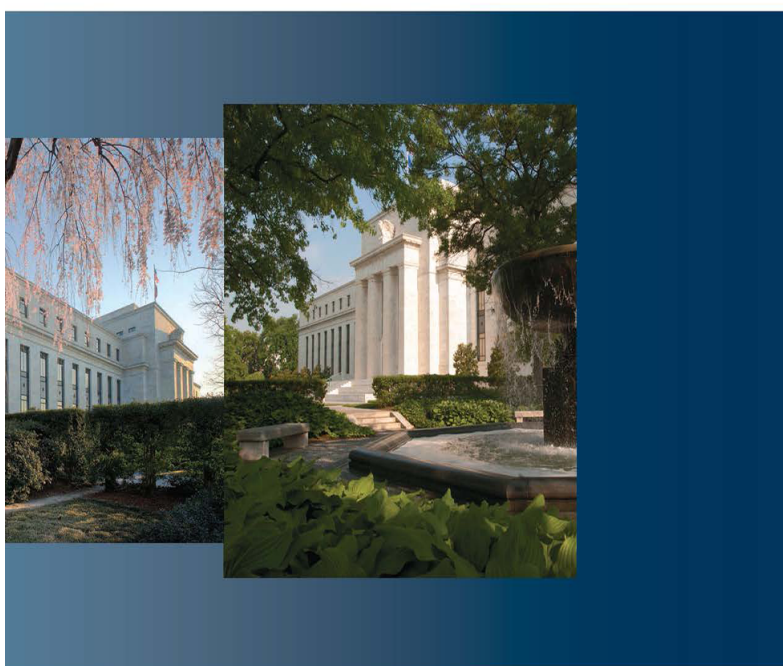
Recent examples of supervisory policies include:

- In October 2020, the Board together with other Federal banking agencies, published a paper outlining sound practices to assist the largest and most complex financial institutions with the development of comprehensive approaches to operational resilience, including resilience to cyberthreats. The paper leverages existing regulations and provides information on how to detect, defend against, and respond to common cyberthreats, such as data destruction, theft, malware, and denial of service. The guidance is aligned with common industry standards such as the National Institute of Standards and Technology Cybersecurity Framework and best practices managing cyber risk.
- In January 2021, the Federal banking agencies proposed computer-security incident notification requirements for banking organizations and their bank service providers. In general, the proposed rule would require a banking organization or bank service provider to provide notice of an incident that could materially disrupt, degrade, or impair its business operations or services. The timely notification of incidents would enhance Federal banking agencies' abilities to assess and quickly respond to potential risks such incidents may pose to the supervised entity and the banking system as a whole.
- The Board contributed significantly to the effort to update the Federal Financial Institution Examination Council (FFIEC) Architecture, Infrastructure, and Operations (AIO) booklet of the IT Handbook which was published on June 30, 2021. The booklet is designed to assist examiners from each of the FFIEC member agencies when assessing the risk profile and adequacy of an entity's information technology architecture, infrastructure, and operations.

For use at 11:00 a.m. EDT
July 9, 2021

MONETARY POLICY REPORT

July 9, 2021



Board of Governors of the Federal Reserve System

LETTER OF TRANSMITTAL



BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM

Washington, D.C., July 9, 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,

A handwritten signature in black ink, reading "Jerome H. Powell". The signature is written in a cursive style with a large, stylized "J" and "P".

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 EDT on July 7, 2021.

Unless otherwise stated, the time series in the figures extend through, for daily data, July 6, 2021; for monthly data, May 2021; and, for quarterly data, 2021:Q1. 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.

For figures 20, 32, and 44, note that the S&P/Case-Shiller U.S. National Home Price Index, the S&P 500 Index, and the Dow Jones Bank Index are products of S&P Dow Jones Indices LLC and/or its affiliates and have been licensed for use by the Board. Copyright © 2021 S&P Dow Jones Indices LLC, a division of S&P Global, and/or its affiliates. All rights reserved. Redistribution, reproduction, and/or photocopying in whole or in part are prohibited without written permission of S&P Dow Jones Indices LLC. For more information on any of S&P Dow Jones Indices LLC's indices, please visit www.spdji.com. S&P® is a registered trademark of Standard & Poor's Financial Services LLC, and Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC. Neither S&P Dow Jones Indices LLC, Dow Jones Trademark Holdings LLC, their affiliates, nor their third-party licensors make any representation or warranty, express or implied, as to the ability of any index to accurately represent the asset class or market sector that it purports to represent, and neither S&P Dow Jones Indices LLC, Dow Jones Trademark Holdings LLC, their affiliates, nor their third-party licensors shall have any liability for any errors, omissions, or interruptions of any index or the data included therein.

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SUMMARY

Over the first half of 2021, progress on vaccinations has led to a reopening of the economy and strong economic growth, supported by accommodative monetary and fiscal policy. However, the effects of the COVID-19 pandemic have continued to weigh on the U.S. economy, and employment has remained well below pre-pandemic levels. Furthermore, shortages of material inputs and difficulties in hiring have held down activity in a number of industries. In part because of these bottlenecks and other largely transitory factors, PCE (personal consumption expenditures) prices rose 3.9 percent over the 12 months ending in May.

Over the first half of the year, the Federal Open Market Committee (FOMC) held its policy rate near zero and continued to purchase Treasury securities and agency mortgage-backed securities to support the economic recovery. These measures, along with the Committee's guidance on interest rates and the Federal Reserve's balance sheet, will help ensure that monetary policy continues to deliver powerful support to the economy until the recovery is complete.

Recent Economic and Financial Developments

The labor market. The labor market continued to recover over the first six months of 2021. Job gains averaged 540,000 per month, and the unemployment rate moved down from 6.7 percent in December to 5.9 percent in June. Although labor market improvement has been rapid, the unemployment rate remained elevated in June, and labor force participation has not moved up from the low rates that have prevailed for much of the past year. A surge in labor demand that has outpaced the recovery in labor supply has resulted in a jump in job vacancies and a step-up in wage gains in recent months.

Inflation. Consumer price inflation, as measured by the 12-month change in the PCE price index, moved up from 1.2 percent at the end of last year to 3.9 percent in May. The 12-month measure of inflation that excludes food and energy items (so-called core inflation) was 3.4 percent in May, up from 1.4 percent at the end of last year. Some of the strength in recent 12-month inflation readings reflects the comparison of current prices with prices that sank at the onset of the pandemic as households curtailed spending—a transitory result of “base effects.” More lasting but likely still temporary upward pressure on inflation has come from prices for goods experiencing supply chain bottlenecks, such as motor vehicles and appliances. In addition, prices for some services, such as airfares and lodging, have moved up sharply in recent months toward more normal levels as demand has recovered. Both survey-based and market-based measures of longer-term inflation expectations have risen since the end of last year, largely reversing the downward drift in those measures in recent years, and are in a range that is broadly consistent with the FOMC's longer-run inflation objective.

Economic activity. In the first quarter, real gross domestic product (GDP) increased 6.4 percent, propelled by a surge in household consumption and a solid increase in business investment but restrained by a substantial drawdown in inventories as firms contended with production bottlenecks. Data for the second quarter suggest a further robust increase in demand. Against a backdrop of elevated household savings, accommodative financial conditions, ongoing fiscal support, and the reopening of the economy, the strength in household spending has persisted, reflecting continued strong spending on durable goods and solid progress toward more normal levels of spending on services.

2 SUMMARY

Financial conditions. Since mid-February, equity prices and yields on nominal Treasury securities at longer maturities increased, as the rapid deployment of highly effective COVID-19 vaccines in the United States and the support provided by fiscal policy boosted optimism regarding the economic outlook. Despite having increased since February, mortgage rates for households remain near historical lows. Overall financing conditions for businesses and households eased further since February, as market-based lending conditions remained accommodative and bank-lending conditions eased markedly. Large firms, as well as those households that have solid credit ratings, continued to experience ample access to financing. However, financing conditions remained tight for small businesses and households with low credit scores.

Financial stability. While some financial vulnerabilities have increased since the previous *Monetary Policy Report*, the institutions at the core of the financial system remain resilient. Asset valuations have generally risen across risky asset classes with improving fundamentals as well as increased investor risk appetite, including in equity and corporate bond markets. Vulnerabilities from both business and household debt have continued to decline in the first quarter of 2021, reflecting a slower pace of business borrowing, an improvement in business earnings, and government programs that have supported business and household incomes. Even so, business-sector debt outstanding remains high relative to income, and some businesses and households are still under considerable strain. In the financial sector, leverage at banks and broker-dealers remains low, while available measures of leverage at hedge funds increased into early 2021 and are high. Issuance volumes of collateralized loan obligations and asset-backed securities recovered strongly through the first quarter of 2021, while issuance of non-agency commercial mortgage-backed securities was weak in that quarter. Funding risks at domestic banks continued to be low in the first

quarter, but structural vulnerabilities persist at some types of money market funds and bank-loan and bond mutual funds. (See the box “Developments Related to Financial Stability” in Part 1.)

International developments. Foreign GDP growth moderated at the start of the year, as some countries tightened public health restrictions to contain renewed COVID-19 outbreaks. Compared with last spring, many foreign economies exhibited greater resilience to public-health-related restrictions, and their governments have continued to provide fiscal support. Recent indicators suggest a pickup in activity in advanced foreign economies this spring following an increase in vaccination rates and an easing of restrictions. However, conditions in emerging market economies are more mixed, in part dependent on their success in containing outbreaks and the availability of vaccines. Inflation has been rising in many economies, as the price declines seen last spring reversed and commodity prices ramped up. Monetary and fiscal policies continue to be supportive, but some foreign central banks are adopting or signaling less-accommodative policy stances.

Foreign financial conditions generally improved or held steady. Equity prices and longer-term sovereign yields increased across advanced foreign economies, boosted by their ongoing reopening. Equity markets in emerging market economies were mixed, and flows into dedicated emerging market funds slowed. After trending lower since the spring of 2020, the foreign exchange value of the dollar has changed little on net since the start of the year.

Monetary Policy

Interest rate policy. To continue to support the economic recovery, the FOMC has kept the target range for the federal funds rate near zero and has maintained the monthly pace of its asset purchases. The Committee expects it will be appropriate to maintain the current

target range for the federal funds rate until labor market conditions have reached levels consistent with its assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed that rate for some time.

Balance sheet policy. With the federal funds rate near zero, the Federal Reserve has also continued to undertake asset purchases, increasing 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 coming meetings, the Committee will continue to assess the economy's progress toward these goals since the Committee adopted its asset purchase guidance last December.

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

The uneven recovery in labor force participation. The labor force participation rate (LFPR) has improved very little since early in the recovery and remains well below pre-pandemic levels. Relative to its February 2020 level, the LFPR remains especially low for individuals without a college education, for individuals aged 55 and older, and for Hispanics and Latinos. Factors likely contributing both to the incomplete recovery of the LFPR and to differences across groups include a

surge in retirements, increased caregiving responsibilities, and individuals' fear of contracting COVID-19; expansions to the availability, duration, and level of unemployment insurance benefits may also have supported individuals who withdrew from the labor force. Many of these factors should have a diminishing effect on participation in the coming months as public health conditions continue to improve and as expanded unemployment insurance expires. (See the box "The Uneven Recovery in Labor Force Participation" in Part 1.)

Recent inflation developments. Consumer price inflation has increased notably this spring as a surge in demand has run up against production bottlenecks and hiring difficulties. As these extraordinary circumstances pass, supply and demand should move closer to balance, and inflation is widely expected to move down. (See the box "Recent Inflation Developments" in Part 1.)

Supply chain bottlenecks in U.S. manufacturing and trade. Supply chain bottlenecks have hampered U.S. manufacturers' ability to procure the inputs needed to meet the surge in demand that followed widespread factory shutdowns during the first half of last year. Additionally, a massive influx of goods has exceeded the capacity of U.S. ports, extending manufacturers' wait times for imported parts. The stress on supply chains is reflected in historically high order backlogs and historically low customer inventories; these stresses, together with strong demand, have led to increased price pressures. When these bottlenecks will resolve is uncertain, as they reflect the global supply chain as well as industry-specific factors, but for some goods, such as lumber, the previous sharp increases in prices have begun to reverse. (See the box "Supply Chain Bottlenecks in U.S. Manufacturing and Trade" in Part 1.)

Inflation expectations. To avoid sustained periods of unusually low or high inflation, a fundamental aspect of the FOMC's monetary

4 SUMMARY

policy framework is for longer-term inflation expectations to be well anchored at the Committee's 2 percent longer-run inflation objective. Even though the pace of price increases has jumped in the first half of this year, recent readings on various measures of inflation expectations indicate that inflation is expected to return to levels broadly consistent with the FOMC's 2 percent longer-run inflation objective after a period of temporarily higher inflation. That said, upside risks to the inflation outlook in the near term have increased. (See the box "Assessing the Recent Rise in Inflation Expectations" 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. Many of the rules have prescribed strongly negative values of the federal funds rate since the start of the pandemic-driven recession. Because of the effective lower bound for the federal funds rate, the Federal Reserve's other monetary policy tools—namely, forward guidance and asset purchases—have been

critical for providing the necessary support to the economy through this challenging period. (See the box "Monetary Policy Rules, the Effective Lower Bound, and the Economic Recovery" in Part 2.)

The Federal Reserve's balance sheet. Since January, the growth in reserves, the drawdown of the Treasury General Account, and the surge in usage of the overnight reverse repurchase agreement (ON RRP) facility have significantly affected the composition of the Federal Reserve's liabilities. Against a backdrop of low short-term market interest rates and ample liquidity, the use of the ON RRP facility has increased substantially since April and has reached a recent high of nearly \$1 trillion, compared with usage near zero in February. Factors contributing to this increase included the decline in Treasury bill supply, downward pressure on money market rates, and the recent technical adjustment to the Federal Reserve's administered rates. (See the box "Developments in the Federal Reserve's Balance Sheet and Money Markets" in Part 2.)

PART 1

RECENT ECONOMIC AND FINANCIAL DEVELOPMENTS

Domestic Developments

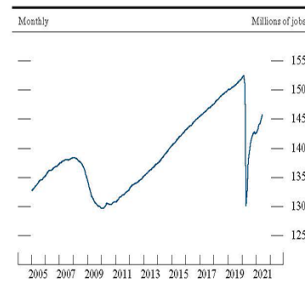
The labor market improved substantially in the first half of the year as the economy reopened and activity rebounded

Payroll employment increased by 3.2 million jobs in the first half of 2021, driven by a 1.6 million job gain in the leisure and hospitality sector, where the largest employment losses occurred last year. Despite the substantial improvement in the labor market, employment remained well below its pre-pandemic level (figure 1). In addition, although the unemployment rate declined 0.8 percentage point in the first half of the year, to 5.9 percent in June, it remained well above its pre-pandemic level (figure 2). This figure understates the shortfall in employment, particularly as factors related to the pandemic appear to be weighing on participation in the labor market.

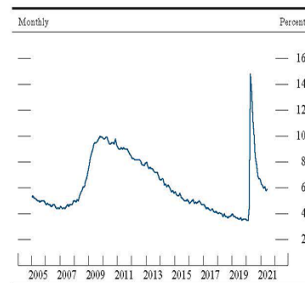
A brisk increase in labor demand outpaced the return of labor supply . . .

With economic activity rebounding, labor demand rose briskly in the spring, while the supply of labor struggled to keep up. Employers reported widespread hiring difficulties, job openings jumped to about 30 percent above the average level for 2019, and the ratio of job openings to job seekers surged (figure 3). With a dwindling pool of temporarily laid-off workers to recall, hiring increasingly involved reallocation of workers across firms and industries, a more time-consuming process. In addition, enhanced unemployment benefits have allowed potential workers to be more selective and reduce the intensity of their job search. Faced with a challenging environment for hiring, many employers raised wages to attract new workers and lengthened the workweeks of existing employees.

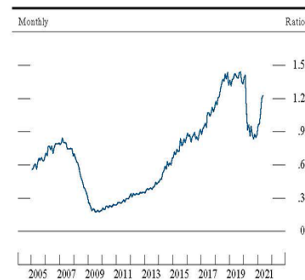
1. Nonfarm payroll employment



2. Civilian unemployment rate

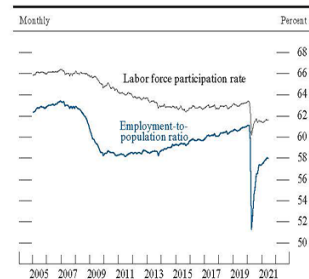


3. Ratio of job openings to job seekers



6 PART 1: RECENT ECONOMIC AND FINANCIAL DEVELOPMENTS

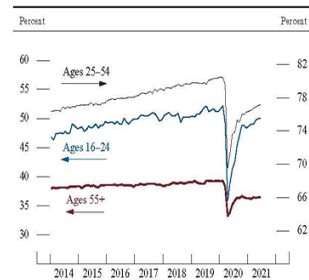
4. Labor force participation rate and employment-to-population ratio



NOTE: The labor force participation rate and the employment-to-population ratio are percentages of the population aged 16 and over and extend through June 2021.

SOURCE: Bureau of Labor Statistics via Haver Analytics.

5. Employment-to-population ratio, by age



NOTE: The data are monthly, extend through June 2021, and are seasonally adjusted.

SOURCE: Bureau of Labor Statistics via Haver Analytics.

... which was restrained by ongoing effects of the pandemic ...

Several pandemic-related factors continued to weigh on labor supply in the spring. The share of working-age adults either employed or actively seeking work—the labor force participation rate—has remained low after falling dramatically with the onset of the pandemic and stood at 61.6 percent in June (figure 4). With less than half of the population fully vaccinated for COVID-19 and inoculation rates far lower in some places, safety in the workplace remained a salient issue for many potential workers, and caregiving demands were still elevated for many households. Furthermore, a surge in retirements both last year and this year, possibly in response to health-related concerns or job loss induced by the pandemic, reduced the pool of potential hires for employers (figure 5).

... and much slack remains in the labor market ...

Although the unemployment rate has moved down sharply from its pandemic high, broad measures of labor conditions continue to point to substantial slack in the labor market. The employment-to-population ratio, which encompasses both unemployment and labor force participation, remains well below the trend observed in recent years, at 58.0 percent in June. Adjusted to include workers who have exited the labor force since the start of the pandemic and workers on temporary layoff misclassified as nonparticipants, the unemployment rate was about 8.7 percent in June.¹

1. Since the beginning of the pandemic, some people on temporary layoff, who should be counted as unemployed, have instead been recorded as “employed but not at work.” Had these workers been correctly classified, the Bureau of Labor Statistics estimates that the unemployment rate in June would have been as much as 0.2 percentage point above the reported rate.

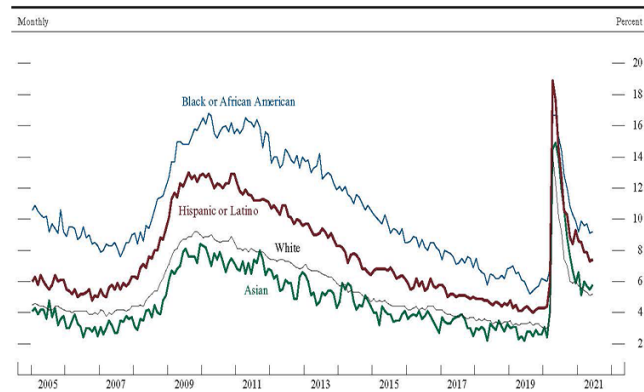
... especially for some groups that have been particularly hard hit by the crisis

Further progress has been made since the turn of the year in reversing the pandemic-induced spike in unemployment for all racial and ethnic groups (figure 6). That said, improvement in the labor market has been uneven. The effect of the pandemic on employment was largest for workers with lower wages, for workers with lower educational attainment, and for African Americans and Hispanics, and these hard-hit groups still have the most ground left to regain. And the pandemic seems to have taken a particularly large toll on the labor force participation of mothers, especially Hispanic mothers. (See the box “The Uneven Recovery in Labor Force Participation.”)

Wages have risen sharply as the economy has reopened . . .

Amid the transition to a more normal pace of economic activity, labor market pressures have led to a step-up in wage gains so far this year. Total hourly compensation as measured by the employment cost index rose at an annual rate of 4.0 percent over the first three months

6. Unemployment rate, by race and ethnicity



NOTE: The data extend through June 2021. 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.

The Uneven Recovery in Labor Force Participation

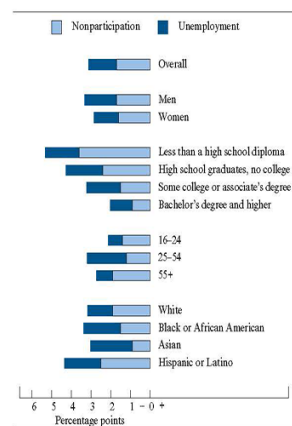
By many measures, the labor market has only partially recovered from the depths of the pandemic-driven recession. This discussion presents comparisons of recent readings on labor market conditions to those just before the pandemic. However, the reactions of businesses and workers to the pandemic may have long-lasting effects on the structure of the labor market. For example, the pandemic seems to have accelerated the adoption of new technologies by firms and the pace of retirements by workers. The post-pandemic labor market and the characteristics of maximum employment may well be different from those of early 2020.

As shown in the top bar of figure A, in June the percentage of the population aged 16 and older that is employed—or the employment-to-population (EPOP) ratio—was about 3 percentage points below its pre-pandemic (February 2020) level. This figure decomposes the decline in the EPOP ratio into the amount attributable to a decline in the percentage of the population working or actively looking for work, or the labor force participation rate (LFPR, light-blue bar), and an increase in unemployment (dark-blue bar).¹ About one-half of the decline in the EPOP ratio since February 2020 reflects a decline in the LFPR, which in June was 1¾ percentage points below its pre-pandemic level, while the rest is due to elevated unemployment.

Differences in these measures across various demographic groups existed even before the recession, and they widened after the start of the pandemic. While they have generally narrowed somewhat over the past year, the figure illustrates that differences across groups relative to pre-pandemic levels remain significant: EPOP ratios are more depressed for those without a college education relative to the college educated and for Hispanics relative to others, with much of these differences reflecting larger declines in the LFPRs of these groups.² The EPOP ratio is depressed more for those aged 25 to 54 relative to other ages, while the LFPR has fallen by more for those aged 55 or older.

While the unemployment rate has moved down gradually but steadily since peaking in April 2020, improvements in the LFPR have been less consistent, and since August 2020, the LFPR has fluctuated in a narrow, low range despite broader improvement in labor

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



NOTE: The data are seasonally adjusted and extend from February 2020 to June 2021. 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.

market conditions. The LFPRs for most of the groups shown in figure A also remain well below pre-pandemic levels. The rest of this discussion covers three reasons why the recovery in the LFPR remains incomplete, and that also may help explain why the recovery has been weaker for some groups than others—namely, a surge in retirements, heightened caregiving responsibilities, and individuals' fears of contracting COVID-19. In addition, expansions to the availability, amount, and duration of unemployment insurance (UI) benefits have given many individuals the financial means to be more selective when finding a new job, especially if pandemic- or individual-specific factors have limited their ability to quickly reenter the labor force.

Retirements: Even in the absence of the pandemic, the aging of the baby boomer cohort would likely have implied an increase in the share of the population that is retired relative to pre-pandemic levels of around 0.3 percentage point.³ However, the share of the population in the Current Population Survey (CPS) that

(continued)

1. The unemployment series in figure A shows changes in the number of unemployed workers as a percentage of the civilian population aged 16 or older. This measure differs from the unemployment rate, which is the number of unemployed individuals as a percentage of the civilian labor force.

2. For further discussion of factors contributing to these differences, see the box "Disparities in Job Loss during the Pandemic" in Board of Governors of the Federal Reserve System (2021), *Monetary Policy Report* (Washington: Board of Governors, February), pp. 12–14, https://www.federalreserve.gov/monetarypolicy/files/20210219_mprfullreport.pdf.

3. For estimates of the effect of population aging on the LFPR in the decade before the start of the pandemic, see, for example, Joshua Montes (2018), "CBO's Projection of Labor Force Participation Rates," Working Paper 2018-04.

B. Percent of the population not in the labor force and retired, change from January and February 2020 to April and May 2021

Group	Not in the labor force	Not in the labor force and retired
All individuals aged 16 and older	1.7	1.0
Aged 55 and older	1.7	1.9
Men	1.9	1.8
Women	1.5	2.0
White	1.8	1.8
Black or African American	.9	1.8
Asian	3.8	4.2
Hispanic or Latino	2.5	2.9

Note: Federal Reserve Board staff estimates from microdata in the Current Population Survey (CPS). Estimates are not seasonally adjusted. Small sample sizes preclude reliable estimates for Native Americans and other groups not included in the table.
Source: Census Bureau, CPS.

indicates being out of the labor force and retired jumped at the start of the pandemic and, as shown in figure B, has increased by 1 percentage point since early 2020—accounting for more than one-half of the 1.7 percentage point decline in the aggregate LFPR over this period.⁴ Among individuals aged 55 and older, the increase has been larger for women than for men and larger for Hispanics and Asians than for whites and Blacks.

Caregiving responsibilities: Figure C shows that nonparticipation in the labor force associated with caregiving has increased 0.7 percentage point.⁵ This increase likely reflects in part the difficulties imposed on parents and other caregivers from in-person education not being fully available to many K–12 students, and some of these parents may have decided to stop working or looking for work to help care for their children and facilitate their virtual education.⁶

(Washington: Congressional Budget Office, March), <https://www.cbo.gov/system/files/115th-congress-2017-2018/workingpaper/53616-wp-laborforceparticipation.pdf>.

4. The Federal Reserve Board staff estimates presented in figures B and C are derived from non-labor force participants' responses in the CPS to the question "What best describes your current situation at this time?"; some possible responses include "in retirement," "disabled," "in school," and "taking care of house or family." These figures do not correspond exactly with figure A because figures B and C use data through May 2021 (which is the latest month for which CPS microdata were available at the time of writing) and show data that are not seasonally adjusted. Figures B and C display two-month averages because these data can have considerable noise at monthly frequency.

5. Nonparticipation in the labor force associated with caregiving is measured as nonparticipants in the CPS who report "taking care of house or family" as their current situation.

6. Indeed, according to the Return to Learn Tracker (R2L), even as of June 7, 2021, only 54 percent of districts provided fully in-person education. More information is available on the R2L website at <https://www.returntolearntracker.net>.

C. Percent of the population not in the labor force and caregiving, change from January and February 2020 to April and May 2021

Group	Not in the labor force	Not in the labor force and caregiving
All individuals aged 16 and older	1.7	.7
Women aged 25 to 54 without children	1.8	1.0
Mothers aged 25 to 54 with only children aged 5 and younger	1.4	1.4
Mothers aged 25 to 54 with children aged 6 to 17	2.6	2.6
White	2.7	2.5
Black or African American	2.8	3.6
Asian	2.3	1.3
Hispanic or Latino	5.0	4.0
Fathers aged 25 to 54 with children aged 6 to 17	.7	.6

Note: Federal Reserve Board staff estimates from microdata in the Current Population Survey (CPS). Estimates are not seasonally adjusted. Individuals not in the labor force and caregiving are those who are not in the labor force and report "taking care of house or family" as their current situation. Small sample sizes preclude reliable estimates for Native Americans and other groups not included in the table.
Source: Census Bureau, CPS.

Consistent with a considerable effect from students' virtual education, estimates from the figure also show that the increase in nonparticipation for caregiving reasons has been larger for mothers aged 25 to 54 with children aged 6 to 17 (2.6 percentage points) than for women without their own children in the home (1.0 percentage point), women who only have children aged 5 and younger (1.4 percentage points), and fathers (0.6 percentage point) and accounts for all of the decline in the LFPR for mothers.⁷ The increase in nonparticipation for caregiving has been especially large for Black and Hispanic mothers, and it accounts for much of the larger decline in the LFPR for these groups.⁸

(continued on next page)

7. The increase in nonparticipation due to caregiving concerns for women with younger children may reflect the lack of available childcare facilities during much of the pandemic. For adults without their own school-age children, the increase may reflect that some of these individuals have also likely had to stop working or looking for work in order to assist with children of relatives or with elderly or disabled relatives rather than risk care outside of the home. Indeed, the increase in nonparticipation for caregiving reasons among women who are not mothers is larger for those with other adult household members who report being disabled or are aged 65 or older.

8. These differences may in part reflect that the groups with larger increases in nonparticipation due to caregiving were less likely to work in telecommute-capable occupations before COVID-19; for example, based on May 2021 Federal Reserve Board staff estimates from the CPS, 19 percent of white mothers aged 25 to 54 with kids aged 6 to 17 report telecommuting due to COVID, compared with 15 percent of Black mothers and 12 percent of Hispanic mothers. It may also

Uneven Recovery *(continued)*

Fear of the COVID-19 virus: Individuals' fears of contracting the COVID-19 virus are likely also still depressing labor force participation somewhat and may in part be reflected in the factors previously discussed; COVID-19 fears may be especially relevant for those who would otherwise be working on-site in high-contact industries and occupations—and even for some fully vaccinated individuals, such as older and immunocompromised workers who are at higher risk for severe illness or death from COVID-19. Consistent with the importance of this reason, data from the Census Bureau's Household Pulse Survey show that between May 26 and June 7, 2021, about 1 percent of the population reported not working or having recently looked for work because of fears of COVID-19.⁹ This share was higher for Blacks and Hispanics, those aged 18 to 24, and individuals with no college education, which aligns with demographic differences in the share of individuals employed in high-contact industries before COVID-19 and with differences in individuals' ability to work from home.

Expanded unemployment insurance: The pandemic recession prompted an unprecedented expansion in the availability and level of support of UI. A suite of federal programs has extended benefits to groups normally ineligible for UI, increased the potential duration of benefits, and boosted the weekly benefit amounts received by UI claimants.¹⁰ Complementing the new programs, many states broadened UI eligibility

at the start of the pandemic by temporarily suspending work search requirements and relaxing other eligibility criteria. While the income support from expanded UI and other fiscal stimulus likely led some jobseekers to search less intensively or to be more selective in accepting job offers, the effects of these programs on labor force participation are not clear.¹¹ The support from enhanced UI has been especially consequential for lower-wage workers, who have borne the brunt of recent job losses and who have benefited most from broader coverage and higher benefit levels.¹²

The path ahead: Many of the factors constraining labor force participation should gradually abate in the coming months, and, as they do, the overall participation rate should rise and the demographic disparities in labor force participation that widened during the pandemic will likely continue to narrow. Fears of getting or spreading COVID-19 are likely to recede if vaccination rates continue to climb and if caseloads continue to diminish, and caregiving responsibilities should ease if most students return to in-person instruction in the fall. With federal pandemic UI programs slated to end in September and many states withdrawing from them in advance of their nationwide expiration, any effects of enhanced UI benefits on labor force participation will likely wane soon as well. The spate of retirements spurred by the pandemic will continue to weigh on labor force participation for some time, but this factor should leave a gradually diminishing imprint over the next few years, because these workers were likely poised to retire soon even in the absence of the pandemic. The full effect of the pandemic on the structure of the labor market remains to be seen, and the characteristics of maximum employment may well be different from those of early 2020.

reflect that in-person education was less common in school districts with a larger share of Black and Hispanic students; for example, data from the Return to Learn Tracker for June 7 show that fully in-person education was more common in majority-white school districts than majority-Black or majority-Hispanic school districts.

9. The data are Federal Reserve Board staff calculations from week 31 of the Household Pulse Survey Public Use File. The percentage not working due to fears of COVID-19 is measured as the percentage of respondents who say that their main reason for not working was concern about "getting or spreading the coronavirus." The data can be found on the Census Bureau's website at <https://www.census.gov/programs-surveys/household-pulse-survey/datasets.html>.

10. These programs are Pandemic Unemployment Assistance (PUA), which provides benefits to pandemic-affected individuals with insufficient wage and salary earnings to qualify for regular UI benefits; Pandemic Emergency Unemployment Compensation (PEUC), which provides additional weeks of coverage to workers who exhaust their regular UI benefits; and Federal Pandemic Unemployment Compensation (FPUC), which currently provides \$300 in supplemental benefits to all UI claimants, including those in the PUA and PEUC programs. See Tomaz Cajner, Andrew Figura, Brendan M. Price, David Ratner, and Alison Weingarten (2020), "Reconciling Unemployment Claims with Job Losses in the First Months of the COVID-19 Crisis," Finance and Economics Discussion Series 2020-055 (Washington: Board of Governors of the Federal Reserve System, July), <https://doi.org/10.17016/FEDS.2020.055>.

11. Research into the labor market effects of pandemic UI policy has largely centered on FPUC, rather than the broader set of state and federal policy changes, and has focused on employment rather than labor market participation. Several recent studies have found that \$600 weekly benefit increases under FPUC had at most a modest effect on employment last year, in part because UI generosity has less effect on hiring when the labor market is slack. (See, for example, Nicolas Petrosky-Nadeau and Robert G. Valletta (2021), "UI Generosity and Job Acceptance: Effects of the 2020 CARES Act," Working Paper Series 2021-13 (San Francisco: Federal Reserve Bank of San Francisco, June), <https://www.frbf.org/economic-research/files/wp2021-13.pdf>.) Less is known about the possible effects of FPUC, PEUC, and PUA on labor force participation, particularly in the tighter labor market conditions prevailing in 2021.

12. The \$300 FPUC supplement to weekly UI benefits replaces a larger portion of lost earnings for workers displaced from lower-wage jobs, while PUA has made benefits available to self-employed workers, labor market entrants, and other groups with limited earnings histories.

of the year, lifting the 12-month change up to 2.8 percent (figure 7). More timely indicators show continuing large wage gains, though swings in the composition of the workforce make these difficult to interpret.² In particular, average hourly earnings exhibited very large monthly increases in April, May, and June despite being held down in those months by large job gains in industries with below-average wages. Compensation per hour in the business sector, a broad-based but volatile measure of wages, salaries, and benefits, rose 8 percent through the first quarter, bolstered significantly by changes in the composition of the workforce.³

... and price inflation has stepped up, boosted by returning demand and by supply bottlenecks ...

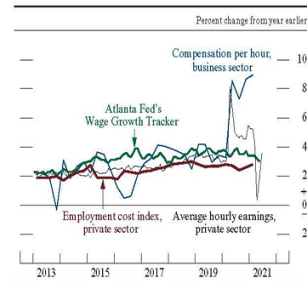
As measured by the 12-month change in the price index for personal consumption expenditures (PCE), inflation jumped from 1.2 percent in December 2020 to 3.9 percent in May, well above the FOMC's longer-run objective of 2 percent (figure 8). The closely watched core PCE price index, which excludes more volatile components, rose 3.4 percent over the 12 months ending in May. The price acceleration appears to have arisen largely from a small number of categories, as suggested by muted movements in the Dallas trimmed mean index, which removes the largest price changes.⁴ For example, sharp price

2. Early in the pandemic, job losses were much larger for lower-wage workers, raising average wages and measured wage growth. This process is now being reversed as many lower-wage workers, particularly in services, have been rehired, thus lowering average wages and measured wage growth. Consequently, in the 12-month changes, large composition effects obscure the underlying movements in wages of typical workers.

3. Over the same period, labor productivity in the business sector is estimated to have increased 4 percent, much faster than the pre-pandemic trend. Both compensation and productivity have been affected by changes in the composition of inputs and outputs that may be largely transitory. Nevertheless, some of the increases may reflect more persistent factors.

4. The trimmed mean omits the highest and lowest price changes, removing products representing roughly half of the PCE basket by consumption share.

7. 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 extend through June 2021; for the Atlanta Fed's Wage Growth Tracker, the data are shown as a 3-month moving average of the 12-month percent change.

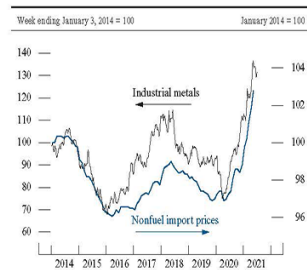
SOURCE: Bureau of Labor Statistics; Federal Reserve Bank of Atlanta, Wage Growth Tracker; all via Haver Analytics.

8. Change in the price index for personal consumption expenditures



SOURCE: For trimmed mean, Federal Reserve Bank of Dallas; for all else, Bureau of Economic Analysis; all via Haver Analytics.

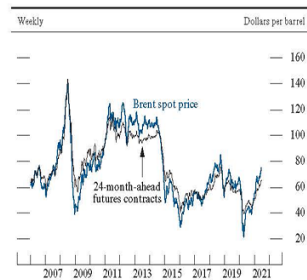
9. Nonfuel import prices and industrial metals indexes



NOTE: The data for nonfuel import prices are monthly. The data for industrial metals are weekly averages of daily data and extend through July 2, 2021.

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

10. Spot and futures prices for crude oil



NOTE: The data are weekly averages of daily data and extend through July 2, 2021.

SOURCE: ICE Brent Futures via Bloomberg.

increases for goods have been concentrated among a subset of products experiencing strong demand coupled with supply chain bottlenecks. In addition, as demand for services has returned to normal, some prices have bounced back from levels depressed following the onset of the pandemic. (See the box “Recent Inflation Developments.”)

... with further upward pressure on inflation from rising import prices

Increased import prices also contributed to the step-up in consumer price inflation in the first half of 2021, boosted by commodity prices, which rose in response to strong demand for goods. The effects of higher import prices have been exacerbated by bottlenecks abroad that have raised transport costs (figure 9). (See the box “Supply Chain Bottlenecks in U.S. Manufacturing and Trade.”)

After a sharp recovery in late 2020 and early 2021, oil prices have risen over \$10 per barrel in the past few months, a substantial increase but less dramatic than some of the increases for nonfuel commodity prices. Even though oil consumption is still well below pre-pandemic levels, oil production is also down, and oil prices are now above pre-pandemic levels (figure 10). Oil demand continues to be held back by the slow recovery in travel and commuting. Meanwhile, OPEC (Organization of the Petroleum Exporting Countries) and its partners, notably Russia, have only slowly increased their production toward pre-pandemic levels, offsetting the effect of weak demand.

Survey-reported inflation expectations and market-based inflation compensation measures have moved up in recent months

Survey-based measures of inflation expectations at medium- and longer-term horizons have moved up over the first half of the year. These measures, which exhibited a downward drift in recent years, have returned to levels last observed 5 to 10 years ago. Similarly, market measures of longer-term

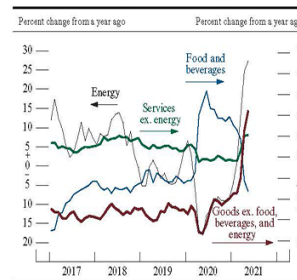
Recent Inflation Developments

Since the beginning of this year, personal consumption expenditures (PCE) inflation—as measured by 12-month percent changes—has increased markedly, reaching 3.9 percent in May (figure 8 in the main text). The sharp increase in inflation this year reflects both a rebound in prices from pandemic-induced price declines last spring and imbalances between demand and supply associated with a strong increase in aggregate demand amid supply chain bottlenecks, hiring difficulties, and other capacity constraints.

As global demand has surged, prices for crude oil and other traded commodities, such as livestock, crops, and metals, have increased notably (figures 9 and 10 in the main text). Commodity prices started to rebound during the second half of last year as the global economy partially reopened and have continued to rise this year, in some cases reaching multiyear highs. These prices most directly affect food and energy consumer prices (the blue and black lines, respectively, in figure A). However, readings from manufacturing surveys and anecdotes reported in the Federal Reserve's Beige Book suggest rising costs for raw materials have contributed to inflation for other goods as well (the red line in figure A). More recently, prices of some commodities, such as lumber, have come down from their peaks in the spring or have flattened out, suggesting that inflation pressures from commodities might ease in the coming months or even reverse.

Supply chain bottlenecks are another factor pushing up consumer prices this year. As the economy reopened and as consumer demand for goods surged, many producers have reported shortages of critical parts and packaging materials, as well as delivery delays. (See the box "Supply Chain Bottlenecks in U.S. Manufacturing and Trade.") Supply chain bottlenecks have been particularly constraining in the motor vehicle sector, where global shortages of semiconductors and other parts have curtailed production, at the same time that demand by households and rental companies has been strong. Prices for motor vehicles—particularly used vehicles—have jumped in recent months and are currently at levels well above their pre-COVID-19 trends (figure B, top-left panel). Strong demand amid supply chain bottlenecks has also boosted prices for other durable goods in recent months, but the pattern is not quite as pronounced as it is for motor vehicles (figure B, top-right panel). In fact, the rise in prices

A. Personal consumption expenditures price indexes



NOTE: The data are monthly.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

connected to the motor vehicle sector—including prices for new and used vehicle purchases and vehicle rental services—accounts for almost one-third of the increase in PCE prices in April and May.

Regarding services prices, demand for certain non-energy services that were severely curtailed by social distancing during the pandemic has surged this spring as the vaccines have become widely available (the green line in figure A). Just as the drop in demand last year led to a step-down in prices for categories related to travel and group activities, the resurgence in demand for these services is pushing up prices this year. As two prominent examples, airline fares and prices for hotel accommodations have jumped since the beginning of the year but so far remain somewhat below their pre-COVID trends (figure B, bottom panels).

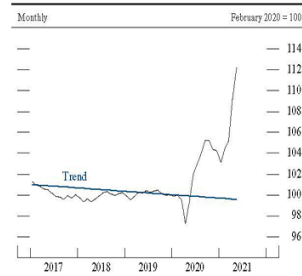
Even as demand for services appears to be strong and growing, many service-sector businesses have reported difficulties in finding workers quickly enough to ramp up their operations accordingly. These reports are consistent with most available measures of wage growth, which have stepped up notably since the beginning of the year. Wage gains have been especially large in the leisure and hospitality sector and in other service industries that have relatively low average wages, which has likely contributed to the rise in inflation for certain categories of spending, such as food away from home.

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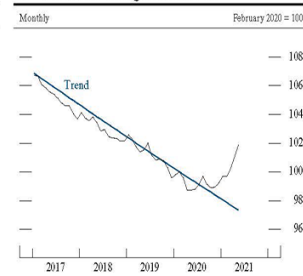
Recent Inflation Developments *(continued)*

B. Personal consumption expenditures prices and pre-COVID-19 trends

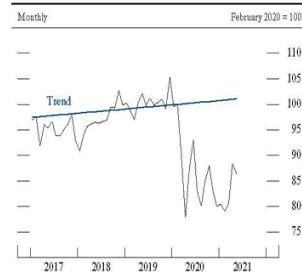
B1. Motor vehicles



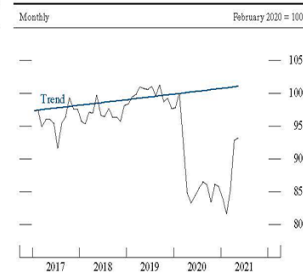
B2. Durables excluding motor vehicles



B3. Airline fares



B4. Hotel accommodations



NOTE: Trend is calculated from February 2017 to February 2020.
SOURCE: Bureau of Economic Analysis; FRB calculations.

Overall, an important part of the rise in inflation this spring appears to be due to a surge in demand, including the rebound in travel-related spending, running up against short-run production bottlenecks and hiring difficulties. As these extraordinary circumstances pass, supply and demand should

become better aligned, and inflation is widely expected to move down toward the FOMC's 2 percent longer-run goal. (For a more detailed discussion of recent developments in inflation expectations, see the box "Assessing the Recent Rise in Inflation Expectations.")

Supply Chain Bottlenecks in U.S. Manufacturing and Trade

The strong U.S. demand for goods has been faced with a supply chain that has struggled to keep pace. With the onset of the pandemic in the spring of 2020, many manufacturers sharply curtailed production in expectation of a long downturn and a drawn-out recovery. Companies laid off workers, idled plants, and canceled orders for materials. In many cases, however, the pause in demand was much shorter and the rebound in demand was much stronger than anticipated, and by late 2020, factories in some industries were scrambling to find the workers, parts, and materials to fill a rush of new orders. As demand for goods surged in the second half of 2020, U.S. import volumes shot up to record levels and have remained elevated. The massive influx of goods combined with COVID-19-related staffing issues have overwhelmed U.S. ports, resulting in additional challenges for manufacturers that experience extended wait times for imported parts.

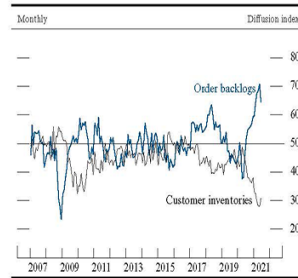
Ample evidence—including widespread anecdotes of shortages mentioned in the press and in the Federal Reserve's Beige Book—points to broad and sometimes deep supply chain disruptions across the manufacturing sector. The challenges in procuring materials are also reflected in reports from the Institute for Supply Management on order backlogs, which recently reached historical highs at the same time as customer inventories were at historical lows (figure A).¹ Additionally, roughly one-fourth of all manufacturers cannot produce at full capacity because of an insufficient supply of materials, labor, or both (figure B).² Amid strong demand, these shortages have put upward pressure on the prices manufacturers pay for parts and materials (figure C).

A few key manufacturing industries have experienced pronounced supply disruptions or shortfalls. Perhaps most notably, the burst in

1. The Institute for Supply Management survey asks respondents whether their customers' inventories are currently "too high," "too low," or "about right." Values below 50 indicate more respondents perceived customers' inventories as "too low" than "too high." Similarly, respondents are asked to compare the current month's backlog of orders with the previous month's backlog; values above 50 suggest more respondents reported higher backlogs than reported lower backlogs.

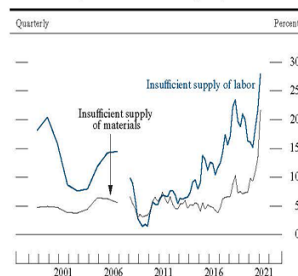
2. Labor shortages appear increasingly problematic. Although manufacturers have long expressed challenges in attracting and retaining workers, the most recent reading from the Bureau of Labor Statistics reported 814,000 job openings in the sector, nearly double the 2017–19 average.

A. Customer inventories and order backlogs



NOTE: The data extend through June 2021.
SOURCE: Institute for Supply Management, Manufacturing ISM Report on Business.

B. Reasons production is below capacity



NOTE: Gaps in series represent the end of the Annual Survey of Plant Capacity in 2006 and the start of the Quarterly Survey of Plant Capacity in 2008.

SOURCE: Census Bureau, Manufacturing and Construction Division, Quarterly Survey of Plant Capacity Utilization.

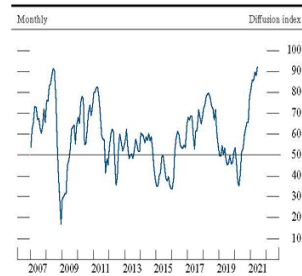
demand for consumer electronics contributed to full order books, long lead times, and shortages of semiconductors; these shortages led to widespread shutdowns and slowdowns at several U.S. motor vehicle assembly plants.³ Lumber supply has also fallen

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3. The semiconductor shortage was exacerbated when a chip factory in Japan closed for about a month in the spring after being damaged by a fire; the company announced that it expects shipments to return to pre-fire levels in late July.

Supply Chain Bottlenecks *(continued)*

C. Prices paid by manufacturers for materials



Note: Values greater than 50 indicate that more respondents paid higher prices for material inputs relative to a month earlier than reported lower prices. The data extend through June 2021.

Source: Institute for Supply Management, Manufacturing ISM Report on Business.

short, as last year's increase in remodeling projects and new home construction outpaced production at sawmills. Meanwhile, supply bottlenecks for steel emerged last fall after a resurgence in orders surprised mill operators that had not yet fully restarted steelmaking equipment idled in the early days of the pandemic.⁴ Finally, extremely cold temperatures in mid-February caused extensive damage to several petrochemical facilities along the Gulf Coast, resulting

4. More than half of the nation's blast furnaces were idled last year, and a few were permanently shuttered; the vast majority of the idled furnaces were restarted by this spring.

in acute shortages; the outages resolved slowly, and only in early May did operations essentially return to normal.

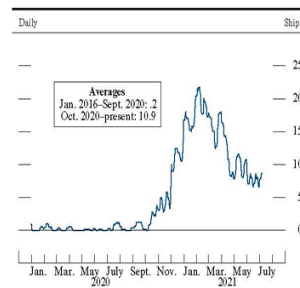
Logjams at some of the nation's ports—particularly on the West Coast—resulted from the unprecedented volume of imports and were compounded by limitations on labor attributable to COVID-19 precautions and to isolated outbreaks among dock workers. For example, since the fall of 2020, the Port of Los Angeles, the nation's busiest port, has had more ships to unload than it could easily accommodate. Typically, ships have little to no wait before they reach a berth at the port, but since last October, on average, more than 10 ships have been waiting at anchor at any given time (figure D). While this number has retreated from its peak, ships are still spending an extended time in the port. Continued high import volumes have hampered the port's progress in resolving congestion even as the quick pace of vaccinations in the United States has allowed the port to resume processing incoming containers at full capacity.

In addition to the congestion at ports, carriers have raised shipping rates and imposed large surcharges on containers sent to the United States.⁵ These delays and elevated costs have likely discouraged additional imports of low-value, high-volume products, contributing to higher prices and reduced inputs for

(continued)

5. Air freight rates have also risen sharply, as many goods normally shipped by sea are being transported by air to avoid extended delays. Furthermore, pandemic-related restrictions on international travel have limited the number of international flights, reducing the supply of cargo space for air shipments and further increasing prices.

D. Ships waiting at anchor (Port of Los Angeles)

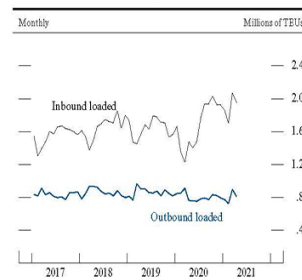


NOTE: The data are 7-day moving averages.
SOURCE: Port of Los Angeles.

U.S. manufacturers. Relatedly, the higher inbound rates have created a challenge for U.S. exports in the form of a container shortage. Shipping rates for U.S. exports have risen by much less than rates for inbound shipments, so carriers find it more profitable at times to quickly return empty containers for another inbound U.S. delivery than to receive modest revenue from taking on U.S. exports. Thus, although the number of inbound loaded containers skyrocketed in the second half of last year, the number of outbound loaded containers stayed below pre-pandemic levels until March 2021 (figure E).

In summary, trade and production bottlenecks have been an important factor as the economy emerges from

E. Container flows at U.S. ports

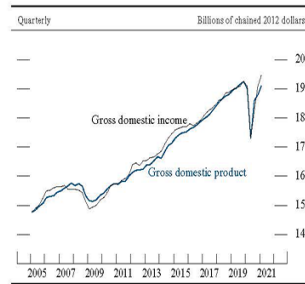


NOTE: The data extend through April 2021. The data include the ports of Baltimore, Charleston, Houston, Los Angeles, Long Beach, New York and New Jersey, Oakland, Savannah, Seattle, and Tacoma, which accounted for 91 percent of total throughput at U.S. ports in 2019. TEUs are 20-foot equivalent units.

SOURCE: Maryland Port Administration; South Carolina Ports Authority; Port of Houston Authority; Port of Los Angeles; Port of Long Beach; Port of New York and New Jersey; Port of Oakland; Georgia Ports Authority; Northwest Seaport Alliance; all via Haver Analytics; Federal Reserve Board staff calculations.

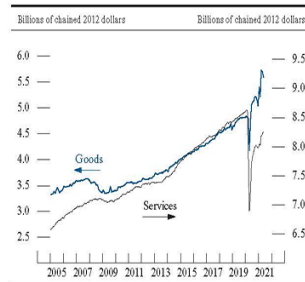
the pandemic. As producers and the distribution network work through these bottlenecks, production is expected to pick up and price pressures to ease—for example, lumber prices have come down from their late-spring peaks. The time frame for the resolution of these bottlenecks is uncertain, as they reflect both the global supply chain and some industry-specific reasons for the tight conditions.

11. Real gross domestic product and gross domestic income



SOURCE: Bureau of Economic Analysis via Haver Analytics.

12. Real personal consumption expenditures



NOTE: The data are monthly.

SOURCE: Bureau of Economic Analysis via Haver Analytics.

inflation compensation—including inflation swaps and the yield gap between nominal Treasury securities and Treasury Inflation-Protected Securities—continued to climb in 2021, returning to the range observed in the 2010–14 period. (See the box “Assessing the Recent Rise in Inflation Expectations.”)

Gross domestic product surged in the first half of the year . . .

Real gross domestic product (GDP) rose at a brisk annual rate of 6½ percent in the first quarter and, with indicators suggesting another strong increase in the second quarter, appears to have now recovered to its pre-pandemic level (figure 11). Even so, supply chain bottlenecks, hiring difficulties, and other capacity constraints have damped the economic rebound to some degree this year, causing order backlogs and longer delivery times and leading producers to meet demand in part by drawing down inventories rather than from new production.

. . . driven by a sharp increase in household spending . . .

The rebound in GDP primarily reflects a resurgence of household spending, driven by the reopening of the economy and additional fiscal support. In particular, the easing of voluntary and mandatory social distancing has spurred an increase in services spending, such as more prevalent dining out, hotel stays, and air travel (figure 12). Still, concerns about COVID-19 continue to limit in-person interactions, and services spending has yet to reach its pre-pandemic level. Spending on goods, which quickly recovered in the second half of 2020, soared from January through May. Spending on durable goods has been especially strong, including on motor vehicles, where sales reached levels among the highest on record in March and April before being held back in May by extremely low dealer inventories.

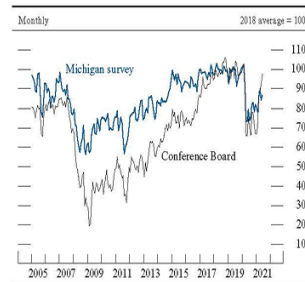
... supported by rising personal income, consumer sentiment, and wealth ...

The marked increase in personal consumption has been supported by increasing income, accumulated savings, rising housing and stock market wealth, low interest rates, and improving consumer sentiment (figure 13). Disposable personal income—that is, household income net of taxes—surged in the first quarter of this year, boosted by further fiscal support, including stimulus checks and enhanced unemployment insurance benefits, along with solid gains in wages and compensation. Meanwhile, the continuing brisk rise in house prices and stock prices has boosted the wealth of homeowners and equity investors (figure 14). The tremendous gains in income have led to a very elevated saving rate (figure 15). 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.

... and ready access to credit for households with good credit profiles

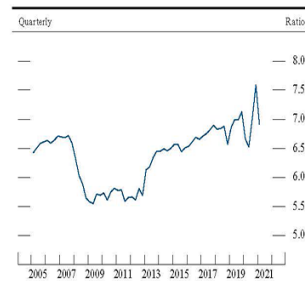
Household borrowing has expanded moderately. Consumer loans have grown at a modest pace so far this year, driven by the continued expansion of auto loans (figure 16). Banks reported significant easing of lending standards on consumer loans in the first quarter of 2021 after a moderate easing in the last quarter of the previous year, though standards remain tight relative to the period just before the pandemic. Delinquency rates for nonprime auto and credit card borrowers remained well below pre-pandemic levels, likely stemming from forbearance programs and fiscal support. Mortgage credit is broadly available to high-credit-score borrowers who meet standard conforming loan criteria but continues to be tight for borrowers with lower credit scores. Historically low mortgage rates have led to elevated refinance and purchase activity, supported by accommodative credit

13. Indexes of consumer sentiment



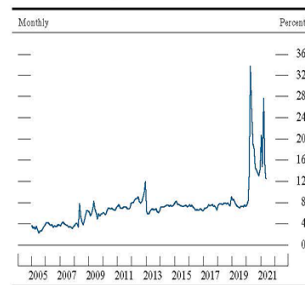
NOTE: The data extend through June 2021.
SOURCE: University of Michigan Surveys of Consumers; Conference Board.

14. Wealth-to-income ratio



NOTE: The series is the ratio of household net worth to disposable personal income.
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.

15. Personal saving rate



SOURCE: Bureau of Economic Analysis via Haver Analytics.

Assessing the Recent Rise in Inflation Expectations

The sharp rise in inflation so far this year (see the box “Recent Inflation Developments”) has raised the question of whether the recent elevated pace of price increases (1) will abate, as the effects of the strong rebound in aggregate demand and accompanying supply chain bottlenecks fade, without calling for a change in the path of monetary policy or (2) will instead be followed by a period of higher inflation pressures and call for a change in the stance of monetary policy. The latter situation could arise if longer-term inflation expectations were to rise persistently above levels consistent with the Federal Open Market Committee’s (FOMC) longer-run inflation goal. Inflation expectations are often seen as a driver of actual inflation, which is why a fundamental aspect of the FOMC’s monetary policy framework is for longer-term inflation expectations to be well anchored at the Committee’s 2 percent longer-run inflation objective.¹ In monitoring the inflation outlook, the FOMC considers a variety of financial and economic data in order to gauge whether inflation expectations are consistent with meeting its inflation objective. Recent readings on these measures indicate that inflation is expected to return to levels consistent with the Committee’s 2 percent longer-run inflation objective after a period of temporarily higher inflation. That said, some measures suggest that the upside risks to the inflation outlook in the near term have increased.

Information concerning inflation expectations can be obtained from various sources, including financial instruments linked to inflation and surveys of financial market participants, professional forecasters, households, and businesses. For example, the compensation that investors require to hold certain financial instruments whose payouts are linked to inflation sheds light on financial market participants’ expectations regarding inflation. Inflation compensation implied by the yields on Treasury securities, known as the Treasury Inflation-Protected Securities (TIPS) breakeven inflation rate, is defined as the difference between yields on conventional Treasury securities and yields on TIPS, which are linked to actual outcomes regarding headline consumer price index (CPI) inflation. An alternative market-based measure of inflation compensation can be derived from inflation swaps,

which are contracts in which two parties agree to swap fixed nominal payments for floating cash flows that are tied to cumulative CPI inflation over some horizon.

Longer-horizon TIPS- and swaps-based measures of inflation compensation have both moved up since the start of the year. The TIPS-based measure of 10-year inflation compensation increased from an annual rate close to 2 percent in the beginning of 2021 to somewhat above 2¼ percent in early July. Over the same period, the swaps-based measure increased from around 2¼ percent to 2½ percent. To shed further light on how the recent economic developments are influencing investors’ views on the inflation rate likely to prevail at different horizons, it is useful to split the recent rise in inflation compensation over the next 10 years into changes in inflation compensation for the next year and for subsequent 1-year periods starting at times between 1 and 9 years from now. The result of this exercise suggests that market-based measures of inflation compensation over the next year have increased about 1½ percentage points since early 2021, reaching levels above 3 percent in early July. Measures of inflation compensation for the period beyond the next year have also moved up but by a much smaller amount than have measures of 1-year inflation compensation. In particular, inflation compensation beyond five years has reversed the large declines seen earlier in the pandemic, bouncing back to levels consistent with those observed before 2014, when measures of longer-term inflation compensation ran modestly above 2 percent on a CPI basis, and before these measures showed signs that CPI inflation expectations may have drifted down (figure A).

If the recent readings on inflation compensation could be interpreted as direct measures of expected CPI inflation, they would suggest that investors currently anticipate that average CPI inflation will temporarily run somewhat above 3 percent over the next year before moving back down. Over the longer run, assuming no wedge between inflation compensation and inflation expectations, market-based measures indicate that investors are expecting CPI inflation to settle at around 2¼ percent. This pattern is consistent with expectations of CPI inflation moving to levels in line with the FOMC’s longer-run inflation goal of 2 percent PCE (personal consumption expenditures) inflation.²

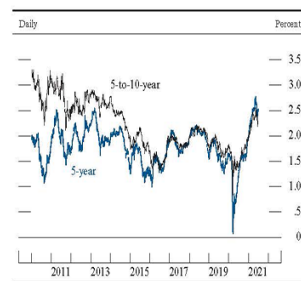
TIPS- and swaps-based measures of inflation compensation, however, reflect not only expected

(continued)

1. For a discussion of the role inflation expectations play in inflation dynamics, see Janet L. Yellen (2013), “Inflation Dynamics and Monetary Policy,” speech delivered at the Philip Gamble Memorial Lecture, University of Massachusetts, Amherst, September 24, <https://www.federalreserve.gov/newsevents/speech/yellen20150924a.htm>.

2. The Committee’s 2 percent longer-run inflation objective is stated in terms of the PCE price index, and PCE inflation

A. Inflation compensation implied by Treasury Inflation-Protected Securities



NOTE: The data are at a business-day frequency and are based on smoothed nominal and inflation-indexed Treasury yield curves.
SOURCE: Federal Reserve Bank of New York; Federal Reserve Board staff calculations.

inflation, but also other factors, including the inflation risk premium and possibly other premiums driven by liquidity differences and shifts in demand and supply of TIPS relative to those of nominal Treasury securities. The presence of these additional factors can make it difficult to ascertain the information regarding expected inflation embedded in market-based measures of inflation compensation.³ Survey-based measures, in contrast, provide information about inflation

tends to run somewhat below CPI inflation, which is used in pricing TIPS and inflation swaps. Over the past two decades, PCE price inflation has run, on average, around $\frac{1}{4}$ percentage point lower than CPI inflation, though this wedge has varied from year to year.

3. The Federal Reserve System staff maintains several term structure models to disentangle the various components of inflation compensation. For more details, see, for example, Michael Abrahams, Tobias Adrian, Richard K. Crump, Emanuel Moench, and Rui Yu (2016), "Decomposing Real and Nominal Yield Curves," *Journal of Monetary Economics*, vol. 84 (December), pp. 182–200; Jens H.E. Christensen, Jose A. Lopez, and Glenn D. Rudebusch (2010), "Inflation Expectations and Risk Premiums in an Arbitrage-Free Model of Nominal and Real Bond Yields," *Journal of Money, Credit and Banking*, vol. 42 (September), pp. 143–78; Stefania D'Amico, Don H. Kim, and Min Wei (2018), "Tips from TIPS: The Informational Content of Treasury Inflation-Protected Security Prices," *Journal of Financial and Quantitative Analysis*, vol. 53 (February), pp. 395–436; and Andrea Ajello, Luca Benzoni, and Olena Chyruk (2020), "Core and 'Crust': Consumer Prices and the Term Structure of Interest Rates," *Review of Financial Studies*, vol. 33 (August), pp. 3719–65.

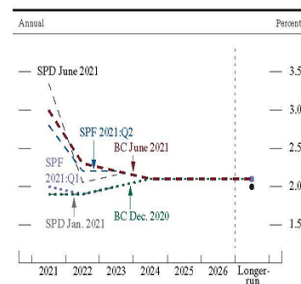
expectations that is not obscured by the presence of these risk premiums.

Information about inflation expectations obtained from surveys of financial market participants, economists, and professional forecasters tells a story similar to that of market-based measures. Since the turn of the year, projections of PCE inflation for 2021 as a whole, obtained from information in the Blue Chip Financial Forecasts, the Survey of Professional Forecasters, and the Survey of Primary Dealers, increased substantially to well above 2 percent. Over the same period, the projections of PCE inflation beyond 2022 appear, in comparison, to be little changed at levels just over 2 percent (figure B). This pattern suggests that these forecasters expect the recent jump in inflation to be transitory and that survey respondents do not appear to have revised their views regarding the longer-term inflation rate in response to the recent strong readings on inflation.

Even if financial market participants and professional forecasters see inflation returning to levels close to 2 percent after a bout of higher inflation as the most likely outcome, they still could have judged that the likelihood of higher inflation had increased. Probability

(continued on next page)

B. Survey-based measures of personal consumption expenditures inflation expectations



NOTE: The data are for expectations of year-over-year percent changes. The mean of Blue Chip (BC) survey responses and medians of the Survey of Professional Forecasters (SPF) and Survey of Primary Dealers (SPD) are shown. Longer-run expectations are 5-to-10-year expectations for the BC survey and SPF. Gaps represent unreported forecast horizons, and dots represent the longer-run value of the series that have a gap after 2023. The BC and SPF 2021:Q1 series end at 2.1 percent in the longer run, and the SPF 2021:Q2 and the SPD series end at 2.0 percent.

SOURCE: Blue Chip Financial Forecasts; Federal Reserve Bank of Philadelphia, SPF; Federal Reserve Bank of New York, SPD.

Rise in Inflation Expectations *(continued)*

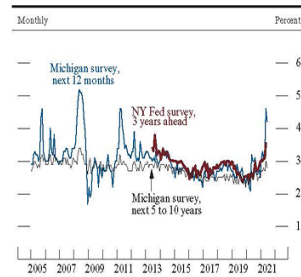
distributions of future inflation derived from surveys provide information on how respondents' views about the likelihood of various outcomes for inflation have evolved. Since the turn of the year, the probability distribution of PCE inflation for 2022 derived from the Survey of Professional Forecasters suggests that the average respondent now appears to attach lower probabilities to outcomes of inflation below 2 percent, and somewhat higher odds of inflation running above 3 percent, which suggests that respondents' perceived upside risks to inflation in the near term have shifted up somewhat.⁴

Finally, survey-based measures of households' inflation expectations have also moved up in recent months. And, similarly to the other surveys, the movements have been more pronounced in the near- to medium-term inflation expectations. In the University of Michigan Surveys of Consumers, households' expectations for inflation over the next 12 months in June were markedly higher than in February and well above the expectations for average inflation over the next 5 to 10 years (figure C). Over the same period, the median value of inflation expectations over the next

5 to 10 years picked up only slightly. Nevertheless, the latest reading is above its pre-pandemic level and stands close to levels last seen consistently in 2015 when this measure started drifting down and raised concerns that households' expectations might have slipped below the FOMC's 2 percent longer-run goal. In the Survey of Consumer Expectations, conducted by the Federal Reserve Bank of New York, the median of respondents' expected inflation rate 3 years ahead also increased sharply in May, the highest reading since the summer of 2013.

The common inflation expectations (CIE) index constructed by Federal Reserve Board staff—a series that takes many measures of inflation expectations and inflation compensation and consolidates them into a single indicator—has continued to edge up in recent quarters, more than reversing the moderate decline recorded in the middle of last year (figure D).⁵ Taking a somewhat longer view, the CIE has now also reversed the net decline since 2014 and has brought the index up to levels that are likely more consistent with the FOMC's longer-term goal of 2 percent PCE inflation.

C. Survey measures of consumers' inflation expectations

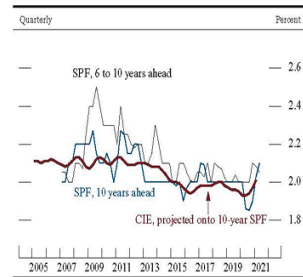


NOTE: The series are medians of the survey responses. The NY Fed data begin in June 2013. The Michigan survey data extend through June 2021.

SOURCE: University of Michigan Surveys of Consumers; Federal Reserve Bank of New York, Survey of Consumer Expectations.

4. Of note, distributions of CPI inflation 5 to 10 years ahead derived from the Federal Reserve Bank of New York's Survey of Primary Dealers and Survey of Market Participants have remained stable over the year, consistent with the stability of survey-based measures of longer-run inflation expectations.

D. Survey of Professional Forecasters inflation expectations and Index of Common Inflation Expectations



NOTE: The Survey of Professional Forecasters (SPF) data begin in 2007:Q1 and extend through 2021:Q2.

SOURCE: Federal Reserve Bank of Philadelphia, SPF; Federal Reserve Board, Index of Common Inflation Expectations (CIE).

5. For more details, see Hie Joo Ahn and Chad Fulton (2021), "Research Data Series: Index of Common Inflation Expectations," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, March 5), <https://doi.org/10.17016/2380-7172.2873>.

standards for high-credit-score borrowers (figure 17).

The housing sector remains remarkably strong

Residential investment surged following the shutdown last spring and has remained at a high level since then. Low mortgage rates have boosted demand, as have adaptations to the pandemic, including working from and spending more time at home. New construction, home sales, and residential improvements have all been well above pre-pandemic levels, and demand has outpaced supply, as construction has been limited by material shortages and sales have been constrained by low inventories (figures 18 and 19). This tension has fueled a sizable rise in home prices and driven down the inventory of homes for sale to extraordinarily low levels (figure 20).

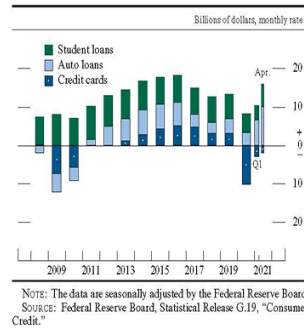
Business investment has recovered from its plunge last year and continues to rise at a solid pace . . .

Solid business investment in the first half of the year has been supported by the unwinding of pandemic disruptions, accommodative monetary policy and fiscal support, and the strong business outlook. Investment in equipment and intangibles has led the rise in investment, especially investment in high-technology equipment and software driven by the shift to remote work and other changes to business practices. Investment in structures in the oil and gas sector also has risen in recent quarters, spurred by a turnaround in oil prices. In contrast, investment in structures outside of the drilling and mining sector has been subdued after falling sharply last year (figure 21).

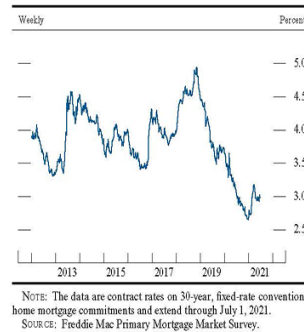
. . . amid financing conditions that remain accommodative for nonfinancial corporations

Financing conditions for nonfinancial firms through capital markets have remained broadly

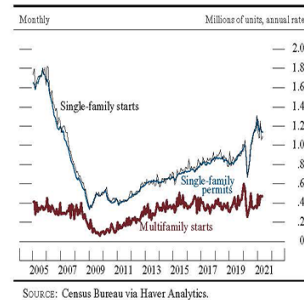
16. Consumer credit flows



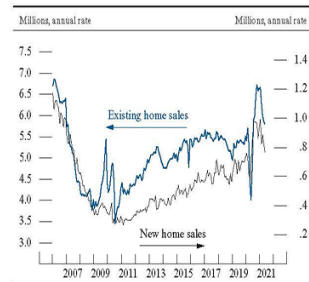
17. Mortgage rates



18. Private housing starts and permits



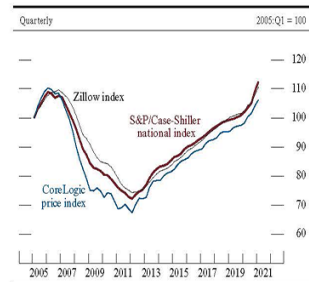
19. New and existing home sales



NOTE: The data are monthly. 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.

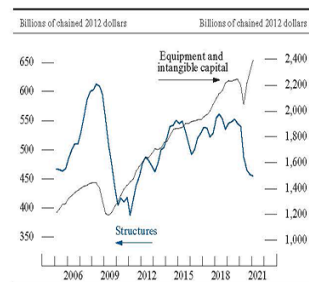
20. Real prices of existing single-family houses



NOTE: Series are deflated by the personal consumption expenditures 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.)

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.

accommodative since the start of the year and continued to be supported by historically low interest rates. The gross issuance of nonfinancial corporate bonds continued to be solid during the first part of year and was particularly strong in March for investment-grade firms (figure 22). Corporate bond yields have remained at historically low levels, and corporate bond spreads have narrowed to very low levels, supported in part by signs of improvement in the credit quality of nonfinancial firms.

In contrast, net bank lending to businesses has been subdued so far this year. For commercial and industrial loans, increasing new loan originations have been obscured to some degree by balance reductions due to forgiveness of loans under the Paycheck Protection Program (PPP). Commercial real estate loans have remained little changed, held down in part by weak growth in construction and land development loans amid tighter credit standards earlier in the year.

For small businesses, privately financed lending has climbed smartly since the turn of the year, as the PPP has increased access to credit. Outside of the PPP, credit availability for small businesses remains fairly tight, demand for such credit is weak, and default risk is still elevated. Small business loan performance has improved, and the share of small businesses expecting to require additional financial assistance has moved down, though hotels and restaurants report ongoing stress.

Exports have partly recovered as imports have continued to increase

U.S. exports have moved higher in recent months but still remain below pre-pandemic levels (figure 23). Despite the robust recovery for goods exports, the overall contribution to GDP from exports has been held down by the continuing depressed level of service exports given ongoing restraint in international travel. In contrast to the relatively modest recovery of exports, imports have soared since

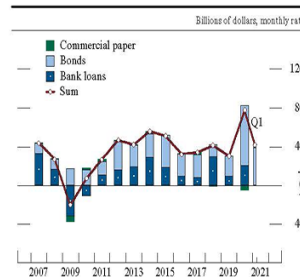
last summer, boosted by strong demand for both immediate consumption and rebuilding inventories. High levels of imports have strained the ability of the international logistics channel to deliver goods to U.S. customers in a timely fashion. Given the recent strength of imports relative to the milder recovery in exports, both the nominal trade deficit and current account deficit, relative to GDP, widened since 2019 (figure 24).

Federal fiscal actions provided substantial support to economic activity while also significantly raising the budget deficit

Federal fiscal policies enacted in response to the pandemic, most recently the American Rescue Plan, continue to fuel the economic recovery now under way. Stimulus checks have boosted most household incomes, and supplemental unemployment insurance has supported households affected by job loss. Increased grants-in-aid to state and local governments and business programs have supported aggregate demand as well. The Congressional Budget Office estimates that pandemic-related fiscal policies enacted to date will increase federal expenditures or reduce federal revenues by over \$5 trillion over 10 years, with much of the effect on the deficit occurring in fiscal years 2020 and 2021.⁵ These discretionary fiscal measures, combined with the automatic stabilizers—the reduction in tax receipts and increase in transfers that occur as a consequence of depressed economic activity—caused the federal deficit to surge to 15 percent of nominal GDP in fiscal 2020

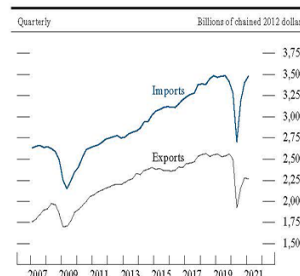
5. For more information, see Congressional Budget Office (2020), *The Effects of Pandemic-Related Legislation on Output* (Washington: CBO, September), <https://www.cbo.gov/publication/56537>; Congressional Budget Office (2020), “Summary Estimate for Divisions M through FF; H.R. 133, Consolidated Appropriations Act, 2021,” January 14, https://www.cbo.gov/systems/files/2021-01/PL_116-260_Summary.pdf; and Congressional Budget Office (2021), “Estimated Budgetary Effects of H.R. 1319, American Rescue Plan Act of 2021,” March 10, <https://www.cbo.gov/publication/57056>.

22. Selected components of net debt financing for nonfinancial businesses



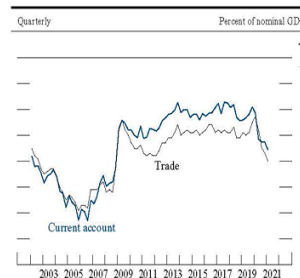
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23. Real imports and exports of goods and services



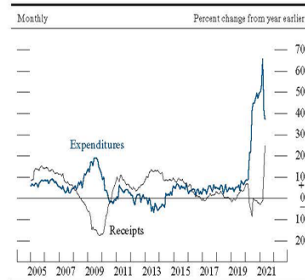
SOURCE: Bureau of Economic Analysis via Haver Analytics.

24. U.S. trade and current account balances



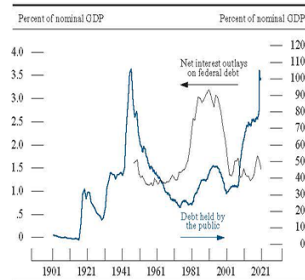
NOTE: GDP is gross domestic product.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

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 2021. 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 are annual from 1901 to 1951 and quarterly thereafter. GDP is gross domestic product.

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."

(figure 25). Federal debt held by the public jumped to around 100 percent of nominal GDP—the highest debt-to-GDP ratio since 1947—and is expected to rise further this fiscal year (figure 26).⁶

Challenges to state and local government financing have been mitigated by federal aid

The pandemic pushed down state and local government tax collections and induced additional COVID-related expenses. In response, federal policymakers provided a historic level of fiscal support to state and local governments, covering budget shortfalls in aggregate, although some governments continue to confront pandemic-related fiscal stress. Moreover, the drag on state tax receipts from the pandemic is abating, as revenues have moved up smartly so far this year (figure 27). Property tax receipts—the primary tax source for local governments—have increased steadily during the pandemic. State and local government payrolls, though, have only edged up from their lows at the onset of the pandemic, and they remain 5 percent below pre-pandemic levels, including notably lower education employment (figure 28). Finally, municipal bond market conditions continued to be generally accommodative this year. Issuance has been robust, as yields remained historically low and bond spreads relative to Treasury securities have declined moderately so far this year.

Financial Developments

The path of the federal funds rate expected to prevail over the next year remains near zero

Market-based measures of the path that the federal funds rate is expected to take over the

6. Even before accounting for the additional budget effects from the most recent fiscal policy, the American Rescue Plan, the CBO projected in February that the debt-to-GDP ratio would rise in 2021. See Congressional Budget Office (2021), *The Budget and Economic Outlook: 2021 to 2031* (Washington: CBO, February), <https://www.cbo.gov/system/files/2021-02/56970-Outlook.pdf>.

next few years remain below 0.25 percent until the fourth quarter of 2022, about two quarters earlier than in February (figure 29).⁷ The shift in the path followed news of the rapid deployment in the United States of highly effective COVID-19 vaccines, the reopening of contact-intensive sectors of the economy, and expectations that further support for aggregate demand would be coming from fiscal policy.

Survey-based measures of the expected path of the policy rate shifted up somewhat since the start of the year. According to the results of two surveys that the Federal Reserve Bank of New York conducted in June—the Survey of Primary Dealers and the Survey of Market Participants—the median respondent of each survey views the most likely path of the federal funds rate as remaining in its current range of 0 to ¼ percent until the third quarter of 2023, a quarter earlier than in March.⁸

Longer-term nominal Treasury yields were little changed . . .

Yields on nominal Treasury securities at longer maturities were little changed, on net, since mid-February (figure 30). Concurrently, near-term uncertainty about longer-term interest rates—as measured by volatility of near-term swap options (swaptions) on 10-year swap interest rates—remained roughly unchanged, on net, since February.

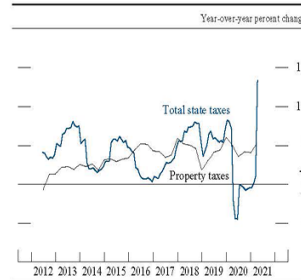
. . . while spreads of other long-term debt to Treasury securities narrowed modestly on net

Across different categories of corporate credit, bond yields are little changed since mid-February and have remained near the lowest levels of their historical distributions. Spreads

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

8. 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.

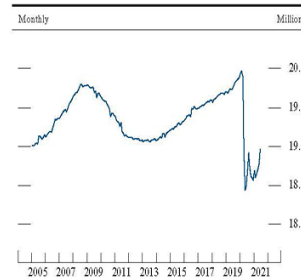
27. State and local tax receipts



NOTE: State tax data are year-over-year percent changes of 12-month moving averages, begin in June 2012, extend through April 2021, and are aggregated over all states except Wyoming, for which data are not available. Revenues from Washington, DC, are also excluded. Data for March and April are missing for New Mexico, as this state has longer reporting lags than others. Property tax data are year-over-year percent changes of 4-quarter moving averages, begin in 2012:Q2, and are primarily collected by local governments.

SOURCE: State Tax and Economic Review, State and Local Finance Initiative at Urban Institute; Census Bureau.

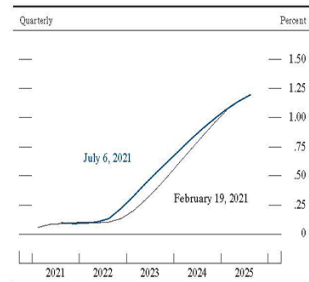
28. State and local government payroll employment



NOTE: The data are seasonally adjusted and extend through June 2021.

SOURCE: Bureau of Labor Statistics, National Compensation Survey via Haver Analytics.

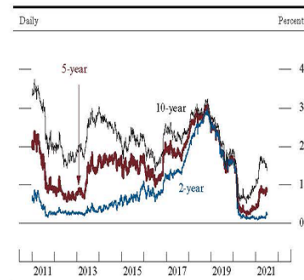
29. Market-implied federal funds rate path



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 February 19, 2021, is compared with that as of July 6, 2021. The path is estimated with a spline approach, assuming a term premium of 0 basis points. The February 19, 2021, path extends through 2025:Q1 and the July 6, 2021, path through 2025:Q3.

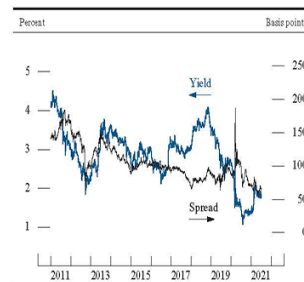
SOURCE: Bloomberg; Federal Reserve Board staff estimates.

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 data are daily. Yield shown is for the Fannie Mae 30-year current coupon, the coupon rate at which new mortgage-backed securities would be priced at par, or face, value. Spread shown is to the average of the 5-year and 10-year nominal Treasury yields.

SOURCE: Department of the Treasury; J.P. Morgan. Courtesy of J.P. Morgan Chase & Co., Copyright 2021.

of corporate bond yields over comparable-maturity Treasury securities have narrowed modestly and stand somewhat below the levels prevailing at the onset of the pandemic, supported in part by signs of improvement in the credit quality of nonfinancial firms.

Since mid-February, yields on 30-year agency mortgage-backed securities—an important factor entering into the pricing of home mortgages—were little changed, on net, while those on comparable-maturity Treasury securities increased a bit, leaving their spread modestly lower on net (figure 31). Municipal bond spreads over rates on longer-term Treasury securities have declined moderately across credit categories since mid-February and stand at the lower end of the historical distribution, while municipal bond yields across credit categories are at about their all-time lowest historical levels.

Broad equity price indexes increased moderately

Broad stock price indexes have continued to rise since mid-February, as strong corporate earnings, optimism about the pace of vaccinations, additional fiscal stimulus, and signs of a faster pace of economic recovery outweighed concerns about high valuations, higher inflation, and prospects for the control of the virus abroad (figure 32). Prices of cyclical stocks, including those associated with companies in the basic materials, energy, and industrial sectors, outperformed broad equity price indexes. Banks' stock prices have also risen notably, on net, as the improved economic outlook and banks' reports of strong first-quarter earnings provided a further boost to investor optimism regarding the banking sector. Measures of realized and option-implied stock price volatility for the S&P 500 index—the 20-day realized volatility and the VIX, respectively—have declined somewhat and are near their historical medians (figure 33). (For a discussion of financial stability issues, see the box “Developments Related to Financial Stability.”)

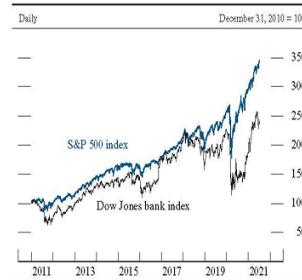
Markets for Treasury securities, mortgage-backed securities, and corporate and municipal bonds have functioned well . . .

Measures of market liquidity for Treasury securities—such as measures of market depth and bid-ask spreads—remained close to pre-pandemic levels overall, particularly for shorter-dated securities. However, longer-dated Treasury securities and some portions of the mortgage-backed securities market—notably those classes of securities excluded from Federal Reserve open market purchases—remain somewhat less liquid than before the onset of the pandemic. Measures of market functioning in the corporate and municipal bond markets remained stable since February, with these markets functioning roughly as they did in the months before the pandemic. Bid-ask spreads across corporate bond credit categories have been slightly below pre-pandemic levels, and issuance of corporate bonds in primary markets has been solid. Municipal bond market liquidity—as measured by round-trip transaction costs—has come back to near pre-pandemic levels.

. . . while short-term funding market conditions remained stable

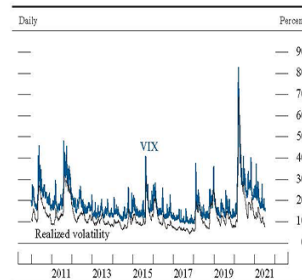
The effective federal funds rate (EFFR) and other overnight unsecured rates have seen some slight downward pressure relative to the interest rate on excess reserves since mid-February. The EFFR has nevertheless been comparatively stable, while other short-term interest rates registered more sizable declines. Secured overnight rates traded lower, with the Secured Overnight Financing Rate trading at or just above the offering rate on the overnight reverse repurchase agreement (ON RRP) facility since mid-March. Ample liquidity, arising from substantial increases in reserves, has, in conjunction with paydowns of Treasury bills, driven short-term interest rates lower. Notwithstanding the very low level of rates—including small volumes of negative-rate trading in overnight repurchase agreements on most days between mid-March

32. Equity prices



SOURCE: S&P Dow Jones Indices LLC via Bloomberg. (For Dow Jones Indices licensing information, see the note on the Contents page.)

33. 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.

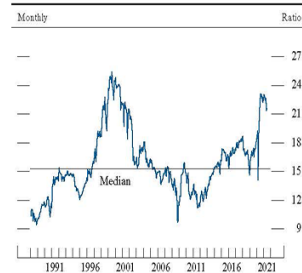
SOURCE: Cboe Volatility Index® (VIX®) via Bloomberg; Federal Reserve Board staff estimates.

Developments Related to Financial Stability

While some financial vulnerabilities have increased since February, the institutions at the core of the financial system remain resilient. This discussion reviews vulnerabilities in the U.S. financial system. 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.

Prices of risky assets have generally increased in the first half of 2021. They have been buoyed by the rapid deployment of highly effective COVID-19 vaccines in the United States, the support provided by fiscal policy, and increased investor risk appetite. Broad equity market indexes have reached record highs in recent months, and the ratio of prices to forecasts of earnings remains high relative to its historical distribution (figure A). Option-implied volatility has been declining throughout the first half of 2021 and now stands at about its historical median. Yields on corporate bonds and leveraged loans remain low. On balance, indicators of commercial real estate (CRE) valuations remain high; however, low transaction volumes—especially for distressed properties—may mask declines in commercial property values. Supported by relatively low mortgage rates and shifting supply and demand dynamics brought about by the pandemic, house prices have increased at double-digit annual rates for several months amid strong home sales. The surge in

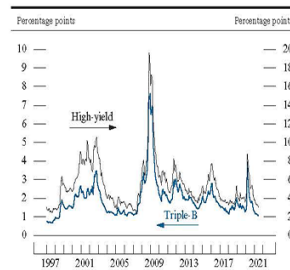
A. Forward price-to-earnings ratio of S&P 500 firms



NOTE: The data extend through June 2021. The series represents the aggregate forward price-to-earnings ratio of S&P 500 firms based on expected earnings for 12 months ahead.

SOURCE: Federal Reserve Board staff calculations using Refinitiv (formerly Thomson Reuters), Institutional Brokers' Estimate System estimates.

B. Corporate bond spreads to similar-maturity Treasury securities



NOTE: The data are monthly and extend through June 2021. The triple-B series reflects the effective yield of the ICE Bank of America Merrill Lynch (BoAML) 7-to-10-year triple-B U.S. Corporate Index (C444), and the high-yield series reflects the effective yield of the ICE BoAML 7-to-10-year U.S. Cash Pay High Yield Index (H440). Treasury yields from the smoothed yield curve are estimated from off-the-run securities.

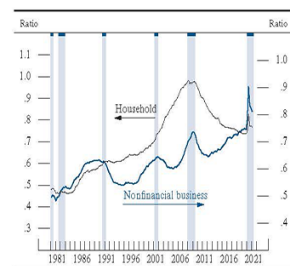
SOURCE: ICE Data Indices, LLC, used with permission; Department of the Treasury.

the prices of a variety of crypto-assets also reflects in part increased risk appetite. Long-term Treasury yields have risen since mid-February but remain low by historical standards. The high asset prices in part reflect the continued low level of Treasury yields. However, valuations for some assets are elevated relative to historical norms even when using measures that account for Treasury yields (figure B). Asset prices may be vulnerable to significant declines should investor risk appetite fall, interest rates rise unexpectedly, or the recovery stall.

Vulnerabilities from both business and household debt have declined through the first quarter of 2021, reflecting a slower pace of business borrowing, an improvement in business earnings, and government programs that have supported business and household incomes. Even so, some businesses and households remain under considerable strain. Business debt outstanding changed little in the second half of 2020 and first quarter of 2021, although it remains high relative to gross domestic product (figure C). Recovering earnings and the low level of interest rates have generally aided businesses' ability to carry debt. Some smaller businesses continue to face significant financial strains but have been supported by government

(continued)

C. Nonfinancial business- and household-sector credit-to-GDP ratios



NOTE: The data are quarterly. The shaded bars indicate periods of business recessions as defined by the National Bureau of Economic Research (NBER). As of the publication of this report, the NBER has not declared an end to the current recession. GDP is gross domestic product.

SOURCE: Federal Reserve Board staff calculations based on Bureau of Economic Analysis, national income and product accounts, and Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

programs, including the Paycheck Protection Program (PPP). Debt owed by households remains at a moderate level relative to income. Household borrowing continues to be heavily concentrated among borrowers with high credit scores. Moreover, government actions taken in response to the pandemic have provided significant support to household balance sheets and incomes, with many households saving more and holding more liquid assets.

In the financial sector, leverage at banks and broker-dealers remained low, while leverage at hedge funds and life insurance companies continued to be high. The common equity Tier 1 ratio for most banks increased, on net, over 2020 and into the first quarter of 2021. Measures of credit quality of bank loans have also improved in the first quarter of 2021. Moreover, the share of loan balances in loss-mitigation programs at the largest banks has declined. The shares of credit cards and auto loans in loss mitigation have seen larger declines, while the shares of residential real estate, commercial and industrial, and CRE loans remain high. Nevertheless, some uncertainty remains about the ability of borrowers in loss-mitigation programs to meet their obligations after those programs end and government support runs out. Broker-dealer leverage remained near historically low levels through the first quarter of 2021, although dealers continue to finance

sizable inventories of Treasury securities. No notable effect on Treasury market functioning followed the expiration in March 2021 of temporary changes to the supplementary leverage ratio, which were implemented to ease strains in Treasury market intermediation in the initial weeks of the pandemic. Most measures of hedge fund leverage increased in the second half of 2020 into the beginning of 2021 and are now above their historical averages. A few recent episodes have highlighted the opacity of risky exposures and the need for greater transparency at hedge funds and other leveraged financial entities that can transmit stress to the financial system. The Financial Stability Oversight Council has restarted its Hedge Fund Working Group to improve data sharing, identify risks, and strengthen the financial system. Leverage at life insurance companies remains historically high as of the first quarter of 2021. Issuance volumes of non-agency securities recovered somewhat in the first quarter of 2021, although the recovery was uneven across asset classes.¹ Collateralized loan obligation and asset-backed securities issuance was elevated, whereas non-agency commercial mortgage-backed securities issuance was weak.

Funding risks at domestic banks remained low, as these banks rely only modestly on short-term wholesale funding and maintain sizable holdings of high-quality liquid assets. Liquidity ratios were well above regulatory requirements at most large domestic banks as of the first quarter of 2021. Assets under management at prime and tax-exempt money market funds (MMFs) have declined since the middle of 2020, but vulnerabilities at these funds remain and call for structural fixes.

The President's Working Group on Financial Markets released a report in December 2020 outlining potential reforms to address risks from the MMF sector.² Subsequently, the Securities and Exchange Commission issued a request for comment on these potential reforms and summarized its findings.³ If

(continued on next page)

1. Securitization can add leverage to the financial system through its use of "special purpose entities," which are generally subject to rules such as risk retention that are less stringent than banks' regulatory capital requirements.

2. See U.S. Department of the Treasury (2020), "President's Working Group on Financial Markets Releases Report on Money Market Funds," press release, December 22, <https://home.treasury.gov/news/press-releases/sm1219>.

3. See U.S. Securities and Exchange Commission (2021), "SEC Requests Comment on Potential Money Market Fund Reform Options Highlighted in President's Working Group

Developments Related to Financial Stability *(continued)*

properly calibrated, some of these reforms—such as swing pricing, a minimum balance at risk, and capital buffers—could significantly reduce the run risk associated with MMFs. Meanwhile, the Money Market Mutual Fund Liquidity Facility and the Commercial Paper Funding Facility, which were deployed during the COVID-19 pandemic to backstop short-term funding markets, expired at the end of March with no material effect on these markets. Bond and bank loan mutual funds benefited from net inflows but are exposed to risks due to large holdings of illiquid assets.

A routine survey of market contacts on salient shocks to financial stability highlights several important risks. A worsening of the global pandemic could stress the financial systems in emerging markets and some European countries. Further, if global interest rates were to rise abruptly, some emerging market economies could experience additional fiscal strains. These risks, if realized, could interact with financial vulnerabilities and pose additional risks to the U.S. financial system.

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 supported the flow of credit to households and businesses and served as backstop measures that have given investors confidence that support would be available should conditions deteriorate substantially.

Most of the facilities established at the onset of the pandemic expired at the end of December 2020, the beginning of January 2021, or the end of March 2021. These facilities expired with no notable effect on financial market functioning.

Report,” press release, February 4, <https://www.sec.gov/news/press-release/2021-25>.

The termination date of the Federal Reserve’s Paycheck Protection Program Liquidity Facility, which currently has \$90.6 billion in loans outstanding funded to the PPP, was extended to July 30, 2021. The Federal Reserve has begun winding down the portfolio of the Secondary Market Corporate Credit Facility, an emergency lending facility that closed on December 31, 2020.⁴ The portfolio sales have been gradual and orderly and have aimed to minimize the potential for any adverse effect on market functioning by taking into account daily liquidity and trading conditions for exchange-traded funds and corporate bonds. To date, these sales have had no notable effect on mutual fund flows or price effects in the market.

The Federal Reserve also took actions to 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 Federal Reserve recently announced the extension of its temporary swap lines through December 31, 2021, which should help sustain improvements in global U.S. dollar funding markets.

4. See Board of Governors of the Federal Reserve System (2021), “Federal Reserve Board Announces Plans to Begin Winding Down the Portfolio of the Secondary Market Corporate Credit Facility,” press release, June 2, <https://www.federalreserve.gov/newsevents/pressreleases/monetary20210602a.htm>.

and mid-June—short-term funding markets have functioned smoothly since February.

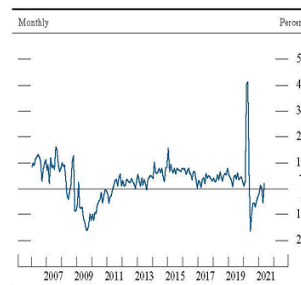
Money market funds increased significantly their holdings of overnight repurchase agreements

Since February, assets under management of government money market funds (MMFs) have gradually increased to an all-time high of nearly \$4 trillion amid the disbursement of fiscal relief payments to individuals, states, and municipalities, and as some banks have reportedly taken steps to discourage additional deposit inflows. Against the backdrop of a sizable decrease in outstanding Treasury bill supply, government MMFs reduced their holdings of Treasury and agency securities while increasing their holdings of overnight repurchase agreements, including with the Federal Reserve. This development led to record levels of usage of the Federal Reserve's ON RRP facility in late May and June. (See the box "Developments in the Federal Reserve's Balance Sheet and Money Markets" in Part 2.)

Bank credit remained little changed, while lending standards eased

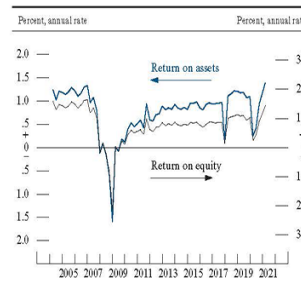
Total loans and leases outstanding at commercial banks remained little changed in the first half of the year (figure 34). The April Senior Loan Officer Opinion Survey on Bank Lending Practices, conducted by the Federal Reserve, reported easier standards for most business and household loans over the first quarter of the year. Bank profitability increased over the first quarter of 2021 (figure 35). Delinquency rates on bank loans remain low but may increase later in the year, as foreclosure moratoriums and payment forbearance programs are set to expire.

34. Growth in total loans and leases



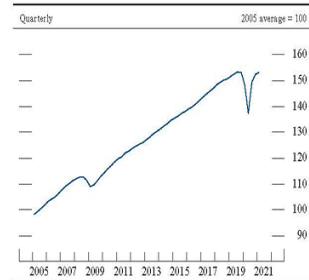
NOTE: The data are calculated as monthly annualized growth rates and are seasonally and break adjusted.
SOURCE: Federal Reserve Board, Statistical Release H.8, "Assets and Liabilities of Commercial Banks in the United States."

35. Profitability of bank holding companies



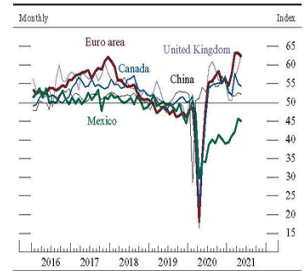
NOTE: The data are quarterly and are seasonally adjusted.
SOURCE: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Bank Holding Companies.

36. Foreign real gross domestic product



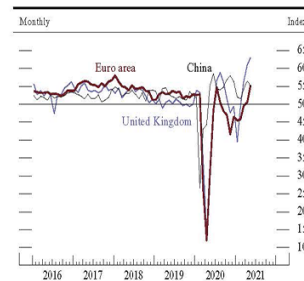
NOTE: Foreign gross domestic product is computed on a representative sample of 40 countries and aggregated using U.S. trade weights.
SOURCE: Federal Reserve Bank of Dallas, Database of Global Economic Indicators, "Real Gross Domestic Product."

37. Manufacturing output purchasing managers index in selected foreign economies



NOTE: For the foreign manufacturing 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.

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.

International Developments

The recovery abroad slowed in the first half of the year . . .

A resurgence of COVID-19 cases late last year led to substantial tightening in social-distancing restrictions in many foreign economies. Consequently, foreign GDP growth slowed in the last quarter of 2020 and the first quarter of 2021, as several advanced foreign economies (AFEs) experienced contractions in activity (figure 36). In most AFEs, the level of GDP in the first quarter remained below its pre-pandemic peak. However, compared with last spring, many foreign economies exhibited greater resilience to public health restrictions, and their governments have continued to provide fiscal support. Recent available indicators suggest a pickup for AFEs in GDP growth in the second quarter of this year as vaccination rates increased and restrictions were eased (figures 37 and 38).

Although the situation in the AFEs appears to be improving, conditions in emerging market economies (EMEs) are more mixed, partly reflecting differences in success in containing COVID-19 outbreaks. Also, the pace of vaccinations in many EMEs remains slow due to supply shortages and other logistical challenges. Some higher-income Asian economies, where infections have so far remained mostly under control, experienced surprisingly fast growth, boosted by increased export demand and a partial recovery in domestic consumption. Most notably, the levels of GDP in China and in other industrialized EMEs such as Taiwan—which had managed to remain fairly insulated from the virus but has seen outbreaks recently—are already roughly 8 percent above their pre-pandemic levels (figure 39). Conversely, in many Latin American countries and some South and Southeast Asian economies, infection outbreaks led to continuing or increased public health restrictions and social distancing. Reflecting these headwinds, recent economic indicators suggest a decline in

growth in the second quarter of 2021 in many of these EMEs following a sharp rebound in the first quarter, with economic activity still well below pre-pandemic levels.

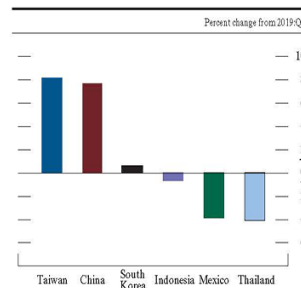
Unemployment rates in Europe are about 1 percentage point higher in early 2021 than before the pandemic (figure 40). This relatively muted change is partly a result of wage subsidy programs that kept workers on payrolls and employment protection regulations that limited rapid job destruction. Hours worked, however, have fallen more substantially, suggesting that the extent of economic slack in Europe may be greater than indicated by the unemployment rate. The unemployment trajectory in Canada was more similar to that in the United States, with a rapid increase early last spring followed by a steep decline subsequently.

... amid a pickup in inflation and continued policy support

Inflation rates abroad have increased in recent months. In many AFEs, inflation readings moved up since the beginning of the year after substantial declines last year (figure 41). The rise in inflation was largely driven by base effects due to low price levels in 2020 as well as run-ups in energy prices. In some EMEs, currency depreciation and higher food prices are also contributing to inflation pressures. Even so, core inflation readings in many AFEs still point to moderate underlying inflation pressure, suggesting that the observed rise in inflation so far this year largely reflects temporary factors.

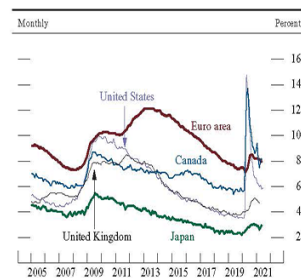
Monetary policy abroad remained accommodative, as central banks focused on supporting growth and viewed the recent rise in inflation as transitory. Market-implied policy paths in many AFEs continue to signal a period of monetary accommodation, although paths in Canada and the United Kingdom moved higher this year (figure 42). The European Central Bank increased its pace of asset purchases in the spring, and the Bank of Japan's yield curve control policy

39. Real gross domestic product in selected emerging market economies



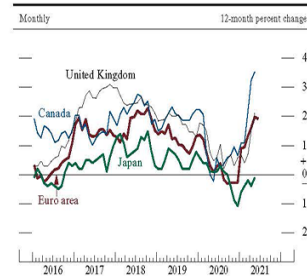
NOTE: The data are for 2021:Q1.
SOURCE: For Taiwan, Directorate General of Budget, Accounting and Statistics; for China, National Bureau of Statistics of China; for South Korea, Bank of Korea; for Indonesia, Badan Pusat Statistik; for Mexico, Instituto Nacional de Estadística y Geografía; for Thailand, Office of the National Economic and Social Development Board; all via Haver Analytics.

40. Unemployment rate in selected advanced economies



NOTE: The data for the United Kingdom extend through March 2021 and are centered 3-month averages of monthly data. The data for the United States extend through June 2021.
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.

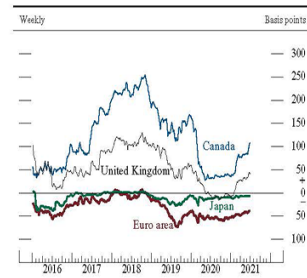
41. Consumer price inflation in selected advanced foreign economies



NOTE: The data for the euro area incorporate the flash estimate for June 2021.

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.

42. 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 extend through July 2, 2021.

SOURCE: Bloomberg; Federal Reserve Board staff estimations.

proved effective in containing a rise in bond yields. By contrast, while still maintaining an accommodative policy rate, the Bank of Canada announced plans to end liquidity support programs and started slowing its pace of asset purchases. The Bank of England also slowed its pace of asset purchases but indicated that its policy stance remains accommodative. Monetary policy in EMEs was generally accommodative as well, but some EME central banks—including in Brazil, Russia, and Turkey—increased policy rates, citing concerns about inflationary pressures. The Bank of Mexico, while leaving its policy rate unchanged, highlighted concerns about financial market volatility and past peso depreciation.

Improved outlook led to increases in foreign yields and equity prices . . .

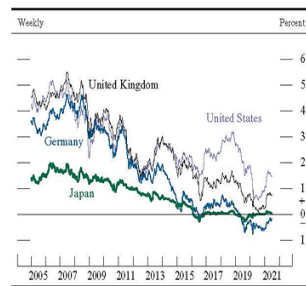
Longer-term sovereign yields and market-based inflation compensation measures increased in some major advanced economies, as the economic outlook brightened and commodity prices rose (figure 43). Despite the increase, market-based inflation compensation in many AFEs remained below the inflation target of their respective central banks. Japanese yields were little changed due to the Bank of Japan's yield curve control policy. Equity markets in AFEs generally rose despite the new wave of COVID-19 infections earlier this year, as many economies proved resilient to increased case numbers and lockdowns and the vaccine rollout allowed gradual reopening (figure 44).

Equities in emerging markets were mixed. Since the beginning of the year, equity prices in some EMEs, including South Korea, Taiwan, and Mexico, improved considerably, but equity prices in other countries, including China, underperformed (figure 45). Inflows into dedicated EME investment funds slowed this year but remained positive, and EME bond spreads moved little so far this year (figure 46).

... and the dollar remained little changed

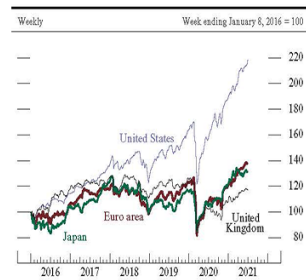
After depreciating sharply in late 2020, the broad dollar index—a measure of the trade-weighted value of the dollar against foreign currencies—has changed little, on net, since the beginning of the year. It has strengthened somewhat recently, amid increases in medium-term U.S. yields (figure 47). Among AFE currencies, the dollar appreciated most against the Japanese yen, as Japanese yields moved least. Since the beginning of the year, the U.S. dollar depreciated against the Canadian dollar, which was buoyed by higher commodity prices and signs of a stronger-than-expected recovery in Canada (figure 48).

43. Nominal 10-year government bond yields in selected advanced economies



NOTE: The data are weekly averages of daily benchmark yields and extend through July 2, 2021.
SOURCE: Bloomberg.

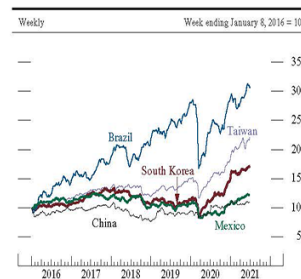
44. Equity indexes for selected advanced economies



NOTE: The data are weekly averages of daily data and extend through July 2, 2021.

SOURCE: For euro area, Dow Jones Euro Stoxx Index; for Japan, Tokyo Stock Price Index; for United Kingdom, Financial Times Stock Exchange 100 Index; for United States, S&P 500 Index; all via Bloomberg. (For Dow Jones Indices licensing information, see the note on the Contents page.)

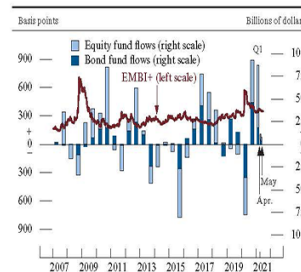
45. Equity indexes for selected emerging market economies



NOTE: The data are weekly averages of daily data and extend through July 2, 2021.

SOURCE: For China, Shanghai Composite Index; for Brazil, Bovespa Index; for South Korea, Korean Composite Index; for Mexico, IPC Index; for Taiwan, TAIEI; all via Bloomberg.

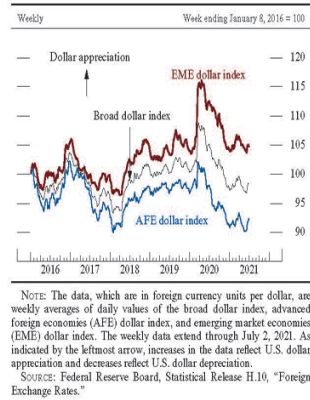
46. Emerging market mutual fund flows and spreads



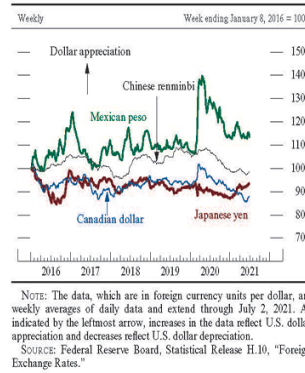
NOTE: The bond and equity fund flows data are semiannual sums of weekly data from December 28, 2006, to December 30, 2020; a quarterly sum of weekly data from December 31, 2020, to March 31, 2021; and monthly sums of weekly data from April 1, 2021, to May 26, 2021. Weekly data span Thursday through Wednesday, and the semiannual, quarterly, and monthly values are sums over weekly data for weeks ending in that half year, quarter, 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 and extend through July 2, 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.

47. U.S. dollar exchange rate indexes



48. Exchange rate indexes for selected economies



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 . . .

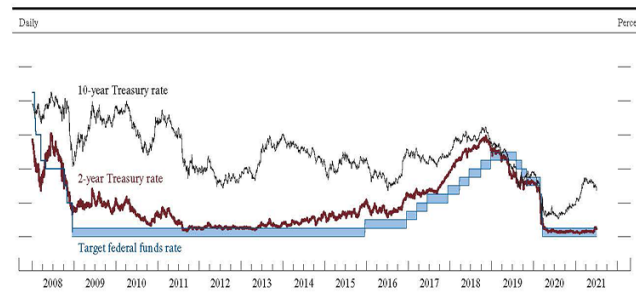
As part of its actions to ensure that monetary policy will continue to deliver powerful support to the economy until the recovery is complete, the Federal Open Market Committee (FOMC) has maintained the target range for the federal funds rate at 0 to ¼ percent (figure 49). The Committee has indicated 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. With inflation having run persistently below the Committee's longer-run goal, the Committee 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 Committee expects to maintain an accommodative stance of monetary policy until these outcomes are achieved.

. . . 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 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 since the Committee

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.

adopted its asset purchase guidance last December. In addition, the minutes of the June 2021 FOMC meeting noted the importance that policymakers attach to clear communications about the Committee's assessment of progress toward its longer-run goals and to providing these communications well in advance of the time when progress can be judged substantial enough to warrant a change in the pace of asset purchases.⁹ In coming meetings, the FOMC will continue to assess the economy's progress toward the Committee's goals.

The FOMC is committed to using its full range of tools to promote maximum employment and price stability

Progress on vaccinations will likely continue to reduce the effects of the public health crisis on the economy, but risks to the economic outlook remain. 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 continue to 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 considering 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. These rule prescriptions can provide useful benchmarks for the FOMC. 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. However, some principles associated with good monetary policy can be illustrated by these policy rules (see the box "Monetary Policy Rules, the Effective Lower Bound, and the Economic Recovery"). The FOMC's framework for conducting monetary policy involves a systematic approach in keeping with key principles of good monetary policy but allows for more flexibility than is implied by simple policy rules.

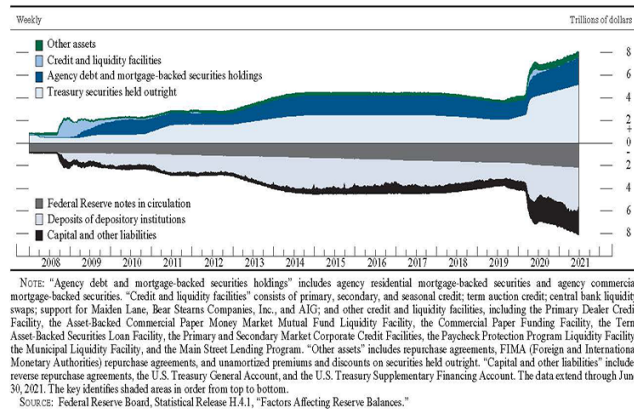
The size of the Federal Reserve's balance sheet continued to grow, reflecting purchases of U.S. Treasury securities and agency mortgage-backed securities

The Federal Reserve's balance sheet has grown to \$8.1 trillion from \$7.4 trillion at the end of January, reflecting continued asset purchases to help foster smooth market functioning and accommodative financial conditions, 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. After the March FOMC meeting, in light of the sustained smooth functioning of markets for agency commercial mortgage-backed securities (CMBS), the Federal Reserve ended regular purchases of agency CMBS.

The increase in aggregate asset holdings on the Federal Reserve's balance sheet arising from Treasury security and agency MBS purchases has been offset in part by declines in several other asset categories. Outstanding balances at many of the Federal Reserve's emergency liquidity and credit facilities

9. The minutes for the June 2021 FOMC meeting are available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>.

50. Federal Reserve assets and liabilities



have declined since the end of January, and most facilities have now expired.¹⁰ In June, the Federal Reserve Board announced plans to begin winding down the portfolio of the Secondary Market Corporate Credit Facility (SMCCF). The SMCCF proved very important in restoring market functioning last year, supporting the availability of credit for large employers, and bolstering employment through the COVID-19 pandemic. The winding down of the SMCCF portfolio has been gradual and orderly and has not produced any adverse effect on market

functioning. Draws on central bank liquidity swap lines have decreased further to near zero, and usage of repurchase operations has remained at zero since February. In contrast, the Paycheck Protection Program Liquidity Facility has expanded to around \$80 billion since the end of January.

Reserves have increased significantly to around \$4 trillion, mostly because of asset purchases and the large drawdown in the Treasury General Account from around \$1.6 trillion in January to about \$850 billion in June. However, reserves have been relatively stable more recently given a substantial increase in the use of the overnight reverse repurchase agreement facility. (See the box "Developments in the Federal Reserve's Balance Sheet and Money Markets.")

10. A list of credit and liquidity 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>.

Monetary Policy Rules, the Effective Lower Bound, and the Economic Recovery

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 prescriptions of the policy interest rate derived from a variety of policy rules for guidance, without mechanically following the prescriptions of any particular rule. This discussion examines the prescriptions of a number of interest rate rules. One simplification these rules typically adopt is ignoring the effective lower bound (ELB) on interest rates, and many of the rules have prescribed negative values for the federal funds rate since the onset of the pandemic-driven recession.

Most rules analyzed in the research literature respond to deviations—both positive and negative—of resource utilization from its trend level because they were informed by historical periods and economic models in which high resource utilization is accompanied by inflation pressure. By contrast, the Federal Open Market Committee's (FOMC) Statement on Longer-Run Goals and Monetary Policy Strategy indicates that policymakers would not respond to high employment unless it was accompanied by signs of unwanted increases in inflation or the emergence of other risks that could impede the attainment of the Committee's goals.¹ Accordingly, this discussion examines—in addition to the prescriptions of a number of commonly studied monetary policy rules—the prescriptions of a modified simple rule that, all else being equal, does not mechanically call for policy rate increases as unemployment drops below its estimated longer-run level.²

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. 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 central bank's longer-run objective.

Simple monetary policy rules also have important limitations. As noted earlier, simple rules do not typically recognize that the ELB limits the extent to which the policy rate can be lowered to support the economy, which may impart a downward bias to both employment and inflation. To mitigate the challenges posed by the ELB and anchor longer-term inflation expectations at 2 percent, the Committee indicates in its statement 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.”³ None of the simple rules analyzed in this discussion include any mechanism to offset the downward bias in inflation imposed by the ELB. As such, they do not reflect these important aspects of the FOMC's monetary policy strategy.

(continued)

1. For a discussion of changes made to the statement, see the box “The FOMC's Revised Statement on Longer-Run Goals and Monetary Policy Strategy” in Board of Governors of the Federal Reserve System (2021), *Monetary Policy Report* (Washington: Board of Governors, February), pp. 40–41, https://www.federalreserve.gov/monetarypolicy/files/20210219_mprfullreport.pdf.

2. Other key features of the Committee's monetary policy strategy outlined in its statement, 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. For a description of the revised statement, see Jerome H. Powell (2020), “New Economic Challenges and the Fed's Monetary Policy Review,” speech delivered at “Navigating

the Decade Ahead: Implications for Monetary Policy,” an economic policy symposium sponsored by the Federal Reserve Bank of Kansas City, held in Jackson Hole, Wyo. (via webcast), August 27, <https://www.federalreserve.gov/newsevents/speech/powell20200827a.htm>.

3. The statement recognizes the ELB as an important consideration in the conduct of monetary policy by indicating that “the federal funds rate is likely to be constrained by its effective lower bound more frequently than in the past.” In part because of the proximity of interest rates to the ELB, 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.

Another limitation is that simple rules respond to only a small set of economic variables and thus necessarily abstract from many of the considerations that the FOMC takes into account. 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; many labor market indicators must be assessed.⁴ Similarly, simple policy rules that systematically call for increases in the policy rate as slack in the labor market diminishes might fail to recognize the benefits of sustaining a strong labor market.⁵

Finally, simple rules for the policy rate do not explicitly recognize 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 constrained by the ELB. (See the box “Developments in the Federal Reserve’s Balance Sheet and Money Markets.”)

Policy Rules: Descriptions

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 as well as the important limitations.

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^L)⁷ and the current unemployment rate; the first-difference rule includes the change in the unemployment rate gap rather than its level.⁸ All of the rules abstract from the uncertainty that surrounds estimates of the unemployment rate gap. In addition, all of the rules include the difference between inflation and the FOMC’s longer-run objective of 2 percent.⁹ All but the

(continued on next page)

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 by 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 gap instead, because that gap better captures the FOMC’s statutory goal to promote maximum employment. Movements in these alternative measures of resource utilization are highly correlated. For more information, see the note below figure A.

8. None of these rules take into account historical inflation performance. As such, these rules do not incorporate the aim of achieving inflation that averages 2 percent over time as described in the FOMC’s Statement on Longer-Run Goals and Monetary Policy Strategy. In particular, that 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.”

4. See Lael Brainard (2021), “How Should We Think about Full Employment in the Federal Reserve’s Dual Mandate?” speech delivered at the Ec10, Principles of Economics, Lecture, Faculty of Arts and Sciences, Harvard University, Cambridge, Mass. (via webcast), February 24, <https://www.federalreserve.gov/newsevents/speech/brainard20210224a.htm>.

5. For examples of the benefits associated with strong labor market conditions, see *Fed Listens: Perspectives from the Public*, which summarizes the feedback received from the community as part of the FOMC’s 2019–20 review of its monetary policy strategy, tools, and communication practices and is available on the Board’s website at <https://www.federalreserve.gov/publications/files/fedlistens-report-20200612.pdf>.

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

Monetary Policy Rules *(continued)*

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	$R_t^{SBA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2\min\{(u_t^{LR} - u_t), 0\}$
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^{SBA} , 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 4-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 Federal Open Market Committee's 2 percent longer-run objective, 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 effective lower bound (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. The rules are implemented as responding to core personal consumption expenditures (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.

first-difference rule include an estimate of the neutral real interest rate in the longer run (r_t^{LR}).⁹

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

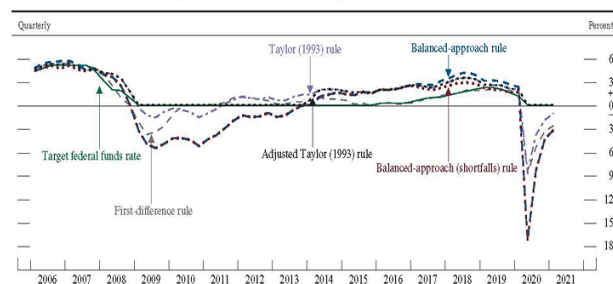
level. However, when the unemployment rate is below that level, the balanced-approach (shortfalls) rule is more accommodative than the balanced-approach rule because it does not call for the policy rate to rise as the unemployment rate drops further.

Unlike 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 delaying the return of the policy rate to the (positive) levels prescribed by the standard Taylor (1993) rule until after the economy begins to recover.

(continued)

9. 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 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.

B. Historical federal funds rate prescriptions from simple policy rules



NOTE: The rules use historical values of the federal funds rate, core personal consumption expenditures 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.

Policy Rules: Prescriptions

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^{LS} and r_t^{LS} at the time. The four rules whose formulas do not impose a lower bound on the value of the federal funds rate imply prescriptions of strongly negative policy rates in response to the pandemic-driven recession, well below their respective troughs in the 2008–09 recession. The prescriptions of the balanced-approach and balanced-approach (shortfalls) rules are the most negative because these rules call for relatively large responses to resource slack. The negative prescriptions of the four rules show the extent to which policymakers' ability to support the economy through reductions in the federal funds rate has been constrained by the ELB during the pandemic-driven recession—a constraint that underlines the importance of the FOMC's other policy actions at the time, including forward guidance about the federal funds rate and large-scale asset purchases.

Regarding the recovery from the 2008–09 recession, all of the simple rules shown here prescribed departure from the ELB well before the FOMC determined that it was appropriate to raise the federal funds rate. The FOMC judged, on the basis of a wide range of information available at the time, that it was appropriate to maintain a more accommodative path of the federal funds rate than prescribed by these rules. Similarly, in the aftermath of the pandemic-driven recession, the FOMC has been drawing from a broad range of indicators, analyses, and judgments in making its determinations concerning the appropriate stance for monetary policy, including readings on public health, labor market conditions, inflation pressures and inflation expectations, and financial and international developments. Under the FOMC's flexible form of average inflation targeting, departure from the ELB might be delayed relative to the simple rules by the desire to see inflation run moderately above 2 percent for some time. While the simple rules are concerned with period-by-period inflation, the Committee aims for a sustained return of inflation to the 2 percent objective.

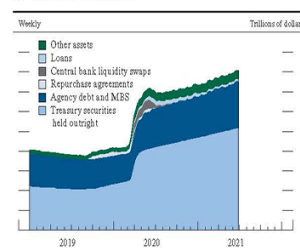
Developments in the Federal Reserve's Balance Sheet and Money Markets

The Federal Reserve's asset purchases since March 2020 have resulted in a large and rapid expansion of the Federal Reserve's balance sheet. Federal Reserve assets totaled \$4.2 trillion before the pandemic in January 2020 and have since grown to \$8.1 trillion (figure A). As net asset purchases proceed at a pace of \$120 billion per month, the Federal Reserve's total liabilities increase correspondingly.¹ Alongside this growth in aggregate liabilities arising from asset purchases, there have also been large compositional shifts between liabilities this year due to factors that are not directly related to monetary policy decisions (figure B). This discussion reviews recent developments in the Federal Reserve's balance sheet and associated changes in money market conditions.

Reserve balances are the largest liability on the Federal Reserve's balance sheet. Federal Reserve asset purchases are settled by adding reserves to the banking system; thus, the magnitude of asset purchases since the onset of the pandemic has brought reserves to record levels.² Reserves grew substantially earlier this year, from \$3.1 trillion in early January to \$3.9 trillion by early April. The level of reserves was, however, mostly stable from April to June 2021, reflecting growth in other liabilities such as the overnight reverse repurchase agreement (ON RRP) facility.

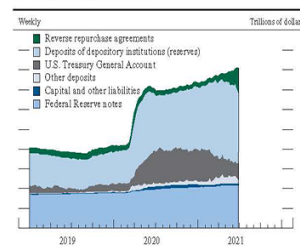
In light of the Federal Reserve's role as fiscal agent for the federal government, the U.S. Treasury holds balances in the Treasury General Account (TGA), which is another liability on the Federal Reserve's balance sheet. Changes in the TGA affect other Federal Reserve liabilities such as reserves and may have implications for money market conditions. A reduction in the TGA increases the level of reserves, other things being equal, as the Treasury makes payments to individuals and businesses, which may increase private deposits in the banking system. An important recent development in this regard has been the substantial drawdown of the TGA over the first half of 2021. With the enactment

A. Federal Reserve assets



NOTE: The data extend through June 30, 2021. MBS is mortgage-backed securities. The key identifies shaded areas in order from top to bottom.
SOURCE: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

B. Federal Reserve liabilities



NOTE: The data extend through June 30, 2021. "Capital and other liabilities" includes Treasury contributions. The key identifies shaded areas in order from top to bottom.
SOURCE: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

of pandemic-related fiscal stimulus measures through multiple rounds of federal legislation in 2020 and 2021, the Treasury's balance in the TGA increased to unprecedentedly high levels. As shown in figure C, as the bulk of the most recent fiscal stimulus payments and tax refunds came to an end, the Treasury lowered its outstanding balance in the TGA from about \$1.6 trillion at the end of January 2020 to about \$850 billion by the end of June 2021. As the Treasury sought to reduce its TGA balance, the Treasury also lowered its net issuance of Treasury bills substantially in 2021.

The developments with reserves, the TGA, and Treasury bill issuance have affected money markets in 2021. The recent large increases in reserves, resulting

(continued)

1. For general explanations of several liabilities on the Federal Reserve's balance sheet, see the box "The Role of Liabilities in Determining the Size of the Federal Reserve's Balance Sheet" in Board of Governors of the Federal Reserve System (2019), *Monetary Policy Report* (Washington: Board of Governors, February), pp. 41–43, https://www.federalreserve.gov/monetarypolicy/files/20190222_mprfullreport.pdf.

2. Reserves consist of deposits held at Federal Reserve Banks by depository institutions, such as commercial banks, savings banks, credit unions, thrift institutions, and U.S. branches and agencies of foreign banks. Reserve balances allow depository institutions to facilitate daily payment flows, both in ordinary times and in stress scenarios, without borrowing funds or selling assets.

C. Balance sheet comparison
(Billions of dollars)

	6/30/2021	1/27/2021	Change
Assets			
Total securities			
Treasury securities	5,183	4,766	417
Agency debt and MBS	2,322	2,072	250
Net unamortized premiums	351	345	6
Repurchase agreements	0	1	-1
Loans and lending facilities			
PPPLF	91	47	44
Other loans and lending facilities	72	91	-19
Central bank liquidity swaps	1	10	-9
Other assets	58	74	-16
Total assets	8,079	7,405	674
Liabilities and capital			
Federal Reserve notes	2,184	2,097	87
Reserves held by depository institutions	3,512	3,229	283
Reverse repurchase agreements			
Foreign official and international accounts	269	209	60
Others	992	1	991
U.S. Treasury General Account	852	1,613	-761
Other deposits	230	203	27
Other liabilities and capital	40	52	-12
Total liabilities and capital	8,079	7,405	674

NOTE: MBS is mortgage-backed securities. PPPLF is Paycheck Protection Program Liquidity Facility.
SOURCE: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

from both asset purchases and reductions in the TGA, have put broad but modest downward pressure on short-term interest rates over recent months. Additionally, the net declines in Treasury bill supply have put downward pressure on bill yields, which similarly affected rates on close substitutes to bills such as repurchase agreements (repos) collateralized by Treasury securities.³

In this environment of ample liquidity and downward pressure on money market rates, the Federal Reserve's ON RRP facility has seen a historically large increase in usage since April 2021, primarily driven by greater participation from government money market funds. Take-up at the ON RRP facility reached record levels—nearly \$1 trillion by the end of June 2021. In light of the potential for expanded use of the facility and given growth in money market fund assets under management in recent years, the Federal Open Market Committee (FOMC) raised the per-counterparty cap on ON RRP participation to \$80 billion per day from \$30 billion at the March 2021 FOMC meeting. With the increase in usage, the ON RRP facility continued

to serve its intended purpose of helping to provide a floor under short-term interest rates.⁴

The recent spike in facility usage reflected government money market funds turning to the facility because of their large inflows. Certain banks reportedly sought to limit further growth of their reserve holdings and of certain deposit liabilities. This phenomenon has reportedly been important in recent months in driving additional inflows into money market funds in lieu of bank deposits. Additionally, money market funds faced a relative lack of eligible short-term investments amid declining Treasury bill supply and reduced demand for repo funding on the part of borrowers. In this situation, the ON RRP has provided money market funds with an additional investment option for these inflows despite its offering rate being at 0 percent through mid-June.

Other deposits, another liability on the Federal Reserve's balance sheet, include deposits from government-sponsored enterprises (GSEs) and designated financial market utilities. These deposits roughly doubled since the beginning of 2021 to \$408 billion by mid-June, reflecting in part the same money market conditions that drove higher ON RRP take-up.

Following the June 2021 FOMC meeting, the Federal Reserve made a technical adjustment to its administered rates; interest on excess reserves and the ON RRP offering rate. Both rates were increased 5 basis points in order to keep the federal funds rate well within the FOMC's target range and to support smooth functioning of short-term funding markets. ON RRP take-up rose substantially over subsequent days. This increase reflected shifts to the ON RRP from GSEs' deposits at the Federal Reserve that do not earn interest as well as additional participation from money market funds. Following the technical adjustment, short-term market interest rates adjusted slightly higher, largely in step with the increase in administered rates. The effective federal funds rate rose to 10 basis points, while the Secured Overnight Financing Rate increased to 5 basis points.

4. The ON RRP facility helps keep the effective federal funds rate from falling below the target range set by the FOMC, as institutions with access to the ON RRP should be unwilling to lend funds below the ON RRP's pre-announced offering rate. The ON RRP facility is primarily used by nonbank counterparties such as money market funds. The rate offered through the ON RRP facility complements the interest on excess reserves rate in supporting effective monetary policy implementation. The Federal Reserve provides a similar service to foreign official and international accounts (primarily foreign central banks), though these balances have not seen notable growth in recent months.

3. For further information on recent money market developments, see the Financial Developments section in Part 1 of this report.

PART 3

SUMMARY OF ECONOMIC PROJECTIONS

The following material was released after the conclusion of the June 15–16, 2021, meeting of the Federal Open Market Committee.

In conjunction with the Federal Open Market Committee (FOMC) meeting held on June 15–16, 2021, 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 2021 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.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, June 2021
Percent

Variable	Median ¹				Central tendency ²				Range ³			
	2021	2022	2023	Longer run	2021	2022	2023	Longer run	2021	2022	2023	Longer run
Change in real GDP	7.0	3.3	2.4	1.8	6.8–7.3	2.8–3.8	2.0–2.5	1.8–2.0	6.3–7.8	2.6–4.2	1.7–2.7	1.6–2.2
March projection	6.5	3.3	2.2	1.8	5.8–6.6	3.0–3.8	2.0–2.5	1.8–2.0	5.0–7.3	2.5–4.4	1.7–2.6	1.6–2.2
Unemployment rate	4.5	3.8	3.5	4.0	4.4–4.8	3.5–4.0	3.2–3.8	3.8–4.3	4.2–5.0	3.2–4.2	3.0–3.9	3.5–4.5
March projection	4.5	3.9	3.5	4.0	4.2–4.7	3.6–4.0	3.2–3.8	3.8–4.3	4.0–5.5	3.2–4.2	3.0–4.0	3.5–4.5
PCE inflation	3.4	2.1	2.2	2.0	3.1–3.5	1.9–2.3	2.0–2.2	2.0	3.0–3.9	1.6–2.5	1.9–2.3	2.0
March projection	2.4	2.0	2.1	2.0	2.2–2.4	1.8–2.1	2.0–2.2	2.0	2.1–2.6	1.8–2.3	1.9–2.3	2.0
Core PCE inflation ⁴	3.0	2.1	2.1		2.9–3.1	1.9–2.3	2.0–2.2		2.7–3.3	1.7–2.5	2.0–2.3	
March projection	2.2	2.0	2.1		2.0–2.3	1.9–2.1	2.0–2.2		1.9–2.5	1.8–2.3	1.9–2.3	
Memo: Projected appropriate policy path												
Federal funds rate	0.1	0.1	0.6	2.5	0.1	0.1–0.4	0.1–1.1	2.3–2.5	0.1	0.1–0.6	0.1–1.6	2.0–3.0
March projection	0.1	0.1	0.1	2.5	0.1	0.1–0.4	0.1–0.9	2.3–2.5	0.1	0.1–0.6	0.1–1.1	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 March projections were made in conjunction with the meeting of the Federal Open Market Committee on March 16–17, 2021. 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 March 16–17, 2021, meeting, and one participant did not submit such projections in conjunction with the June 15–16, 2021, meeting.

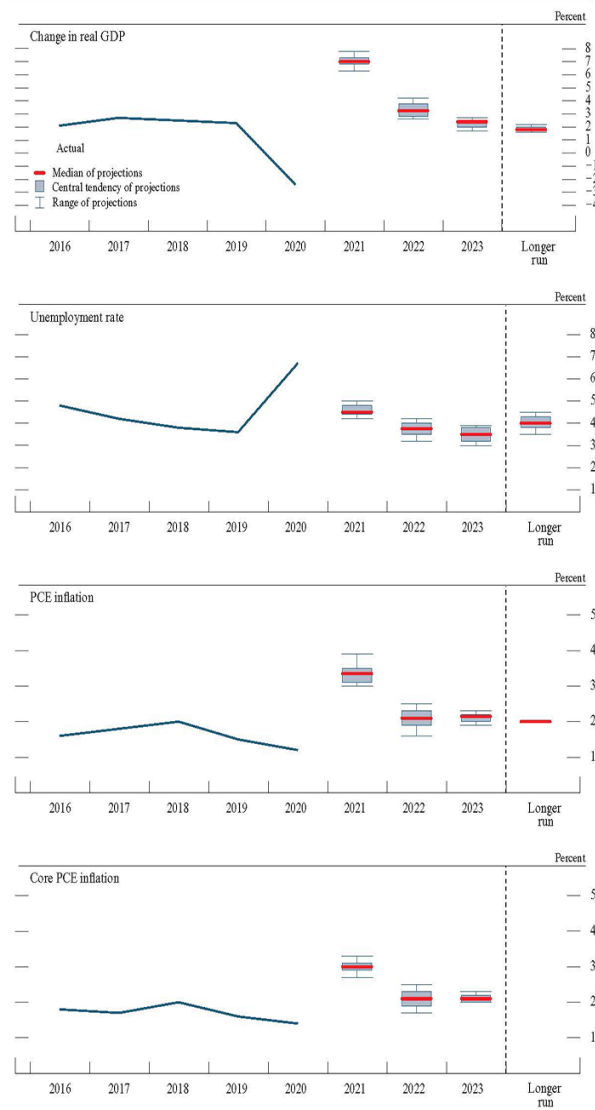
1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

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.

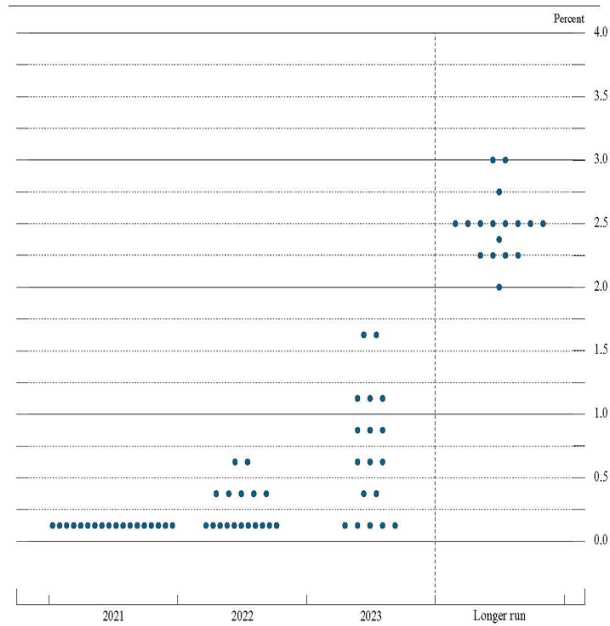
4. Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2021–23 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.

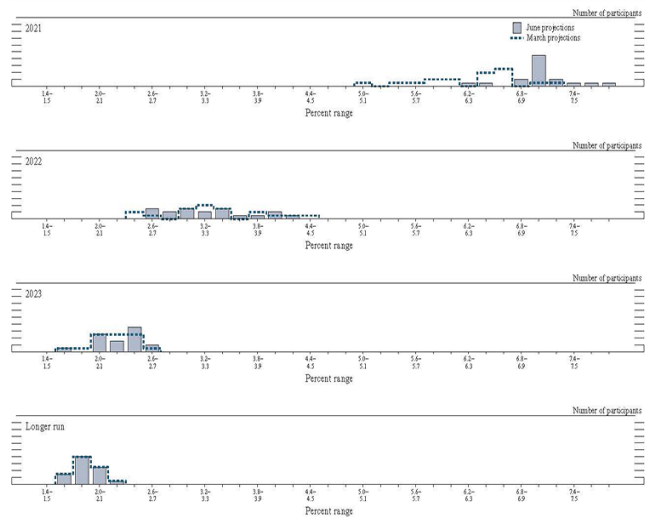
Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



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.

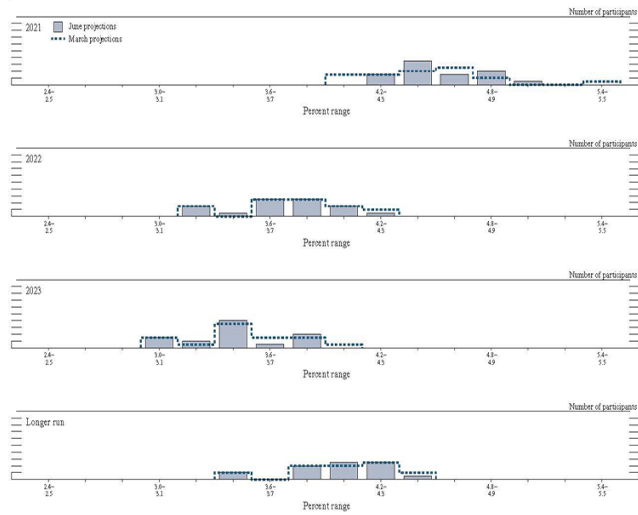
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Figure 3.A. Distribution of participants' projections for the change in real GDP, 2021–23 and over the longer run



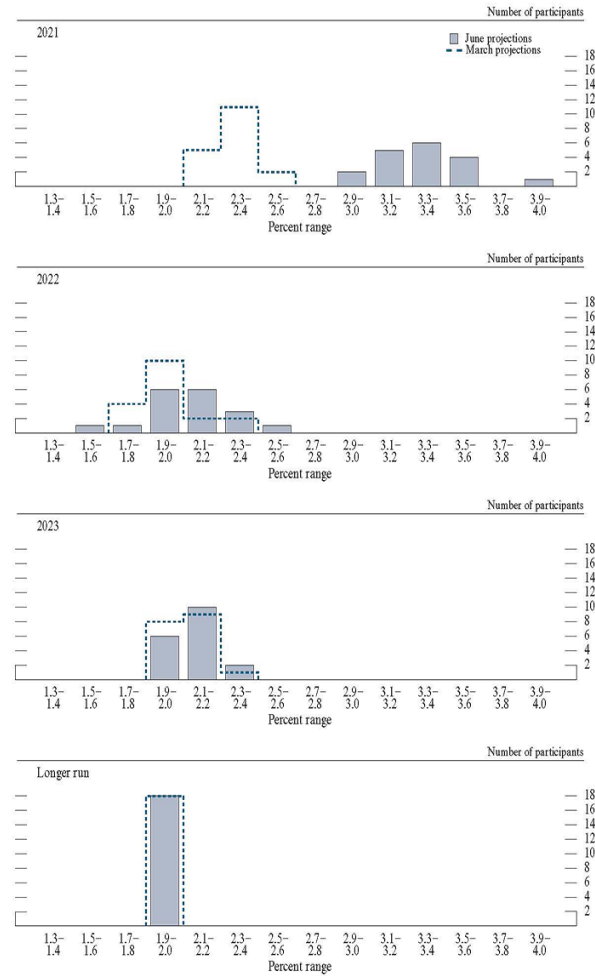
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2021–23 and over the longer run



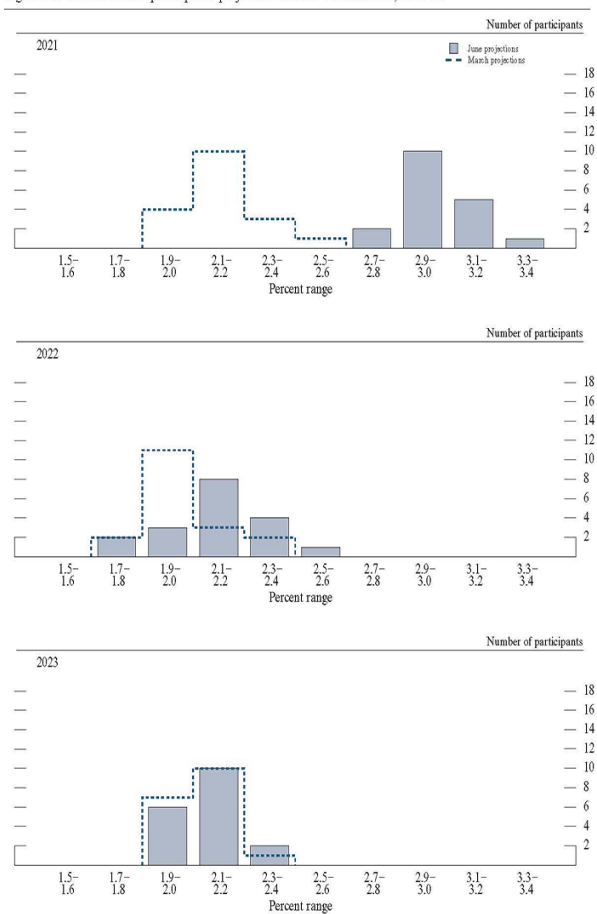
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2021–23 and over the longer run



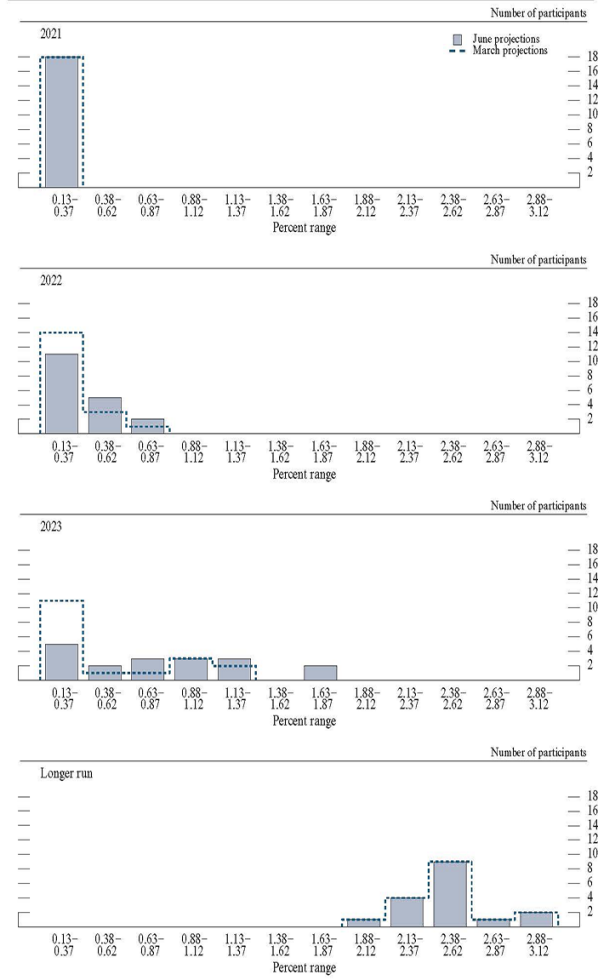
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2021–23



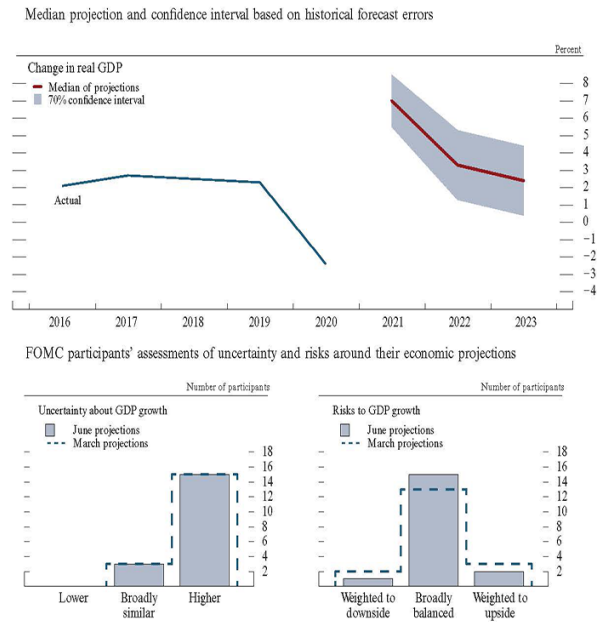
NOTE: Definitions of variables and other explanations are in the notes to table 1.

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, 2021–23 and over the longer run



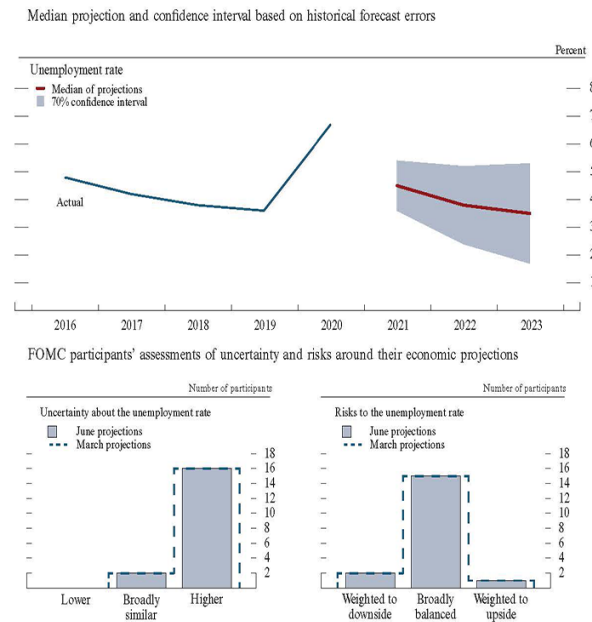
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 4.A. Uncertainty and risks in projections of GDP growth



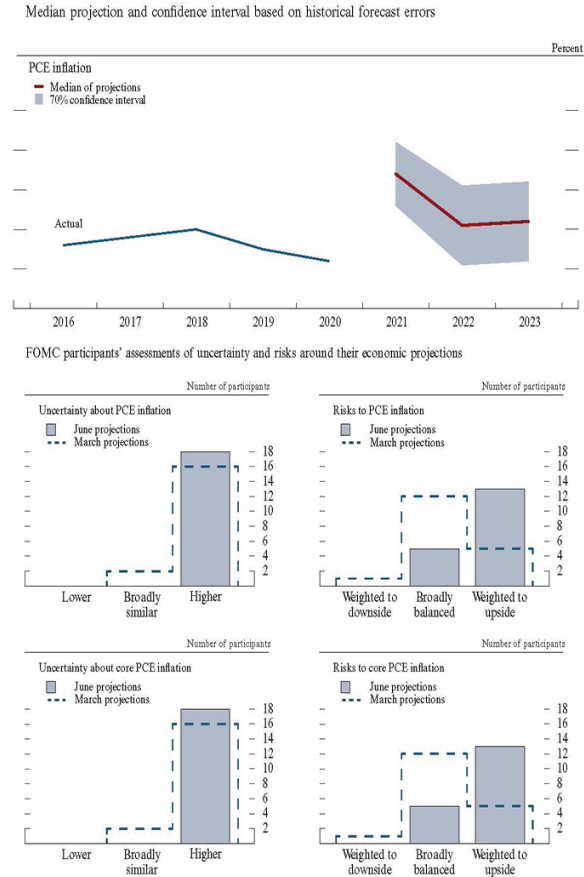
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected 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



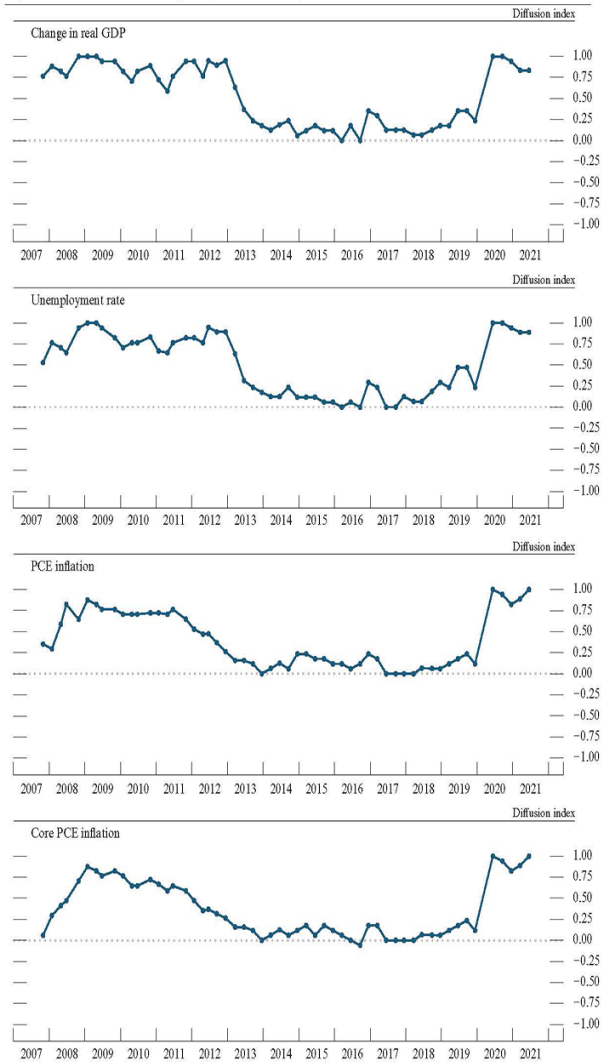
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root 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



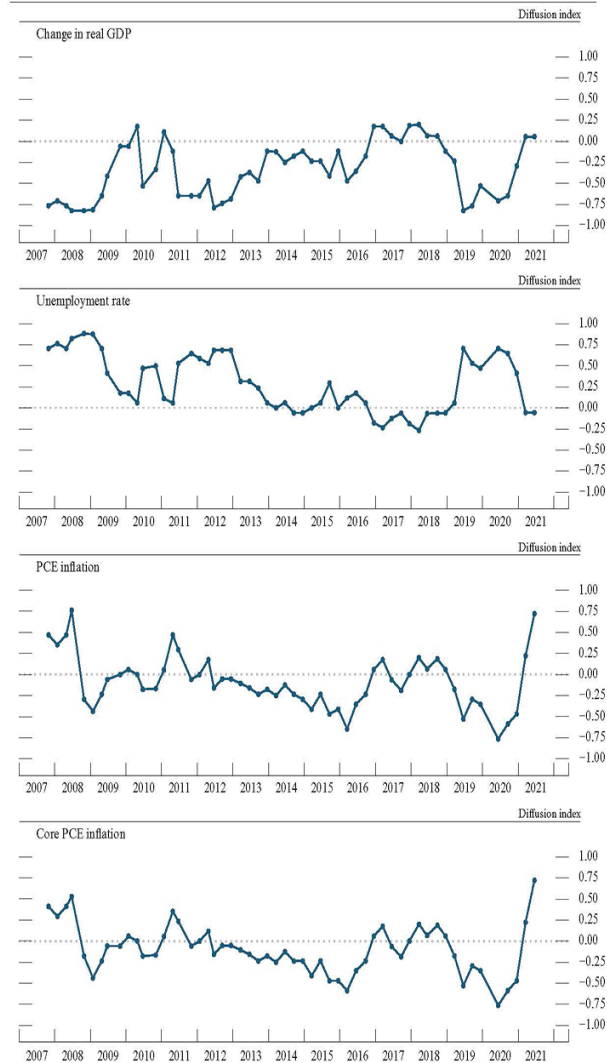
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval 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.

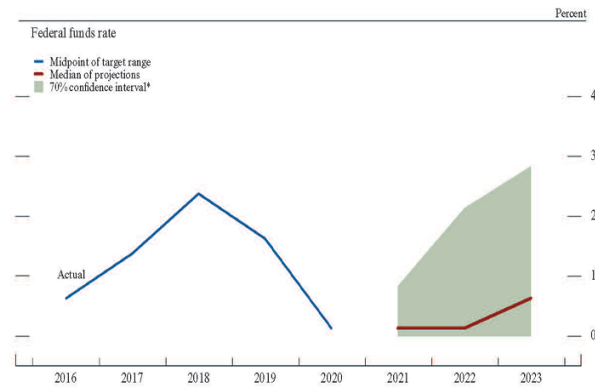
Figure 4.E. Diffusion indexes of participants' risk weightings



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.

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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.

Table 2. Average historical projection error ranges
Percentage points

Variable	2021	2022	2023
Change in real GDP ¹	±1.5	±2.0	±2.0
Unemployment rate ²	±0.9	±1.4	±1.8
Total consumer prices ³	±0.8	±1.0	±1.0
Short-term interest rates ³	±0.7	±2.0	±2.2

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 2001 through 2020 that were released in the summer 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 Tullip (2017), "Quantifying 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://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.

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 1.5 to 4.5 percent in the current year and 1.0 to 5.0 percent in the second and third years. The corresponding 70 percent confidence intervals for overall inflation would be 1.2 to 2.8 percent in the current year and 1.0 to 3.0 percent in the second and third years. 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' current assessments of the uncertainty surrounding their projections are summarized in the bottom-left panels

(continued)

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
CBO	Congressional Budget Office
CIE	common inflation expectations
CMBS	commercial mortgage-backed securities
COVID-19	coronavirus disease 2019
CPI	consumer price index
CPS	Current Population Survey
CRE	commercial real estate
EFFR	effective federal funds rate
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
FPUC	Federal Pandemic Unemployment Compensation
GDP	gross domestic product
LFPR	labor force participation rate
MBS	mortgage-backed securities
MMF	money market fund
ON RRP	overnight reverse repurchase agreement
OPEC	Organization of the Petroleum Exporting Countries
PCE	personal consumption expenditures
PEUC	Pandemic Emergency Unemployment Compensation
PPP	Paycheck Protection Program
PUA	Pandemic Unemployment Assistance
repo	repurchase agreement
SMCCF	Secondary Market Corporate Credit Facility
S&P	Standard & Poor's
TGA	Treasury General Account
TIPS	Treasury Inflation-Protected Securities
UI	unemployment insurance
VIX	implied volatility for the S&P 500 index

