S. HRG. 116–387

THE SEMIANNUAL MONETARY POLICY REPORT TO THE CONGRESS

HEARING

BEFORE THE

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

ONE HUNDRED SIXTEENTH CONGRESS

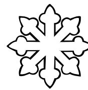
SECOND SESSION

ON

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

FEBRUARY 12, 2020

Printed for the use of the Committee on Banking, Housing, and Urban Affairs



Available at: https://www.govinfo.gov/

U.S. GOVERNMENT PUBLISHING OFFICE
42–742 PDF WASHINGTON : 2021

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS

MIKE CRAPO, Idaho, *Chairman*

RICHARD C. SHELBY, Alabama
PATRICK J. TOOMEY, Pennsylvania
TIM SCOTT, South Carolina
BEN SASSE, Nebraska
TOM COTTON, Arkansas
MIKE ROUNDS, South Dakota
DAVID PERDUE, Georgia
THOM TILLIS, North Carolina
JOHN KENNEDY, Louisiana
MARTHA MCSALLY, Arizona
JERRY MORAN, Kansas
KEVIN CRAMER, North Dakota

SHERROD BROWN, Ohio
JACK REED, Rhode Island
ROBERT MENENDEZ, New Jersey
JON TESTER, Montana
MARK R. WARNER, Virginia
ELIZABETH WARREN, Massachusetts
BRIAN SCHATZ, Hawaii
CHRIS VAN HOLLEN, Maryland
CATHERINE CORTEZ MASTO, Nevada
DOUG JONES, Alabama
TINA SMITH, Minnesota
KYRSTEN SINEMA, Arizona

GREGG RICHARD, *Staff Director*
LAURA SWANSON, *Democratic Staff Director*

CATHERINE FUCHS, *Counsel*
BRANDON BEALL, *Professional Staff Member*

ELISHA TUKU, *Democratic Chief Counsel*
COREY FRAYER, *Professional Staff Member*

CAMERON RICKER, *Chief Clerk*
SHELVIN SIMMONS, *IT Director*
CHARLES J. MOFFAT, *Hearing Clerk*
JIM CROWELL, *Editor*

C O N T E N T S

WEDNESDAY, FEBRUARY 12, 2020

	Page
Opening statement of Chairman Crapo	1
Prepared statement	38
Opening statements, comments, or prepared statements of:	
Senator Brown	3
Prepared statement	39

WITNESS

Jerome H. Powell, Chairman, Board of Governors of the Federal Reserve System	6
Prepared statement	40
Responses to written questions of:	
Senator Brown	43
Senator Scott	46
Senator Cotton	49
Senator Perdue	50
Senator Tillis	52
Senator Reed	53
Senator Menendez	56
Senator Tester	57
Senator Warren	59
Senator Schatz	73
Senator Cortez Masto	81
Senator Jones	89
Senator Sinema	94

ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

Monetary Policy Report to the Congress dated February 7, 2020	95
LISCC Guidance response letter submitted by Chairman Crapo	161

THE SEMIANNUAL MONETARY POLICY REPORT TO THE CONGRESS

WEDNESDAY, FEBRUARY 12, 2020

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

The Committee met at 9:32 a.m., in room SD–538, Dirksen Senate Office Building, Hon. Mike Crapo, Chairman of the Committee, presiding.

OPENING STATEMENT OF CHAIRMAN MIKE CRAPO

Chairman CRAPO. The hearing will come to order. Senator Brown has been delayed a little bit, but I am going to go ahead because, as I think most people realize, we had to readjust the time of this hearing so that we could accommodate the fact that votes have been called on the floor at 10:30. That means that Senators are going to need to really stick to their 5 minutes, and even then we may not get through for everybody, and I apologize for that. I am sure Senator Brown and I will stick around for 15 or 20 minutes into the first vote so we can go as long as we possibly can.

I will waive my questions. I will not waive my introductory statement, though, and I will start with that right now. Welcome, Chairman Powell.

Today Federal Reserve Chairman Jerome Powell will update the Committee on monetary policy developments and the state of the U.S. economy.

The U.S. economy continued to expand in 2019, exceeding 2 percent growth for the third straight year, as the American people enjoy the longest continued economic expansion in American history.

The labor market is strong, with the labor force at an all-time high of 164 million people, and the most recent jobs report shows that employers added 225,000 jobs in January alone, with the unemployment rate at 3.6 percent, remaining near a half-century low.

Wages also grew in January by 3.1 percent from a year earlier—and this is important—making it 18 consecutive months that pay has grown at an annualized pace of 3 percent or more.

Americans' view on their personal financial situations are increasingly optimistic, according to Gallup trends. Nearly six in ten Americans, or 59 percent, now say they are better off financially than they were a year ago, up from 50 percent last year.

Tax reform in 2017 and right-sizing regulations—including under the Economic Growth, Regulatory Relief, and Consumer Protection

Act in 2018—have undoubtedly helped fuel this strong economy and labor market.

Americans are set to benefit even more when considering the effects of the USMCA and the Phase One Trade Deal with China.

Despite this substantial progress, there are several external factors that could have a meaningful impact on economic activity and our financial markets that need to be better understood, including:

The Fed's decision to maintain a significantly larger balance sheet in the future, including its recent decision to purchase Treasury bills in response to volatility in short-term borrowing rates;

The Fed's future plans to maintain stability in short-term borrowing rates, including potential structural, market-based fixes;

The risks of the transition away from LIBOR to an alternative reference rate and steps that should be taken to ensure a smooth transition and curb risks to businesses and financial markets;

And, finally, the potential impact of the coronavirus on global commerce and growth.

The Fed has also taken a number of important supervisory and regulatory actions that merit attention.

The Fed and other Federal financial agencies recently proposed amendments to the Volcker Rule that would improve, streamline, and clarify the covered funds portion of the rule.

That proposal builds on the agencies' simplification of the Volcker Rule in 2019, standing to improve market liquidity and preserve diverse sources of capital for businesses while striking the appropriate balance with safety and soundness.

Additionally, many Banking Committee Republicans and I have raised serious concerns in the past with the agencies' supervisory and examination processes, including the use of guidance as rules.

In January, Fed Vice Chairman Quarles offered a road map to foster transparency, accountability, and fairness in bank supervision, including:

Tailoring the supervisory framework to better align with the categories developed under the Fed's domestic and foreign bank tailoring rules;

Putting significant supervisory guidance out for public comment and submitting it to Congress under the Congressional Review Act;

And other commonsense improvements to the supervisory process, such as a rulemaking that would cover the agencies' use of guidance in the supervisory process.

This road map is greatly encouraging, and I urge the Fed to take steps to put it into motion.

Finally, there is constant innovation, including in the financial services industry, to increase resources to unbanked and underbanked populations, reduce friction in payments, and increase efficiency in the delivery of financial products and services. Some recent examples are:

Facebook's announcement of Libra, a new stable digital cryptocurrency backed by a reserve of real assets and leveraging blockchain technology;

Work by global Governments and central banks to explore the development of central bank digital currencies, especially amid rumors that China's launch of a digital yuan is imminent;

The numerous applications of distributed ledger technologies, including in clearing and settlement, identity verification, and cross-border transactions;

And some financial institutions' adoption of public cloud technologies.

As I have stated in past hearings, it seems to me that technological innovations in this space are inevitable and that the U.S. should lead in developing what the rules of the road should be.

During this hearing, I look forward to hearing your thoughts, Mr. Chairman, on these important issues and about work that the Fed is engaged in to appropriately address them. And, again, thank you for joining us today.

Senator Brown.

OPENING STATEMENT OF SENATOR SHERROD BROWN

Senator BROWN. Thank you, Mr. Chairman. Chairman Powell, nice to have you back and thank you for your accessibility and the conversations you have with all of us in both parties on this Committee.

Before we start, I want to stay a few words about what happened last night, when we got word that Jessie Liu's nomination had been withdrawn. She was to appear in front of this Committee or was going to appear in front of the Senate when President Trump withdrew her nomination. She was going to appear in front of this Committee tomorrow.

I heard some of you, my colleagues and my friends, say that the President would be chastened by impeachment. Some of you told me you knew what the President did was wrong. Some of you privately told me how much you think he lies. But you also said publicly that was not enough to rise to the level of removal from office, and many of you asserted that he had learned his lesson, he would not do these things again, he would not, through illegal means, try to change the 2020 election.

It is pretty clear the President of the United States did learn a lesson: the lesson he can do whatever he wants, he can abuse his office, he will never, ever be held accountable by this Senate. That was the lesson.

He has now, since acquittal, gone on a retribution tour, starting at the prayer breakfast—a prayer breakfast, mind you—continuing through the East Room, where many of you were in the audience and applauded him as he personally attacked people who have served this country. He removed Colonel Vindman, a patriot and Purple Heart recipient who spent his life serving our country. He mocked his accent, his accent from—his Ukrainian accent.

He removed Ambassador Sondland, a Trump appointee, after he testified to the quid pro quo.

And yesterday—and the reason I bring this up today—he continued the tour, interfering at the Department of Justice, strong-arming political appointees to overrule career prosecutors. Those attorneys withdrew in protest, those professionals. I have no idea of their political party. They are professionals. They withdrew in protest from the case and, in at least one case, resigned entirely from the Department.

We cannot give him a permanent license to turn the Presidency and the Executive branch into his own personal vengeance operation. You all know what is happening. Even the Senator that just walked out knows that it is happening. I am afraid that is what we are seeing, a personal vengeance operation. No one should be above the law.

If we say nothing—and I include everybody on this Committee; I include myself. If we say nothing, it will get worse. His behavior will get worse. The retribution tour will continue. We all know that.

Mr. Chairman, now on to the issue at hand. I welcome Chairman Powell back.

Earlier this week, *Bloomberg* reported on a profitable and fast-growing Spanish company. Grifols has opened up branches in 36 States. They buy and sell plasma—a nice, clinical-sounding word that means "blood," as we know. Americans who are struggling to make ends meet are lining up to sell their blood to put food on the table. The blood-harvesting business is booming. Grifols stock is doing great.

It is hard to think of a better metaphor for the Trump economy.

On Monday, the S&P 500 and Nasdaq both reached record highs. In 2019, JPMorgan Chase had the best year for any U.S. bank in history, with $36 billion—36 thousand million dollars—in profits. Big corporations are spending hundreds of billions of dollars on stock buybacks and dividends. On paper, the economy has been expanding uninterrupted for over 10 years, although the growth the last 3 years of the Obama administration has been greater than the growth of the first 3 years of the Trump administration. We know that, too.

But if you talk to the vast majority of people who rely on paychecks, not investment portfolios, to earn a living, you get a very different story. They have been bleeding for years.

Most families do not understand why the harder they work, sometimes at more than one job, the harder it gets to afford pretty much everything—childcare, health care, rent, college tuition.

The people in this room may remember last September, when the financial industry went into a panic over a benchmark interest rate passing 10 percent.

Wall Street faced uncertainty, so we responded. The Fed leapt into action. Smart Government employees came up with a plan that led to the Federal Reserve lending about $200 billion every day into financial markets through a mechanism that has not been used since the financial crisis—$200 billion every day.

Let me be clear: I do not think it is wrong for the Fed to be creative and make sure the economy keeps working. It is in everybody's interest, Mr. Chairman, for banks to keep lending money and credit to keep flowing so businesses can invest and manufacture, consumers can buy houses and cars.

My problem is this: When Main Street faces uncertainty, no one at the Fed jumps to action or gets creative. The President does not criticize by tweet by name the Chairman of the Federal Reserve when he says—he never demands corporations raise wages for their workers. That is not ever his criticism of Chairman Powell.

It is hard for families to understand why Wall Street gets worked up about a 10-percent interest rate when so many families are lucky if the payday lender down the street charges them less than 400 percent.

Small businesses who are having trouble making payroll do not have access to so-called repo funding at their local Fed branch. The Fed does not take action when its own research has found that 40 percent of Americans do not have the cash—think about that. Probably not many people in this hearing room, but 40 percent of Americans do not have $400 in cash when their car breaks down to get to work to be able to fix. So they go to the payday lender, and then things spiral downward.

Nobody raises alarm bells when 40 million Americans predict they will miss at least one credit card payment, which means $1.2 billion in late fees will flow from the pockets of struggling families to help JPMorgan Chase earn $36 billion last year.

"Serious people" have not dropped everything to bring down the cost of housing or raise wages once they found out that one in four are paying more than half their income toward housing. One thing goes wrong in their life, their lives turn upside down.

People look at that and they see two different economies and two different responses. We hear a lot about the divides in this country between red and blue, between rural and urban, the coasts and the heartland, the people who watch MSNBC and the people who watch Fox. But people in all those places feel like no matter how hard they work, they cannot maintain any real economic security. The real divide I see is between those whose problems are considered an "emergency" and those whose struggles Wall Street and large parts of Washington have decided they can ignore.

The Fed needs to get creative for the people who make this country work, particularly because it has become pretty clear that the President and the Majority Leader are simply not about to.

President Trump brags about a soaring stock market that he has pumped up with deficit-busting, trillion dollar tax breaks for billionaires. Deficits exceeding $1 trillion, do not hear much about that anymore. And now he wants to pay for those tax cuts—sorry, we have got a big deficit, we have got to pay for those tax cuts, as he said in Davos and he is saying in his budget—by cutting Medicare and Medicaid and Social Security.

He lies about a "blue-collar boom"—I heard it at the State of the Union that night; I was fairly incredulous—when in my own State of Ohio, job growth has been anemic or nonexistent, and manufacturing jobs are stalling compared to when he took office. And now in his budget, after promising workers in Lordstown, Ohio, "Do not sell your homes. We will bring those jobs back," he wants to kill the loan program that was giving the community of Lordstown a little bit of hope that some manufacturing jobs actually would come back.

Chairman Powell, you and your highly capable staff at the Fed have been proactive and creative in protecting Wall Street and the money markets from the President's erratic behavior, and I am glad you have. We are all appreciative of that.

But what I hope to hear from you today is how you are going to be proactive and use that same level of creativity to make this economy work for everyone else.

Thank you.

Chairman CRAPO. Chairman Powell, I for one commend you for the work that you are doing. I think that there are tremendous results that I expect you will discuss with us today from the efforts that you have undertaken. You may now make your statement, and then we will proceed.

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

Mr. POWELL. Thank you very much. Chairman Crapo, Ranking Member Brown, Members of the Committee, I am pleased to present the Federal Reserve's semiannual Monetary Policy Report.

My colleagues and I strongly support the goals of maximum employment and price stability that Congress has set for monetary policy. Congress has given us an important degree of independence to pursue these goals based solely on data and objective analysis. This independence brings with it an obligation to explain clearly how we pursue our goals. Today I will review the current economic situation before turning to monetary policy.

The economic expansion is well into its 11th year, and it is the longest on record. Over the second half of last year, economic activity increased at a moderate pace, and the labor market strengthened further, as the economy appeared resilient to the global headwinds that had intensified last summer. Inflation has been low and stable but has continued to run below the FOMC's symmetric 2-percent objective.

Job gains averaged 200,000 per month in the second half of last year, and an additional 225,000 jobs were added in January. The pace of job gains has remained above what is needed to provide jobs for new workers entering the labor force, allowing the unemployment rate to move down further over the course of last year. The unemployment rate was 3.6 percent last month and has been near half-century lows for more than a year. Job openings remain plentiful. Employers are increasingly willing to hire workers with fewer skills and train them. As a result, the benefits of a strong labor market have become more widely shared. People who live and work in low- and middle-income communities are finding new opportunities. Employment gains have been broad based across all racial and ethnic groups and levels of education. Wages have been rising, particularly for lower-paying jobs.

GDP rose at a moderate rate over the second half of last year. Growth in consumer spending moderated toward the end of the year following earlier strong increases, but the fundamentals supporting household spending remain solid. Residential investment turned up in the second half, but business investment and exports were weak, largely reflecting sluggish growth abroad and trade developments. Those same factors weighed on activity at the Nation's factories, whose output declined over the first half of 2019 and has been little changed, on net, since then. The February Monetary Policy Report discusses the recent weakness in manufacturing. Some of the uncertainties around trade have diminished recently, but

risks to the outlook remain. In particular, we are closely monitoring the emergence of the coronavirus, which could lead to disruptions in China that spill over to the rest of the global economy.

Inflation ran below the FOMC's symmetric 2-percent objective throughout 2019. Over the 12 months through December, overall inflation based on the price index for personal consumption expenditures was 1.6 percent. Core inflation, which excludes volatile food and energy prices, was also 1.6 percent. Over the next few months, we expect inflation to move closer to 2 percent, as unusually low readings from early 2019 drop out of the 12-month calculation.

The Nation faces important longer-run challenges. Labor force participation by individuals in their prime working years is at its highest rate in more than a decade. However, it remains lower than in most other advanced economies, and there are troubling labor market disparities across racial and ethnic groups and across regions of the country. In addition, although it is encouraging that productivity growth, the main engine for raising wages and living standards over the longer term, has moved up recently, productivity gains have been subpar throughout this long economic expansion. Finding ways to boost labor force participation and productivity growth would benefit Americans and should remain a national priority.

I will now turn to monetary policy. Over the second half of 2019, the FOMC shifted to a more accommodative stance of monetary policy to cushion the economy from weaker global growth and trade developments and to promote a faster return of inflation to our symmetric 2-percent objective. We lowered the Federal funds rate target range at our July, September, and October meetings, bringing the current target range to 1½ to 1¾ percent. At our subsequent meetings, with some uncertainties surrounding trade having diminished and amid some signs that global growth may be stabilizing, the Committee left the policy rate unchanged. The FOMC believes that the current stance of monetary policy will support continued economic growth, a strong labor market, and inflation returning to the Committee's symmetric 2-percent objective. As long as incoming information about the economy remains broadly consistent with this outlook, the current stance of monetary policy will likely remain appropriate. Of course, policy is not on a preset course. If developments emerge that cause a material reassessment of our outlook, we would respond accordingly.

Taking a longer view, there has been a decline over the past quarter-century in the level of interest rates consistent with stable prices and an economy operating at its full potential. This low interest rate environment may limit the ability of central banks to reduce policy interest rates enough to support the economy during a downturn. With this concern in mind, we have been conducting a review of our monetary policy strategy, tools, and communications practices. Public engagement is at the heart of this effort. Through our Fed Listens events, we have been hearing from representatives of consumer, labor, business, community, and other groups. The February Monetary Policy Report shares some of what we have learned. The insights we have gained from these events have informed our framework discussions, as reported in the min-

utes of our meetings. We will share our conclusions when we finish the review, likely around the middle of this year.

The current low interest rate environment also means that it would be important for fiscal policy to help support the economy if it weakens. Putting the Federal budget on a sustainable path when the economy is strong would help ensure that policymakers have the space to use fiscal policy to assist in stabilizing the economy during a downturn. A more sustainable Federal budget could also support the economy's growth over the long term.

Finally, I will just briefly review our planned technical operations to implement monetary policy, and the February Monetary Policy Report provides details of our operations to date. Last October, the FOMC announced a plan to purchase Treasury bills and to conduct repo operations, and these actions have been successful in providing an ample supply of reserves to the banking system and effective control of the Federal funds rate. As our bill purchases continue to build reserves toward levels that maintain ample conditions, we intend to gradually transition away from the active use of repo operations. Also, as reserves reach durably ample levels, we intend to slow our purchases to a pace that will allow our balance sheet to grow in line with trend demand for our liabilities. All of these technical measures support the efficient and effective implementation of monetary policy. They are not intended to represent a change in the stance of monetary policy. As always, we stand ready to adjust the details of our technical operations as conditions warrant.

Thank you. I am happy to take your questions.

Chairman CRAPO. Thank you, Chairman Powell. And as I said before, I will not use my 5 minutes for questions. In fact, I will not use much of my 5 minutes at all, trying to set a standard for the record of the Members of this Committee.

Before I turn the time to Senator Brown, however, and yield my time, I wanted to indicate that it has been brought to my attention that Senator Shelby, who unfortunately is not able to be here right now, recently became the longest-serving Member of the Senate Banking Committee in history.

He began his service on the Committee on January 6, 1987, and has now served approximately 33 years 1 month and 6 days. That surpasses Senator Sparkman—interestingly, also of Alabama—who previously served on the Banking Committee between January 6, 1947, and January 3, 1979, almost 32 years. Senator Shelby has clearly seen dramatic changes in the financial services industry over those years and himself has had a meaningful impact on financial institutions, markets, and consumers during his tenure on the Committee, including as Chairman. I take this opportunity to thank him for his service on this Committee and congratulate him on this significant milestone.

Senator Brown.

[Applause.]

Senator BROWN. Is he here?

Chairman CRAPO. He is not here. I yield my time to you.

Senator BROWN. We will clap again when he comes. Thank you, Mr. Chairman. Thanks.

When the Fed says it is nearing maximum employment and the labor market is strong, it could mean workers have one good-paying job, or it could mean that a worker is working under 40 hours at three part-time jobs at minimum wage. I think this highlights how the economic recovery has not benefited nearly everyone. You hear these statistics, 40 percent, 50 percent of—I am sorry, 25 percent of people pay half their income in rent, 40 percent of Americans cannot come up with $400. So, clearly, it is not reaching everyone. If you have to work three jobs or if you are working at a job in one of the ten fastest-growing professions—seven out of ten of those jobs are this—you still cannot afford rent. Something is wrong.

I appreciate you have been on a listening tour and I am looking forward to your report, but I want to know, who do you have at the Fed working on bold and creative ways to use the Fed's authority—some tools we probably do not know about—using your authorities to help working families that are not benefiting from economic growth? What can you do to make sure that most of our economic growth, not a sliver of it but most of our economic growth, ends up in workers' pockets?

Mr. POWELL. Well, our tools are not focused on distributional effects, really. They are focused on aggregate effects. We do not have those tools. Other agencies do, and, of course, elected officials hold really the power to address those issues.

But I will say that, you know, the thrust of our review of monetary policy, the first we have done of this nature, is to assure that we have the tools to carry out the mandate you have given us of maximum employment and stable prices in a world where inflation is trending lower, where the Phillips curve is very flat, so that the connection between inflation and tightness in the economy is very, very low now, and also where interest rates are quite low, which creates a very challenging environment for us to carry out the job you have given us, and that is why we are doing a deep dive on issues around our strategy, tools, and communications.

Senator BROWN. OK. I would ask you to—and these conversations can take place individually, too, but I would ask you to be as creative as the Fed was. I just have a list here of extraordinary Federal actions that did not require Congress. I am not arguing Congress has done its job. Senator McConnell and the President have refused to raise the minimum wage. It has been stuck for 11 years at under $8. They took away overtime for about 2 or 3 million Americans because of truncating the overtime rule, tax cuts for the rich, and now cuts for Medicare—we know Congress is not doing its job to redistribute income in any way that is fair to hundreds of millions of Americans. We know that, but just this list quickly: the Maiden Lane direct purchase of assets, the Primary Dealer Credit Facility, converting investment banks to bank holding companies so they could borrow from a discount window.

The Fed has been very creative to the country's benefit when Wall Street has reached difficult times, has run into difficult times, sometimes of their own making, but the Fed is—I am a supporter of the Fed. Some people with my political philosophy are not. And I think that you have stepped up in many ways. I ask you to be as creative in thinking of ways that this wealth is shared beyond

the 1 or 2 or 5 or 10 percent who are doing very well, who are thrilled with the economy the way it is, and it just does not reach so many.

One other question, Mr. Chairman. I am worried about risks in our economy. I am glad the Fed is taking leveraged lending seriously, incorporating it into stress tests. At the same time, we are seeing the financial system get more and more exotic. JPMorgan Chase through a supposedly unaffiliated fund wants to buy an electric plant in El Paso, also owns a stake in a nuclear power plant. That means that JPMorgan Chase could likely own a nuclear power plant. The Japanese equivalent of Amazon wants to form an industrial loan company in Utah so it can get the benefits of being a bank without the regulation. And, recently, you voted with other bank regulators to weaken the Volcker Rule by reversing protections in the 2013 rule allowing for more risky and leveraged investments.

Are we going in the right direction? It seems the financial system again is getting more complex, more exotic, things people do not understand. Shouldn't we be focusing on simplifying it?

Mr. POWELL. Well, what we are focused on is maintaining much higher capital, much higher liquidity requirements, stress tests, as you pointed out, that keep the banks on their toes and do address in a timely way the issues of the day, and also resolution planning. So those are the big four important measures broadly that we put into place after the financial crisis, and we are focusing on sustaining those, making them more effective, and keeping them strong.

Chairman CRAPO. Senator Toomey.

Senator TOOMEY. Thanks very much, Mr. Chairman.

Welcome back, Mr. Chairman. Good to see you again. I have several somewhat technical questions I would like to go over with you, and some of them we have discussed to varying degrees in the past. But one is the Fed's real-time payment system. As you may recall, I was never convinced that this was a great idea for the Fed to pursue this since we have a private sector system in place up and running and really encouraged by the Fed back in the day. But I get the Board of Governors has made its decision.

Here is my question for you: A number of constituents have expressed the concern that we are going to end up with two systems that are not fully interoperable. And to the extent that employers and financial institutions and other participants would be plugged into different systems, if they are not fully interoperable, there is a real concern that that is going to at a minimum diminish the ability to innovate in these systems going forward.

So I guess I am wondering if you could—just briefly, because I do have several other topics—just address the question of whether it is a priority of the Fed to ensure that the FedNow system will be fully interoperable with the clearinghouse system.

Mr. POWELL. Full interoperability is the goal. It will be challenging to reach it, but it is a high priority to assure interoperability. It is something we are very focused on in the design stage.

Senator TOOMEY. OK. And as I am sure you are aware, the clearinghouse system is committed to having flat fees and not providing discounts for volume and the size of transactions, provided that the

FedNow system does not provide those kinds of discounts. Can the Fed commit that it will have uniform pricing on this platform?

Mr. POWELL. We have not made that commitment, and it is not clear that that is what our—that the banks who really wanted us to do this are looking for.

Senator TOOMEY. Well, this is often cited as a reason why the Fed needed to do this, is because the private system might discriminate on the basis of price. So I think it is important that the clearinghouse system has volunteered—clearly, they are happy to be regulated if need be to ensure that this would occur. It would be really ironic and a shame if it turns out that it is, in fact, the Fed that makes it more expensive for small banks to participate.

Let me move on to SOFR. As we have discussed, you know, one of the challenges of replacing LIBOR is that LIBOR has an embedded credit risk element, it is an interbank rate; whereas, SOFR is a risk-free rate because it is essentially a repo rate. And that mismatch could conceivably create some problems, especially to the extent that banks are funding themselves in an interbank market that is subject to spreads that SOFR may not reflect. And so a mismatch in assets and liabilities could become problematic.

So my question is, I think yesterday you may have—and I did not see the transcript, so correct me if I am wrong. But you may have suggested that there is a thought of trying to introduce a credit component, some kind of credit spread or credit risk component to, as either a complement or an alternative or somehow integrate that with SOFR, and I am just wondering. Did I get that right? Is that something you guys are thinking about? Are you concerned about it at all?

Mr. POWELL. I will just quickly say that LIBOR itself, we cannot assume that it will be published past the end of 2021. So that has not changed, and everyone needs to take that on board. SOFR is going to be the rate that a lot of the derivatives go to and many, many across the broad financial system will go to. But a number of banks have come forward and said that they want to work on a separate rate, which would not replace SOFR but would be credit sensitive. And so they are doing that now, and we are working with them to support that process. So, you know, we are open to that, but it does not mean that the transition away from LIBOR to SOFR will stop. It has to go forward.

Senator TOOMEY. OK. The last thing on my list here, the glitch in the repo market. As you and I discussed briefly, my concern is when banks choose to earn less than 2 percent on excess reserves when they could be earning up to 10 percent, at least briefly, in the repo market. It suggests that there is something going on here, right? They could have put their money into the repo market. They chose not to.

I am not aware of an explicit rule that required that during the episodes when these rates spiked, but, nevertheless, it happened. And so I wonder, and I am a little concerned that there might be some kind of unspoken pressure on the part of regulators to favor cash on deposit with the Fed over liquidity in the form of repo transactions that goes beyond what is actually in the rules. And I am wondering, if you share that concern, what you think about it. I know the Fed's response has been to provide liquidity, and that

works in a given moment. But if there is an underlying problem that has not been fixed, then isn't there the risk that the spike in repo rates could recur and you have to provide liquidity again. Could you address that?

Mr. POWELL. Sure. So there is not a preference for reserves over Treasurys in the LCR, but there is in the internal liquidity stress tests in the sense that, you know, it takes 1 day to turn a Treasury into liquidity, just inherently there is. And I think the idea of putting Treasurys and reserves on an equal footing in terms of their treatment so that they can achieve liquidity is a good goal because we would—we do not want to tilt banks in the direction of having to have more reserves than they really need. As long as the overall level of liquidity is at the appropriate level, we do not want to tilt them in that direction. It may well be that we are doing that. You may have seen Vice Chair Quarles give a speech on this, and he talked about this issue at some length.

So we are looking at ways to address that, one of which is just to assume that the discount window is available in that stress test, which is a reasonable assumption to make. But I do think there are things to do there, and the reason is, as you mentioned, there was liquidity but it did not flow, so it was not liquid. And so the question is why not, and we are looking at ways to address that that will not undermine safety and soundness but that will make the markets operate better.

Senator TOOMEY. Thank you.

Chairman CRAPO. Senator Reed.

Senator REED. Well, thank you very much, Mr. Chairman. Let me thank you, Chairman Powell, for your leadership. Thank you for joining us in Providence. It was a wonderful evening.

I think it is important, too, your efforts to ensure the independence of the Federal Reserve. Without an independent Federal Reserve, our national policymaking is, in my view, severely flawed, so keep up your efforts, please.

You mentioned that we have had an expanding economy for 11 years. By my count, that would be 8 years under President Obama, and 3 years under President Trump. The expansion is good, but there are still some issues I think we should address. The Pew Center put out a report in January, and they indicated that the share of wealth held by middle-income families has been falling for roughly 20 years, and I would like you to comment on whether it continues to fall despite this expanding economy. And in addition to that, they point out that income inequality in the U.S. has increased since 1980. If it is still increasing, please comment on that. And it is greater than in peer countries, other countries that are similar to us in many other aspects.

So despite this expanding economy, if we are seeing a shrinkage of wealth in the middle class, and income inequality, those are social, political, and economic trends that I do not think are sustainable over time. They go to the fabric of the country. So are those trends continuing? And what policies can we adopt, both fiscal and monetary to change them?

Mr. POWELL. Those are longer-term trends that I think are driven by important underlying factors, many of them global. So I think that—I would assume that the data will continue to move in

that direction. I think what they show is that incomes have been moving up across the income spectrum, particularly if you look at benefits and if you look at after-tax effect, it gets more even that way. But it has been a particularly good time to be at the top end of the income spectrum. I would point to two key problems I think we ought to address. One is low mobility. We actually have lower mobility from, say, the bottom quintile to the middle quintile or the top quintile than many other advanced economies. This is not our self-image as a country, and it is something we need to address.

The other is just that the relative stagnation of those incomes in the middle and the low end, you know, we want, of course, prosperity to be broadly shared, and it comes down to really education and training and things like that that enable people to do well in the modern economy, which is a globalized economy that is less about manufacturing—and the manufacturing jobs are more technical than they were. So we need a workforce that can benefit from technology and globalization, and those are policies that the Fed does not have our hands on.

Senator REED. No, you do not have those policies, but if we just sit back, those trends will continue and they will cause even further divergence between the vast majority of Americans and a very small group of Americans. So it is incumbent upon Congress and the Executive to start taking steps. Is that fair?

Mr. POWELL. I think so. And I also think U.S. businesses get this very much now. If you talk to business leaders, they see the workforce and the need for, you know, widely shared—we want prosperity to be as widely shared as possible. You hear that all the time from business leaders and certainly Government leaders as well. I do think it is an important national priority.

Senator REED. Thank you.

Just switching gears here, the Community Reinvestment Act is being massaged by both the Office of the Comptroller of the Currency and the FDIC, and there have been some comments critical of their efforts, not just by, you know, affordable housing advocates but by some banking institutions, that they are not doing a proper cost-benefit analysis and that their proposal unintentionally could discourage revitalization of neighborhoods that really do need it most.

Can you let us know what role you might play and how you can help get it right?

Mr. POWELL. Sure. So, first of all, we are not going to comment on their proposal. And it is out for a proposal. I think all of us, including the FDIC and the OCC, are looking forward to seeing those comments and learning more.

I think we do share the goal of modernizing CRA. Technology and demographics have really changed the delivery of banking services, particularly in rural areas, for example, but everywhere. So it is time to do that. That has not been done in 25 years. I think we agree on the goal, which is we want it to be more effective, and it would help that if it were transparent, more objective. So I think we share objectives with those agencies, and we worked closely with them for a long time to try to get completely on the same page. We developed our own approach, which was slightly different, a bit different, and we were not able to get together in the end. But

I think we should look at it as an ongoing process where we will continue to learn, and that is going to be our approach.

Senator REED. Again, thank you, Mr. Chairman. And I will stress independence one last time.

Chairman CRAPO. Senator Sasse.

Senator SASSE. Thank you, Chairman. Chairman Powell, thanks for being here. We are grateful for your work.

You have been consistently raising warning bells about what you have called "the greatest threat" to the financial system. You talk to many of us in private about cyberissues, and you said it yesterday over on the House side. I do not think it is breaking through. Can you summarize for us why you are awake at night worried about cyberattacks on our financial system?

Mr. POWELL. Sure. So they kind of pay us to be awake at night worrying about things, and I would say that if you look at what happened in the financial crisis, we had a game plan there; we implemented it over the course of 10 years. I will not say that it is perfect or anything like that, but we have a plan that is meant to address those kinds of things.

What is new in the threat environment is, you know, the ongoing level of cyberthreat and the increasing sophistication of it, and so that is what we—we spend a ton of time worrying about that, and, you know, the Treasury Department has really been taking the lead on that, and I think, you know, we have—so we are very focused on it. We are focused on making sure that the financial institutions that we supervise are doing the best that they can to stay at the state-of-the-art, good cyberhygiene. It turns out that a lot of these things are just people failing to implement updating their software and things like that. That is where a lot of breaches happen. So, I mean, it is an intense focus by supervisors and by financial institutions, also by nonfinancial institutions. Companies that are in, you know, all kinds of businesses are having this now. It is an enormous focus. We will never say that we have—it never feels like we have done enough, but it is just something we keep trying to get better and better at, lots of resources on it in all the agencies and all the companies.

Senator SASSE. And if you would concretize for us, give us maybe two examples of a way that you think this attack could have, you know, spillover efforts. How do the dominoes work without giving somebody a template or road map? You have talked in private a few times about ways that this could cause bigger consequences than 2008 and 2009. How would that happen?

Mr. POWELL. Without wanting to get too much into it, I would just say that confidence in the financial system is really important. The public has to have confidence in the financial system. And so a successful cyberattack on a payments utility, for example, would be challenging. We could address that. We could isolate it. We could fix it. But you would want to avoid somehow broader blows to confidence. Because when confidence weakens, people will take their money out. They will stop acting and things like that. Uncertainty and lack of confidence are the enemy of economic activity and growth.

Senator SASSE. I think we need to also recognize that the many different conversations we have with the Chinese Government tend

to have a benign diplomatic flavor. I think we should underscore what has happened this week, with the Equifax hack having new headlines, so the 2017 hack of Equifax which compromised the personal financial records of more than 30 percent, 35 percent of all Americans. The Justice Department earlier this week indicted four Chinese Communist Party officials affiliated with military intelligence in China. This is not an accident. This is the same Communist Party that hacked the OPM records and now has moved on to Equifax.

Can you envision scenarios where the Chinese Community Party was hacking into the U.S. banking system?

Mr. POWELL. Well, we need to be resilient against all cyberthreats, and certainly, you know, State actors are a big part of that. And so we are well aware of those. By the way, we have help from the intelligence agencies and others in the Government in keeping our eyes out for that.

Senator SASSE. Shifting gears a little bit, the President's budget came out this last weekend, and some of us are going to be in the Finance Committee later today discussing the larger budget. We tend to have headlines that focus on whatever the discretionary programs are that tend to be more hot button and current in the news. But you have talked consistently about health entitlements and its challenge to the—or maybe more broadly than health entitlements, the inefficiencies of our health care delivery system. For a developed Nation, we have very mediocre health outcomes, and we have ridiculously high price tags.

Can you talk a little bit about the consequences of U.S. health on competitiveness, on our larger economy?

Mr. POWELL. I would be happy to. Of course, I should start by saying that it is not really—we do not do fiscal policy, and we do not give you advice on fiscal policy. But since you ask, really, the budget—the biggest issue of our Federal budget is just its health care spending. And it is not that our benefits are too generous. It is that we deliver them in a way that is measured by the outcomes. The outcomes are perfectly average for a First World Nation, but we spend 6 or 7 percent of GDP more than other countries do. And so it is about the delivery, and that is a lot of money every year that you are effectively spending and getting nothing. And I have to leave it with you there. It is not for us or for me to prescribe, you know, fixes. But I think that really is what it is about. Those discretionary things, of course, are very high profile and they get a lot of reporting, but ultimately that is what is driving it.

Again, I would stress it is not that these benefits are fabulously generous. They are just what people get in Western economies. But we deliver them at the cost of, you know, 17, 18 percent of GDP, and others do it at 11 percent of GDP. That is what we should be focusing on.

Senator SASSE. Thank you, Chairman.

Chairman CRAPO. Senator Tester.

Senator TESTER. Well, thank you, Mr. Chairman and Ranking Member Brown, for having this hearing. And I want to thank you, Chairman Powell, for your work. I did not hear all of Senator Reed's questions, but if it has to do with independence of the Fed, count me on that bloc, too. I think it is critically important you

maintain that independence and hang to it, and I applaud you on your efforts thus far.

Both the Fed, through lower rates, and Congress, through increased spending, through increased debt, have been taking actions to boost the economy during a long stretch of growth. I am concerned that if we do approach a downturn—and there are a number of indicators out there that are concerning to me—that our options to address a downturn are limited. I want to hear your perspective on what the Fed has, its ability to react to an economic downturn, the tools.

Mr. POWELL. Thank you. So our traditional tool, of course, is interest rates, and low rates are not really a choice anymore. They are a fact of reality, and they are likely to remain. So we will have less room to cut. That means it is much more likely that we will have to turn to the tools that we used in the financial crisis when we hit the lower bound.

Senator TESTER. Which is?

Mr. POWELL. Which is forward guidance, which says that we will keep rates low, and then it is also large-scale asset purchases of longer-term securities to drive longer-term rates down and support the economy. We will use those tools. I believe we will use them aggressively should the need arise to do so. There is no need to do that now. But we will use those tools aggressively.

The sense of the review that we are undertaking of our strategy, tools, and communications right now and which we think we will announce our conclusions on in midyear is that we are looking to make sure that in this low rate environment, difficult environment for central banks and for those who we work for, that we are using our tools as best we can, that we have explored every possible way to find, you know, every scrap of policy space, if you will, to be able to support the economy.

And then, finally, I would just stress that it is important that fiscal policy be in a position, as it always has been, to support the economy in a downturn as well.

Senator TESTER. So let me ask you this: The debt is at $23 trillion right now? Is that about right? Something like that.

Mr. POWELL. Yes.

Senator TESTER. At what point in time do you get concerned? I mean, I think the budget the President just put out adds another $1 trillion to the debt.

Mr. POWELL. It is very hard to say at what level you get concerned. I would say I would be concerned now. It is really the rate of increase. What we need to do is have the debt grow slower than the economy is growing. If the economy is growing faster than the debt, then effectively leverage is going down, so debt to GDP will not be—what is happening is debt to GDP is going up and going up fairly quickly as these things move. Other countries have managed to get to very high levels, much more than ours, but what it means is that 20 years from now we will be spending those tax dollars, our children will be spending those tax dollars on servicing the debt rather than on the things that they really need. We are sending them those bills.

Senator TESTER. And the debt does not go down if the economy downturns?

Mr. POWELL. No, no, not at all. Quite the opposite.

Senator TESTER. Exactly right. It becomes much bigger of an issue.

Mr. POWELL. Yeah.

Senator TESTER. I want to talk about housing because it is a big issue I think everywhere, rural America and urban America. From your position, what do you see the housing challenge and impact on individuals and the economy?

Mr. POWELL. Housing is generally facing difficulties in affordability. The housing industry is doing better and building more houses and is profitable and housing starts are going up. But I think from the standpoint of the public, you have a squeeze going on which has to do with difficulty in getting lots; you know, there are just supply side constraints which are keeping the quantity of housing down, lack of skilled labor, regulations of various kinds. And so what you see many, many places, not just in big cities, you see housing affordability challenges, and it is a fairly wide-scale problem.

Senator TESTER. And I just want to ask this really quickly, because there has been a lot of debate for a number of years, much of it started by the Senator to my left, on GSE reform. Does GSE reform or lack of GSE reform have any impacts on the housing situation?

Mr. POWELL. I think in the long run it is very important that GSE reform happen, that we move forward with that. I think that is a big unfinished piece of business from the financial crisis. It is not really ideal to have the entire housing finance system riding on the Federal Government. In the long run, it would be better to move forward with something, I think. And I think in the long run that is a more sustainable basis for housing finance.

Senator TESTER. Thank you for your work. I have some other questions on agriculture. I will put them in the record.

Thank you very much for your service.

Mr. POWELL. Thank you.

Senator BROWN [presiding]. Senator Rounds.

Senator ROUNDS. Thank you, Mr. Chairman.

Mr. Chairman, first of all, welcome. And I just want to echo what some of my colleagues have said about the independence of the Fed, and I think on both sides of the aisle you will find strong support for an independent Fed.

I would like to begin by asking you about a rule that I recently filed a comment letter on, and that is the Fed's building blocks approach. As I mentioned in my letter, it does not seem to make sense for the Fed to resurrect the original Section 171 calculation from Dodd–Frank. I understand that this particular calculation unintentionally imposed bank-centric capital rules on insurance savings and loan holding companies, which have a totally different business model.

Congress spoke very clearly through the passage of the Insurance Capital Standards Clarification Act that its intent was for banks to be regulated like banks and for insurance companies to be regulated like insurance companies. Given the clear intent of Congress, why has the Fed chosen to revisit Section 171? How does the Fed intend to move forward?

Mr. POWELL. Thank you for your comment. We got a number of comments on that issue, and we are looking at it. And, of course, we have looked at the law change, and the question we are asking is whether there is—you know, what is the nature of the change made in the law and does it apply here? So we will be reviewing those comments and, you know, considering them in getting to a view on that.

Senator ROUNDS. As you know, one of the reasons for having these open discussions is to bring attention to it, and, in fact, I think it is a very serious issue, and I think it does need the full attention of the Fed, and hopefully you will get it resolved as quickly as possible to avoid any questions that may be lingering out there.

Mr. POWELL. Will do.

Senator ROUNDS. I would also like to talk a little bit about—Vice Chair Quarles recently remarked that business fixed investment continues to be weak, having declined over the course of 2019. Do you think it is fair to say that a large part of this is driven by uncertainty with regards to trade and that businesses are waiting to see how trade tensions are resolved before they are prepared to make further investments?

Mr. POWELL. You know, I would say there are a bunch of factors that we need to look at. One is just the global growth slowdown, particularly in manufacturing. Another is lower oil prices. In the United States, a big swing factor in business fixed investment is drilling. Our work and that of many outside economists does suggest that there is also a role for trade policy, and uncertainty around trade policy. So, I mean, the short answer to your question would be yes, I do think there is upside there, to the extent businesses see uncertainty around the trade situation as having declined.

Senator ROUNDS. OK. Recently, I understand that there has been a discussion about groupthink and about how the Fed approaches it within the meetings. Do you think it is important for the Fed Board to reject groupthink and consider a variety of different viewpoints?

Mr. POWELL. I do. In fact, I very much do. I am strongly inclined to think that you need to hear all sides of a case. In fact, when I was a private equity investor, I used to speak against my own deals just to force people to defend them, so I would, you know, really get a sense that I believe in things. So it is critical to have diverse perspectives. I really think we do, though, particularly through the—if you think about it, the Reserve Bank System guarantees from an institutional standpoint that we will always have diverse perspectives on monetary policy.

On regulation, you know, where we get it is from the comments and from the disparate group of people who are on the Board. If you look at who is on the Board, a number of us have primarily private sector backgrounds, and we bring that to the table.

Senator ROUNDS. Pretty fair to say that you can have people from varying points of view that can have very lively discussions, and yet at the end of the day still be a part of a very strong team.

Mr. POWELL. Absolutely. I really think it just makes you stronger. I do. I feel that way. And, of course, we have had plenty of dissent at the Fed over the years.

Senator ROUNDS. Thank you. One last question. When the Board voted on its rule for tailoring resolutions plans last fall, Vice Chair Quarles gave a statement essentially saying that there is more that could be done when it comes to tailoring from a supervisory standpoint. Can you elaborate on how the Fed intends to move forward with this?

Mr. POWELL. So Vice Chair Quarles, as I am sure you know, gave a speech on that and laid out really quite a number of aspects of that. You know, so we are going to be—these were ideas. They are not quite at the stage of being proposals yet, but we are going to be looking at those.

Senator ROUNDS. How will they be manifest? Are they going to come out as a rulemaking? Or are they going to come out as guidance?

Mr. POWELL. Some of it will be rulemaking; some of it will be guidance; some of it will be changes to guidance. If you look, there are many, many different ideas. I think the key thing is he highlights the tension between, you know, the right to due process and clarity that we depend upon from our Government. Right? But also with supervision, there is also a role for discretion and for confidentiality. So I think it is a very thoughtful process of looking at that and asking how can we make it more transparent with more due process, but still effective because supervision has to be firm but fair.

Senator ROUNDS. Thank you.

Thank you, Mr. Chairman.

Chairman CRAPO [presiding]. Thank you.

Senator Warner.

Senator WARNER. Thank you, Mr. Chairman. Chairman Powell, great to see you again. Thank you for your good work.

I want to make a couple quick comments, echoing what Senator Rounds and Senator Reed and others have said. I think there are a lot of our institutions' independence under assault these days. I share some of the concerns of Senator Brown about the independence of the Justice Department. I fight on a regular basis to try to make sure the intelligence community can maintain their independence.

I would ask and frankly plead with you that, if you see efforts made to undermine the Fed's independence, you keep this Committee fully abreast. I think the Fed's independence is more important than ever at this point.

I am going to also follow up on my good friend Senator Sasse's comments about Equifax. I share with you the belief the challenge that China poses. But I also think, particularly in the case of Equifax and the credit rating agencies broadly, none of us choose to be an Equifax customer, or any credit rating agency. That break-in, that cyberattack was due to sloppy behavior by Equifax, and the fact that we have not put in place, frankly, any enhanced rules of liability around these credit reporting agencies is something I hope—I know I have talked with the Chairman at times—that we would come back to, because I think while we have to be on guard,

if we do not have at least de minimis standards and they can bake this kind of obscene break into the cost of business, I do not think that is good for anyone. And, again, I hope we are able to come back to that.

I do have a bunch of questions for you as well, Chairman Powell. Yesterday in your testimony, you talked about this movement toward digital currency, something I am very interested in, and you indicated, you know, it is possible that there might be a United States-backed digital currency. We have the possibility of doing that. My question is: Would that be desirable? I get the component parts around it. A digital currency might provide convenience and potentially even lower friction costs in terms of credit to consumers. But how do we weigh in privacy and cyberconcerns? How would that deal with our retail banking system? And do you think the Fed has the capacity to do this without congressional approval? Go at it a little bit more, and then I have got one last question about China's role in this space. But talk to me first about the domestic implications.

Mr. POWELL. Sure. So you have listened the potential costs and benefits. The benefits would include, you know, perhaps greater financial inclusion, lower costs, more convenience, and all those things. Their risks or costs would include cyberrisk and fraud risk and privacy risk and things like that. So I think there is a lot to weigh and a lot to work on there.

Every major central bank in the world right now is doing a deep dive on digital currencies, and we think it is our responsibility to be at the very forefront of knowledge and thinking about a central bank digital currency.

Senator WARNER. Would you take a positive action on that without congressional input? Do you feel like you have that authority?

Mr. POWELL. So it would depend a lot on the design choices. It is a good question, one that we are working on. I would say we are working very broadly, including working with other central banks around the world, on this. There is just a lot of thinking and experimentation and understanding that we are gaining. And if there is a need for—if we conclude that we need more authority and that this is something appropriate to do, then we will ask for the authority.

Senator WARNER. One of the things you mentioned yesterday—and I and Senator Sasse and a number of us who are on the Intelligence Committee are concerned about the rise of China in a series of areas. And I think it is clear that China may move quicker than us on a digital currency. You said you have got some visibility into what China might be doing on digital currency. I would love you to spell that out a little bit. Do you think they will use their influence through kind of Belt and Road investment strategy and the number of countries that have kind of bought into that system, that they might be then, you know, also buying into that Chinese digital currency? What would that do in terms of cross-border? What would that do in terms of dollar supremacy? You know, any further guidance you might have on your insight into China's actions in this space would be helpful.

Mr. POWELL. I would just say we have to assume that—what would that mean? We have to ask the question: What would it

mean if China had a digital currency that had fairly wide adoption, including to other countries? We have got to ask that. I think we have also got to ask what if a private sector entity, you know, a large company with a large network of users, has a digital currency? So we are looking——

Senator WARNER. That has already popped out, and I think we have pretty bipartisan concerns on that one.

Mr. POWELL. That is why we are doing all this work. We understand. I would say Libra was something that lit a bit of a fire. This is something—we have been focusing on digital currencies for, you know, a couple decades, but it has really lit a fire around the world right now, so we are doing a great deal of work.

Senator WARNER. My time is up. I just want to say I would urge, having seen China's ability to move aggressively in a series of other areas, that you start forging that coalition of the willing amongst other central banks sooner rather than later.

Thank you, Mr. Chairman.

Chairman CRAPO. Senator Perdue.

Senator PERDUE. Thank you, Chair.

Mr. Chairman, thank you for being here again. It is good to see you. I just have one quick question in light of the time. You know, we have two dynamics right now that are driving the economy in different directions potentially. Labor is now a limiting factor in terms of we have got roughly 7 million job openings and about 5 million people looking for work. So it a phenomenon right now that is a limiting factor.

On the other hand, we have low energy costs. Since 2007, we have doubled our output of oil such that now we are a net exporter of oil and gas, the largest producer in the world. Eight percent of our economy is energy; 15 percent of our CapEx is going to that today. We produce 50 percent more barrels of oil a day than Saudi Arabia and about 18 percent of the world's output. My question is: Are we in a low energy price environment? And what assumptions are you making then over the next decade? And what impact do you think that will have on inflation, deflation? I know you have talked about deflationary concerns in the past. Where are we today on that big factor in our economy—energy?

Mr. POWELL. So it has been transformational. If you think back when we were in college, if energy spiked, inflation went up, people got out of work, there were long lines at the gas pump. We now have a very large domestic energy industry which amounts to a shock absorber. When that happens, U.S. drilling goes up with the price of oil. It puts people back to work. It controls prices. It controls inflation.

So we are in a situation where that particular mechanic for inflation going up is just not happening anymore because the supply response from the U.S. industry is quick and large, so you will not see that having sustained effects on inflation, and also you will not see it having sustained negative effects on growth, because it kind of offsets, roughly offsets the effect of lower energy prices at the pump. That will slow the economy down a bit. But the new supply that comes on will put people to work. It will be different people, but overall, it is a very different and better place to be.

Senator PERDUE. Are you concerned about the workforce participation rate? With the growth of jobs over the last 3 years, workforce participation recently has bumped up a little bit, but it really has not moved as much as one might have thought.

Mr. POWELL. It is greatly a surprise to the upside, which is a great thing. But, remember, the prediction—basically, labor force, just because of demographics, participation should drop by about a quarter-of-a-percent a year. It has now been flat since 2013. We think there is more upside. So what is happening is labor is tight everywhere, but, actually, there is a supply response from the public, which is a very positive thing. We never thought we would see 63.4 percent labor force participation again. Nobody had that in their model 7 years ago. But that is what we have, and it is really a very positive thing.

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

In light of time, Mr. Chair, thank you very much. I yield back.

Chairman CRAPO. Thank you.

Senator Schatz.

Senator SCHATZ. Thank you, Mr. Chairman. Thank you, Chairman Powell, for being here.

First question: How does income inequality impact economic growth? There is a lot of talk on the policymaking side of the impact on families. How does it hit your analysis? And what can be done on your side of the shop?

Mr. POWELL. Well, obviously people who are at the bottom end of the income spectrum whose incomes are not growing, their consumption will be constrained. You know, their consumption will be constrained, and their marginal propensity to consume out of new dollars will be high. To the extent gains are going to the people at the top, their marginal propensity to consume out of wealth will be low, so that it will not be hitting GDP; it will be going into savings. But those are effects that will show up quite gradually over time. Inequality is a gradually moving phenomenon.

Senator SCHATZ. Talk to me about the relationship between productivity and unemployment. Is there a new relationship that is emerging? Is there any new thinking along those lines? Because I think the traditional analysis is as productivity goes up, that is basically good for the economy; but it seems to me that at least the way people perceive it is that those two things are decoupled, that productivity goes up, that does not mean wages go up. And I am wondering whether that is a change or if that is sort of more of a political overlay to say, hey, look, things may look good but we are still on the bottom eating your scraps. I am wondering whether it is more than that and that there is actually a change in the way you analyze this.

Mr. POWELL. Well, I think we are always learning. We are always learning, and we have seen relatively low productivity in the wake of the financial crisis. And it appears to be persistent, and that is going to mean lower wages.

Ultimately, you need rising productivity to create rising standards of living. It just has to be that way. It does not mean in any given year you will see that. But you do see a pretty tight connection between—if you add in benefits, not just wages, but look at the

full cost of employment, you see—I will not call it "tight," but you see a connection between rising productivity and rising wages.

Senator SCHATZ. I guess the question is they are no less correlated than they used to be?

Mr. POWELL. I would not say that, no. I would say, if you look at the moment, if you think of wages as being right around 3 percent, productivity growth has been low, has just recently moved up. It recently moved up close to 2 percent. And inflation is 2 percent.

Senator SCHATZ. The other thing I would add is that if you are doing total compensation, if most of the increase in total comp is just that the employer absorbed a 7-percent increase in health care costs, you know, that is not really an increase in wages in the traditional sense. I get that from the employer's standpoint it sure feels like an increase in wages. But if you are trying to maximize compensation, it means nothing to a regular person who says, "OK, I have got no more money, but it cost my employer more, so I should be happy about that."

Let me just move on to climate. I have a couple of questions. What is the Fed doing in regard to climate-related financial disclosures? I know you are making some progress. I would like you to talk about that.

Mr. POWELL. I think, like others, other central banks, we are at the beginning of the process of understanding how climate change affects our work. I think one way we know that it will affect our work is that the public will count on us to make sure that financial institutions that we regulate—central counterparties, banks, things like that—will be robust to the risks that come from climate change. And we are at, as I said, the beginning of understanding exactly what all that means.

In terms of disclosure, you know, it is more really an FDIC issue. They are the ones who regulate appropriate disclosure, and I think they have been doing some work on this lately.

Senator SCHATZ. You had an exchange with a Member of the House, I think it was yesterday, and the question was whether we ought to be stress-testing for climate risks, and you said you are watching the Bank of England. I am wondering if you can elaborate on that.

Mr. POWELL. So they are doing stress tests which are not at all connected to CCAR, what would be the CCAR process, which is the one that relates to the amount of dividends, distributions that a company can have. This is more just exploratory. They are exploratory scenarios, and we are very closely monitoring that. You know, we have good relationships with all the major central banks, especially the Bank of England and others. So we will be looking at that, and it is something we will be thinking about. We have not made any decisions, but as I said, these are early days. We are actually doing, you know, a fair amount of work all through the Federal Reserve System on understanding this emerging risk.

Senator SCHATZ. Thank you.

Senator KENNEDY. Mr. Chairman, thanks for being here. I think you are doing a great job.

Senator BROWN [presiding]. Senator Kennedy.

Mr. POWELL. Thank you.

Senator KENNEDY. Thank you, Mr. Chairman.

Our labor force participation rate is much better, but compared to other OECD countries, we lag. Why?

Mr. POWELL. That is a great question. So it is a combination of things, no doubt. It is that educational attainment in the United States, which was once the highest, has really fallen relative to our peers, and particularly among lower- and middle-income people, the level of educational attainment has really plateaued.

Senator KENNEDY. Right.

Mr. POWELL. And that is the key thing for keeping in the labor market——

Senator KENNEDY. What else?

Mr. POWELL. That is one. I would say the opioid crisis is not helping. I would say, you know, if you think about it, both globalization and technology probably advantage people of relatively high education and do not advantage people, for example, in manufacturing. So if you think about what has happened to the manufacturing base in many, many countries, a lot of those jobs have either been automated or moved abroad. The manufacturing that we have now is very efficient and does not use as many people.

Senator KENNEDY. What else? Has trade played an impact?

Mr. POWELL. Sorry?

Senator KENNEDY. Trade tariffs.

Mr. POWELL. Well, I would say trade tariffs—well, through this period, we really have had declining tariffs since World War II until lately here.

Senator KENNEDY. Right.

Mr. POWELL. And we have had increasing labor force participation here because of the underlying strength——

Senator KENNEDY. Does the richness of our social programs play a part?

Mr. POWELL. It is very hard to make that connection, and I will tell you why. If you look in real terms, adjusted for inflation, at the benefits that people get, they have actually declined. During this period of declining labor force participation, they have not gone up in real terms. So it is not better or more comfortable to be poor and on public benefits now. It is actually worse than it was.

Senator KENNEDY. All right. It seems to me—and there is going to be a question in here, I promise. I know sometimes you never get one.

Mr. POWELL. That is OK.

Senator KENNEDY. It seems to me that any fair-minded person would have to conclude that our economy is better. I am biased, of course, but I think the Tax Cuts and Jobs Act worked. And we have seen wage increases, including, but not limited to, the bottom quartile. And we have seen unemployment go down. But we still have a problem in America, and a lot of anger, and I think the root—this is one person's opinion, but the root of a lot of that anger is that we still have too many people in this country who are not participating in the great wealth of this country, not economically, not socially, not culturally.

I think Sanders supporters and Trump supporters have more in common than they realize. The American Dream has become the

American Game to them, and they think it is fixed. Now, the managerial elite is doing fine, but I am talking about ordinary people.

What, if any, role do you think the Fed should play in helping us address that?

Mr. POWELL. First of all, I think there is a lot in what you said. The single most important thing we can do is take seriously your order to us to achieve maximum employment. "Maximum employment," that is what the law says. And that is what we are doing. We are using our tools to keep an eye on maximum employment, and I think there is no reason why the current situation of low unemployment, rising wages, high job creation, there is no reason why that cannot go on. There really is not. There is nothing about this economy that is out of kilter or imbalanced. That is the main thing that we can do.

We do other things that are in the nature of convening. You know, we do a lot of research in your State and others. The Federal Reserve Bank will have an operation where they are trying to convene resources around issues of education and poverty and things like that in poor communities. We do not have the ability to spend money on it. We get community people around a table and try to organize things that help the community, as I am sure you know.

So it is not really something we can do a lot about other than research and do our jobs on monetary policy.

Senator BROWN. Thank you, Senator Kennedy.

Senator Cortez Masto.

Senator KENNEDY. If I could have another 10 seconds, Mr. Chairman? I was distracted because you were talking.

Stay independent. I think you are doing a great job, and all of us in politics are going to give you plenty of advice. But call them like you see them.

Thank you.

Senator BROWN. Senator Cortez Masto.

Senator CORTEZ MASTO. Thank you, Chairman Powell. It is great to see you again. Thank you so much for being here and always being responsive.

Let me follow up on this line of discussion of maximum employment, and I so appreciate the conversation. You keep talking about a level of educational attainment that is so important. What do you define as that education? When you talk about that, what does that mean?

Mr. POWELL. Anything that gives you skills that would work in the workplace. That could include internships; that could include the kind of training that people are getting now who go right out of high school into a program. It is not meant to be limited to, you know, college as such or, you know, getting a liberal arts degree. It is really the acquisition of skills in society.

Senator CORTEZ MASTO. So do you think we have changed in society, that it is very difficult now to just graduate from high school and get a job that pays a decent wage for your family without getting some sort of additional education?

Mr. POWELL. Yes, it is. I think you see that very much. For people with high school degrees, their incomes have stagnated badly for a long time. What happens with technological change is that it wants higher and higher levels of skill, and if society provides

those people and those skills, then incomes can go up across the board and inequality can go down. That was the American story for a long, long time.

Senator CORTEZ MASTO. Sure, but isn't part of that—and this is why I am curious your thoughts on this. Part of that also has to do with the wages and the increase in wages and the level of wage that you are paying. Are you saying just because you graduate from high school and you want that job, whatever that job is that you are able to do, it should be a minimum level of wage and should never increase, even with the gains in productivity that we have seen over the years?

Mr. POWELL. No, I am not saying that at all.

Senator CORTEZ MASTO. OK, good, because I agree with you. Because I think there are also people in this country—and I so am pleased with the high unemployment rate, but I also think—and they live in my State—that are working two jobs. They are actually working two jobs because the wages are so low. And I think there is a disparity that we have to do a better job of understanding.

I was looking through the Monetary Report that you gave, and I am curious. Do you identify—because I did not see it here, but do you identify those individuals who are actually working two jobs?

Mr. POWELL. Those are identified in the data collected by the Bureau of Labor Statistics, yes, and——

Senator CORTEZ MASTO. And that is what you utilize here? And is that data that you can provide that gives us a better understanding——

Mr. POWELL. Sure.

Senator CORTEZ MASTO. ——of how many Americans across this country are actually working two jobs just to make ends meet?

Mr. POWELL. Very high level right now.

Senator CORTEZ MASTO. Yeah, and that is what I would like to see. I think that would be helpful——

Mr. POWELL. We can share that with you.

Senator CORTEZ MASTO. ——for us as we work with you moving forward.

Just one final question because I know the votes have been called. You note in your opening remarks that there are troubling labor market disparities across racial and ethnic groups and across regions of the country. Can you go into more specifics with that statement?

Mr. POWELL. Sure, and we actually had a box in our Monetary Policy Report I think a year ago about rural and urban disparities, which are just getting wider and wider and wider, and it talked about, you know, what might be causing that. You really have a long-term trend here that is challenging for people in rural areas.

In terms of racial and ethnic disparities, the African American unemployment rate is roughly twice that of the overall unemployment rate, and, you know, you see different groups. So it is troubling that these things would persist in this way. We do not have the ability to operate directly on that other than, again, by carrying out our mandate of maximum employment and stable prices.

Senator CORTEZ MASTO. But as you study it, what are you finding? Why is there that disparity? What can you point to?

Mr. POWELL. Which disparity?

Senator CORTEZ MASTO. The racial disparity that you just talked about.

Mr. POWELL. You know, I think it is tied into history, to our history, and there are higher levels of poverty in the African American community, as you know, and that is because of our history. But we would like to see those gaps declining more than they are.

Senator CORTEZ MASTO. OK.

Mr. POWELL. Those are not tools that we have. Tools that you have to do that.

Senator CORTEZ MASTO. But there is nothing—and what I am looking for is the data. There is no data or no data points that you are collecting that helps us identify that racial disparity, why it is occurring and how we can address it?

Mr. POWELL. Oh, there is lots and lots of research on that. We would be happy to——

Senator CORTEZ MASTO. That you have? That you have access to?

Mr. POWELL. Sure.

Senator CORTEZ MASTO. Perfect. That is what I am looking for.

Mr. POWELL. OK.

Senator CORTEZ MASTO. Thank you.

Senator SCOTT [presiding]. Senator Tillis.

Senator TILLIS. Thank you. Chair Powell, welcome back. Thank you for a lot of the good work you are doing over in your lane.

I do have a couple of questions. The first one that I want to talk about, we have seen particularly in the FDIC, a real stepped-up effort to take a look at guidance and other actions short of an APA promulgated rule to rethink and revise or rescind. Can you give me an idea of how that is going on in the Fed?

Mr. POWELL. Sure. So, you know, we have forthrightly said that guidance is not a rule; guidance is not binding; it is not the basis for enforcement actions and things like that. And we have made that very clear to our supervisors. So I think we are—you may have seen Vice Chair Quarles' speech where he addressed some of these issues, so we are working on that as well.

Senator TILLIS. If we drill down, I know you are aware of the GAO ruling on LISCC. There is a lot of talk here, I happen to agree with the discussion, that you all need to remain independent, but there is something that concerns me that came out after you received the word from the GAO or OMB, and it relates back to, I think, a letter your general counsel wrote back in June of last year, which I have it in front of me now. It says that you are continuing to assess the scope of the Federal Reserve's obligation to send supervisory guidance documents to Congress under the CRA.

Does that mean you are exempt from that oversight?

Mr. POWELL. So the question is whether we are required to send guidance. We do send some guidance up, and, again, this is another one that Vice Chair Quarles——

Senator TILLIS. So what is the current position on the LISCC consultation from the GAO? Is it taking LISCC down?

Mr. POWELL. On LISCC, no, what we are going to do with LISCC is we are going to, I think, articulate clear standards for what firms should be in LISCC. In fact, Vice Chair Quarles has already laid out an approach which I think makes a lot of sense, which is

LISCC should be for the U.S. G–SIBs, and really try to tie the whole approach more to the tailoring categories that we set up.

Senator TILLIS. Now to the other, CRA, the Community Reinvestment Act. I have one question. Rumors swirl around this building probably the way they do in the Fed and the whole of Government. So the question that I have relates to the Fed's plans for either joining with the FDIC and the OCC on the rulemaking. Some have said that you have provided an assurance to Waters that, without Governor Brainard's support, you would not join into that. Is that just a rumor or an assurance you have given Chair Waters?

Mr. POWELL. That is not how we are looking at it. What we are doing is we are trying to develop—we developed our own thinking on CRA reform, as did the OCC. They took a lot of our ideas, but in the end we were not able to get on the same page. And I am very comfortable with where we are now.

Senator TILLIS. What would be the rational basis for two standards?

Mr. POWELL. There are going to be two standards, anyway. Under the FDIC/OCC proposal, about 70 percent of their institutions will be able to opt out of that standard. So there is going to be the existing standard, and then there will be the new standard, assuming that they go forward with it. So there will be two systems, and if we do not do anything, then we will just be like the 70 percent of the institutions that they supervise.

Senator TILLIS. Is Vice Chair Quarles on point for this?

Mr. POWELL. Is he on point for this? He is——

Senator TILLIS. Wouldn't the Community Reinvestment Act be within his lane?

Mr. POWELL. It is certainly broadly within all of our lanes on the Board. We will all have to vote on this. This actually has always been handled by a different group, which is DCCA, which Governor Brainard chaired, and I asked her to take the lead on this. But, ultimately, it comes down—I am very comfortable with where we are on this.

Senator TILLIS. Thank you. I was going to ask some questions similar to Senator Toomey's—I will not—on FedNow. But I am going to submit some questions for the record that are just basically about the mechanics of the FedNow implementation, five straightforward questions.

Thank you.

Senator SCOTT. Thank you, Senator Tillis.

Senator Jones.

Senator JONES. Thank you, Mr. Chairman.

Chairman Powell, thank you for being here. Let me echo other colleagues on both sides of the aisle regarding the independence of the Fed. I concur that it is extremely important that we maintain that independence.

I want to ask you a little bit about home ownership. It kind of follows up a little bit with what Senator Kennedy was talking about, wealth gaps between so many Americans. It seems that nationwide home ownership is relatively stable, but there are also massive disparities in home ownership by age, race, and ethnicity. The African American home ownership rate fell to a 50-year low in

2016 at just 41.7 percent. It remains about 30 points below white home ownership.

Similarly, the Hispanic home ownership rate is just 48 percent. Again, far below the white or average home ownership rate.

Millennials are less likely to own a home by age 34 than their parents and grandparents, and I am concerned that if trends continue—and by that I mean to some extent we have got relatively—wages are rising, but they have not been rising as fast as we would like. Home ownership costs are increasing at a greater rate. So I am concerned that if these trends continue, a growing number of Americans are just going to get locked out of home ownership.

So my question: What are the economic consequences in terms of both wealth building for minorities and the broader economy of leaving the disparity in the realm of home ownership unaddressed? And do you have suggestions of how we in Congress or the Fed can address home ownership?

Mr. POWELL. Let me say first I would agree with you that there are pressures on affordability which are very widespread that have to do with difficulty in getting land zoned and difficulty in acquiring workers and just costs, regulatory costs, material costs, that are really putting pressure on house prices, upward pressure. And it is, as I said, quite widespread around the country.

You know, in terms of the level of home ownership, I think we do not want to be back in a situation where we push the idea of home ownership past what is financially sustainable for people. We kind of did that in the precrisis era. So what has happened is that credit is much less available now for people without spotless credit records, and that is a lot of what is behind some of the data you cited. And I think it is a good question. Did we move too far? I do not have a view that we did, but I think it is a good question to be asking on that, making sure that people who should have access to credit and can handle borrowing of that size get it.

Senator JONES. I know Senator Cortez Masto was asking—I would like to get some of that same information, by the way, about the racial disparities because I assume there is some connection with that in economics as well.

Let me, in the short time I have got left, go back to the lower rate of labor force participation. How can we just encourage that? How can we get more participation and get those numbers up? What can we do, what can you do, if anything, to try to get more folks in that participation in the market?

Mr. POWELL. So what we can do is continue to use our tool to support a strong labor market, and it is very good to see those participation rates rising to the levels that people did not—I mean, economists did not think we would see those levels again, and we are seeing them, which is a really positive thing.

But, you know, longer term, that is not really a strategy. We need policies that will—ultimately, people have to have skills and aptitudes that will keep them in the labor force and ways that they can take part in the labor force. And I think that is where other Government policies come into effect. You know, it is a lot of education and training and also policies that will support attachment to the labor force. You know, we would be happy to sit down with you and talk about that, but that is important. Other countries

that have leapfrogged us do more of those kinds of things and also have had more rising educational attainment, which I think all of those things will help.

Senator JONES. Great. Well, thank you for that, and I look forward to the discussion about that a little bit.

Thank you, Mr. Chairman. I yield back.

Chairman CRAPO [presiding]. Thank you.

Senator McSally.

Senator MCSALLY. Thank you, Mr. Chairman.

Chairman Powell, on February 2nd, the *American Banker* published an article that was titled, "When a Small Town Loses Its Only Bank". The article mentions Duncan, Arizona, which had only one bank and recently closed its doors. The residents of Duncan are now forced to drive approximately 40 miles to conduct any banking. Local businesses no longer have a place to make daily deposits or get change, and any customer service issues require driving long distances.

The article states that, "The economic implications are enough of a concern that the Federal Reserve has been studying what happens in areas where residents no longer have access to a local branch."

So my first question is: What has the Fed learned in that study? And why do you think this is happening? It is not just happening in Duncan, Arizona, but really across rural Arizona and rural America.

Mr. POWELL. So we published the study, as you mentioned. We had meetings all around the country and did research, and I think we did find that the loss of a branch, particularly in these rural communities, can be a serious blow. It is the availability of financial services, but it is also that a bank is an important civic citizen and contributes in many ways to that town.

Actually, I think Duncan—I think we had an event in Duncan. I think that was one of our events, now that I think of it. So we learned that, and you see it happening—bank branches are going down in—have been reduced in a number of jurisdictions, but you see it more in rural——

Senator MCSALLY. Right.

Mr. POWELL. And, also, the people who are in rural areas are more likely to—more inclined to use a bank branch rather than electronic banking——

Senator MCSALLY. Exactly.

Mr. POWELL. ——so the effects are really significant. So we saw that, and it is quote a negative effect.

Senator MCSALLY. You know, these are banking deserts. How does the Fed define a "banking desert"? Is it just about geographic distance needing to travel or the number of customers or any other economic statistics for this? And you are absolutely right. More people in urban areas may be using online banking. Rural areas have two challenges: one is they are possibly less inclined to do that, that is not part of the culture; but also we have connectivity challenges without rural broadband. So those two things further hurt rural communities.

So how do you guys define "banking deserts"? And what else can be done to address this issue?

Mr. POWELL. There is no accepted definition, but I think it is one of those things where you know it when you see it. So it is a place where people do not have access to basic banking services. Duncan would be a classic example. The fact that you would have to drive 40 miles to get there, that is a banking desert. It turns out that many of these banking deserts are actually in the high desert, by the way, so that is another indicator.

Senator MCSALLY. Go figure.

Mr. POWELL. But it is a real issue in rural America, principally.

Senator MCSALLY. Do you have any ideas within your role and our role on how we can address this issue?

Mr. POWELL. So, you know, we cannot be in the business ultimately of telling banks that, you know, they cannot close branches.

Senator MCSALLY. Right.

Mr. POWELL. But we can find incentives for them to support rural areas, and CRA reform may be one vehicle for that where we can move—and this is a constructive aspect of the other agencies' proposal, is moving to support more activity of a CRA nature in rural areas. So that is one idea.

It is challenging, though. As you know, for quite a while now, people have been leaving rural areas and moving to the cities, so these are longer-term demographic pressures.

Senator MCSALLY. Great. I appreciate it. I look forward to maybe following up with you to talk more about this issue.

Mr. POWELL. Glad to do it.

Senator MCSALLY. Thanks. I also want to touch on the labor force participation and wage growth issue. I know many Members have already asked you about it, but it is really great to see so many Americans and Arizonans coming off the sidelines and getting back into the workforce, and we are starting to see, you know, wages go up as well, especially for the lower levels of the economic spectrum.

Can you just touch on a little bit more the dynamics that you are seeing, the positive nature of that, and, you know, where you are seeing people coming off the sidelines and how wage increases are impacting?

Mr. POWELL. Sure. So it is a combination of people just not leaving as much and people actually coming back in. As you may have seen, unusually, at this point, most of the people who are newly employed do not come out of unemployment. They come from out of the labor force. So we break down everybody into different categories. The biggest flow I think by far now is from out of the labor force to employment, which is clearly a sign of relatively low unemployment. There are just fewer people that are unemployed, but also just that there are people who are outside the labor force who are having job opportunities. So that is very positive.

The thing is we did not expect this. It is very positive, and we just want to do whatever we can to continue to foster this trend, because, you know, there is nothing like a job to get people's lives right and get them on a good track, so it is very good to see this, and we are using our tools to make sure that we can foster that.

Senator MCSALLY. Great. Thank you. I am out of time. Thank you, Mr. Chairman.

Chairman CRAPO. Senator Van Hollen.

Senator VAN HOLLEN. Thank you, Mr. Chairman. And thank you, Chairman Powell, and like my colleagues, I want to thank you for your accessibility, and I always appreciate the opportunity to have a fact-based conversation here.

Before I get to some of my questions, I just want to thank you and the Fed for moving ahead on the FedNow system. I think it will save millions of Americans billions of dollars when it is implemented.

Now, we passed a huge tax cut back in December of 2017. It dramatically increased the annual deficits and the long-term debt. And at that time, in December 2017, here is what President Trump tweeted out. He said that his tax cuts were going to rock the economy to growth rates of 4 percent, 5 percent, and maybe even 6 percent.

Mr. Chairman, the economy has not gotten anywhere near 6 percent growth in the last 3 years, has it?

Mr. POWELL. No. We have had continued moderate growth of a little better than 2 percent.

Senator VAN HOLLEN. Right, and we have not had growth at 5 percent or 4 percent, and, in fact, the Trump administration has not ever hit 3 percent annual growth, has it?

Mr. POWELL. So 2018 was marked at 3 percent, but then got marked down actually to 2½ percent. You never know. Maybe it will get——

Senator VAN HOLLEN. But we are having a reality-based conversation, so the answer is no, right? It has not hit 3 percent; is that right?

Mr. POWELL. According to the current statistics.

Senator VAN HOLLEN. Yeah. And if you look at the budget that was just submitted by the Trump administration, they are predicting 2.8 percent growth for the coming year—again, very far from what President Trump was talking about, 4, 5, 6 percent. But even at that number, 2.8 percent, that is higher than the most optimistic projections for the 2020 GDP from the 17 FOMC members, right?

Mr. POWELL. We do not have, you know, a unified forecast. We do not adopt or vote on a forecast. But we do show a dot plot—of disclose data—and I think the median forecast would be in the low 2s for FOMC participants for this year.

Senator VAN HOLLEN. Yeah, if I look at the median forecast, it is actually 2 percent, and the most optimistic bullish was 2.3 percent, still a full half percent of GDP below the President's projections.

So let me now turn not from the aggregate numbers but to the real wages, because there has been a lot of hype lately, but I want to get a sense of where people really are. And, obviously, it is good news that the unemployment numbers have continued to come down on the trajectory they were following when President Trump was sworn in. But if you actually look at real compensation—and I recall from an earlier hearing your view is that the Employment Cost Index, ECI, is probably the best measure of compensation. Is that right?

Mr. POWELL. In a sense it is. They all have their little virtues, though.

Senator VAN HOLLEN. I just was looking at the numbers, and compensation grew by an average of 0.94 percent per year during President Obama's second term, and that compares to 0.63 percent per year. This is in inflation-adjusted terms, 0.63 percent growth in compensation under President Trump. So, in fact, the real compensation that workers are getting in the workforce was actually higher during Obama's last term compared to now.

Is this a reflection of how difficult it has been to actually translate overall economic growth into higher real wages for Americans?

Mr. POWELL. Yes, it is. I mean, part of that really is that inflation has moved back up a little bit, which is something we have been actually trying to accomplish. But I think more broadly, though, wages have moved up from about 2 percent to about 3 percent now, and if you look at other expansions, even adjusting for productivity, you would have expected them to move higher than that. So it is a bit of a surprise that we have not seen real unit labor costs move up, which is to say that people are getting paid more than productivity and inflation in what should be a tight labor market but is not showing up as tight in wages.

Senator VAN HOLLEN. Exactly. And you say inflation went up, and that was the intention, but, of course, when it comes to real purchasing power for Americans, that is what they care about, whether their wages are able to make purchases.

We do not have time to get into it, but the budget did just come up here. The Chairman of the Senate Budget Committee has announced he does not want to have a hearing on the budget. I hope he will change his mind. But a lot of the cuts that were made there include cuts to student loan opportunities and some of the things that you mentioned that actually could lead to higher productivity in the economy. So I will follow up with some written questions on that.

Senator VAN HOLLEN. Thank you.

Mr. POWELL. Thank you.

Chairman CRAPO. Thank you.

Senator Cotton.

Senator COTTON. Thank you, Mr. Chairman, for joining us again. I want to speak today about the coronavirus and its potential impact on the U.S. and the global economy. Yesterday Senator Menendez and I and a couple other Senators introduced a resolution honoring Dr. Li Wenliang, a Chinese doctor who died last week of coronavirus. What makes him unusually notable among the now more than 1,000 victims of the coronavirus is he was one of the first persons to blow the whistle on the Wuhan coronavirus in early December. He was silenced by the Chinese Communist Party. In fact, he was summoned in the dark of night and forced to sign a statement denouncing his warnings. And, unfortunately, he contracted it and died, leaving behind, as I understand, a wife, a small child, and another child on the way.

Another example of these kind of practices I want to cite is the Chinese lawyer and journalist Chen Quishi. He was known for reporting on the conditions in Wuhan. He has since disappeared.

I raise these examples, and I could multiply them at great length, as just simple illustration of Chinese dishonesty and lack of transparency in trying to handle the effects of this outbreak. Ob-

viously, that has a most important impact on our ability to understand the virus and develop effective tests and a vaccine for it. But what kind of effects does it have on you and the Fed's ability to try to understand the economic impact of it, dealing with such untransparent conditions coming out of Beijing, as you get a grasp of what the possible impact could be for China, for the United States, and for the global economy?

Mr. POWELL. So as you point out, the real question for the Fed is: What is the likely effect on the U.S. economy? And I think we will begin to see it in economic data coming out fairly soon, and we do not—it is too uncertain to even speculate about what the level of that will be and whether it will be persistent or whether it will lead to a material change in the outlook. But we do expect that there will be some effects, and the effects should be substantial in China, important but maybe less substantial in their immediate trading partners. And we will know—we will be looking at the economic data, and I cannot really comment on the other kinds of data. We look at that, too, of course, carefully.

Senator COTTON. And, of course, I would not expect that from the Federal Reserve. We get that from HHS and CDC and other agencies like that. Are Chinese economic or central bank officials in contact with the Federal Reserve or their other counterparts around the world to try to help you and your counterparts understand that economic impact, though, recognizing the dishonesty and lack of transparency of health officials and political leaders?

Mr. POWELL. I am absolutely sure that will be the case. You know, there have been some conversations, but I think it is too early to say. I think no one really knows. I think their focus now—the big focus there is containing the outbreak. And, of course, the central bank and the Government itself, the rest of the Government, have been undertaking lots of measures to support economic activity.

I think certainly as they know more, we will know that, too. We, of course, have that kind of a relationship with their central bank.

Senator COTTON. OK. I want to commend the Trump administration for taking decisive action a couple weeks ago to stop travel from China and the other steps they have done in terms of contact tracing and trying to get testing kits out to the front lines. Right now, as of this morning, I think we only have 13 confirmed cases in the United States. I think we can be confident there is more than that, but hopefully there will not be many more. If that remains the case, if there is not a widespread outbreak in the United States because of the actions the U.S. Government took, is the main economic risk to the United States the fragility of supply chains that originate in China? And what happens at the very beginning of those chains in factories which may not have any or sufficient workers?

Mr. POWELL. You are right, supply chains is an important issue. We do get a lot of—we import a lot of sort of intermediate goods from China and final goods, too, and that will be an issue. It will also be—our own exports there, of course, will be suppressed during this period. We will not get as much Chinese tourism. And then the other channel I would mention is just financial markets, which

can create their own transmission into the economy to the extent there are really strong reactions in financial markets.

So we will be looking at all of that, and, again, we do expect to start to pick it up relatively soon.

Senator COTTON. OK. Thank you, Mr. Chairman. Of course, far and away the top priority of our Government must be the health and safety of our people, but we do not want to lose sight of the potential economic harm to our people's well-being and prosperity, so I appreciate your attention to this important matter.

Chairman CRAPO. Senator Menendez.

Senator MENENDEZ. Thank you. Thank you, Chairman Powell, for your service.

Let me ask you something. The Northeast Corridor where I come from—New Jersey, New York, that region—generates about 20 percent of GDP for the entire Nation. If we had a major infrastructure failure, for example, the closing of one or both of the Trans-Hudson tunnels into New York City, the end of the Portal Bridge, which is the linchpin that takes Boston to Washington throughout the Northeast Corridor, would that not create a significant economic risk?

Mr. POWELL. If it were sustained, yes. If you are talking about a sustained closing, that could. Things happen and then we fix them, and they do not show up much in GDP. But if they are sustained, then yes.

Senator MENENDEZ. Well, let me just share with you something I would like to bring to your attention as you look at these issues. Amtrak estimates that a shutdown of the Northeast Corridor for a single day—for a single day, talk about sustained issues—would cost our economy $100 million. Again, that is just in 1 day. So if we cannot get this infrastructure to ultimately be sustained—and we saw from Superstorm Sandy tremendous damage to the Trans-Hudson tunnel. They are both a century old. We have a century-plus bridge that does not close correctly, that stops the entire traffic across the Northeast Corridor, so every lawyer, every medical patient, every business that does intercity rail travel across from Boston to Washington get stopped and loses time, and if it cannot be closed successfully, they take sledgehammers to close it. That has a significant economic impact. And I would urge the Fed to look at that as a question about our infrastructure needs.

That is why I am so frustrated by the Administration not seeing the importance of what we call the "Gateway Project", two new Trans-Hudson tunnels, the rebuilding of the 109-year-old Portal Bridge. We just got some good news on that, but overall, this is a project of national significance in a region of the country that generates 20 percent of GDP for which intercity rail traffic is incredibly important.

Let me turn to the Community Reinvestment Act, which I think is an essential tool as one of the minority Members on this Committee and in the Senate against discrimination, about curbing redlining, meeting the needs of low- and moderate-income families. However, instead of strengthening this important civil rights law, the OCC and the FDIC released a proposed rule that relies heavily on a dollar ratio metric for measuring all of the banks' CRA activities and gives little value to community input.

Mr. Chairman, why is it important for an updated CRA rule to focus on loan count rather than on dollar value of a loan?

Mr. POWELL. In our thinking, loan counts are important because they go to the very purpose of the statute, which is to assure the provision of credit to low- and moderate-income individuals and to their communities. So we think that loan counts are an important aspect of that, in fact.

Senator MENENDEZ. Do you agree with Governor Brainard that focusing on loan value, as the updated OCC and FDIC proposal does, "runs the risk of encouraging some institutions to meet expectations primarily through a few large community development loans or investments rather than meeting local needs"?

Mr. POWELL. I think it is a risk, and, you know, really, as you know, we worked to try to get aligned, fully aligned with that proposal. We were not able to get there. They were not able to get to our proposal either. So we are going to be looking to see the comments on all those provisions which will be coming in. We will be carefully looking at those as we think about our path forward.

Senator MENENDEZ. So when you say that, did you, the Reserve, share its concerns about emphasizing metrics that place too much value on loan volumes and not on the community input?

Mr. POWELL. Yes, we shared all of our work, and we tried to—and they took many of our ideas, by the way. They incorporated a lot of our ideas. So——

Senator MENENDEZ. They did.

Mr. POWELL. Yes, they did. But we were not able——

Senator MENENDEZ. Will you send us what particular items were incorporated that you shared with them?

Mr. POWELL. Sure, and Comptroller Otting has identified many of them in his testimony in the House a couple weeks ago as ideas that they had incorporated from our work.

Senator MENENDEZ. But the key concern seems to have been ignored, in particular, the one that——

Mr. POWELL. So I think their proposal looks at both counts and dollars, but there are a number of differences, and——

Senator MENENDEZ. So a final question. Have either you or Governor Brainard taken the CRA proposal to the Federal Reserve Board yet?

Mr. POWELL. No, we have not. Really, our focus was on trying to get aligned around one proposal with the OCC and the FDIC, and now we see ourselves as waiting to learn more from that process.

Senator MENENDEZ. Well, for those communities of color, this is critically important, and I hope the Fed will show leadership in this regard and make sure that the community participation continues to be a hallmark of what the CRA is all about.

Chairman CRAPO. Thank you, and that concludes the questions, although I am going to come back and ask one quick question that was not on my list to start with. You have been asked a lot, Mr. Chairman, today about wages, and I just want to verify a statistic with you that I am familiar with. My understanding is that wage growth was 3.1 percent last year.

Mr. POWELL. That is average hourly earnings for the 12 months ended December 31.

Chairman CRAPO. And did that make 18 straight months that the wage rate was above 3 percent, the wage growth rate?

Mr. POWELL. I would have to check that. It certainly—it takes you back—you really are not looking at each month. You are looking at it over the last—the level is 3.1 percent higher. We could fact-check it. That sounds right, though. That sounds right.

Chairman CRAPO. I think so. Well, if you would fact-check that and let me know, I would appreciate it.

Mr. POWELL. Will do.

Chairman CRAPO. That does now conclude the questioning, and for the Senators who wish to submit questions for the record, those questions are due to the Committee by Wednesday, February 19th. Chairman Powell, we ask that you respond to those questions as promptly as you can. Again, we thank you for being here.

I am late for a vote, and I am sure you have other business to conduct, so this Committee is adjourned.

Mr. POWELL. Thank you, Mr. Chairman.

[Whereupon, at 11:23 a.m., the hearing was adjourned.]

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

PREPARED STATEMENT OF CHAIRMAN MIKE CRAPO

Today, Federal Reserve Chairman Jerome Powell will update the Committee on monetary policy developments and the state of the U.S. economy.

The U.S. economy continued to expand in 2019, exceeding 2 percent growth for the third straight year, as the American people enjoy the longest continued economic expansion in American history.

The labor market is strong, with the labor force at an all-time high of 164 million people, and the most recent jobs report shows that employers added 225,000 jobs in January with the unemployment rate at 3.6 percent, remaining near a half-century low.

Wages also grew in January by 3.1 percent from a year earlier, making it 18 consecutive months that pay has grown at an annualized pace of 3 percent or more.

Americans' view on their personal financial situations are increasingly optimistic, according to Gallup trends. Nearly six in 10 Americans, or 59 percent, now say they are better off financially than they were a year ago, up from 50 percent last year.

Tax reform in 2017, and right-sizing regulations—including under the Economic Growth, Regulatory Relief and Consumer Protection Act (S. 2155) in 2018—have undoubtedly helped fuel this strong economy and labor market.

Americans are set to benefit even more when considering the effects of USMCA and the Phase One Trade Deal with China.

Despite this substantial progress, there are several external factors that could have a meaningful impact on economic activity and our financial markets that need to be better understood, including:

The Fed's decision to maintain a significantly larger balance sheet in the future, including its recent decision to purchase Treasury bills in response to volatility in short-term borrowing rates;

The Fed's future plans to maintain stability in short-term borrowing rates, including potential structural, market-based fixes;

The risks of the transition away from LIBOR to an alternative reference rate, and steps that should be taken to ensure a smooth transition and curb risks to businesses and financial markets; and

The potential impact of the coronavirus on global commerce and growth.

The Fed has also taken a number of important supervisory and regulatory actions that merit attention.

The Fed and other Federal financial agencies recently proposed amendments to the Volcker Rule that would improve, streamline, and clarify the covered funds portion of the rule.

That proposal builds on the agencies' simplification of the Volcker Rule in 2019, standing to improve market liquidity and preserve diverse sources of capital for businesses while striking the appropriate balance with safety and soundness.

Additionally, many Banking Committee Republicans and I have raised serious concerns in the past with the agencies' supervisory and examination processes, including the use of guidance as rules.

In January, Fed Vice Chairman Quarles offered a roadmap to foster transparency, accountability, and fairness in bank supervision, including:

Tailoring the supervisory framework to better align with the categories developed under the Fed's domestic and foreign bank tailoring rules;

Putting significant supervisory guidance out for public comment and submitting it to Congress under the Congressional Review Act; and

Other commonsense improvements to the supervisory process, such as a rulemaking that would cover the agencies use of guidance in the supervisory process.

This roadmap is greatly encouraging and I urge the Fed to take steps to put it into motion.

Finally, there is constant innovation, including in the financial services industry, to increase resources to unbanked and underbanked populations, reduce friction in payments and increase efficiency in the delivery of financial products and services. Some recent examples are:

Facebook's announcement of Libra, a new stable digital cryptocurrency backed by a reserve of real assets and leveraging blockchain technology;

Work by global Governments and central banks to explore the development of central bank digital currencies, especially amid rumors that China's launch of a digital Yuan is imminent;

The numerous applications of distributed ledger technologies, including in clearing and settlement, identity verification and cross-border transactions; and

Some financial institutions' adoption of public cloud technologies.

As I have stated in past hearings, it seems to me that technological innovations in this space are inevitable and the U.S. should lead in developing what the rules of the road should be.

During this hearing, I look forward to hearing your thoughts on these important issues, and about work the Fed is engaged in to appropriately address them.

Chairman Powell, thank you for joining us today.

PREPARED STATEMENT OF SENATOR SHERROD BROWN

Thank you, Chairman Crapo. Chair Powell, welcome back to the Committee.

Before we start, I want to stay a few words about what happened last night, which culminated with President Trump withdrawing the nomination of Jessie Liu, who was scheduled to appear before this Committee tomorrow.

I heard some of you, my colleagues and my friends, say that the President would be chastened by impeachment. Some of you told me you knew what he did was wrong, you admit he lies, but that this wasn't bad enough to rise to the level of removal from office—he'd learned his lesson.

It's pretty clear he's learned a lesson—the lesson he can do whatever he wants, abuse his office, and he'll never, ever be held accountable.

He's gone on a retribution tour—starting at the prayer breakfast—a prayer breakfast if you can believe that—continuing through the East Room, where many of you were in the audience. He removed Col. Vindman, a patriot and Purple Heart recipient who spent his life serving our country.

He removed Ambassador Sondland, a Trump appointee, after he testified to the quid pro quo.

And yesterday he continued the tour, interfering at the Department of Justice and strongarming political appointees to overrule career prosecutors. Those attorneys withdrew in protest—from the case, and in at least one case, resigned entirely from the Department entirely.

We cannot give him a permanent license to turn the presidency and the Executive branch into his own personal vengeance operation. I'm afraid that is what we're seeing. No one should be above the law.

Now, turning to the matter at hand. Welcome, Chair Powell.

Earlier this week, *Bloomberg* reported on a profitable and fast-growing Spanish company. "Grifols" has opened up branches in 36 States. They buy and sell plasma—a nice, clinical sounding word that means "blood." Americans who are struggling to make ends meet are lining up to sell their blood to put food on the table. The blood harvesting business is booming, and Grifols stock is doing great.

It's hard to think of a better metaphor for Trump's economy.

On Monday, the S&P 500 and Nasdaq both reached record highs. In 2019, JPMorgan Chase had the best year for any U.S. bank in history, with $36 billion in profits. Big corporations are spending hundreds of billions of dollars on stock buybacks and dividends. On paper, the economy has been expanding uninterrupted for over 10 years.

But if you talk to the vast majority of people who rely on paychecks, not investment portfolios to earn a living, you get a very different story. They've been bleeding for years.

Most families don't understand why the harder they work, sometimes at more than one job, the harder it's getting to afford pretty much everything—childcare, health care, rent, college tuition.

The people in this room may remember last September, when the financial industry went into a panic over a benchmark interest rate passing 10 percent.

Wall Street faced uncertainty, so the Fed leapt into action. Smart Government employees came up with a plan that led to the Federal Reserve lending about $200 billion every day into financial markets through a mechanism that hasn't been used since the financial crisis. That's right—$200 billion.

Let me be clear—I don't think it's wrong for the Federal Reserve to be creative and make sure the economy keeps working. It's in everybody's interest for banks to keep lending money, and credit to keep flowing so businesses can invest and manufacture, and consumers can buy houses and cars.

My problem is this—when Main Street faces uncertainty, no one at the Fed jumps to action or gets creative. And we certainly don't see tweets from the President demanding corporations raise wages for their workers.

It's hard for families to understand why Wall Street gets worked up about a 10 percent interest rate when so many families are lucky if the payday lender down the street charges them less than 400 percent.

Small businesses who are having trouble making payroll don't have access to so-called repo funding at their local Fed branch. The Fed doesn't take action when its own research has found that 40 percent of Americans don't have the cash to cover a $400 expense in an emergency.

Nobody raises alarm bells when 40 million Americans predict they'll miss at least one credit card payment, which means $1.2 billion in late fees will flow from the pockets of struggling families to ultraprofitable banks.

"Serious People" haven't dropped everything to bring down the cost of housing or raise wages once they found out that one-in-four renters are paying more than half their income toward housing.

People look at that and they see two different economies—and two different responses. We hear a lot about the divides in this country between Red and Blue, rural and urban, the coasts and the heartland—but people in all those places feel like no matter how hard they work, they can't maintain any real economic security. The real divide I see is between those whose problems are considered an "emergency," and those whose struggles Wall Street and large parts of Washington have decided they can ignore.

The Fed needs to get creative for the people who make this country work—particularly because it's become pretty clear that the President and the Majority Leader aren't about to.

President Trump brags about a soaring stock market that he's pumped up with deficit-busting, trillion dollar tax breaks for billionaires—and now he wants to pay for those tax cuts by cutting Medicare and Medicaid and Social Security.

He lies about a "blue collar boom," when in my own State of Ohio, job growth has been anemic or nonexistent, and manufacturing jobs are stalling compared to when he took office. And now he wants to kill a loan program that was giving the community of Lordstown a little bit of hope that manufacturing jobs would come back.

Chairman Powell, you and your highly capable staff at the Fed have been proactive and creative in protecting Wall Street and the money markets from this President's erratic behavior. And we're all appreciative of that.

But what I hope to hear from you today is how you're going to be proactive and use that same level of creativity to make this economy work for everybody else.

Thank you, Mr. Chairman.

PREPARED STATEMENT OF JEROME H. POWELL

CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

FEBRUARY 12, 2020

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

My colleagues and I strongly support the goals of maximum employment and price stability that Congress has set for monetary policy. Congress has given us an important degree of independence to pursue these goals based solely on data and objective analysis. This independence brings with it an obligation to explain clearly how we pursue our goals. Today I will review the current economic situation before turning to monetary policy.

Current Economic Situation

The economic expansion is well into its 11th year, and it is the longest on record. Over the second half of last year, economic activity increased at a moderate pace and the labor market strengthened further, as the economy appeared resilient to the global headwinds that had intensified last summer. Inflation has been low and stable but has continued to run below the Federal Open Market Committee's (FOMC) symmetric 2 percent objective.

Job gains averaged 200,000 per month in the second half of last year, and an additional 225,000 jobs were added in January. The pace of job gains has remained above what is needed to provide jobs for new workers entering the labor force, allowing the unemployment rate to move down further over the course of last year. The unemployment rate was 3.6 percent last month and has been near half-century lows for more than a year. Job openings remain plentiful. Employers are increasingly willing to hire workers with fewer skills and train them. As a result, the benefits of a strong labor market have become more widely shared. People who live and work in low- and middle-income communities are finding new opportunities. Employment

gains have been broad based across all racial and ethnic groups and levels of education. Wages have been rising, particularly for lower-paying jobs.

Gross domestic product rose at a moderate rate over the second half of last year. Growth in consumer spending moderated toward the end of the year following earlier strong increases, but the fundamentals supporting household spending remain solid. Residential investment turned up in the second half, but business investment and exports were weak, largely reflecting sluggish growth abroad and trade developments. Those same factors weighed on activity at the Nation's factories, whose output declined over the first half of 2019 and has been little changed, on net, since then. The February *Monetary Policy Report* discusses the recent weakness in manufacturing. Some of the uncertainties around trade have diminished recently, but risks to the outlook remain. In particular, we are closely monitoring the emergence of the coronavirus, which could lead to disruptions in China that spill over to the rest of the global economy.

Inflation ran below the FOMC's symmetric 2 percent objective throughout 2019. Over the 12 months through December, overall inflation based on the price index for personal consumption expenditures was 1.6 percent. Core inflation, which excludes volatile food and energy prices, was also 1.6 percent. Over the next few months, we expect inflation to move closer to 2 percent, as unusually low readings from early 2019 drop out of the 12-month calculation.

The Nation faces important longer-run challenges. Labor force participation by individuals in their prime working years is at its highest rate in more than a decade. However, it remains lower than in most other advanced economies, and there are troubling labor market disparities across racial and ethnic groups and across regions of the country. In addition, although it is encouraging that productivity growth, the main engine for raising wages and living standards over the longer term, has moved up recently, productivity gains have been subpar throughout this economic expansion. Finding ways to boost labor force participation and productivity growth would benefit Americans and should remain a national priority.

Monetary Policy

I will now turn to monetary policy. Over the second half of 2019, the FOMC shifted to a more accommodative stance of monetary policy to cushion the economy from weaker global growth and trade developments and to promote a faster return of inflation to our symmetric 2 percent objective. We lowered the Federal funds target range at our July, September, and October meetings, bringing the current target range to 1½ to 1¾ percent. At our subsequent meetings, with some uncertainties surrounding trade having diminished and amid some signs that global growth may be stabilizing, the Committee left the policy rate unchanged. The FOMC believes that the current stance of monetary policy will support continued economic growth, a strong labor market, and inflation returning to the Committee's symmetric 2 percent objective. As long as incoming information about the economy remains broadly consistent with this outlook, the current stance of monetary policy will likely remain appropriate. Of course, policy is not on a preset course. If developments emerge that cause a material reassessment of our outlook, we would respond accordingly.

Taking a longer view, there has been a decline over the past quarter-century in the level of interest rates consistent with stable prices and the economy operating at its full potential. This low interest rate environment may limit the ability of central banks to reduce policy interest rates enough to support the economy during a downturn. With this concern in mind, we have been conducting a review of our monetary policy strategy, tools, and communication practices. Public engagement is at the heart of this effort. Through our *Fed Listens* events, we have been hearing from representatives of consumer, labor, business, community, and other groups. The February *Monetary Policy Report* shares some of what we have learned. The insights we have gained from these events have informed our framework discussions, as reported in the minutes of our meetings. We will share our conclusions when we finish the review, likely around the middle of the year.

The current low interest rate environment also means that it would be important for fiscal policy to help support the economy if it weakens. Putting the Federal budget on a sustainable path when the economy is strong would help ensure that policymakers have the space to use fiscal policy to assist in stabilizing the economy during a downturn. A more sustainable Federal budget could also support the economy's growth over the long term.

Finally, I will briefly review our planned technical operations to implement monetary policy. The February *Monetary Policy Report* provides details of our operations to date. Last October, the FOMC announced a plan to purchase Treasury bills and conduct repo operations. These actions have been successful in providing an ample supply of reserves to the banking system and effective control of the Federal funds

rate. As our bill purchases continue to build reserves toward levels that maintain ample conditions, we intend to gradually transition away from the active use of repo operations. Also, as reserves reach durably ample levels, we intend to slow our purchases to a pace that will allow our balance sheet to grow in line with trend demand for our liabilities. All of these technical measures support the efficient and effective implementation of monetary policy. They are not intended to represent a change in the stance of monetary policy. As always, we stand ready to adjust the details of our technical operations as conditions warrant.

Thank you. I am happy to take your questions.

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

Q.1. In 2016, the Board of Governors, along with the FDIC and OCC, released a report to Congress and FSOC on the activities and investments banking entities may engage in under State and Federal law. That report states that supervisory oversight for FHCs engaging in physical commodities activities can include "review of the management of risks of those activities to the FHCs" and an assessment of "adequacy of the firms' controls relating to physical commodities activities." The report also mentions supervisory scrutiny related to merchant banking activities, complementary activities, and investments. The report also makes recommendations to Congress, including repealing the authority of FHCs to engage in merchant banking and commodities activities, and eliminating the ILC exemption.

An investment vehicle with significant ties to JPMorgan Chase has filed an application with FERC to purchase an El Paso franchise utility. Has the Board reviewed potential risks, pursuant to the supervisory activities referenced in the 2016 report, of this purchase to JPMC?

Has the board shared any of its supervisory documents related to reviews of JPMorgan Chase or the Infrastructure Investment Fund with FERC?

Does the Board stand by its 2016 recommendations to Congress?

Would IIF's purchase of the El Paso utility help or hinder Federal banking agencies' stated desire to reduce safety and soundness concerns raised by financial holding companies' exposure to risks related to physical commodities, merchant banking, covered investments, and complementary activities?

What authorities does the Board have related to the approval of this merger and/or the permissibility of JPMC's relationship with IIF?

A.1. The Federal Reserve's supervisory responsibility is to oversee the financial soundness of financial holding companies (FHC) and their adherence to applicable banking laws. To this end, the Federal Reserve monitors the largest of these institutions on a continuous basis and routinely conducts inspections and examinations of all of these firms to encourage their safe and sound operation. This supervision includes institutions' activities, including merchant banking and physical commodities activities. To conduct physical commodities activities pursuant to section 4(k) of the Bank Holding Company Act (e.g., trading on the spot market), a financial institution must obtain prior approval of the Federal Reserve Board (Board). However, pursuant to the Gramm–Leach¢liley Act, a FHC may make a merchant banking investment in a company that engages in physical commodities activities without prior approval. In addition, some firms are permitted by law to engage directly in a broad range of physical commodity activities, including the extraction, storage, and transportation of commodities. Specifically, section 4(o) of the Bank Holding Company Act may permit a certain FHCs to own, operate, or invest in facilities for the extraction, transportation, storage, or distribution of commodities, or to process or refine commodities, if certain statutory conditions are met regarding eligibility. To date, only two banking organizations—

Goldman Sachs and Morgan Stanley—have qualified to engage in physical commodities activities under section 4(o).

The Board began its review of the physical commodities activities of FHCs after an increase in these activities among FHCs during the financial crisis. The Board's review included an advance notice of proposed rulemaking in January of 2014, followed by a notice of proposed rulemaking in September 2016. The Board received a large number of comments from a variety of perspectives in response to both notices. The Board continues to consider the proposal in light of the many comments received and, as discussed above, continues to monitor the physical commodities activities of FHCs. The Board believes that the strong postcrisis regulatory and supervisory regime helped address financial risks from merchant banking activities, including market, liquidity, and credit risks. In terms of the 2016 recommendation in the section 620 report, I would need to discuss those recommendations with the current members of the Board and consider that recommendation in light of developments since the report was issued, as well as current facts and circumstances.

Q.2. On December 17, 2019, the Board and the FDIC announced they had found "no deficiencies" in the resolution plans required under 165(d) of the Wall Street Reform Act. Do you believe that Bank of America, Bank of New York Mellon, Citigroup, Morgan Stanley, State Street, Wells Fargo, Goldman Sachs, and JPMorgan Chase could each be resolved in an orderly bankruptcy without affecting financial stability?

Do you believe that Bank of America could be resolved in an orderly bankruptcy without affecting financial stability?

Do you believe that Bank of New York Mellon could be resolved in an orderly bankruptcy without affecting financial stability?

Do you believe that Citigroup could be resolved in an orderly bankruptcy without affecting financial stability?

Do you believe that Morgan Stanley could be resolved in an orderly bankruptcy without affecting financial stability?

Do you believe that State Street could be resolved in an orderly bankruptcy without affecting financial stability?

Do you believe that Wells Fargo could be resolved in an orderly bankruptcy without affecting financial stability?

Do you believe that Goldman Sachs could be resolved in an orderly bankruptcy without affecting financial stability?

Do you believe that JPMorgan Chase could be resolved in an orderly bankruptcy without affecting financial stability?

A.2. The identified banking organizations have made substantial gains in their resiliency and resolvability since the financial crisis, in part due to the work that the Federal Reserve and the Federal Deposit Insurance Corporation have done on resolution plans. An important aspect of enhancing the resiliency and resolvability of banking organizations is making resolution planning an ongoing institutional aim. The development of resolution plans has resulted in firms rationalizing their structures, creating resolution strategies and mechanisms for their successful implementation, identifying and marshaling necessary resources, and considering resolvability as part of day-to-day decision-making. While these measures

cannot guarantee that a firm's resolution would be simple or smoothly executed, the preparations have significantly improved the chances that any of the firms could be resolved under bankruptcy without Government support or imperiling the broader financial system. Nevertheless, given the uncertainties around how financial crises unfold, the Dodd–Frank Wall Street Reform and Consumer Protection Act's orderly liquidity authority remains a valuable backstop resolution framework.

Q.3. When the Committee was considering S. 2155, you stated that the bill wouldn't require deregulating foreign banks. But in the Fed's October 2019 rule, you state that the Fed was required to weaken requirements for foreign banks because the law requires you to treat them similarly to domestic banks (" . . . the Dodd–Frank Act directs the Board to give due regard to the principle of national treatment and equality of competitive opportunity . . . " and "the final rule facilitates a level playing field between foreign and U.S. banking organizations operating in the United States, in furtherance of the principle of national treatment and equality of competitive opportunity").

When you testified in front of the Banking Committee, were you or your staff aware of the Dodd–Frank directive requiring the Board to give "due regard to the principle of national treatment and equality of competitive opportunity"? If so, how did that directive factor into your interpretation that S. 2155 would not require the Board to weaken regulations for foreign banks?

A.3. Section 165 of the Dodd–Frank Act was enacted in response to the financial crisis and directed the Board to establish enhanced prudential standards for large bank holding companies and foreign banking organizations. As you observed, in applying enhanced prudential standards to foreign banking organizations, section 165(b)(2) of the Dodd–Frank Act directs the Board to "give due regard to the principle of national treatment and equality of competitive opportunity" The Board recognizes the important role that foreign banking organizations play in the U.S. financial sector. The provision of the Dodd–Frank Act concerning national treatment did not mandate that the Board make any changes to the enhanced prudential standards as applied to foreign banking organizations in light of the Economic Growth, Regulatory Relief, and Consumer Protection Act. In issuing the final tailoring rule concerning the application of the enhanced prudential standards to foreign banking organizations, the Board took into account the risks posed by those organizations as well as how the rule treated similarly situated domestic organizations. The final tailoring rule appropriately applies requirements based on the nature of those risks. The Board remains committed to the principle of national treatment and equality of competitive opportunity between the U.S. operations of foreign banking organizations and U.S. banking organizations.

In particular, the enhanced prudential standards applied to the U.S. operations of foreign banks under the Board's final tailoring rule are consistent with the standards applicable to U.S. bank holding companies. The standards take into account the extent to which a foreign bank is subject, on a consolidated basis, to home country standards that are comparable to those applied to financial

companies in the United States. Specifically, the final rule continues the Board's approach of tailoring the application of prudential standards to foreign banks based on the foreign bank's U.S. risk profile. For foreign banks with significant U.S. operations, the tailoring final rule applies a framework that is consistent with the framework applied to U.S. banking organizations. By using consistent indicators of risk, the final rule facilitates a level playing field between foreign banks and U.S. banking organizations operating in the United States, in furtherance of the principle of national treatment and equality of competitive opportunity.

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

Q.1. Last week we all heard the President lay out all the ways this economy is booming and most importantly, working for everyone and not just the few at the top. Unemployment for minorities is down, unemployment for veterans is down, wage growth is rising faster for those at the bottom than for those at the top, labor force participation is rising, and household income has never been higher.

In particular, black home ownership (4Q 2008 46.8 percent; 4Q 2016 41.7 percent; 4Q 2019 44.0 percent) and black labor participation (Dec 2018 63.5 percent; Dec 2016 61.9 percent; Jan 2020 62.9 percent) have also increased!

This doesn't even begin to touch on all the other important metrics that show how tax cuts and deregulation have helped propel American families into a time of economic prosperity.

Ensuring not only my constituents in South Carolina, but those coast-to-coast, have the ability and access to more affordable credit is paramount. Often times, this is to purchase things like a home, a car, or an education. Things that require larger loans in order to invest in yourself.

But, there are also times when Americans need access to credit in order to just make ends meet. This could be a $500 loan to pay rent or $1000 for an unexpected car repair. Small-dollar loans are an instrument of good and we should work to keep the access for those loans available while increasing their affordability and soundness.

I understand that the FDIC has been working together with the Fed and OCC to find ways to improve access to small-dollar loans at a more reasonable cost.

Please answer the following with specificity:

Do you believe that affordable access to small-dollar loans could help a significant number of Americans?

A.1. On May 20, the Federal Reserve, along with the Office of the Comptroller of the Currency, Federal Deposit Insurance Corporation, and National Credit Union Administration (the agencies), issued small-dollar lending principles for financial institutions offering small-dollar loans in a responsible manner to meet customers' short-term credit needs. In issuing the principles, the agencies recognized the important role that responsibly offered small-dollar loans can play in helping customers meet their ongoing needs for credit from temporary cash-flow imbalances, unexpected

expenses, or income shortfalls, including during periods of economic stress, natural disasters, or other extraordinary circumstances such as the public health emergency created by COVID–19. The principles follow a statement issued on March 26, 2020, by the agencies and the Consumer Financial Protection Bureau (CFPB) encouraging banks, savings associations, and credit unions to offer responsible small-dollar loans to consumers and small businesses in response to COVID–19.

Q.2. I am focused on finding ways we can encourage small-dollar lending to give Americans needed access to credit through responsible products that do not trap them in a cycle of debt. I was encouraged to see that Federal Reserve Governor Bowman raised an important issue this week, talking about the importance of the Fed implementing clear third party guidance that is consistent across all of the Federal regulatory agencies.

Can you give us an update on the work you have been doing with the FDIC and OCC on this and what you believe possible regulatory outcomes might look like in order to encourage banks to provide these small-dollar loans, and the benefits that community bankers see by innovating and working with FinTech platforms?

A.2. The small-dollar lending principles referred to above that were issued by the agencies on May 20, encourage supervised banks, savings associations, and credit unions to offer responsible small-dollar loans to customers for both consumer and small business purposes. The agencies recognize that financial institutions are well suited to meet small-dollar credit needs and some already offer these products, consistent with safe and sound principles and subject to applicable laws and regulations. Further, the principles state that small-dollar lending programs could include effectively managed deployment of innovative technology or processes for customers who may not meet a financial institution's traditional underwriting standards, and that programs can be implemented inhouse or through effectively managed third-party relationships. And finally, that any products offered through effectively managed third-party relationships would also reflect the core lending principles, including returns reasonably related to the financial institution's risks and costs.

Q.3. Governor Bowman talked about the need to implement guidance; can you explain the pros and cons of using guidance in this area versus a rulemaking? And, how do we balance the need to create real rules of the road to encourage the small-dollar lending we need without creating barriers to entry?

A.3. The Federal Reserve has long supported responsible small-dollar lending to meet customers' needs. Consistent with that view, we believe the principles issued on May 20 give financial institutions flexibility to structure their program in a manner that is safe and sound, fair to borrowers, and consistent with applicable laws and regulations. We also note that the CFPB has consumer rulewriting authority, and we are actively monitoring the status of the CFPB's open payday rulemaking proposal.

Q.4. I'm sure you're familiar with my continued interest in the International Association of Insurance Supervisors' work on the

ICS. I've made the point to Vice Chair Quarles that the U.S. insurance market fulfills a vastly different purpose than the European market—it doesn't make sense to regulate our insurers with foreign rules of the road. Doing so will compromise the ability of my constituents to plan for their retirement or manage their finances over the long term.

There's now a concrete path for the U.S. insurance solvency system to be deemed equivalent to the ICS.

Given all of the hard work you are doing at the Fed on the Building Block Approach (BBA) and the State Insurance Commissioners are doing on the Group Capital Calculation (GCC)—

Please answer the following with specificity:

How do you plan on ensuring the standards being developed in the U.S. will be deemed equivalent by the IAIS given the continued resistance you are facing from the Europeans?

A.4. The Federal Reserve has consistently maintained that the European insurance capital regulation is not appropriate for the U.S. insurance markets, particularly our market for long-term products. Instead, we advocate for the U.S. approach to insurance regulation at the International Association of Insurance Supervisors (IAIS). As part of this advocacy, the U.S. members of the IAIS are developing an aggregation alternative to the Insurance Capital Standard (ICS), which builds on our work on the Building Block Approach and the National Association of Insurance Commissioner's work on the Group Capital Calculation. During the recent IAIS negotiations in Abu Dhabi, we agreed to a plan that creates a concrete path for the U.S. system to be recognized as equivalent. Under this plan, the IAIS will consult on the approach for assessing comparability in 2020 and 2021, finalize the approach in 2022, and then conduct the comparability assessment of the aggregation alternative. The Federal Reserve will continue to advocate for the U.S. approach at each of these decision points.

Q.5. I think we can agree that less unnecessary regulation is always better. But what's best for everyone is smart regulation. Regulations intended to appropriately capture and capitalize risk. We continue to hear that with regards to the FRTB (the capital treatment for trading instruments) the Fed has taken their goal of simplicity as license to remove risk sensitivity and increase capital.

The U.S. capital markets are core to the economic fabric and our global prowess; in fact the capital markets fund 65 percent of economic activity in the U.S.

Please answer the following with specificity:

Can you ensure that U.S. regulators will right size this in the U.S. rulemaking?

A.5. The 2007–2008 financial crisis revealed weaknesses in the U.S. financial system—too little capital, not enough liquid assets, and poor risk management. Since that time, the Federal Reserve Board (Board) and the other Federal banking agencies have substantially strengthened regulatory capital and liquidity requirements for large banks, which has significantly increased the financial resiliency of these firms and the financial system as a whole. For example, firms subject to the Comprehensive Capital Analysis and Review in 2019 increased their aggregate ratio of common eq-

uity capital to risk-weighted assets from 4.9 percent in the first quarter of 2009 to 12.3 percent in the fourth quarter of 2018. This change reflects a total increase of approximately $660 billion in common equity capital, bringing total CET1 capital at these firms to over $1 trillion in the fourth quarter of 2018. In October 2019, the Board finalized its tailoring rule, which more closely matches the regulations applicable to large banking organizations with their risk profile.

We agree that regulations should evolve to keep pace with changes in the financial system and changes in risk. The revised Basel III framework, including the Fundamental Review of the Training Book (FRTB), is intended to deliver credible capital outcomes by increasing the robustness and risk sensitivity of the overall capital framework, and to promote consistent implementation of the standards across jurisdictions. Board staff is currently working on a proposal to implement FRTB. As we further develop this proposal, we will consider the benefits of increased risk sensitivity, as well as the important objectives of simplicity, transparency, efficiency, and safety and soundness. We will also aim to ensure that the proposal is appropriately tailored to the risk profile of banking organizations.

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

Q.1. In today's hearing, you spoke about the transition from LIBOR and how a number of banks have said they'd like to work on a rate that is separate from SOFR, i.e., a rate that is credit sensitive (as is LIBOR). I was glad to hear you mention that the Federal Reserve is working with those banks to support their efforts to use a credit-sensitive rate. Is Ameribor appropriate to use for institutions for whom it more accurately represents their cost of funding?

Put another way, does the Fed support alternative benchmark interest rates to SOFR such as Ameribor—for the replacement of Libor?

A.1. The Federal Reserve convened and supports the work of the Alternative Reference Rates Committee (ARRC) and views SOFR as a robust alternative that will help many market participants in the transition away from LIBOR. However, we have been clear that the ARRC's recommendations and the use of SOFR are voluntary and that market participants should seek to transition away from LIBOR in the manner that is most appropriate given their specific circumstances.

Ameribor is a reference rate created by the American Financial Exchange based on a cohesive and well-defined market that meets the International Organization of Securities Commission's (IOSCO) principles for financial benchmarks. While it is a fully appropriate rate for the banks that fund themselves through the American Financial Exchange or for other similar institutions for whom Ameribor may reflect their cost of funding, it may not be a natural fit for many market participants.

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

Q.1. *Fed Inflation Targeting*—Since 2012, the FOMC has adopted an inflation target of 2 percent as part of its Longer-Run Goals and Monetary Policy Strategy. But as you mentioned in your opening statement, PCE inflation, which the Federal Reserve targets, was 1.6 percent last year, under your 2 percent target once again. It has been running under this 2 percent target for almost a decade now. As part of the motivation for the review of the Federal Reserve's policy strategy, many Governors, including yourself, have expressed concern over the disinflationary pressures occurring across the globe. If inflation expectations are anchored persistently lower, your interest rate policy could become less effective and give the Federal Reserve less room to cut in the face of future recession.

As the Federal Reserve continues their review, are you considering alternative monetary policy frameworks, such as NGDP targeting, that would allow for more variability in inflation around the 2 percent target, including above that target?

A.1. Consideration of alternative monetary policy frameworks has certainly been part of our ongoing review of monetary policy strategy, tools, and communication practices. This review is concerned with considering ways in which the Federal Open Market Committee (FOMC) can best achieve its dual mandate goals of maximum employment and 2 percent inflation in the modern-day environment—in which interest rates are likely, for structural reasons, to be lower, on average, than in past historical experience.

With regard to the alternative strategies considered during the review, the published minutes for the FOMC meetings of the past year have described the strategies on which the FOMC has been briefed by Federal Reserve staff and which it has discussed in its deliberations in connection with the review. We have not discussed nominal GDP (NGDP) targeting in detail during this review process, as NGDP has a very imperfect relationship with our statutory goals of maximum employment and price stability.

Q.2. Do you believe any of these alternative approaches outside your current 2 percent inflation target would allow the Federal Reserve to better achieve your congressional mandate and to help mitigate the lower bound problem?

A.2. The proximity of the neutral policy interest rate to the effective lower bound (ELB) in the past decade was a key motivation for the Federal Reserve's monetary policy framework review of the past year. In the course of the FOMC's discussions during this review, we have considered how the choice among different strategies affects the Federal Reserve's ability to provide the desired amount of monetary policy accommodation at or near the ELB. The FOMC has not yet reached any conclusion about changes to our strategy that might arise from the review process. All the alternative strategies that we have considered, however, are premised on our continuing to have a 2 percent longer-run inflation objective as our price-stability goal, alongside our maximum-employment goal. This review is concerned with considering ways in which the FOMC can best achieve these dual-mandate goals in the environment of persistently low interest rates.

In terms of achieving the FOMC's dual mandate goals, it is also important to stress that when the policy rate is in the vicinity of the ELB, the set of monetary policy tools available, and not just the choice of monetary policy strategy, is important. During the framework review of the past year, the FOMC has discussed its experience with its two main monetary policy tools at the ELB: forward guidance regarding the policy rate; and asset purchases (or balance sheet policy). We have considerable confidence in the effectiveness of these tools. We believe that they have proven their worth as valuable and useful means of providing additional monetary policy accommodation in ELB conditions.

Q.3. Also, do you believe the current framework properly allows for productivity and commodity shocks or would an alternative system allow for broader flexibility?

A.3. A recognition of the importance of productivity shocks and commodity shocks, and a consideration of their implications for the economy, are important for the appropriate formulation of monetary policy. The current monetary policy framework takes these shocks into account satisfactorily. Any alternative framework that the FOMC might consider would similarly need to take appropriate account of these types of shocks.

Q.4. *Basel III Revisions*—Chair Powell, in the postcrisis world, the U.S. banks have worked to improve both their capital and liquidity standards. With the Federal Reserve now working to incorporate Basel III revisions into the U.S. regulatory framework, I am concerned that if the implementation is not done with a holistic view, these changes could have a compounding effect, placing far greater capital and liquidity constraints on financial institutions.

For example, one of my greatest concerns is that the new revisions would have a lasting impact in terms of capital markets activity and the cost of raising capital for U.S. firms. This is particularly significant because unlike our European counterparts on the BCBS (Basel Committee on Banking Supervision), roughly two-thirds of all U.S. lending occurs in our capital markets. Furthermore, we have a deeper and more sophisticated capital markets structure than our counterparts around the world.

Would you share your views on how capital requirements on capital markets activities could impact the balance between bank-driven and market-driven finance in the U.S. financial system?

A.4. The financial crisis revealed weaknesses in the U.S. financial system—too little capital, not enough liquid assets, and poor risk management. Since the financial crisis, the banking agencies have increased the financial resiliency of banking organizations by substantially strengthening their regulatory capital and liquidity requirements. The final Basel III framework, which includes standards for market risk and capital market activities, is designed to produce a more robust regulatory framework for the largest firms and to promote consistent implementation of the standards across international jurisdictions.

The Board of Governors (Board) recognizes the importance of capital markets and market-based finance in supporting economic activity in the United States. Because there is a close link between market liquidity and banking organizations' funding liquidity, ro-

bust capital and liquidity requirements help ensure that banking organizations can maintain their financial intermediation functions in times of financial distress.

Consistent with the banking agencies' efforts to tailor the application of prudential rules to the risk profiles of firms, the Board will consider the implementation of the Basel III standards in light of its objectives to enhance the simplicity, transparency, and efficiency of the overall regulatory framework. The Board will consider the impact of any future rulemakings on firms and the markets to ensure that the Board's capital and liquidity framework continues to support the safety and soundness of banking organizations and U.S. financial stability.

Q.5. Additionally, would you please outline the specific steps that the Fed is taking to ensure that these provisions are not done piecemeal and that overall capital is not meaningfully changed or increased—as you have repeatedly stated that you believe current capital levels are "about right."

A.5. The Board is paying close attention to the overall coherence of the regulatory capital framework. The Board recently finalized the stress capital buffer requirement, which simplifies the capital regime by integrating the Board's stress test and point-in-time capital requirements while maintaining the current strong levels of capital. Board staff are also actively considering how the final Basel III standards could be implemented in a way that maintains overall capital and liquidity requirements at large banking organizations, avoids additional burden at smaller banking organizations, and supports the principles of transparency and due process. It is important for the Board to consider the remaining elements of the Basel III framework (especially the operational risk element and the fundamental review of the trading book) as a whole, and then examine that whole in the context of the existing framework.

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

Q.1. I am encouraged that Federal Reserve staff are working to update the rules governing margin eligibility of certain over-the-counter securities to better reflect developments in the OTC marketplace since Nasdaq became an exchange. Please provide me with an update on the progress to date, how the Federal Reserve is contemplating updates to the rules, and the expected timing of changes to the rules.

A.1. Federal Reserve staff are developing a proposal that would make certain domestic and foreign over-the-counter (OTC) securities marginable at broker-dealers under the Federal Reserve Board's (Board) Regulation T. Board staff will consult with other securities regulatory authorities before the Board publishes a proposal for public comment.

Q.2. HSBC has just announced a major restructuring that includes a significant reduction in its U.S. presence, and as a result a significant reduction in the capital it will provide U.S. corporations and the services it will provide U.S. consumers. On the global markets side, HSBC has determined that its U.S. returns are unaccept-

ably low relative to what it can earn in other markets, primarily Asia, and announced that it will reduce its U.S. risk-weighted assets in those businesses by 45 percent; it will increase its presence in Asia in a corresponding amount. On the retail side, it will focus in the United States only on international, affluent, and globally mobile clients; it will continue to provide retail services to the U.K., Hong Kong, and Mexico. Do you believe this outcome is a good one for the United States? Given that HSBC is the world's largest trading bank, what do you believe the economic significance will be of its shift from the U.S. market to Hong Kong, where its primary clients will be in China? What role did the regulatory regime you impose on HSBC play in its decision?

A.2. The Federal Reserve promotes the safety and soundness of individual banking institutions, including foreign banking organizations (FBOs) operating in the United States, and monitors their impact on the financial system as a whole.

In supervising the U.S. operations of FBOs, the Federal Reserve monitors and reviews their U.S. business strategies in order to ensure that they comply with applicable U.S. laws and regulations, and are commensurate with each institution's risk appetite and risk management capabilities. As you are aware, the global operations of FBOs are supervised by their respective home-country regulators.

The presence of FBOs in the United States brings competitive benefits to U.S. markets, as these firms serve as a source of credit to U.S. households and businesses as well as contribute to the strength and liquidity of U.S. financial markets. However, given that the large population of FBOs still represent only a segment of the U.S. financial system, and is structurally and characteristically diverse, any strategic shift of a single FBO would not necessarily impact the availability of banking services to U.S. households and businesses.

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

Q.1. Since 2019, the Federal Reserve has been engaged in a review of its monetary policy, strategy, tools, and communications practices. Could you please share what you have learned so far? What can I share with my constituents back home who are looking for jobs, especially those Rhode Islanders who are looking for jobs that pay fair and livable wages?

A.1. An important aspect of the Federal Reserve's review of monetary policy strategy, tools, and communication practices has been a series of *Fed Listens* events during which policymakers heard from a broad range of stakeholders in the U.S. economy about labor market conditions, inflation, and interest rates. From these events, we have learned that the tight labor market conditions in 2019 were important for providing job opportunities to individuals who had had difficulty finding employment in the past. We have also learned that the tight labor market conditions were leading to creative solutions between employers, on the one hand, and workforce development groups and educational institutions, on the other hand, to provide requisite training and skills to new employees. As

we saw in 2019, tight labor market conditions are important for delivering training and employment opportunities to disadvantaged communities and for achieving the Federal Reserve's maximum employment goal.

Since the outset of the COVID–19 pandemic, the reported unemployment rate has moved up to 13.3 percent and total employment has fallen by about 20 million. The economic environment is completely different from what we were experiencing during the original *Fed Listens* events. With that in mind, on May 21, we held our most recent *Fed Listens* to learn how the new economic reality is affecting the public. For this event, we focused on the disparity of the burden from this crisis that households and businesses face, particularly in low- and moderate-income communities. We heard from a wide range of individuals who offered first-hand perspectives and ways in which they are working to address the recent problems through workforce development; advocacy for workers, the elderly, and affordable housing; academia; community development financial institutions; small-businesses; and nonprofits.

Q.2. Can you comment on whether prior extensions of unemployment insurance have made it easier for workers to bounce back from a recession? Could stabilizers, such as unemployment insurance, be more successful if they are automatically triggered by a recession?

A.2. As a general rule, however, I do not comment on specific fiscal policy or labor market policy proposals, as judgments about those policies that are most appropriate for the United States are best decided by Congress and the Administration. Accordingly, only Congress and the Administration can decide if making the Unemployment insurance (UI) system more automatically responsive to economic downturns is appropriate.

Speaking broadly, though, increasing unemployment insurance benefits in recessions is generally thought to provide a significant boost to economic activity per additional dollar spent. [1] UI benefits are an important source of income for workers who become involuntarily unemployed. Research has shown that UI benefits buffer income and consumption losses for the families of those laid off; some estimates show that each additional dollar of unemployment insurance benefits boost consumption of its recipients by roughly $0.30–0.60 on average. [2]

As we have seen during the COVID–19 pandemic, more than 36 million Americans are seeking unemployment benefits. Under the Coronavirus Aid, Relief and Economic Security (CARES) Act, for example, the Government expanded the scope of unemployment insurance, increasing both the amount and duration of assistance. The amount and length of pay varies by State, but the CARES Act added an additional 13 weeks to every State's maximum pay period. The bill also created a new, temporary Pandemic Unemployment Assistance program through the end of this year to help indi-

[1] See the Congressional Budget Office's "Unemployment Insurance in the Wake of the Recent Recession", November 2012 for a summary of these estimates.

[2] See Chodorow-Reich, Gabriel, and John Coglianese. 2019. "Unemployment Insurance and Macroeconomic Stabilization", *Recession Ready: Fiscal Policies to Stabilize the American Economy*, edited by Heather Boushey, Ryan Nunn, and Jay Shambaugh, 153–179. Brookings Institution.

viduals who lose work as a direct result of the public health emergency.

Q.3. Taken together, how are global events—such as the coronavirus outbreak, Boeing's production slowdown, and trade tensions—impacting U.S. supply chains and the economic outlook, especially from the perspective of the average American household?

A.3. Trade developments—including tariffs, countertariffs, and uncertainty about future trade policy—coincided with a softening in the U.S. manufacturing sector last year. While it is difficult to precisely determine the effects of these various forces on the economy, a number of studies have found evidence that these trade issues have restrained output and employment in the U.S. manufacturing sector, mostly notably by raising the prices of the goods manufacturers import as inputs to their production process and also, to some extent, by lowering their exports. Historically, the manufacturing sector in the United States has been a source of economic strength and of good jobs for workers at all levels of education.

In addition to trade issues, part of the softness in manufacturing is attributable to the slowing last year of the assembly pace of Boeing's 737 Max aircraft due to safety issues and, more recently, to the temporary cessation of the production of the aircraft. The production of civilian aircraft and of aircraft parts accounts for about 2½ percent of domestic manufacturing, with supply chains that extend throughout the entire country and that provide jobs for many thousands of Americans. While Boeing and their suppliers appear to have kept the great majority of the workers related to the 737 Max on their payrolls during this period, continuing to do so could prove more difficult if the cessation of 737 Max production extended far into the future.

As for the coronavirus, the economic effects are still coming into focus. Early on, as the coronavirus hit China hard, the global supply chain was negatively affected, with China abruptly halting the production of materials and supplies used as inputs by U.S. factories. The coronavirus outbreak occurred during the period when U.S. manufacturers typically stockpile Chinese inputs, which at this time, blunted, or at least delayed, the full effect of the Chinese shutdowns. In March, Chinese factories restarted production, but they have been running somewhat below their full capacity even as U.S. producers are running through their stocks of Chinese inputs; the speed with which Chinese producers get back to full capacity before U.S. stockpiles run down will determine the degree to which shortages emerge or price spikes for critical inputs arise. Moreover, the cessation of Chinese exports also snarled the intricate web of cargo vessels, which also has affected both importers and exporters in the United States. In addition, a drop in Chinese tourism affected U.S. tourist destinations.

The coronavirus outbreak has evolved into a global health crisis. While supply chain disruptions remain an issue, an enormous contraction in the U.S. economy has occurred that reflects a sharp pullback in spending by households as result of people engaging in both mandatory and voluntary "social distancing." For example, consumers have severely reduced spending on items consumed in public social settings, on travel, or on items purchased in shopping

malls or large showrooms. Job losses in April that exceeded 20 million are a stark reflection of the economic contraction that is unprecedented in living memory.

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

Q.1. The FDIC will allow some of the banks it regulates the choice of opting into the new OCC led Community Reinvestment Act (CRA) regulatory framework or continue to be examined under the current system. One of reasons the OCC and FDIC decided to move forward with their own CRA proposal was to clarify CRA standards and reduce confusion. However, by creating a three-tiered system (the OCC and FDIC joint rule, the opt-in option, and a potential new Federal Reserve rule), the OCC and FDIC seem to be creating more confusion about the CRA and its implementation. Are you concerned the OCC/FDIC rule, with the opt-in option, will increase confusion among banks and communities about how the CRA is implemented and what qualifies as a CRA activity?

A.1. While the Federal Reserve Board (Board) did not join the Federal Deposit Insurance Corporation (FDIC) and the Office of the Comptroller of the Currency (OCC) in their Notice of Proposed Rulemaking (NPR) revising elements of Community Reinvestment Act (CRA) regulation, the Board shared detailed analysis and proposals on CRA reform with our counterparts at the OCC and FDIC in the preparation of the NPR, and the NPR reflected considerable input from the Board. We are reviewing the comments that were submitted to the FDIC and OCC on the NPR, and expect to learn much—including important insights related to the aspects of the NPR that reflect our own input—from the review. As you may be aware, on May 20, the OCC separately issued a final rule to modernize CRA regulations that applies only to OCC-supervised banks. In light of this development, our ongoing analysis of CRA modernization issues, and our review of comments to the NPR, we are assessing a path forward.

Q.2. Please describe what the aspects of the Fed's CRA proposal the OCC and FDIC satisfactorily incorporated into their joint proposal.

A.2. We support efforts to use clear metrics to guide CRA performance assessments. Although the NPR put forth by the OCC and FDIC included a metrics approach that differed in a number of ways from the approach that Board staff discussed with the other agencies as part of our interagency discussions, the NPR incorporated an element of the retail metrics approach that Board had raised with the other agencies. Specifically, the proposal included retail lending metrics for evaluating each assessment area based on: (1) the proportion of loan originations that are made to low- and moderate-income (LMI) borrowers or small business customers; and (2) the proportion made in LMI communities. These retail distribution metrics would measure the number, rather than the dollar value, of loans that a bank has made.

The OCC's overall metrics approach in their final rule, issued on May 20, continues to differ in a number of ways from the approach

that Board staff discussed with the other agencies as part of CRA interagency discussions. Still, the final rule maintains retail lending metrics similar to those discussed by Board staff that are based on the distribution of a bank's loans to LMI borrowers and LMI communities in its assessment areas.

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

Q.1. *Agriculture and Rural Lending*—I asked your colleague Vice Chairman Quarles, and Chairs McWilliams and Hood, about this when they were before this Committee in December. I have been hearing for the last year or more from community bankers in Montana that examiners seem more concerned lately when that their bank or credit union may be overly concentrated in ag. This is a hard issue for rural communities—we don't want to further jeopardize these farmers who are already fighting to survive against Trump's trade disaster and difficult growing seasons, but we cannot let these challenges take community banks down with them. Access to banks in these rural areas is critical to communities, and we've already seen too many close.

I'm focused on making sure that we support our farmers and ranchers and their families through the current challenges facing the agriculture sector, while continuing to prioritize the safety and soundness of our community financial institutions.

What are the risks to these banks as farmers are increasingly overleveraged and continue to struggle with the repercussions of these ongoing trade wars, extreme weather happening more and more frequently because of our changing climate, and persistently low commodity prices?

Does this pose a threat to rural America?

What can and should we be doing in these communities?

From a banking perspective, are you concerned about how this will effect community banks across rural America?

A.1. Agricultural producers and the banks that serve them are facing many challenges due to weather and trade issues that are now exacerbated by the Coronavirus Disease 2019 (COVID–19). The financial stress experienced by many farmers and ranchers due to these challenges, and stresses facing banks serving the agricultural sector, particularly community banks, continue to be a priority for regulators.

Agricultural conditions have remained weak for the past several years and financial stress in the sector has continued to increase at a gradual pace. Although agricultural loan delinquencies have increased gradually in recent years, borrower stress has not yet led to a significant increase in the volume of nonperforming loans. Asset quality and overall safety and soundness at most agricultural banks were satisfactory as of December 31, 2019. While most of the institutions currently remain in satisfactory condition, the impact of COVID–19 on the safety and soundness of agricultural banks has not fully materialized and is being monitored.

Agricultural community banks have in-depth knowledge and experience in their market area that allows them to make well-informed credit decisions to meet the needs of their communities and

manage risks that are associated with agricultural credit. We have seen agricultural lenders take a number of prudent steps to manage this increasing risk in light of persistently weak agricultural conditions. For example, as land values increased, these lenders reviewed their internal policy limits around loan-to-value underwriting requirements. In some instances, banks have required larger downpayments on new farm real estate loans or set internal limits on the amount they were willing to lend per acre, and relied more on historical values for underwriting when they observed local land values had skyrocketed. Additionally, some agricultural lenders are using credit enhancements such as loan guarantee programs through the U.S. Department of Agriculture's Farm Service Agency to appropriately mitigate credit risk to the bank. Moreover, agricultural banks today, compared to those of the 1980s, report stronger aggregate financial metrics, including more capital and reserves.

The Federal Reserve continues to monitor agricultural State member banks to assess their risk management processes and to ensure prudent steps are being taken during these periods of weakness. In 2011, the Federal Reserve issued guidance [1] to the industry on key risk factors in agricultural lending and supervisory guidelines for a financial institution's risk management practices. With consideration given to this guidance, examiners continue to encourage financial institutions to work constructively with borrowers, including agricultural borrowers, and consider prudent loan modifications consistent with safe and sound lending practices to strengthen the credit and mitigate credit risk.

More recently, the Federal Reserve joined other regulatory agencies in issuing an interagency statement encouraging financial institutions to work constructively with borrowers affected by COVID–19 and providing additional information regarding loan modifications. The agencies encourage financial institutions to work with borrowers, will not criticize institutions for doing so in a safe and sound manner, and will not direct supervised institutions to automatically categorize loan modifications as troubled debt restructurings.

Recognizing the potential for further increases in financial stress among agricultural borrowers and banks, and the direct ties to the broader communities in which they are located, the Federal Reserve will continue to monitor conditions as they evolve. We continue to receive input on agricultural conditions from business contacts across the country through our boards of directors at Regional Reserve Banks, various advisory councils, and surveys, in addition to reports from staff who track developments in U.S. agriculture, and will respond accordingly.

[1] See SR letter 11-14 "Supervisory Expectations for Risk Management of Agriculture Credit Risk".

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

Q.1. *Monetary Policy*—In 2018, the Fed began a review of the strategy, tools, and communications it uses to conduct monetary policy. [1]

Describe the implications of the apparent decline in the neutral rate of interest for future recessions and economic downturns.

Do you believe the Fed's current monetary policy tools will be sufficient to alleviate an economic downturn?

A.1. The Federal Reserve's response to COVID–19 pandemic has been guided by our mandate to promote maximum employment and stable prices for the American people, along with our responsibilities to promote the stability of the financial system. As I reported in recent testimony, in March we lowered our policy interest rate to near zero, and we expect to maintain interest rates at this level until we are confident that the economy has weathered recent events and is on track to achieve our maximum-employment and price-stability goals.

In addition to monetary policy, we took forceful measures in four areas: open market operations to restore market functioning; actions to improve liquidity conditions in short-term funding markets; programs in coordination with the Treasury Department to facilitate more directly the flow of credit to households, businesses, and State and local governments; and measures to allow and encourage banks to use their substantial capital and liquidity levels built up over the past decade to support the economy during this difficult time.

Turning to your question regarding changes in the estimates of the neutral Federal funds rate, though there continue to be a wide range of estimates, over the past two decades most estimates have declined significantly. A lower neutral rate implies that the level of the Federal funds rate consistent with the Federal Reserve's dual mandate of maximum employment and price stability is lower than in the past and hence closer to its effective lower bound. As a result, there likely will be less room to reduce the Federal funds rate to support the economy in economic downturns.

However, the Federal Reserve has at its disposal other tools to provide economic stimulus, including forward guidance about the likely course of monetary policy and balance sheet policies (most notably large-scale asset purchases). Deployment of these other tools in response to the 2007–2008 financial crisis put significant downward pressure on the longer-term borrowing rates of American families and businesses, thus supporting the labor market recovery and pursuit of price stability.

Overall, the Federal Open Market Committee (FOMC) judges that its existing toolkit has served the U.S. economy well over the past decade. The experience acquired with the use of forward guidance and balance sheet policies has led to an improved understanding of how these tools operate. Therefore, the FOMC can proceed more confidently and preemptively than in the past in using them when warranted by economic circumstances. The Federal Re-

[1] Board of Governors of the Federal Reserve System, "Review of Monetary Policy Strategy, Tools, and Communications", June 25, 2019, *https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications.htm.*

serve also has important liquidity provision authority to improve confidence in the economy and restore calm to financial markets, thus supporting achievement of its maximum employment and price stability goals. In addition to its usual liquidity-provision authority for depository institutions, the Federal Reserve has, as you know, under section 13(3) of the Federal Reserve Act, the authority to provide broad-based liquidity to nondepository institutions in "unusual and exigent circumstances." Restoring well-functioning financial markets through the prompt and broad-based deployment of liquidity provisions was a central to the Federal Reserve's response to the 2007–2008 financial crisis and is also a cornerstone of our response to the economic challenges caused by the COVID–19 pandemic.

That said, the relatively low level of the neutral rate poses challenges for the conduct of monetary policy, and the FOMC is mindful of the risks posed by the effective lower bound in its policy deliberations. In part for this reason, the FOMC launched a review of its monetary policy strategy, tools, and communication practices in November 2018 to ensure that it has the right tools to fight recessions and that it deploys those tools promptly and effectively.

The Federal Reserve also has tools to support liquidity provision and market functioning. For example, to support market functioning, recently we made use of the discount window more attractive, deployed open market operations, and opened three liquidity facilities[2] with the approval of the Secretary of the U.S. Department of the Treasury pursuant to our "emergency and exigent" authority under section 13(3) of the Federal Reserve Act. Using our section 13(3) authority we also established eight facilities[3] to provide more direct support for the extension of credit across the economy. This authority had been a cornerstone of our response to the economic challenges caused by the COVID–19 pandemic.

Q.2. What role do you believe fiscal policy will need to play in the next downturn?

A.2. The decline in the neutral rate of interest presents the Federal Reserve with a more challenging environment to achieve our dual mandate. Specifically, we face heightened risks of lengthy periods in which our policy interest rate is near zero. To address this problem we are conducting a review of our monetary policy strategies, tools, and communications. One valuable tool for stabilizing the economy during a downturn is fiscal stimulus. Of course, that is not part of our toolkit, it is the responsibility of Congress and the Administration. We have seen that fiscal stimulus has been helpful in restoring growth during many of the recessions over the past 50 years. It was certainly helpful during the Great Recession when the Federal funds rate was near zero, and the fiscal measures taken thus far in response to the current crisis—the fastest and largest response for any postwar downturn—have provided impor-

---

[2] The market functioning facilities include: the Commercial Paper Funding Facility, the Money Market Mutual Fund Liquidity Facility, and the Primary Dealer Credit Facility.

[3] These include (1) the Primary Market Corporate Credit Facility, (2) the Secondary Market Corporate Credit Facility, (3) Term Asset-Backed Securities Loan Facility, the (4) Municipal Liquidity Facility, (5) the Main Street Lending Program which is comprised of the Main Street New Loan Facility, the Main Street Priority Loan Facility, and the Main Street Expanded Loan Facility, and (6) the Paycheck Protection Program Liquidity Facility.

tant support. While the overall policy response to date has provided a measure of relief and stability, and will provide some support to the recovery when it comes, COVID–19 raises longer-term concerns as well. We know that deeper and longer recessions can leave behind lasting damage to the productive capacity of the economy through unnecessary insolvencies on the part of households and businesses and long-term unemployment. If it helps avoid long-term economic damage and leaves us with a stronger recovery, additional fiscal support though costly, could be worth it. This trade-off is one for elected representatives, who wield powers of taxation and spending.

Q.3. President Trump has repeatedly advocated for negative interest rates, arguing that they would boost economic growth.[4] Do you agree? Describe the implications of negative interest rates.

A.3. The FOMC has discussed negative rates a number of times in the past and has judged that the setting of negative rates is not an attractive monetary policy tool in the United States. For example, as part of our ongoing review of monetary policy strategy, tools, and communications, the FOMC considered the possibility at our October 2019 meeting. As was noted in the minutes for the meeting, all FOMC participants judged that negative rates "currently did not appear to be an attractive monetary policy tool in the United States." The FOMC sees forward guidance and balance sheet policies as preferable tools to provide additional policy stimulus when the policy rate is near zero percent. In reaching this conclusion, policymakers have noted that they see limited scope to bring the Federal funds rate into negative territory and that the evidence on the beneficial effects of negative interest rates abroad is mixed. Moreover, the implications of such a policy are difficult to anticipate, given that it is unclear what effect negative rates might have on the willingness of financial intermediaries to lend and on the spending plans of households and businesses. FOMC participants have further noted that negative interest rates entail risks of introducing significant complexity or distortions to the financial system. In particular, the U.S. financial system is considerably different from those in economies that implemented negative interest rate policies, so that negative rates could have more significant adverse effects on market functioning and financial stability here than abroad.

Q.4. Former Fed Chair Bernanke has argued that the decline in the rate may be partly due to structural factors such as demographic and technological change.[5] Do you agree?

If so, is the Fed proactively thinking about the trends in these structural factors and how they could impact the effectiveness of monetary policy in the future?

A.4. The decline in the neutral rate likely reflects the effects of several domestic and global structural factors, including population

---

[4] NBC News, "Trump Keeps Pushing 'Negative' Interest Rates. What Would That Mean for Your Wallet?" Ben Popken, September 23, 2019, *https://www.nbcnews.com/business/consumer/trump-keeps-pushing-negative-interest-rates-what-would-mean-your-n1056546.*

[5] The Brookings Institution, "The New Tools of Monetary Policy", Ben Bernanke, January 4, 2020, *https://www.brookings.edu/blog/ben-bernanke/2020/01/04/the-new-tools-of-monetary-policy/.*

aging, a step down in the pace of productivity growth, and lower risk tolerance. Identifying structural transformations and their effects on the neutral rate of interest in an economy constantly buffeted by shocks is an inherently challenging task. Accordingly, there remains substantial uncertainty about the neutral rate of interest and the respective contributions of structural factors. Independently of its origins, however, the decline in the neutral rate of interest poses challenges for the conduct of monetary policy by calling for the use of tools other than lowering the target for the Federal funds rate to provide monetary stimulus once the policy rate has been lowered near zero percent.

The Federal Reserve actively seeks to identify structural changes and their implications for the conduct of monetary policy. FOMC participants routinely discuss structural transformations during their monetary policy deliberations, drawing on extensive research and analysis conducted by Federal Reserve staff, academics, private-sector analysts, and other sources. Federal Reserve officials frequently address structural transformations in speeches, media interviews, and other public communications. The Federal Reserve's staff has released extensive research on structural transformations and their policy implications over time in working papers, policy notes, academic publications and presentations, and other public communications. Recently, the FOMC has discussed the policy implications of key structural transformations as part of its review of its monetary policy strategy, tools, and communication practices.[6]

Q.5. In response to developments in overnight lending markets in September 2019, the Fed began conducting repo operations to "stabilize money markets and provide reserves to keep the Federal funds rate within its target range."[7]

Some have pointed to the repo market concentration, with the largest banks being almost exclusively responsible for engaging in transactions with the Fed and lending that money out.[8] Can you describe the implications of the concentration levels of the current repo market structure and how the concentration of participants has impacted the Fed's recent interventions?

A.5. In the last few months of 2019 and into early 2020, the Federal Reserve's reserve management purchases of Treasury bills and the Open Market Desk's repurchase agreement operations (repo) kept the aggregate quantity of reserve balances above the level that prevailed in early September 2019. These operations therefore ensured an ample supply of reserves to the banking system as a whole and so contributed to relatively calm money market conditions during the end of the 2019 and early 2020. Notably, these operations likely contributed to stable conditions in short-term funding markets in the period immediately preceding the recent economic and financial turbulence. Thus, our repo operations have

[6] For an example of policymakers' discussion of structural transformations and their monetary policy implications, see the minutes of the July 2019 FOMC meeting.

[7] Board of Governors of the Federal Reserve System, "Monetary Policy Report", February 7, 2020, *https://www.federalreserve.gov/monetarypolicy/Files/20200207mprfullreport.pdf*.

[8] *Wall Street Journal*, "Big Banks Loom Over Fed Repo Efforts", Daniel Kruger, September 26, 2019, *https://www.wsj.com/articles/big-banks-loom-over-fed-repo-efforts-11569490202*.

contributed to the orderly functioning of U.S. financial markets as a whole.

Q.6. If the Fed were to adopt a standing repo facility, as it has been considering even before the market disruption in September,[9] what factors would the Fed use to determine which counterparties would be eligible?

A.6. The minutes for the January 2020 FOMC meeting indicated that several FOMC participants had suggested at that meeting that the FOMC might resume before long its discussion of the longer-run role played by repo operations in its ample-reserves operating framework, and that this new discussion should cover the possible creation of a standing repo facility. However, the FOMC has not yet had such a further discussion, and no decision or extended FOMC deliberation has occurred regarding the possibility of a standing repo facility.

Q.7. *Financial Stability*—In previous questions regarding the Fed's response to climate change, you have claimed that the Fed uses "its authorities and tools to prepare financial institutions for severe weather events."[10] At the same time, science has clearly demonstrated that extreme weather events are becoming increasingly common as a result of climate change.[11]

To the extent that these weather events continue becoming more common and having a greater impact on the business cycle itself, do you believe that it would be appropriate for the Fed to more explicitly consider the risks associated with climate change in its decision making?

A.7. For the Federal Reserve's near-term analysis, we do take into account information on the severity of weather events. When a severe weather event occurs, we closely monitor the effects on local economies, assess the implications for broader measures of economic production and employment, and adjust our economic forecasts accordingly.

For example, our staff has relied on data from the Federal Emergency Management Agency and the Department of Energy to gauge the disruptions to oil and gas extraction, petroleum refining, and petrochemical and plastic resin production in the wake of hurricanes that have affected the Gulf region. Our staff regularly uses daily measures of temperatures and snowfall from National Oceanic and Atmospheric Administration weather stations to better understand how severe weather may be affecting measured and real economic activity in specific areas.

Our understanding of how economic activities will be affected by a severe weather event depends critically on data produced by the Federal statistical agencies, such as the Census Bureau's County Business Patterns data, which provide information on economic activity across geographic locations. In addition, our staff uses credit

[9] Board of Governors of the Federal Reserve System, "Minutes of the Federal Open Market Committee", June 18–19, 2019, *https://www.federalreserve.gov/monetarypolicy/fomcminutes?0190619.htm*.

[10] Letter from Federal Reserve Chairman Jerome H. Powell to Senator Elizabeth Warren, April 18, 2019.

[11] National Oceanic and Atmospheric Administration, "Report: Climate Change Is Making Specific Weather Events More Extreme", December 9, 2019, *https://www.noaa.gov/news/report-climate-change-is-making-specific-weather-events-more-extreme.*

and debit card transactions data for gauging how unusual or severe weather might be affecting consumer spending.

At present, we do not directly model how changes in temperatures over long periods of time affect economic activity. However, as the evidence of effects of climate change on the dynamics of economic activity accumulates, this evidence will influence our analysis and forecasts of macroeconomic dynamics and financial stability risks. And to the extent that climate change affects the economic data on which our models are built—including the trends and the cyclical behavior of investment, consumption, production, and employment—climate change will be incorporated in our analysis over time.

Q.8. Do you believe it would be appropriate for the Fed to hire economists that specialize in climate economics to address these changes? Should the Fed hire natural scientists to inform economic models? Do you have any plans to do so?

A.8. Addressing climate change directly is an important issue that Congress has entrusted to other agencies. A large body of natural science research on the climate implications and risks from the rising level of greenhouse gases is already being produced by the scientific community, which can be leveraged to inform economic research. Because of this, we do not expect to focus our hiring on natural scientists.

The Federal Reserve, however, hires economists with doctoral training in a broad array of economic and financial topics, including staff with expertise in climate and environmental economics and related fields. Recent Federal Reserve staff research includes, for example, the effects of climate, weather, and disasters on economic and financial outcomes. Federal Reserve researchers and others are engaging in active work to better understand the specific interactions between climate-related risks, the real economy, financial stability, and the safety and soundness of financial institutions.

In addition, we are leading or participating actively in international efforts to understand these issues, including a new project at the Financial Stability Board, and a new Basel Committee Task Force on Climate-Related Financial Risks, cochaired by the Federal Reserve Bank of New York's Executive Vice President for Supervision.

Federal Reserve economists continue to produce research that informs the dialogue on climate-related economic and financial risks.

Q.9. Do you support the Fed officially joining the Network for Greening the Financial System (NGFS)? If not, why not?

A.9. The Federal Reserve remains engaged with the Network for Greening the Financial System (NGFS) secretariat and its members, continues to participate in its meetings as a guest, and is following its work closely. We continue to discuss with the NGFS what role the Board of Governors (Board) could potentially play in its work, in light of the scope of the Board's activities and its statutory mandate, as well as the constraints of the current NGFS charter.

Q.10. The most recent report from Shared National Credit (SNC) Review program conducted jointly by the Fed, Federal Deposit Insurance Corporation (FDIC), and Office of the Comptroller of the Currency (OCC), stated that "credit risk associated with leveraged lending remains elevated" and "lenders have fewer protections and risks have increased in leveraged loan terms through the current long period of economic expansion since the last recession." [12]

Please explain how the Fed monitors and evaluates the credit-risk management practices of a financial institution to ensure that these procedures, some of which are untested, will be sufficient during an economic downturn.

A.10. The Federal Reserve dedicates substantial resources to provide oversight of leveraged loans in supervised institutions and closely supervises institutions with leveraged loan exposures through processes such as the Shared National Credit (SNC) review. In addition, Federal Reserve staff performs ongoing analysis to assess and understand the risks within the broader leveraged lending market.

The Federal Reserve expects its supervised banks to have prudent credit underwriting practices and commensurate risk management processes, as well as appropriate controls, transparency, and communication to senior management and the board of directors about leveraged lending risks. Federal Reserve supervisors evaluate banking organizations' underwriting processes and risk management policies for comprehensiveness and internal compliance, risk appetite, limit structures, the independence of the risk management function from underwriting, the quality and reliability of internal audit function, timing and accuracy of internal and supervisory ratings processes, and information reporting to senior management and the board of directors. Deficient policies, procedures, or practices that relate to safety and soundness may result in supervisory actions. Our supervisory and regulatory policies are intended to ensure that the institutions we supervise can appropriately manage their risks through the credit cycle.

Q.11. Do you believe that the Interagency Guidance on Leveraged Lending [13] issued in 2013 is sufficient to address the risks associated with leveraged lending, particularly with respect to the growth of nonbank lenders?

Describe how the Fed monitors compliance with that guidance and what actions are taken when a bank is found to have inadequate credit risk protections.

A.11. The interagency guidance on leveraged lending promotes prudent underwriting and risk-management practices by banks and it helps supervisors fairly and consistently evaluate practices across banks. Commercial banks remain the dominant originators of leveraged loans in the marketplace, though nonbank lenders have

---

[12] Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System Federal Deposit Insurance Corporation Office of the Comptroller of the Currency, "Shared National Credit Program: 1st and 3rd Quarter 2019 Reviews", *https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20200131a1.pdf.*

[13] Federal Reserve Board of Governors, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, "Interagency Guidance on Leveraged Lending", March 21, 2013, *https://www.federalreserve.gov/supervisionreg/srletters/sr1303a1.pdf.*

taken a larger share of the riskiest parts of the market. While the leveraged lending guidance and existing supervisory activity address risks associated with leveraged loans originating from the banking sector, the guidance and supervisory efforts do not apply to nonbank lenders or their activities. To the extent that banks have exposures to the nonbank lenders in the leveraged loan market, for instance through investments in investment-grade tranches of collateralized loan obligations or loans to nonbank financial institutions, those exposures are tested during the annual Dodd–Frank Act stress tests and comprehensive capital analysis and review. And as noted above, the Federal Reserve expects its supervised banks to have the appropriate risk-management processes and controls in place to address leveraged lending risks.

As supervisory guidance, the 2013 guidance does not have the force and effect of law, and the Federal Reserve does not take enforcement actions based on supervisory guidance. If a bank has deficient practices relating to safety and soundness, the Federal Reserve may take supervisory or enforcement actions based on its underlying statutory authority, as appropriate, so that the institution addresses those deficiencies. Examiners may refer to the 2013 guidance to provide examples of safe and sound conduct related to leveraged lending activities. Examiners have not hesitated to issue supervisory findings related to leveraged lending activities in recent examinations when individual bank circumstances required them.

Q.12. Increasingly, the riskiest leveraged lending is occurring outside the banking system.

Do those loans currently pose a risk to financial stability? If not, please explain why and under what circumstances the Fed would begin to judge them a threat to financial stability.

Many of these nonbank lenders fall into a regulatory gap. What tools does the Federal Government have to mitigate the risks from the growth of leveraged lending and the deterioration of the terms of those loans?

A.12. The Federal Reserve continues to monitor developments in the leveraged lending market, and we have been attentive to the risks of leveraged loans and corporate debt in general, noting the issue in several speeches, testimony, the June 2020 *Monetary Policy Report*, and in our *Financial Stability Reports*, published twice a year. Highly leveraged companies may experience greater strains during a downturn than those with less leverage, and we are closely monitoring the effects of those strains on banks and other financial institutions. The most recent *Financial Stability Report* did note an uptick in defaults of leveraged loans along with a reduction in the issuance of new leveraged loans.[14]

The Federal Reserve supervises the lending and risk-management practices of banking organizations that are subject to its jurisdiction, such as State member banks and depository institution holding companies. Nonbank lenders that fall outside of the purview of the three prudential banking Federal regulators generally are not subject to the same level of oversight or transaction testing

[14] Board of Governors of the Federal Reserve System, *Financial Stability Report* (May 2020), *https://www.federalreserve.gov/publications/files/financial-stability-report-20200515.pdf.*

as is typical of regulated banking organizations. While the Federal Reserve does not directly supervise the lending and risk-management practices of these nonbanks, we have some ability to indirectly monitor risks from their leveraged lending activities. To the extent that banks have exposures to the nonbank lenders in the leveraged loan market, those exposures are tested during the annual Dodd–Frank Act Stress Tests and Comprehensive Capital Analysis and Review.

Q.13. Private equity firms often finance acquisitions through highly leveraged loans. According to the private equity industry, firms acquired in these acquisitions now employ more than 8 million workers.[15] In an economic downturn, what would you expect to happen to employment in these firms?

A.13. We should be concerned about possibly excessive and broad build-ups of corporate debt and leverage, in any form, that could potentially amplify a macroeconomic downturn. Private equity firms often acquire companies that are troubled or where they believe costs could be reduced in order to improve the efficiency of the ongoing business. Often, these companies are purchased using debt at high-leverage multiples. Firms with higher debt-service burdens, all else equal, have less financial flexibility and thus are likely to be faster to reduce spending and at least temporarily reduce employment in response to a decline in their sales. That said, the propensity to finance with debt tends to be higher for companies or in industries that earn steadier cash flows and have more modest needs for reinvestment or research and development.

It is difficult to know whether or how much private equity-owned firms might be more vulnerable that others, and the research on this topic finds mixed results. Although elevated leverage could be a source of vulnerability for some private equity-owned companies, private equity firms themselves may offer a funding backstop that could provide additional resilience for their companies.

Q.14. *Regulation*—The OCC and FDIC made the decision to heed to the concerns of the Fed with respect to their plan to modify the Community Reinvestment Act (CRA) and issued a new proposed rule on the Jaw jointly enforced by the three agencies without the Fed last December.[16] On January 8, 2020, Governor Brainard released her own alternative plan to modernize the CRA.[17] You have since stated that while the entire Board has not yet voted on the proposal, you supported the framework she described.

Please describe in detail the aspects of the FDIC and OCC plan that prevented the Fed from joining the proposal.

Does the Fed commit to not joining a final rule that does not address these issues?

---

[15] Office of Senator Elizabeth Warren, Letter From Senator Elizabeth Warren et al. to Carmine Di Sibio, Global Chairman and Chief Executive Office of Ernst and Young AG, November 18, 2019, *https://www.warren.senate.gov/imo/media/doc/Letter%20to%20Ernst%20and%20Young%20re%20PE%20report.pdf.*

[16] Comptroller of the Currency and Federal Deposit Insurance Corporation, *Federal Register* Notice, "Community Reinvestment Act Regulations", January 9, 2020, *https://www.federalregister.gov/documents/2020/01/09/2019-27940/community-reinvestment-act-regulations.*

[17] Board of Governors of the Federal Reserve System, "Strengthening the Community Reinvestment Act by Staying True to Its Core Purpose", Governor Lael Brainard, January 8, 2020, *https://www.federalreserve.gov/newsevents/speech/brainard20200108a.htm.*

A.14. Implementing and strengthening the Community Reinvestment Act (CRA) regulations is a key priority for the Federal Reserve. We have taken a close look at different approaches to strengthen the CRA rules in ways that further the core purposes of the statute, and this work will be an ongoing priority for us.

There is a fair amount of agreement on the part of the agencies on some of the overall objectives of CRA modernization and some of the challenges of the current regulatory approach that we are all trying to address. For example, all of the agencies share an interest in using metrics to inform performance assessments with the objective of increasing the level of transparency and consistency in CRA examinations. There is also broad agreement on the need to update CRA regulations to reflect new ways of obtaining financial services, including via online channels. Finally, there is agreement on the need to provide more clarity on what counts for CRA consideration.

On May 20, the Office of the Comptroller of the Currency (OCC) separately issued a final CRA rule that applies to only OCC-supervised banks. In light of this development, our ongoing analysis of CRA modernization issues, and our review of comments to the OCC and Federal Deposit Insurance Corporation's (FDIC) notice of proposed rulemaking (NPR), we are assessing a path forward.

To date, my colleagues and I at the Federal Reserve have focused on evaluating retail lending and community development activities separately. Having separate retail lending and community development tests would allow regulators to set metrics based on opportunities available in a given market, which can differ for retail lending and community development financing activities. Further, having separate tests also would allow regulators to do full reviews of how banks use branches, mobile banking, and volunteer activities to meet the needs of their communities. We also have focused on developing a tailored approach in applying metrics that would enable adjusting those metrics to local conditions and including metrics that adjust across business cycles. Additionally, we support grounding reforms in data and analysis and relying as much as possible on information already reported by banks. Finally, while there is agreement on the need for greater clarity in terms of what counts for CRA credit, we need a high level of confidence that expanding eligible activities maintains the regulations' focus on low- and moderate-income places and households.

Q.15. Much of the criticism of the other agencies' plan focuses on the lack of analysis demonstrating the economic impact of the changes. However, according to Governor Brainard, the Fed has conducted some analysis with relevant data and would like to publish that data so the public can provide feedback.

When does the Fed anticipate doing so?

Do you believe it is important for any new metrics included in a new CRA plan are grounded in data?

Do you believe that it is important for the public to have ample time to examine these data to provide input and ensure that reforming this critical civil rights law is done correctly?

A.15. As Governor Brainard discussed in January, the Federal Reserve constructed a database to assist our efforts in analyzing possible revisions to CRA, including the possible use of metrics. This

database draws upon publicly available data, including data that are currently found in public CRA evaluations for individual banks. We believe that this is a valuable resource that can help give us the confidence we need to develop metrics and thresholds that can be used in evaluating CRA performance. The database also helps provide insight in how a proposed metrics approach would affect small banks and banks in different types of geographies. We shared the data tables with the public in early March 2020.

Q.16. You said during the hearing that the Fed was mostly focused on coming to consensus with the OCC and the FDIC before the proposal was issued, but hasn't formally engaged since that time. What is the Fed's plan going forward? Will the Fed formally vote on the proposal to be published in the *Federal Register* and subject to the traditional notice and comment period?

A.16. As noted above, on May 20, the OCC separately issued a final CRA rule that applies to only OCC-supervised banks. Given this, our ongoing analysis of CRA modernization issues, and our review of comments to the NPR, we are assessing a path forward. We remain interested in working with the other agencies on an ongoing basis, as we have demonstrated in our actions on CRA during the current crisis. For example, we recently issued a joint statement on assessing CRA-eligible activities that are responsive to the banking needs of low- and moderate-income households and areas as a result of actions taken in response to containing the coronavirus. If the Board does opt to release a proposal to be published in the *Federal Register*, we would plan to formally vote on it and it would be subject to a notice and comment period.

Q.17. What are the consequences of having two separate CRA regimes for institutions with different regulators?

A.17. We are currently assessing the OCC's final CRA rule that applies to only OCC-supervised banks, issued on May 20. As our review is ongoing, it would be premature to assess the consequences of having separate CRA regimes for institutions with different regulators.

Q.18. On January 30, 2020, the Fed finalized a rule to determine "when a company controls a bank or a bank controls a company." [18]

Reporting has indicated that the rule could allow private equity funds to control a greater portion of a bank's equity and thereby allow private equity investors to influence the operations of banks. [19] Given the various risks associated with the private equity business model and documented research that demonstrates that private equity investments in financial companies can increase the risk profile of those companies, [20] do you believe that this rule increases the level of risk in the financial sector?

---

[18] Board of Governors of the Federal Reserve System, "Federal Reserve Finalizes Rule To Simplify and Increase the Transparency of the Board's Rules for Determining Control of a Banking Organization", January 30, 2020, *https://www.federalreserve.gov/newsevents/pressreleases/bcreg20200130a.htm.*

[19] *New York Times*, "The Fed Wants To Loosen Rules Around Big Banks and Venture Capital", Jeanna Smialek and Emily Flitter, January 30, 2020, *https://www.nytimes.com/2020/01/30/business/economy/volcker-rule-banks-venture-capital.html.*

[20] Harvard University, "Private Equity Ownership, Risk-Taking, and Performance in the Life and Annuities Industry", Divya Kirti and Natasha R. Sarin, April 2, 2018, *https://schol-*

Continued

A.18. The final rule is intended to simplify and proved transparency to the Board's control standards by codifying a comprehensive control framework in regulation. The final rule is generally consistent with current practice, with certain targeted adjustments, and therefore is not expected to materially change the level of risk in the financial sector. In addition, nothing in the final rule would limit the ability of the Board to take action to address unsafe and unsound practices or conditions or other issues.

Q.19. In her statement, Governor Brainard suggested that it will be important to "monitor the ownership structures of banking organizations in light of this control framework and industry trends" and "how the control framework interacts with other regulations that involve ownership thresholds." [21]

Do you agree with Governor Brainard?

A.19. It will be important to monitor the implementation of the final control rule to ensure that it is achieving its intended purpose. In addition, the final rule provides guidance to Federal Reserve System staff responsible for reviewing the ownership and funding structures of banking organizations as part of the supervisory process and to ensure compliance with applicable laws and regulations.

Q.20. If so, please describe how the Fed will monitor these ownership structures and how the Fed will determine if there is a financial stability risk associated with a banking organization's ownership structure?

A.20. The Board will continue to monitor the ownership of banking organizations as part of its normal supervisory process. The Board also will continue monitoring for financial stability risks through its broad program to assess the stability and resilience of the U.S. financial system. In addition, the Board must consider financial stability in connection with many merger and acquisition applications under the Bank Holding Company Act and the Home Owners' Loan Act, as revised by the Dodd–Frank Wall Street Reform and Consumer Protection Act.

Q.21. *Supervision*—In Wells Fargo's Q4 2019 Earnings Call, newly appointed CEO Charlie Scharf acknowledged the bank's many misdeeds, claiming "we made some terrible mistakes and have not effectively addressed our shortcomings." [22]

These comments suggest that Wells Fargo has not made substantial progress in remedying the issues at hand. In a written response to me in 2018, you stated that the terms of the Fed's current Consent Order require that "the firm must make significant progress in remedying its oversight and compliance and operational risk management deficiencies before relief from the asset growth restriction would be forthcoming." [23] Do you agree with Mr. Scharf

ar.harvard.edu/nsarin/publications/private-equity-ownership-risk-taking-and-performance-life-and-annuities-industry.

[21] Board of Governors of the Federal Reserve System, "Statement by Governor Lael Brainard", January 30, 2020, *https://www.federalreserve.gov/newsevents/pressreleases/brainard-statement-20200130a.htm.*

[22] *Bloomberg*, "Q4 2019 Earnings Call", Wells Fargo, January 14, 2020.

[23] Letter from Federal Reserve Chairman Jerome H. Powell to Senator Elizabeth Warren, May 10, 2018, *https://www.warren.senate.gov/download/20180510-powell-response-re-wells-fargo.*

that Wells Fargo still has a long way to go before the asset cap can be removed?

A.21. The firm's remediation plans under the Federal Reserve Consent Order, and information on the progress of the firm, are confidential supervisory information. However, the Federal Reserve does not have a timeline for lifting the asset cap and does not intend to lift the asset cap until the firm has fully resolved its problems and adopted and implemented, to our satisfaction, measures that address the risk management breakdowns that led to the Federal Reserve's enforcement action.

On a temporary and narrow basis, due to the extraordinary disruptions from the coronavirus, the Federal Reserve on April 8, 2020, modified the growth restriction on Wells Fargo so that it can provide additional support to small businesses. The change will only allow the firm to make additional small business loans as part of the Paycheck Protection Program and the Federal Reserve's Main Street Lending Program. The changes do not otherwise modify the Board's February 2018 enforcement action against Wells Fargo.

As you are aware, the Board will vote on any decision to terminate the asset growth restriction imposed by the Order, and that decision will be released to the public.

Q.22. In a recent speech, Fed Vice Chair for Supervision Randal Quarles suggested that Fed bank supervisors use of MRAs should be limited, and that they should only be permitted to institutions "to violations of law, violations of regulation, and material safety and soundness issues" [24]—a severe narrowing of Fed's authority.

Does the Fed have any plans to alter the process, standards, and requirements under which MRAs and/or MRIAs are issued? If so, when do you expect to formally announce those changes?

How will you be announcing these changes?

Will you put in place a formal notice and comment process so that outside experts and consumer advocates can review and comment on any proposal?

When do you anticipate implementing these changes?

The 2013 guidance on the communication of supervisory findings states that standardization of the terms MRAs or MRIAs "facilitates the Federal Reserve's national systems of record for information related to examination and inspection issues" and "enables the Federal Reserve to access information about supervisory issues and remediation efforts and aids in the identification of systemic and programmatic challenges facing banking organizations supervised by the Federal Reserve." [25] If, as proposed, certain supervisory findings will no longer be categorized as MRAs, how will this impact the Fed's ability to assess progress in addressing these challenges?

In his speech, Vice Chair Quarles referenced the restoration of the "supervisory observation" category that was removed in 2013. [26] When the Fed used them, they were defined as "matters that are

---

[24] Federal Reserve Vice Chair for Supervision Randal K. Quarles, "Spontaneity and Order: Transparency, Accountability, and Fairness in Bank Supervision", January 17, 2020, *https://www.federalreserve.gov/newsevents/speech/quarles20200117a.htm.*

[25] Federal Reserve Board of Governors, "Supervisory Considerations for the Communication of Supervisory Findings", *https://www.federalreserve.gov/supervisionreg/srletters/sr1313a1.pdf.*

[26] Id.

informative, advisory, or that suggest a means of improving performance or management operation of the organization. However, senior management of financial institutions had the discretion to decide whether or not to adopt the observations.[27]

Does the Fed intend to restore the "supervisory observation" category based on the same definition that was used prior to 2013?

Is the Fed considering adding additional categories to describe supervisory communications?

Do you believe that it is possible for a bank examination to uncover an issue with a financial institution that could pose a threat to safety and soundness but does not represent a legal violation? Please describe some examples.

The impact of any proposed changes to MRAs is largely dependent on the definition of "material safety and soundness." How will the Fed determine this definition?

How will the process for remediation differ for issues that were previously covered by MRAs but will no longer be? How will the process for escalating an unresolved issue to an enforcement matter?

Certain MRAs are issued on an industrywide basis.[28] How would proposed changes affect the use of these types of MRAs?

A.22. As I expressed in response to your letter of February 11, 2020, the Federal Reserve is committed to continually reviewing its supervisory processes and practices in order to increase their effectiveness and enhance transparency, while maintaining a supervisory framework that promotes a safe, sound, and stable financial system. Fundamental to this work is our belief that effective supervision requires clear two-way communications and transparent supervisory expectations. We are working to ensure that our framework for supervisory communications focuses supervised institutions on the most important safety and soundness and compliance concerns identified by examiners.

The Federal Reserve takes very seriously its role in supervising financial institutions under its jurisdiction. Strong supervisory processes and practices, including rigorous examination activities, are vital to that role. Critical components of strong supervision include evaluating banking organizations' activities and practices and, as warranted, issuing findings that require supervised institutions to take corrective action in a timely manner. This aspect of supervision promotes the adoption and maintenance of sound practices and helps to avert excessive risk taking. Early identification of supervisory concerns also helps to deter actions or activities that may otherwise significantly impair institutions' safety and soundness.

Our overarching goal is to ensure that any changes to supervisory processes and practices are properly calibrated and would help us better fulfill our statutory responsibility to promote a safe, sound, and stable banking system.

[27] Federal Reserve Board of Governors, "Communication of Examination/Inspection Findings", January 24, 2008.

[28] *American Banker*, "Wells Fargo Not Alone: OCC Finds Sales Abuses at Other Banks", Kevin Wack, June 5, 2008, *https://www.americanbanker.com/news/not-just-wells-fargo-occ-finds-sales-practice-abuses-at-other-banks.*

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

Q.1. According to the Federal Reserve's annual supervisory report for 2019, approximately 40–45 percent of financial holding companies (FHCs) with more than $100 billion in assets have a less than satisfactory rating, and thus are not meeting the Bank Holding Company Act standard of "well-managed." This is a trend that has spanned more than the last 10 years. While we cannot know from aggregated supervisory data whether which firms are falling below the statutory standard year after year, it is a troubling trend. It suggests both a widespread failure of large FHCs to manage themselves well, as well as a persistent failure to correct their deficiencies. In addition, more than half of the Federal Reserve's supervisory findings have related to deficiencies in the governance and risk management of these large banks.

Wells Fargo is one of the most recent and high-profile examples of poor management. Wells Fargo has been responsible for a string of egregious consumer abuses in several business units, including (a) opening over 3.5 million fake accounts; (b) illegally repossessing military members' cars; (c) charging auto loan borrowers for insurance without their knowledge; (d) improperly levying fees for extending mortgage rate-locks; (e) failing to offer mortgage modifications because of a software glitch that resulted in several hundred foreclosures; and (f) charging wealth management services for inappropriate add-on products and steering them into investments that generated larger commissions for Wells. According to a report commissioned by Wells' independent directors, the firm's sprawling organizational structure inhibited effective risk management.

The Fed has responded by imposing an unprecedented asset cap until the company fixes its governance problems. But the Fed has the authority to require Wells Fargo, and other poorly managed FHCs, to make themselves smaller and less complex in order to regain control over their management.

Do you see any benefits to institutions like Wells Fargo being smaller and less complex?

A.1. Since the financial crisis, the Federal Reserve has subjected larger, more complex firms to more stringent regulatory requirements (such as the G–SIB surcharge, which increases with size and complexity) and comprehensive, intense examination focused on key risks. The Federal Reserve will continue to appropriately tailor its regulatory and supervisory regime to calibrate stringency and severity to the risks a firm poses to the financial system.

Q.2. What is the Fed doing to improve governance at large, poorly managed firms?

A.2. Since the financial crisis, the Federal Reserve has taken a number of regulatory and supervisory steps to improve governance at large firms in general and firms that are not well managed in particular. These steps built on the existing regulatory and supervisory framework that has for many years restricted firms that are not well managed.

For example, large firms are subject to specific governance requirements in Regulation YY (12 CFR part 252). In addition, the Federal Reserve has articulated governance expectations for large

firms in Supervision and Regulation (SR) Letter 12-17 (*Consolidated Supervision Framework for Large Financial Institutions*), and that governance is a fundamental aspect of each of the three component ratings assigned to large firms (see SR 19-3, *Large Financial Institution (LFI) Rating System*). The supervisory programs for large financial institutions, which culminate in ratings assigned under the LFI rating system each year, include examinations and other activities that focus on governance. If governance issues are identified, supervisors direct the board and senior management to address them through supervisory findings and formal and informal enforcement actions, as appropriate. If a firm fails to address these issues, such actions may be escalated and lead to more stringent limitations on their operations, as in the case of Wells Fargo.

Q.3. Has the Fed considered exercising its divestment authority under Section 4(m) of the Bank Holding Company Act of 1956 to require large FHCs that are poorly managed to shrink themselves until they are better able to manage themselves?

A.3. When a financial holding company (FHC) falls out of compliance with section 4(l) of the Bank Holding Company Act, by becoming less than well-managed or well-capitalized, the noncompliant FHC enters into a confidential 4(m) agreement with the Federal Reserve Board (Board) requiring, among other things, that they remedy the identified deficiencies. This agreement is an enforcement action that permits the FHC to continue operating while it addresses its deficiencies. The agreement is approved by the Board and may be modified or terminated by the Board.

Through the 4(m) agreement, the FHC is required to seek prior approval from the Board to engage in any new financial activities or to make nonbank investments or acquisitions. [1] The Board may also impose other restrictions on the FHC as appropriate. This approach incentivizes the firm to focus on fixing its supervisory issues.

If a noncompliant FHC fails to address the identified deficiencies within the specified period of time then the Board may require the institution to divest its depository institutions unless the FHC chooses to voluntarily cease all of its FHC-only permissible activities. The Board regularly assesses a noncompliant FHC's progress in remediation of identified issues and as part of this review considers whether it would be appropriate to implement other limitations or ultimately exercise authority to require divestiture.

Q.4. Why has the Fed never used this authority before?

A.4. We have found that the broad range of supervisory and enforcement tools that Congress as conferred on the Board have generally been effective in motivating institutions to remediate issues. These tools include the ability to issue examination findings that highlight Matters Requiring Attention and Matters Requiring Immediate Attention, as well as ratings downgrades. If a problem requires a more detailed resolution or is more pervasive at an institution, the Board can impose informal enforcement actions (typically in the form of Memorandums of Understanding) and formal enforcement actions, such as Written Agreements and Cease and De-

[1] 12 CFR 225.83(d).

sist Orders, which may carry civil money penalties, are available tools. In addition, there is a range of restrictions the Federal Reserve may impose through 4(m) agreements short of requiring divestiture, such as limits on particular nonbank businesses.

Enforcement measures may escalate depending on the severity or difficulty of the problem. Indeed, the decision to force divestiture of a depository institution or cessation of nonbank financial activities would be one of the most severe penalties that would be considered if the informal and formal enforcement tools exercised throughout the supervisory process did not result in corrective action, or if circumstances otherwise warrant a heightened response.

Q.5. Under what circumstances would the Fed use this authority going forward?

A.5. As discussed above, because of the severity of the action and the potential for unintended consequences, the Board would consider ordering divestiture only in severe cases where other options would not be feasible or effective. The risk of unintended adverse consequences to the broader economy would be a primary consideration, as would the severity and duration of the issues giving rise to the consideration.

The supervisory process is focused on addressing the issues you have identified, including ensuring that large and complex organizations have robust risk management practices to ensure safety and soundness and compliance with consumer compliance laws and regulations. I welcome further discussion on ways to improve our current approach to this important issue.

Q.6. While unemployment has reached record lows, those numbers can obscure the economic reality of working Americans. For example, in Hawaii, 48 percent of households have incomes that are not high enough to afford a basic household budget that includes housing, childcare, food, transportation, and health care.[2] Almost a quarter of working adults in Hawaii report that they work multiple jobs to make ends meet.[3] For these households in Hawaii and in communities across the country, the unemployment rate may be low, but they are not enjoying the financial security that should come from working full-time.

As the Federal Reserve works to fulfill its dual mandate, does it consider data that provide insight into the quality of the jobs available or whether employment is providing wages that can support a basic household budget?

If yes, what data are the Fed using and how is it using them? If no, why not?

A.6. In fulfilling our dual mandate, the Federal Reserve Board looks at a broad range of labor market indicators, including those on the types of jobs workers have and how workers from different income and demographic groups are faring. We do not target a particular level of wages for the aggregate economy or for particular demographic groups. Instead, we use labor market indicators to assess whether resources in the economy are being used to the fullest extent possible without creating undue inflationary pressures. For

[2] *https://www.auw.org/sites/default/files/ALICEoverview.pdf*

[3] *https://www.hawaiinewsnow.com/2020/01/31/survey-hawaii-adults-say-theyre-struggling-financially/*

example, in the recovery from the Great Recession, we focused attention on the number of individuals that were working part-time for economic reasons. These workers are included in the Bureau of Labor Statistics' (BLS) U-6 measure of unemployment. The number of these workers remained elevated for longer than the conventional unemployment rate, termed U-3 by the BLS, following the Great Recession, and suggested at that time that the unemployment rate alone was understating the number of workers who would work more if the demand for labor increased.

More recently, but prior to the COVID–19 outbreak, we focused intently on whether disadvantaged or struggling segments of society were benefiting from the overall improvement in the labor market. Fed Listens—a series of events aimed at consulting with a broad range of stakeholders in the U.S. economy—was particularly valuable for us in this respect. We heard that many individuals and communities were only beginning to feel the positive effects of economic expansion, which suggested that output and employment were not as high as they potentially could be, at least in these communities. We were encouraged that wages for workers with the lowest incomes were rising the most and that many disadvantaged individuals were starting to benefit from the long expansion.

Since the COVID–19 outbreak, we have been concerned that workers earning the least have suffered the most from the unprecedented decline in economic activity. Because these workers often lack the financial resources to sustain themselves for long without work, the potential damage to the economy and to economic well-being from prolonged unemployment is substantial. As the current situation evolves, we are prepared to use our full range of tools to support the economy, maintain the flow of credit to households and businesses, and promote our maximum employment and price stability goals.

Q.7. During the hearing, you stated that in a future recession, the Federal Reserve would use tools that it used for the first time during the 2008 financial crisis, including quantitative easing through purchases of long-term assets and Treasury bills. Quantitative easing was successful in increasing the money supply and pushing down interest rates. But even with almost $2.6 trillion in quantitative easing, one quarter of American families lost at least 75 percent of their wealth and more than half lost at least 25 percent of their wealth.[4] And the pace of economic recovery was historically slow, averaging just 2 percent instead of the average of 3–5 percent typical of other economic recoveries.

The problem for households who lost their homes and for the broader economy was that not enough of the money that the Fed pumped into the financial system made it into the hands of American households and businesses. In stead, much of the extra supply of money remained within the financial system and was poured back into the stock market. Two years after the start of the financial crisis, the Fed cleared the largest banks to pay out dividends and buy back shares. Since then, stock buybacks in the financial sector—and economywide—have surged. In the past 10 years, the financial sector spent $860 billion in stock buybacks, and in 2019,

[4] *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4200506/*

S&P 500 companies spent a record $1 trillion in stock buybacks. These data suggests that the Fed's reliance on using the financial system as its intermediary for stimulating the economy in a crisis was inefficient.

Do you think the financial system made the best use of the additional money supply from quantitative easing?

A.7. The Federal Reserve's asset purchase programs were mainly intended to place downward pressure on longer-term interest rates to reduce the cost of funding to business and households. Academic research suggests that the purchases programs were successful in achieving this goal.[5]

In addition to reducing the cost of funding, the Federal Reserve's asset purchase programs also appeared to have boosted the availability of funding to business and households through increased bank lending-though these effects are difficult to estimate precisely, as banks raise funds from various sources and those funds are all fungible. Nonetheless, recent academic research provides evidence that the asset purchase programs did increase bank's risk tolerance and their lending to customers. For example, several studies find that following the first round of large-scale asset purchases (LSAP) and the third round of LSAPs, which involved Federal Reserve purchases of agency mortgage-backed securities (MBS), banks with higher initial holdings of MBS increased lending more than banks with little initial MBS exposure, and were more likely to reorient their lending activities towards riskier loans and easier lending standards.[6]

Q.8. In the case of a future recession, do you think the economy would benefit more if the Fed used its tools to increase the money supply in a way that put money directly into the hands of American households?

A.8. The Federal Reserve is committed to using its full range of tools to support the economy, thereby promoting its maximum employment and price stability goals. For example, in the current economic downturn, the Federal Open Market Committee (FOMC) has moved quickly to cut the policy rate to near zero and stated that it intends to keep the rates at that level until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals.

To support the flow of credit to households and businesses, foster smooth market functioning, and promote effective transmission of monetary policy to broader financial conditions, the Federal Reserve has been purchasing large amounts of Treasury and agency mortgage-backed securities. Federal Reserve policies to lower short- and longer-term interest rates are helping-by reducing the interest

[5] See Gagnon, Joseph E. 2016. "Quantitative Easing: An Underappreciated Success", Policy Briefs PB16-4, Peterson Institute for International Economics; and Kuttner, Kenneth N. 2018. "Outside the Box: Unconventional Monetary Policy in the Great Recession and Beyond", *Journal of Economic Perspectives*, 32 (4): 121–46.

[6] See Rodnyansky, Alexander, and Olivier M. Darmouni (2017). "The Effects of Quantitative Easing on Bank Lending Behavior", *Review of Financial Studies*, vol. 30, pp. 3858–3887; Chakraborty, Indraneel, and Goldstein, Itay, and MacKinlay, Andrew, 2020. "Monetary Stimulus and Bank Lending", *Journal of Financial Economics*, Elsevier, vol. 136(1), pp. 189–218; and Kurtzman, Robert, Stephan Luck, and Tom Zimmermann (forthcoming). "Did QE Lead Banks To Relax Their Lending Standards? Evidence From the Federal Reserve's LSAPs", *Journal of Banking and Finance*.

payments that households pay on their mortgages and other loans-to put more money in the hands of American households. Additionally, by providing support for economic activity and jobs in this challenging time, our actions will also help to put more money—in the form of labor income—into the hands of American households.

The Federal Reserve is also undertaking programs to provide stability to the financial system and to more directly support the flow of credit in the economy—for households, for businesses of all sizes, and for State and local governments. Many of these programs rely on emergency lending powers that are available only in very unusual circumstances. The Federal Reserve is deploying these lending powers to an unprecedented extent, enabled in large part by the financial backing and support from Congress and the Treasury. However, these are lending powers, and not spending powers. The Federal Reserve cannot grant money to particular beneficiaries, but can only make loans to solvent entities with the expectation that the loans will be repaid.

Q.9. If American households had been able to keep up with their rent and mortgage payments, pay their bills, and maintain financial stability during the recession, do you think it would have enabled the U.S. economy to recover faster from the crisis? What do you think the impact would have been on household wealth today?

A.9. During and after the 2007–2008 financial crisis and the Great Recession the Board and the FOMC indeed exercised their statutory authority to undertake a wide range of aggressive and unprecedented conventional and unconventional policy actions, including large-scale asset purchases. Although those actions did mitigate to a considerable extent the consequences of severely adverse and widespread pressures and difficulties facing families and businesses all across the country, very many American families fell behind on their rent payments or mortgage payments, and fell into a fragile financial state. Moreover, there were other Government programs, such as the Home Affordable Refinance Program, that allowed mortgagors to either lower their monthly mortgage payments or to pay down their loan faster by lowering their interest rates, and allowed them to build more equity. Such programs were more effective because the Federal Reserve purchases of mortgage-backed securities helped improve conditions in the secondary market for mortgages.

Had families been able to maintain their incomes, home values, and other financial resources throughout that extremely difficult period, household wealth would likely have been higher than its record level at the end of 2019, but one cannot know just how much.

Q.10. What tools could the Fed use to make sure that any increase in the money supply in a crisis gets into the hands of American households, rather than remaining in the hands of banks or shareholders?

A.10. As mentioned above, Federal Reserve policies to lower short- and longer-term interest rates—by reducing the interest payments that households pay on their mortgages and other loans—help to put more money in the hands of American households in a crisis.

Additionally, by providing support for economic activity and jobs in this challenging time, lower interest rates will also put more money—in the form of labor income—into the hands of American households.

During the 2007–2008 financial crisis and more recently in response to the COVID–19 crisis, the Federal Reserve purchased agency MBS in order to support the transmission of changes in policy rates to mortgage rates, which are the key interest rates that households face when they buy a house or refinance an existing mortgage. Additionally, in both of these crisis episodes the Federal Reserve established the Term Asset-Backed Security (ABS) Loan Facility (TALF) to support the flow of credit—in the form of auto loans, credit card loans, student loans, and other loans—to households. The Federal Reserve took these actions to alleviate significant dislocations in agency MBS and in private label ABS markets that were impeding the flow of credit to households.

Q.11. Can you provide an update on what the Fed is doing to address the financial risks from climate change in its supervisory and financial stability responsibilities? Please be specific about the steps you are taking. What does the Fed hope to accomplish in the next year?

A.11. The Federal Reserve is focused in the near term on mitigating economic disruptions and supporting the efficient functioning of the financial system during recovery from the COVID–19. However, we expect to continue a number of longer-term supervisory and financial stability projects in the year ahead, including on climate-related risks. We continue to participate actively in analytic efforts by the Basel Committee, the International Association of Insurance Supervisors, and the Financial Stability Board, focused on assessing the impact of climate-related risks on the financial system. Federal Reserve researchers are continuing preexisting efforts to procure additional climate-related data and to pursue projects on the intersection of climate-related risks with supervisory policy. We also continue to engage externally and to identify and draw on expertise from other fields relevant to the assessment of climate-related risks. To the extent the Network for Greening the Financial System (NGFS) continues to hold meetings during the ongoing public health crisis, we also anticipate participating in those as a guest.

Q.12. Does the Fed have the data it needs to assess climate financial risks?

A.12. For the Federal Reserve's near-term analysis of economic and financial activity, the staff use a variety of data sources to measure the economic effects of weather events. These include, for example, data from the Federal Emergency Management Agency and the Department of Energy used to gauge the disruptions to oil and gas extraction, petroleum refining, and petrochemical and plastic resin production in the wake of hurricanes that have affected the Gulf region. Our staff regularly uses daily measures of temperatures and snowfall from the National Oceanic and Atmospheric Administration weather stations to better understand how severe weather may be affecting measured and real economic activity in specific areas.

Our understanding of what economic activities will be affected by a severe weather event depends critically on data produced by the Federal statistical agencies, such as the Census Bureau's County Business Patterns data, as those data provide information on economic activity in different geographic locations. In addition, our staff uses credit and debit card transactions data for gauging how specific types of severe weather might be affecting consumer spending in areas affected by those events.

Data remains a significant challenge in identifying, assessing, and managing climate-related financial risks, for the Federal Reserve and for other organizations, such as financial institutions. In addition to data on economic activity described above, understanding financial risks from climate change requires different types of data, including climatic, geospatial, and financial data. The challenges in meeting these data needs are faced by central banks and supervisors around the world, as well as by private financial institutions, researchers, and the public. The Federal Reserve is engaged in efforts to help bridge these gaps through investigating public and private data sources and through its work with international groups such as the Basel Committee on Banking Supervision.

Q.13. Could you provide an update on the Fed's work to join the NGFS? Is there an estimated timeline for when the Fed would join, if it is going to? If the Fed joins as an observer, what would that mean?

A.13. While the timeline of the NGFS's activities is in flux as a result of COVID–19, the Federal Reserve remains engaged with the NGFS secretariat and its members, continues to participate in its meetings, and is following its work closely. We continue to explore how the Federal Reserve will be allowed by the NGFS to participate further in a way that is consistent the full range of the Federal Reserve's responsibilities.

Q.14. Do you see value in conducting scenario analyses or stress tests, either of individual institutions or the financial system as a whole, to gauge resilience to climate financial risk?

A.14. The innovative and exploratory work of central banks on "climate stress-testing" is valuable, precisely because of the novel challenges that such an exercise poses. While scientific research on climate change is well developed, research on the specific transmission channels between climate change and financial risk is novel and emerging in ways that specifically affect many elements of traditional supervisory stress tests.

As climate-related risks manifest themselves over long horizons, stress testing for those risks involves the challenge of formulating scenarios and projecting outcomes over periods that stretch well beyond the current stress tests. Most supervisory stress tests today project losses with granularity at horizons of 3 to 5 years. A granular analysis of the effects of climate on banks over a timeframe relevant for climate change would require predictions of output, employment, and the structure of the economy and financial system over a 60-year period. The uncertainty of such long-horizon economic forecasts would dramatically reduce the plausibility and relevance of the results.

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

Q.1. In your testimony before the Banking Committee, we discussed the percentage of people who are currently working two jobs in order to make ends. A recently released Census report found that in 2013, 8.3 percent of workers had more than one job, and women were more likely to have a second job—8.8 percent versus 8.0 percent. Additionally, 6.9 percent of those workers worked more than two jobs.[1] Data from the Bureau of Labor Statistics shows fewer workers working two or more jobs.[2]

Please share Federal Reserve research and or analysis related to the prevalence of workers holding more than one job.

Why are women more likely than men to work multiple jobs? According to the BLS, in 2017, the multiple job holding rate for women was 5.3 percent, while for men it was 4.6 percent.

What percentage of these jobs are seasonal jobs, such as a teacher holding a summer job?

In 2018 and 2019, the multiple job-holding rate for black workers has remained higher than any other racial or ethnic group. Why is this disparity occurring for black workers?[3]

Are workers in rural areas more likely to hold multiple jobs than urban areas?

Are workers in communities with higher minimum wages less likely to hold multiple jobs than workers with the Federal minimum wage of $7.25/hour?

The Federal Reserve has a mandate to increase employment. What tools does the Federal Reserve have to address disparities in labor force participation rates including women and African Americans who hold multiple jobs?

Does the Federal Reserve have any recommendations to Congress on policies that would mitigate these disparities of workers who hold two or more jobs?

A.1. The best information on the prevalence of multiple job holding is from two Census surveys, the Survey of Income and Program Participation (SIPP) and the Current Population Survey (CPS). The difference between the 8.3 percent figure in the Census report you cite, which derives from SIPP data, and the close to 5 percent figure from the Bureau of Labor Statistics (BLS), which derives from the CPS, likely reflects the different definitions of multiple job holding in these two reports. The Census report estimates the percent of workers who had multiple jobs at any point during the year. The BLS reports the percent of workers who had multiple jobs in a particular week during the year. Thus, the different estimates are not necessarily inconsistent with each other. The BLS reports multiple job holding every month in its Employment Situation report. Data for the second week of February 2020 show that 5.1 percent of workers held more than one job.

The Federal Reserve Board's (Board) Survey of Household Economics and Decisionmaking (SHED) also collects information on

---

[1] *https://www.census.gov/library/stories/2019/06/about-thirteen-million-united-states-workers-have-more-than-one-job.html*

[2] *https://www.bls.gov/opub/ted/2018/4-point-9-percent-of-workers-held-more-than-one-job-at-the-same-time-in-2017.htm?viewfull*

[3] *https://www.bls.gov/cps/cpsaat36.htm#cps__eeann__mult__jobhder.f.1*

multiple job-holding. For the fourth quarter of 2019, the survey found that 10 percent of adults had multiple jobs in the month prior to being surveyed. A variety of other information from the SHED on the well-being of U.S. workers is published in the Board's Report on the Economic Well-Being of U.S. Households (report),[4] including the share of workers who would like more work, the share whose work schedule varies according to their employer's needs, and the share who would not use liquid savings to cover a $400 expense. While the report issued on May 14, 2020, found that financial circumstances were generally positive for most adults at the end of 2019, the report also included supplemental data from April 2020. The supplemental survey found that financial conditions changed dramatically for people who experienced job loss or reduced hours during March 2020 as the spread of COVID–19 intensified in the United States.

Q.2. In your testimony, we also discussed labor market disparities across racial and ethnic groups and across regions of the country.

Please provide research by the Federal Reserve related to the following: data on the causes of disparities in unemployment rates across racial and ethnic groups, why it's occurring, and how policymakers can address these gaps.

Does the Federal Reserve have any recommendations to Congress on policies that would mitigate these disparities?

A.2. Two papers by Federal Reserve economists on unemployment disparities may be of interest to you. In a Finance and Economics Discussion Series (FEDS) paper "Racial Gaps in Labor Market Outcomes in the Last Four Decades and Over the Business Cycle",[5] Federal Reserve researchers find that: (1) observable characteristics (e.g., age, education, etc.) can explain very little of the difference in black and white unemployment rates; (2) disparities in unemployment tend to shrink as the labor market improves, but never disappear; and (3) higher rates of job loss drives the disparity in black and white unemployment rates. In a Brookings Paper titled "Okun Revisited: Who Benefits Most From a Strong Economy?"[6] Federal Reserve researchers find some evidence that improvement in labor market outcomes for blacks and Hispanics relative to whites are largest when the labor market becomes very tight.

As described in the first paper mentioned above, the disparity in black and white unemployment rates is not easily explained. By pursuing maximum employment and price stability, Federal Reserve policymakers can limit the disparity to some extent, but the gaps that remain even when the labor market is very tight are best addressed by fiscal policies. Decisions about which policies are best suited to reduce persistent unemployment rate gaps are best left to Congress.

---

[4] "Board's Report on the Economic Well-Being of U.S. Households" at *https://www.federalreserve.gov/publications/files/2019-report-economic-well-being-us-households-202005.pdf.*

[5] "Racial Gaps in Labor Market Outcomes in the Last Four Decades and Over the Business Cycle" at *https://www.federalreserve.gov/econres/feds/files/2017071pap.pdf.*

[6] "Okun Revisited: Who Benefits Most From a Strong Economy?" at *https://www.brookings.edu/bpea-articles/okunrevisited-who-benefits-most-from-a-strong-economy/.*

Q.3. You also discussed the disparities between rural and urban areas.

What tools does the Federal Reserve have to address this disparity?

Does the Federal Reserve have any recommendations to Congress on policies that would mitigate these disparities?

A.3. The Federal Reserve does not have tools to address persistent disparities in economic outcomes across different geographic areas. The tools we do have are those we use to pursue maximum employment and price stability for the economy as a whole. Our pursuit of maximum employment benefits all Americans, including those in rural areas. But persistent structural causes of rural–urban disparities are best addressed by fiscal policies. Decisions about which policies are best suited to reduce disparities between rural and urban areas are best left to Congress.

Q.4. In your exchange with Senator John Kennedy (LA), you discussed whether there is a link between our social safety-net programs and participation in the labor market and argued that there was no link between our safety-net programs and labor force participation.

Please elaborate on whether there is a link between our social safety-net and labor force participation, and provide share data or research if appropriate.

During your comments, you noted that our safety net is not generous enough to discourage people from participating in the workforce. Please explain why you believe that our safety net does not discourage participation in the labor force.

A.4. Household decisions on whether to participate in the labor market and seek work are affected by many factors including wage rates, taxes, and Government benefits. Safety-net programs usually link eligibility to income with the goal of improving the situations of lower-income households. To maintain that intended focus, the benefits are phased-out or unavailable to households with higher incomes. As a consequence, for low- and moderate-income households, any improvement to household finances from increased work is partially offset by the loss of benefits that occurs as household income rises. Researchers have found that programs with rapid phaseout of benefits, and the interaction among various safety-net programs, sometimes leads to relatively high effective marginal tax rates. This, in turn, may discourage work, particularly for second earners. Researchers also have found that programs where the phase-out range is relatively long, reduce potential disincentive effects.

More broadly, I also would note that as the labor force participation rate of prime-age workers generally declined in the past couple of decades, both the average benefit level and the number of recipients of Temporary Assistance to Needy Families (TANF), the primary cash assistance program, also declined.[7]

[7] See, for example, figure 5 in the Congressional Budget Office report "Temporary Assistance for Needy Families: Spending and Policy Options", January 2015, at *https://www.cbo.gov/publication/49887*.

As you know, it is up to Congress to determine how best to ensure safety-net programs provide the lowest work disincentives as possible while still achieving the social goals of the programs.

Q.5. The Census Bureau is in the process of recruiting and hiring thousands of employees throughout the United States to conduct the 2020 Census. In fact, the Census Bureau estimates that they need to hire up to 500,000 temporary, part-time census takers to get the job done.

How does today's tight labor market serve as a challenge for the Census Bureau to achieve their goals of hiring half-a-million workers?

A.5. The Census Bureau has noted that hiring a substantial number of workers in a low unemployment rate environment is a "big challenge."[8] Indeed, in anticipation of this challenge, the Census Bureau raised the hourly pay for temporary Census workers in many locations. That said, prior to the COVID–19 outbreak, it currently appeared that the Census Bureau was on track to hire sufficient temporary workers. In particular, the Bureau announced in early March that recruitment efforts had led to over 2.6 million applicants, which they noted was "more applicants than our estimates suggest we need to hire in every office."[9] However, in April, the Bureau announced it was temporarily suspending field data collection activities due to the COVID–19 outbreak and that it was seeking relief to allow for an additional 120 days to deliver final apportionment counts.[10]

Q.6. The Census Bureau increased its hourly salary to encourage workers to apply. In Nevada, the pay rate is between $16 and $18 an hour—well above our minimum wage. Do you think the higher wage offered by the Census will result in wage increases generally? Do you think the Census will increase workforce participation rates?

A.6. Prior to the COVID–19 outbreak, the Census Bureau anticipated hiring about 500,000 workers across the U.S., mostly for part-time positions expected to last only a few weeks. Since then, the forceful measures that we as a country have taken to control the spread of the virus have substantially limited many kinds of economic activity. As a result, the U.S. unemployment rate was approximately 15 percent nationwide in April and the rate in Nevada was about 28 percent. With unemployment expected to remain high over the next several months, there will likely be many unemployed individuals available to fill these temporary jobs.

Absent the COVID–19 outbreak, the Census Bureau would have been trying to hire workers in a very tight labor market, and it is possible that many of the workers would have been drawn in from out of the labor force. Further, if all temporary Census workers were to have come from out of the labor force, the labor force participation rate could have been boosted by about 0.2 percentage point during May and by smaller amounts during the ramp-up and ramp-down periods. However, it would have been likely that some temporary census workers would have already been employed, and

[8] See *https://www.census.gov/newsroom/press-releases/2020/ready-to-hire-html.*
[9] Id.
[10] See *https://www.census.gov/newsroom/press-releases/2020/statement-covid-19-2020.html.*

taking on the census job in addition to their other jobs would have dampened the rise in the participation rate. As a point of reference, we observed temporary boosts of 0.2 percentage point to the national participation rate around the 2000 and 2010 census hiring cycles.

In Nevada, as in the rest of the country, the Census Bureau anticipated that it would be necessary to increase the wage rate for temporary census workers in order to meet hiring goals. Although the wages offered in Nevada before the COVID–19 outbreak were well above the State minimum wage, the pay rate for short-term census jobs would unlikely put pressure on other wages because these part-time, temporary jobs are not close substitutes for full-time, permanent work. That is evidenced by the fact that, typically, the Census Bureau hires many people from the sidelines of the labor market such as students and retirees. Moreover, many low-skilled workers in Nevada before the COVID–19 outbreak were earning more than the $8 per hour minimum wage. For instance, recent data from before the pandemic showed that "Interviewers," the occupation most similar to Census survey-takers, earned an average (mean) wage of $15.32 per hour and a median wage of $13.82 per hour. [11]

Q.7. How important is a complete and accurate Census to the Federal Reserve Banks?

A.7. The Federal Reserve's conduct of monetary policy is data dependent. Thus, making sound monetary policy decisions requires having good data, including a complete and accurate Decennial Census. For example, data on the labor market from the Current Population Survey (CPS) provides one of the most important readings on economic activity that we receive each month. The process used to construct the CPS data relies on data from the Decennial Census. Thus, the accuracy of the CPS—and therefore the efficacy of monetary policy—relies on the accuracy of the Decennial census.

Q.8. *Federal Reserve's Tools During a Crisis or Recession*—Should the Federal Reserve experiment with capping yields on short to intermediate Treasury securities as Federal Reserve Governor Brainard recommended? What would be the impact of that?

A.8. At the October 2019 Federal Open Market Committee (FOMC) meeting, FOMC participants discussed a range of topics associated with the FOMC's review of strategy, tools, and communications including the possible role of capping rates further out the yield curve. There are many different ways this type of policy approach has been employed. For example, the Bank of Japan has been targeting a 10-year yield with the goal of keeping long-term interest rates low and providing policy accommodation. Recently, the Reserve Bank of Australia established a target for shorter-maturity yields as a way of reinforcing its forward guidance around the likely path of its policy rate over the next 2 or 3 years. And in the 1940s, the Federal Reserve operated to keep Treasury yields across a full range of maturities below a schedule of caps as part of the governmentwide efforts to support wartime finance.

[11] See *https://www.bls.gov/oes/current/oes_nv.htm.*

As noted in the minutes of the October FOMC meeting, there are potential benefits and costs associated with the use of balance sheet tools to cap long-term interest rates. Capping longer-term interest rates could help support household and business spending. In addition, capping longer-maturity interest rates using balance sheet tools, if judged as credible by market participants, might require a smaller amount of asset purchases to provide a similar amount of accommodation as a quantity-based program purchasing longer-maturity securities. However, determining the appropriate level of a cap on long-term interest rates could be challenging. Moreover, maintaining such a cap could result in an elevated level of the Federal Reserve's balance sheet or significant volatility in its size or maturity composition. In addition, managing a cap on longer-term interest rates might be seen as interacting with the Federal debt management process.

Policymakers have also discussed the potential role of targeting or capping shorter-term Treasury yields as a way of reinforcing forward guidance about the likely path of the Federal funds rate. Such policies could help to align market expectations about the future path of the Federal funds rate with the FOMC's intentions.

At the April 2020 FOMC meeting, a few participants again noted the potential role of asset purchases as a tool to cap longer-term yields or to reinforce forward guidance. These topics are among the many issues being discussed by the FOMC as part of its review of monetary policy strategy, tools, and communications. As noted in the minutes of the April meeting, the review will most likely be completed later this year.

Q.9. We know that some communities in our Nation do not benefit from wage increases, job growth, and business success.

Do you agree with Larry Summers who said the Federal Reserve should promote the idea that Government spending should be different in depressed areas than in successful markets?

A.9. The Federal Reserve has been charged by Congress with achieving maximum employment and stable prices. The tools we have to pursue these goals are not well suited to target the growth and development of individual communities. By contrast, fiscal and other policies that are under the purview of Congress are well suited for assisting depressed localities. It is the role of Congress and the Administration to determine how to best address the unequal development of these communities.

Q.10. Do you think public spending to support economic activity in communities with high unemployment avoid risking a rise in inflation the way public spending might in more prosperous places?

A.10. The Federal Reserve does not have the tools to address the problems of localities. Fiscal policy can be a tool to assist these communities through both targeted tax policies and spending programs. In the case where the community suffers from relatively high unemployment, the increased demand for local workers and businesses that may result from these fiscal policies should not lead to a problematic increase in inflation.

Q.11. We know we have an affordable housing crisis. Not only are low-income families paying half or more of their income for rent, many families are unable to buy a starter home.

What do you think the impact of the Administration's proposal to double the guarantee fee charged by Fannie Mae and Freddie Mac from 0.10 to 0.20 percentage points?

How will this affect people seeking financing to buy a home?

A.11. We monitor housing affordability carefully and are attentive to the effects of mortgage rates and credit availability on first-time homebuyers. Higher guarantee fees will likely raise mortgage rates for Government Sponsored Enterprise (GSE) borrowers as lenders pass the fee increase through to borrowers. However, mortgage rates are not currently a major barrier to affordability. Mortgage rates are at all-time lows and have been at the low end of their historical range for many years, and therefore we do not expect a 0.1 percentage point increase in the GSEs' guarantee fee to materially affect housing affordability. Rather, high house prices and stagnating income growth are straining affordability for many households.

A guarantee fee increase is unlikely to disproportionately affect affordability for financially constrained first-time homebuyers, as these borrowers tend to rely on the Federal Housing Administration (FHA) for financing. About half of all first-time homebuyers use an FHA mortgage, and first-time homebuyers with FHA loans tend to have lower credit scores and lower downpayments than those with GSE loans.

More generally, because the change in the guarantee fee applies only to GSE borrowers, some of these borrowers may seek out other lenders if borrowing costs at the GSEs increase. The GSEs currently finance about 40 percent of total mortgage volume, while FHA and bank portfolio lenders finance the majority of the remainder. Competition may further limit the impact of the fee increase on affordability.

It is also worth noting that a 0.1 percentage point increase in the mortgage rate is a very small change both relative to the level of the mortgage rate and relative to normal variation in the rate. It is not rare for daily changes in the mortgage rate to exceed 0.1 percentage point. Even at today's historically low mortgage rates, a 0.1 percentage point increase in the guarantee fee represents less than a 3 percent change in the mortgage rate and would increase monthly payments for new GSE borrowers by about 1 percent, on average.

Q.12. You have spoken about the dangers of inequality. The gap between the richest and poorest households in the United States is at its highest point in more than 50 years. And household debt is now in excess of $14 trillion, exceeding the prerecession high.

How much of our wage growth is due to increases in State and local minimum wages?

A.12. In recent years, and before the onset of COVID–19, both increases in minimum wages and the improving labor market likely contributed to increases in wage rates. Many States increased their minimum wages even though the Federal minimum wage has remained unchanged. Estimates suggest that about 4 percent of all

employees are paid statutory minimum wages, and the effects of minimum wage increases are likely most noticeable for those workers.

Separating out the effects of minimum wage increases on wage growth from the effects of an improving labor market is difficult. Recent research suggests that a 10 percent increase in the minimum wage results in wage growth of about 4–7 percent for workers that were previously below the new minimum wage. [12] Extrapolating those estimates for those workers affected by the minimum wage increase to economywide wage growth suggest that increases in minimum wages have likely boosted wage growth some, but the improving labor market is likely responsible for most of the increase in wage growth we had seen before the onset of COVID–19. Relatedly, research by staff at the Federal Reserve Bank of Atlanta, again, from before the onset of COVID–19, finds that wage growth for low-wage workers has outpaced that for higher-wage workers both in States that have raised their minimum wage and in States where the minimum wage has not increased in recent years, which again points to the importance of the strong labor market. [13]

Q.13. In your testimony before the House Financial Services Committee, you noted that we should put the Federal budget on a sustainable path and reduce the Federal deficit, which is projected to reach over a trillion dollars this year.

Please provide us with any statements you made about the impact of the Tax Cuts and Jobs Act law on the deficit. Please note the date you made those comments.

A.13. For many years, I have spoken about the long term benefits to the economy of the Federal Government implementing policies that put the budget on a sustainable trajectory. The benefits arise generally from the effects of higher national saving on capital accumulation and productivity. Enacting policies that put the budget on a sustainable path requires important judgement calls by Congress about balancing the tradeoffs between different policy goals including equity, efficiency, and public sector investment. These choices are properly the responsibility of our elected officials. As Federal Reserve Chair, I believe that it is appropriate for me to discuss general fiscal policy principles, but to refrain from making judgments about particular policies. Accordingly, I have refrained from discussing how this particular policy, the Tax Cuts and Jobs Act, fits into the desired longer-term goal of sustainable fiscal policy.

In addition to my comments about the benefits to the economy of putting longer-run debt and deficits on a sound trajectory, I have also spoken about the helpful role fiscal stimulus has played in restoring growth during many of the recessions over the past 50 years. Such stimulus was certainly helpful during the Great Recession when the Federal funds rates was pinned near zero, and the fiscal measures taken thus far in response to the current crisis—the fastest and largest response for any postwar downturn—have provided important support. While the overall policy response to

[12] See *https://academic.oup.com/qje/article/134/3/1405/5484905.*

[13] John Robertson, "Faster Wage Growth for the Lowest-Paid Workers", *Macroblog*, Federal Reserve Bank of Atlanta, December 16, 2019.

date has provided a measure of relief and stability, and will provide some support to the recovery when it comes, COVID–19 raises longer-term concerns as well. We know that deeper and longer recessions can leave behind lasting damage to the productive capacity of the economy through unnecessary insolvencies on the part of households and businesses and long-term unemployment. If it helps avoid long-term economic damage and leaves us with a stronger recovery, additional fiscal support could be costly, but worth it. Again, this tradeoff is one for elected representatives, who wield powers of taxation and spending.

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

Q.1. As you know, small businesses are crucial to the Nation's economy. The Small Business Administration (SBA) reported that small businesses employ almost half of Alabama's workforce.

In the Federal Reserve's Survey on Minority Owned Small Businesses it acknowledges that the majority of small business owners, across all races, used their personal funds to finance their business. Additionally, when financing is needed small business owners use their credit cards.

Are you concerned about the large number of small business owners using their personal finances and credit cards to fund their business as opposed to credit from financial institutions? Is the sustainable in the long-term? Do you believe this has contributed towards the stagnant rate of new businesses?

A.1. Reliance on personal funds is common among all types of small businesses, even larger small firms (with revenues of greater than $1 million), and no matter the race or ethnicity of the owner. [1] That said, the Small Business Credit Survey (SBCS) finds greater reliance on personal resources among minority-owned firms. For example, about 28 percent of Black-, Hispanic-, and Asian-owned firms were likely to use personal funds as a primary funding source for business operations as compared to 16 percent of white-owned firms, and white owners are more likely to report using a business credit card (as opposed to a personal credit card) as compared to minority owners. [2] In addition, smaller firms, newer firms, and Black- and Hispanic-owned businesses are among those turning to online lenders for capital for their businesses. [3]

The present crisis posed by COVID–19 has been a challenging time, particularly for minority-owned businesses. Many minority-owned firms have lower revenues and are less connected to banks. For example, the SBCS indicates that black-owned firms are more likely than others to turn to a Community Development Financial Institution (CDFI). The smallest businesses lack both the financing options of larger businesses and the in-house financial expertise to

---

[1] The Federal Reserve Banks. 2019. "Small Business Credit Survey 2019 Report on Employer Firms", at *https://www.fedsmallbusiness.org/survey/2019/report-on-employer-firms.*

[2] The Federal Reserve Banks. 2019. "Small Business Credit Survey 2019 Report on Minority-Owned Firms", at *https://www.fedsmallbusiness.org/survey/2019/report-on-minority-owned-firms.*

[3] Federal Reserve Bank of Cleveland and Board of Governors of the Federal Reserve System. "Click, Submit 2.0: An Update on Online Lender Applicants From the Small Business Credit Survey 2019", at *https://www.fedsmallbusiness.org/medialibrary/fedsmallbusiness/files/click-submit-2-0-121219.pdf.*

tap the options that may be available to them. Especially during the current crisis, there is a significant need for technical assistance, such as that provided by CDFIs. In response, on May 1, the Federal Reserve opened up its Paycheck Protection Program Lending Facility (PPPLF) to nonbanks, including CDFI loan funds, to provide liquidity to expand their reach in lower-income communities.

Moreover, as part of its broad effort to support the economy, the Federal Reserve developed the Main Street Lending Program (MSLP) to help credit flow to small and medium-sized businesses that were in sound financial condition before the pandemic. The MSLP was modified in May to expand the loan options available to businesses, and increased the maximum size of businesses that are eligible for support under the program. The changes expanded the pool of businesses eligible to borrow through the program, lowered the minimum size for certain loans, and adjusted other features in response to public input. The Federal Reserve is continuing to consider ways to increase the scope of this program.

Q.2. During the hearing you mentioned that people receiving economic benefits like Supplemental Nutrition Assistance Program (SNAP), school nutrition programs, health care, childcare assistance, Temporary Assistance for Needy Families (TANF) and housing are receiving less assistance than they have in the past. I want to expand on the complexities of economic assistance particularly for workers that have to turn down pay raises or promotions due to benefit cliffs.

Benefit cliffs is the sudden and unexpected decrease in public benefits that can occur with small increase in earnings. When income increases, families can lose some or all economic supports, but the increase in earnings does not cover the costs associated with losing economic support.

The Atlanta Federal Reserve has done research into benefit cliffs and some States have started working on solutions to decrease the dramatic cliff. Do you believe there are economic consequences to benefits cliffs? What do you recommend for Congress to do to help alleviate the cliff?

A.2. Low-income support programs include both means-tested transfer programs (Medicaid, Supplemental Nutrition Assistance Program, and Temporary Assistance to Needy Families, for example) and some tax credits (the Earned Income Tax Credit and the Child Tax Credit, for example). Safety-net programs usually link eligibility to income with the goal of improving the situations of lower-income households. To maintain that intended focus, the benefits are phased out or unavailable to households with higher incomes. As a household's income increases and moves into a range where benefits are phased-out, the "effective marginal tax rate" that the household may face can increase substantially and sometimes move up toward 100 percent if multiple program benefits are reduced or lost. [4]

[4] In addition to research by economists at the Federal Reserve Bank of Atlanta, see also, for example, calculations by C. Eugene Steurle (Urban Institute) in his Congressional testimony "Marginal Tax Rates and 21st Century Social Welfare Reform" for a joint hearing of the Subcommittee on Human Resources, Committee on Ways and Means and Subcommittee on Nutrition, Committee on Agriculture, June 25, 2015, at *https://www.urban.org/sites/default/files/*

Evaluations of whether these programs are well-designed, require—to an important extent—a judgment about the relative importance of helping those who are struggling economically versus potential work disincentives. That said, it is not the appropriate role of the Federal Reserve to make such judgments. Rather, it is the role of elected officials to ascertain whether social safety-net programs, both on the tax and spending sides of the budget, are well-designed.

Q.3. As you know, the Federal Reserve, along with the other four regulators, recently proposed a rule that would clarify the definition of covered funds under the Volcker Rule in an effort to increase long-term investments in companies across the country.

This rulemaking should strike a balance between ensuring banks are able to engage in appropriate long-term investments in funds that can help spur innovation while not undermining safety and soundness.

Do you believe that modifying the definition of covered funds to allow banks to provide permissible long-term investments to businesses in Alabama and across the country would threaten the safety and soundness of the financial industry?

A.3. On January 30, 2020, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, the Securities and Exchange Commission, and the Commodity Futures Trading Commission (the Agencies) jointly issued a notice of proposed rulemaking (NPR)[5] addressing the covered fund provisions of the Volcker Rule regulations. The NPR includes provisions that would provide banking entities increased flexibility to invest in and sponsor certain funds. If finalized, the proposal may facilitate lending and capital investment in certain businesses, in particular by excluding from the definition of "covered fund" credit funds and venture capital funds, both of which may provide an additional conduit for banking entities to finance business activities, particularly in areas where such financing may not be readily available.

The Volcker Rule's covered fund provisions currently do not apply, and would not apply under the proposal, to banking entities' direct lending to businesses, or direct merchant banking investments in businesses.

With respect to the two proposed exclusions for venture capital funds and credit funds, the preamble to the NPR noted that the Agencies do not believe that the proposed covered fund exclusions raise the concerns that the Volcker Rule was intended to address. The proposal included several eligibility requirements to appropriately limit the scope of the proposed exclusions (for example, a prohibition on banking entities' guaranteeing the performance of these funds). In addition, all of the proposed new exclusions would require a banking entity's investment in, and relationship with, a

publication/56291/2000275-Marginal-Tax-Rates-and-21st-Century-Social-Welfare-Reform.pdf; and the Congressional Budget Office report, "Effective Marginal Tax Rates for Low- and Moderate-Income Workers in 2016", November 2015, at *https://www.cbo.gov/sites/default/files/114thcongress-2015-2016/reports/50923-marginaltaxrates.pdf.*

[5] See *https://www.federalreserve.gov/aboutthefed/boardmeetings/files/volcker-rule-fr-notice-20200130.pdf.*

fund to meet applicable safety and soundness and conflict of interest standards.

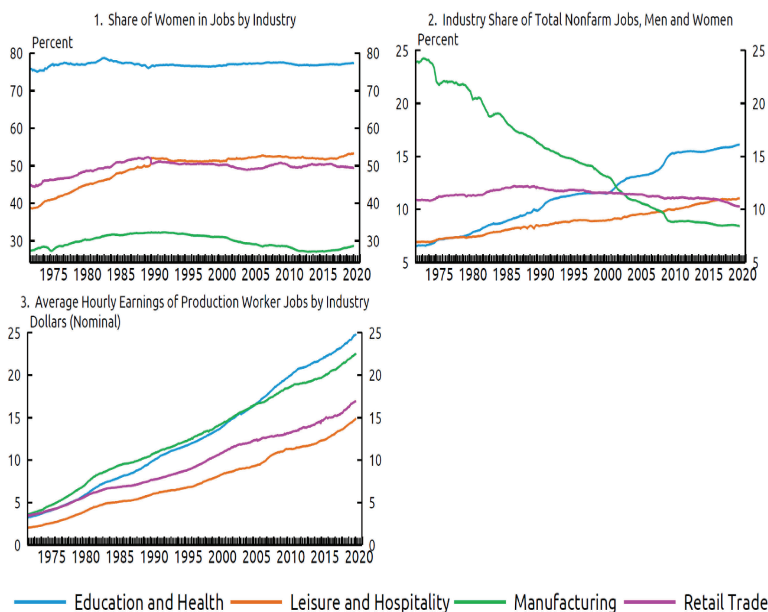
Q.4. Historically, wages in the manufacturing sector are higher than those in the service sector. Men are more likely to hold jobs at any skill level in manufacturing, while women are more likely to hold jobs in the service sector, a sector that pays considerably less than manufacturing.

Women hold 77 percent of the jobs in health care and education—fast-growing fields in the service sector that eclipse the entire goods-producing sector of the economy.

The growing number of women in the workforce reflects a long-running evolution away from male-dominated industries like manufacturing toward the service side of the economy, where women have an edge.

Is the Federal Reserve aware of this pattern of an increase of women in the service sector workforce while earning significantly less than men in manufacturing workforce?

A.4.



Prior to the COVID–19 crisis, women comprised just over 50 percent of all nonfarm payroll jobs. Breaking that down by industry shows that women made up a much larger share of employment in some industries than in others (Figure 1). For example, women comprised just about 80 percent of all jobs in education and health services, by far the largest share of any industry. In contrast, women comprised about only 30 percent of all jobs in manufacturing. Women also comprised about half or more of jobs in a number of other service sectors, including leisure and hospitality and retail trade.

The composition of employment across industries for men and women together has been shifting away from manufacturing, which largely employs men, and towards service sectors, which largely employs women (Figure 2). As a whole, manufacturing tends to pay a higher hourly rate per job than service sectors, but that is not true for each service sector (Figure 3). For much of the postwar period, manufacturing jobs paid more than education and health service jobs. That changed around the year 2000, when the average hourly pay rate in education and health service jobs eclipsed that rate for manufacturing jobs. Education and health service jobs prior to the COVID–19 crisis paid about $2.25/hour more than manufacturing. However, manufacturing paid much more than noneducation and health service jobs.

In addition to monitoring employment trends in formal employment, the Federal Reserve also tracks employment patterns in informal gig work. Based on the Federal Reserve's recent "Survey of Household Economic Decisionmaking", [6] men and women are similarly likely to earn money through gig work. Recent research on wages in the gig economy also observes that among rideshare drivers, women are paid less because of differences in how and when they work. [7]

Q.5. Over the last few years, the annual average earnings growth for American workers has remained below 3 percent. Yet at the same time, average house prices have increased more than 5 percent.

Rising housing costs coupled with relatively stagnant wage growth has made it hard for consumers to save for a downpayment and the costs associated with buying a home like inspectors and appraisers.

Additionally, there are large disparities in home ownership between African Americans and their white counterparts. 73.1 percent of white Americans owned a home at the end of the second quarter of 2019 compared to 40.6 percent of African Americans and 46.6 percent of Hispanic American.

What, if any, are the consequences of not addressing the large home ownership disparities among minorities?

A.5. Because a home is the largest asset for many households, the racial home ownership gap has implications for the racial wealth gap. [8] Rising house prices increase the wealth of homeowners, who have locked in their housing costs to a large degree, while making it more difficult for renters to afford a downpayment. If rents continue to increase along with prices, it will be even more difficult for renters to save and build wealth.

The gaps in home ownership by race and ethnicity are a concern, and we included an analysis of differences in home ownership rates in the February 2017 issue of the Monetary Policy Report. There are a number of factors contributing to these gaps. For example,

---

[6] See *https://www.federalreserve.gov/newsevents/pressreleases/other20200514a.htm.*

[7] Cook, Cody, Rebecca Diamond, Jonathan Hall, John A. List, and Paul Oyer. "The Gender Earnings Gap in the Gig Economy: Evidence From Over a Million Rideshare Drivers", No. w24732. National Bureau of Economic Research, 2018.

[8] For an analysis of the components of the racial wealth gap, see *https://www.federalreserve.gov/econres/notes/fedsnotes/recent-trends-in-wealth-holding-by-race-and-ethnicity-evidence-from-the-survey-of-consumer-finances-20170927.htm.*

the African American and Hispanic populations have been more strongly affected by restrictions on the availability of mortgages to low-score borrowers, particularly in the postcrisis contraction in mortgage credit. However, it should be noted that the home ownership gap has been persistent for many decades and only widened a bit during the postcrisis period.

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

Q.1. Businesses in Arizona are struggling to find workers with the skills they need. What effects have skilled labor shortages had on economic growth and social mobility?

A.1. As we know, skill shortages arise in a tight labor market. While tight labor markets can make hiring difficult for businesses, they bring many benefits to workers. In particular, individuals without job opportunities previously are more likely to be employed in a tight labor market and, once employed, they are more likely to receive valuable training. The increase in skills from work experience and training can increase their attachment to the labor force and, perhaps, increase aggregate employment and economic output in the longer run. As a result, the advantages that a tight labor market provides to disadvantaged workers can increase social mobility.

The contrast between the labor market conditions that prompted this question just a few weeks ago and the current situation highlights the scope and speed of the current economic downturn. The coronavirus has left a devastating human and economic toll in its wake. As a Nation, we have temporarily withdrawn from many kinds of economic and social activity to help slow the spread of the virus. Congress and the Federal Reserve have acted with unprecedented speed and force to address the economic consequences. The overall policy response to date has provided a measure of relief and stability, and will provide some support to the recovery when it comes. The Federal Reserve will continue to use our tools to their fullest until the crisis has passed and the economic recovery is well under way.

ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

For use at 11:00 a.m. EST
February 7, 2020

MONETARY POLICY REPORT

February 7, 2020

Board of Governors of the Federal Reserve System

Letter of Transmittal

BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM

Washington, D.C., February 7, 2020

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

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

Sincerely,

Jerome H. Powell, Chairman

Statement on Longer-Run Goals and Monetary Policy Strategy

Adopted effective January 24, 2012; as amended effective January 29, 2019

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.

Inflation, employment, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Moreover, monetary policy actions tend to influence economic activity and prices with a lag. 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 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 would be concerned if inflation were running persistently above or below this objective. Communicating this symmetric inflation goal clearly to the public helps keep longer-term inflation expectations firmly anchored, thereby fostering price stability and moderate long-term interest rates and enhancing the Committee's ability to promote maximum employment in the face of significant economic disturbances. The maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market. These factors may change over time and may not be directly measurable. 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 maximum level of employment, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments. Information about Committee participants' estimates of the longer-run normal rates of output growth and unemployment is published four times per year in the FOMC's Summary of Economic Projections. For example, in the most recent projections, the median of FOMC participants' estimates of the longer-run normal rate of unemployment was 4.4 percent.

In setting monetary policy, the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the 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 reaffirm these principles and to make adjustments as appropriate at its annual organizational meeting each January.

Note: The Committee did not reaffirm this statement in January 2020 in light of its ongoing review of its monetary policy strategy, tools, and communications practices. This statement is a reprint of the statement affirmed in January 2019.

Contents

Summary 1
- Economic and Financial Developments 1
- Monetary Policy 2
- Special Topics 3

Part 1: Recent Economic and Financial Developments 5
- Domestic Developments 5
- Financial Developments 21
- International Developments 26

Part 2: Monetary Policy 31

Part 3: Summary of Economic Projections 45
- The Outlook for Real GDP Growth and Unemployment 46
- The Outlook for Inflation 49
- Appropriate Monetary Policy 49
- Uncertainty and Risks 49

Abbreviations 63

List of Boxes
- Manufacturing and U.S. Business Cycles 14
- Developments Related to Financial Stability 24
- Monetary Policy Rules and Uncertainty in Monetary Policy Settings 33
- Federal Reserve Review of Monetary Policy Strategy, Tools, and Communication Practices 40
- Money Market Developments and Monetary Policy Implementation 42
- Forecast Uncertainty 60

Note: This report reflects information that was publicly available as of noon EST on February 5, 2020. Unless otherwise stated, the time series in the figures extend through, for daily data, February 4, 2020; for monthly data, December 2019; and, for quarterly data, 2019:Q4. In bar charts, except as noted, the change for a given period is measured to its final quarter from the final quarter of the preceding period.

For figures 16 and 34, note that 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 © 2020 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.

Summary

The U.S. economy continued to grow moderately last year and the labor market strengthened further. With these gains, the current expansion entered its 11th year, becoming the longest on record. However, inflation was below the Federal Open Market Committee's (FOMC) longer-run objective of 2 percent. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the FOMC lowered the target range for the federal funds rate at its July, September, and October meetings, bringing it to the current range of 1½ to 1¾ percent. In the Committee's subsequent meetings, it judged that the prevailing stance of monetary policy was appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation returning to the Committee's symmetric 2 percent objective.

Economic and Financial Developments

The labor market. The labor market continued to strengthen last year. Payroll employment growth remained solid in the second half of 2019, and while the pace of job gains during the year as a whole was somewhat slower than in 2018, it was faster than what is needed to provide jobs for new entrants to the labor force. The unemployment rate moved down from 3.9 percent at the end of 2018 to 3.5 percent in December, and the labor force participation rate increased. Meanwhile, wage gains remained moderate although above the pace of gains seen earlier in the expansion.

Inflation. After having been close to the FOMC's objective of 2 percent in 2018, consumer price inflation, as measured by the price index for personal consumption expenditures, moved back below 2 percent last year, where it has been during most of the current expansion. The 12-month change was 1.6 percent in December 2019, as was the 12-month measure that excludes consumer food and energy prices (so-called core inflation), which historically has been a better indicator of where inflation will be in the future than the overall figure. The downshift relative to 2018 partly results from particularly low readings in the monthly price data in the early part of last year that appear to reflect transitory influences. Survey-based measures of longer-run inflation expectations have been broadly stable since the middle of last year, and market-based measures of inflation compensation are little changed on net.

Economic growth. Real gross domestic product (GDP) is reported to have increased at a moderate rate in the second half of 2019, although growth was somewhat slower than in the first half of the year and in 2018. Consumer spending rose at a moderate pace, on average, and residential investment turned up after having declined in 2018 and the first half of 2019. In contrast, business fixed investment declined in the second half of last year, reflecting a number of factors that likely include trade policy uncertainty and weak global growth. Downside risks to the U.S. outlook seem to have receded in the latter part of the year, as the conflicts over trade policy diminished somewhat, economic growth abroad showed signs of stabilizing, and financial conditions eased. More recently, possible spillovers from the effects of the coronavirus in China have presented a new risk to the outlook.

Financial conditions. Domestic financial conditions for businesses and households remained supportive of spending and economic activity. After showing some volatility over the summer, nominal Treasury yields declined and equity prices increased notably, on balance, supported by accommodative monetary policy actions and easing of investors' concerns regarding trade

policy prospects and the global economic outlook. Spreads of yields on corporate bonds over those on comparable-maturity Treasury securities continued to narrow, and mortgage rates remained low. Moreover, loans remained widely available for most businesses and households, and credit provided by commercial banks continued to expand at a moderate pace.

Financial stability. The U.S. financial system is substantially more resilient than it was before the financial crisis. Leverage in the financial sector appears low relative to historical norms. Total household debt has grown at a slower pace than economic activity over the past decade, in part reflecting that mortgage credit has remained tight for borrowers with low credit scores, undocumented income, or high debt-to-income ratios. In contrast, the levels of business debt continue to be elevated compared with the levels of either business assets or GDP, with the riskiest firms accounting for most of the increase in debt in recent years. While overall liquidity and maturity mismatches and funding risks in the financial system remain low, the volatility in repurchase agreement (repo) markets in mid-September 2019 highlighted the possibility for frictions in repo markets to spill over to other markets. Finally, asset valuations are elevated and have risen since July 2019, as investor risk appetite appears to have increased. (See the box "Developments Related to Financial Stability" in Part 1.)

International developments. After weakening in 2018, foreign economic growth slowed further in 2019, held down by a slump in global manufacturing, elevated trade tensions, and political and social unrest in several countries. Growth in Asian economies slowed markedly, especially in Hong Kong and India, and many Latin American economies continued to underperform. The pace of economic activity weakened in several advanced foreign economies as well. However, recent indicators provide tentative signs of stabilization. The global slowdown in manufacturing and trade appears to be nearing an end, and consumer spending and services activity around the world continue to hold up. Moreover, in some economically important regions, such as China and the euro area, data through early this year suggested that growth was steadying. The recent emergence of the coronavirus, however, could lead to disruptions in China that spill over to the rest of the global economy. Amid weak economic activity and dormant inflation pressures, foreign central banks generally adopted a more accommodative policy stance.

Financial conditions abroad eased in the second half of last year, supported by accommodative actions by central banks and, later in the period, positive political developments, including progress on the U.S.–China trade negotiations and diminished risks of a disorderly Brexit. On balance, since July global equity prices moved higher, sovereign bond spreads in the European periphery narrowed, and measures of sovereign spreads in emerging market economies decreased somewhat. In many advanced foreign economies, long-term interest rates remained well below the levels seen at the end of 2018.

Monetary Policy

Interest rate policy. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the FOMC lowered the target range for the federal funds rate over the second half of 2019. Specifically, at its July, September, and October meetings, the FOMC lowered the target range a cumulative 75 basis points, bringing it to the current range of 1½ to 1¾ percent. In its subsequent meetings, the Committee judged that the prevailing stance of monetary policy was appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation returning to the Committee's symmetric 2 percent objective. The Committee noted that it will continue to monitor the implications of incoming

information for the economic outlook as it assesses the appropriate path of the target range for the federal funds rate.

Balance sheet policy. At its July meeting, the FOMC decided to conclude the reduction of its aggregate securities holdings in the System Open Market Account, or SOMA, in August. Ending the runoff earlier than initially planned was seen as having only very small effects on the balance sheet, with negligible implications for the economic outlook; it was also seen as helpful in simplifying communications regarding the use of the Committee's policy tools at a time when the Committee was lowering the target range for the federal funds rate. As discussed further in the next paragraph, since October 2019, the size of the balance sheet has been expanding to provide an ample level of reserves to ensure that the federal funds rate trades within the FOMC's target range.

Monetary policy implementation. Domestic short-term funding markets were volatile in mid-September—amid large flows related to corporate tax payments and settlement of Treasury securities—and experienced a significant tightening of conditions. Since then, the Federal Reserve has been conducting open market operations—repo operations and Treasury bill purchases—in order to maintain ample reserve balances over time. While the balance sheet has expanded in light of the open market operations to maintain ample reserves, these operations are purely technical measures to support the effective implementation of the FOMC's monetary policy, are not intended to change the stance of monetary policy, and reflect the Committee's intention to implement monetary policy in a regime with an ample supply of reserves. The Committee will continue to monitor money market developments as it assesses the level of reserves most consistent with efficient and effective policy implementation and stands ready to adjust the details of its technical operations as necessary to foster efficient and effective implementation of monetary policy. (See the box "Money Market Developments and Monetary Policy Implementation" in Part 2.)

Special Topics

Manufacturing and U.S. business cycles. After increasing solidly in 2017 and 2018, manufacturing output turned down last year. This decline raised fears among some observers that the weakness could spread and potentially lead to an economy-wide recession. In general, a decline in manufacturing similar to that in 2019 would not be large enough to initiate a major downturn for the economy. Furthermore, after accounting for changing trends in growth of manufacturing output, mild slowdowns have often occurred during expansionary phases of business cycles. In contrast, a more pronounced contraction in manufacturing has historically been associated with an economy-wide recession. (See the box "Manufacturing and U.S. Business Cycles" in Part 1.)

Monetary policy rules. Prescriptions for the policy interest rate from monetary policy rules often depend on judgments and assumptions about economic variables that are inherently uncertain and may change over time. Notably, many policy rules depend on estimates of resource slack and of the longer-run neutral real interest rate, both of which are not directly observable and are estimated with a high degree of uncertainty. As a result, the amount of policy accommodation that these rules prescribe—and whether that amount is appropriate in light of underlying economic conditions—is also uncertain. Such a situation cautions against mechanically following the prescriptions of any specific rule. (See the box "Monetary Policy Rules and Uncertainty in Monetary Policy Settings" in Part 2.)

Framework review and *Fed Listens* events. In 2019, the Federal Reserve System began a broad review of the monetary policy strategy,

tools, and communication practices it uses to pursue its statutory dual-mandate goals of maximum employment and price stability. The Federal Reserve sees this review as particularly important at this time because the U.S. economy appears to have changed in ways that matter for monetary policy. For example, the neutral level of the policy interest rate appears to have fallen in the United States and abroad, increasing the risk that the effective lower bound on interest rates will constrain central banks from reducing their policy interest rates enough to effectively support economic activity during downturns. The review is considering what monetary policy strategy will best enable the Federal Reserve to meet its dual mandate in the future, whether the existing monetary policy tools are sufficient to achieve and maintain the dual mandate, and how communication about monetary policy can be improved.

A key component of the review has been a series of public *Fed Listens* events engaging with a broad range of stakeholders in the U.S. economy about how the Federal Reserve can best meet its statutory goals. During 14 *Fed Listens* events in 2019, policymakers heard from individuals and groups around the country on issues related to the labor market, inflation, interest rates, and the transmission of monetary policy. (See the box "Federal Reserve Review of Monetary Policy Strategy, Tools, and Communication Practices" in Part 2.)

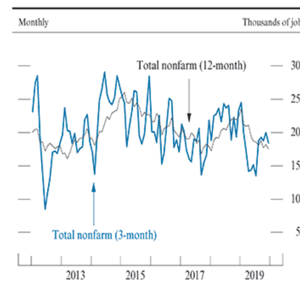
Part 1
Recent Economic and Financial Developments

Domestic Developments

The labor market strengthened further last year but at a slower pace than in 2018 . . .

Payroll employment gains were solid in the second half of 2019 and averaged 176,000 per month during the year as a whole. This pace is somewhat slower than the average monthly gains in 2018, even accounting for the anticipated effects of the Bureau of Labor Statistics' upcoming benchmark revision to payroll employment (figure 1).[1] However, the pace of job gains appears to have remained faster than what is needed to provide jobs for net new entrants to the labor force as the population grows.[2]

1. Net change in payroll employment



Note: The data are 3-month and 12-month moving averages.
Source: Bureau of Labor Statistics via Haver Analytics.

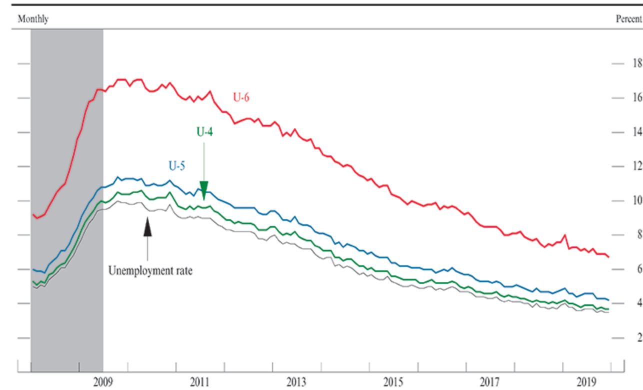
Reflecting the employment gains over this period, the unemployment rate declined further in 2019 and stood at 3.5 percent in December, 0.4 percentage point below its year-earlier level and at its lowest level since 1969 (figure 2). In addition, the unemployment rate is 0.6 percentage point below the median of Federal Open Market Committee (FOMC) participants' estimates of its longer-run normal level.[3]

1. The annual benchmark revision to payroll employment will be published on February 7, after this report has gone to print. According to the Bureau of Labor Statistics' preliminary estimates, increases in payrolls will be revised downward roughly 40,000 per month from April 2018 through March 2019. Payroll figures after March 2019 are subject to revision as well.

2. To keep up with population growth, roughly 115,000 to 145,000 payroll jobs per month need to be created, on average, to maintain a constant unemployment rate with an unchanged labor force participation rate. There is considerable uncertainty around these estimates, as the difference between monthly payroll gains and employment changes from the Current Population Survey (the source of the unemployment and participation rates) can be quite volatile over short periods.

3. See the most recent economic projections that were released after the December FOMC meeting in Part 3 of this report.

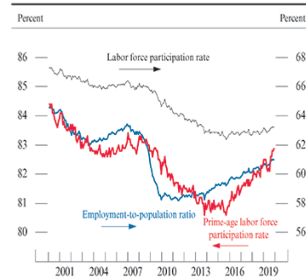
2. Measures of labor underutilization



NOTE: Unemployment rate measures total unemployed as a percentage of the labor force. U-4 measures total unemployed plus discouraged workers, as a percentage of the labor force plus discouraged workers. Discouraged workers are a subset of marginally attached workers who are not currently looking for work because they believe no jobs are available for them. U-5 measures total unemployed plus all marginally attached to the labor force, as a percentage of the labor force plus persons marginally attached to the labor force. Marginally attached workers are not in the labor force, want and are available for work, and have looked for a job in the past 12 months. U-6 measures total unemployed plus all marginally attached workers plus total employed part time for economic reasons, as a percentage of the labor force plus all marginally attached workers. The shaded bar indicates a period of business recession as defined by the National Bureau of Economic Research.

SOURCE: Bureau of Labor Statistics via Haver Analytics.

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



NOTE: The data are monthly. The prime-age labor force participation rate is a percentage of the population aged 25 to 54. The labor force participation rate and the employment-to-population ratio are percentages of the population aged 16 and over.

SOURCE: Bureau of Labor Statistics via Haver Analytics.

Strengthening labor market conditions are also evident in rising labor force participation rates (LFPRs)—that is, the shares of the population either working or actively seeking work. The LFPR for individuals aged 16 and over was 63.2 percent in December, above its level a year ago despite the downward pressure of about ¼ percentage point per year associated with the aging of the population. The LFPR for prime-age individuals (between 25 and 54 years old), which is much less sensitive to the effects of population aging, has been rising over the past few years and continued to increase in 2019 (figure 3). The employment-to-population ratio for individuals aged 16 and over—that is, the share of people who are working—was 61.0 percent in December and has been increasing since 2011.

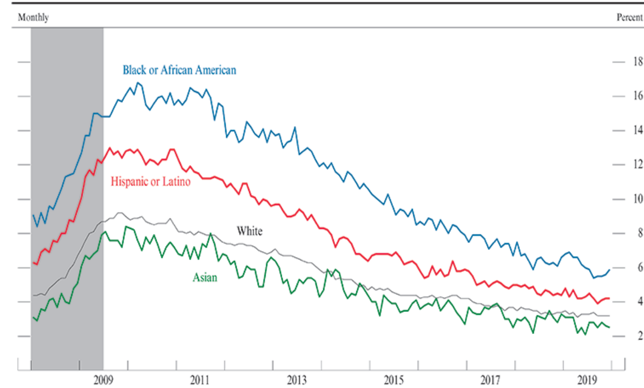
Other indicators are also consistent with strong labor market conditions, albeit with some slowing in the pace of improvement since 2018. As reported in the Job Openings and Labor Turnover Survey (JOLTS), job openings have remained plentiful, although the private-sector

job openings rate has come down over the past year. Similarly, the quits rate in the JOLTS has remained near the top of its historical range, an indication that workers are being bid away from their current jobs or have become more confident that they can successfully switch jobs if they so wish. These data accord well with surveys of consumers that indicate households perceive jobs as plentiful. The JOLTS layoff rate and the number of people filing initial claims for unemployment insurance benefits—historically, a good early indicator of economic downturns—have both remained quite low.

. . . and unemployment rates have fallen, on net, for all major demographic groups over the past several years

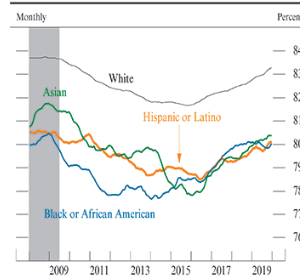
Differences in unemployment rates across ethnic and racial groups have narrowed in recent years, on net, as they typically do during economic expansions, after having widened during the 2007–09 recession (figure 4). The decline in the unemployment rate for African Americans has been particularly sizable, and its average rate in the second half of October 2019 was the lowest recorded since the data began in 1972. Although the unemployment rates for African Americans

4. Unemployment rate by race and ethnicity



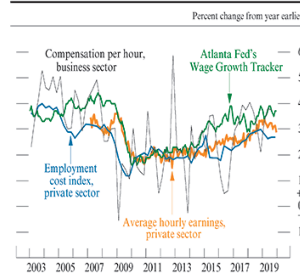
NOTE: Unemployment rate measures total unemployed as a percentage of the labor force. Persons whose ethnicity is identified as Hispanic or Latino may be of any race. The shaded bar indicates a period of business recession as defined by the National Bureau of Economic Research.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

5. Prime-age labor force participation rate by race and ethnicity



NOTE: The prime-age labor force participation rate is a percentage of the population aged 25 to 54. Persons whose ethnicity is identified as Hispanic or Latino may be of any race. The data are 12-month moving averages. The shaded bar indicates a period of business recession as defined by the National Bureau of Economic Research.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

6. Measures of change in hourly compensation



NOTE: Business-sector compensation is on a 4-quarter percent change basis and extends through 2019:Q3. For the private-sector employment cost index, change is over the 12 months ending in the last month of each quarter; for private-sector average hourly earnings, the data are 12-month percent changes and begin in March 2007; for the Atlanta Fed's Wage Growth Tracker, the data are shown as a 3-month moving average of the 12-month percent change.
SOURCE: Bureau of Labor Statistics; Federal Reserve Bank of Atlanta, Wage Growth Tracker; all via Haver Analytics.

and for Hispanics remain substantially above those for whites and for Asians, those differentials in the second half of 2019 were at their narrowest levels on record. The rise in LFPRs for prime-age individuals over the past few years has also been apparent in each of these racial and ethnic groups (figure 5).

Increases in labor compensation have remained moderate by historical standards . . .

Despite strong labor market conditions, the available indicators generally suggest that increases in hourly labor compensation have remained moderate, averaging about 3 percent over the past two years. These indicators include the employment cost index, a measure of both wages and the cost to employers of providing benefits; compensation per hour in the business sector, a broad-based but volatile measure of wages, salaries, and benefits; and average hourly earnings from the payroll survey, a monthly index that is timely but does not account for benefits (figure 6). The median 12-month wage growth of individuals reporting to the Current Population Survey calculated by the Federal Reserve Bank of Atlanta, which tends to be higher than broader-based measures of wage growth, remains near the upper portion of its range over the past couple of years.[4] Interestingly, wage growth over the past few years has been strongest for workers in relatively low-paying jobs, suggesting that the strong labor market is having a more pronounced benefit for these workers.

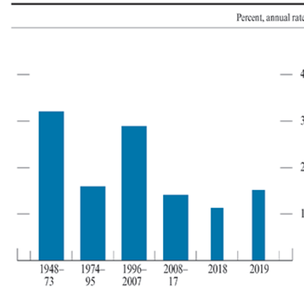
. . . and likely have been restrained by slow growth in labor productivity over much of the expansion

These moderate rates of hourly compensation gains likely reflect the offsetting influences of a strengthening labor market and productivity growth that has been weak through much of the expansion. From 2008 to 2018, labor

4. The Atlanta Fed's measure differs from others in that it measures the wage growth only of workers who were employed both in the current survey month and 12 months earlier.

productivity increased a little more than 1 percent per year, on average, well below the average pace from 1996 to 2007 of nearly 3 percent and also below the average gain in the 1974–95 period (figure 7). Although considerable debate remains about the reasons for the slowdown in productivity growth over this period, the weakness may be partly attributable to the sharp pullback in capital investment, including on research and development, during the most recent recession and the relatively slow recovery that followed. More recently, labor productivity is estimated to have increased 1.5 percent over the four quarters ending in 2019:Q3—a small improvement from the preceding year, especially given the volatility of the productivity data, but still moderate relative to earlier periods. While it is uncertain whether productivity growth will continue to improve, a sustained pickup in productivity growth, as well as additional labor market strengthening, would support stronger gains in labor compensation.

7. Change in business-sector output per hour

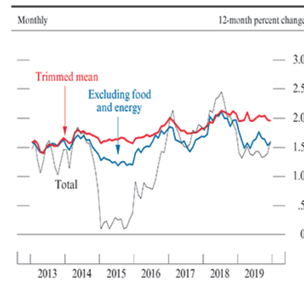


NOTE: Changes are measured from Q4 of the year immediately preceding the period through Q4 of the final year of the period except 2019 changes, which are calculated from 2018:Q3 to 2019:Q3.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

Inflation was below 2 percent last year

After having been close to the FOMC's objective of 2 percent in 2018, inflation moved back below 2 percent last year, where it has been for most of the time since the end of the most recent recession. The 12-month change in the price index for personal consumption expenditures (PCE) was 1.6 percent in December 2019, as was the 12-month measure of inflation that excludes food and energy items (so-called core inflation), which historically has been a better indicator of where inflation will be in the future than the overall index (figure 8). Both measures are down from the rates recorded a year ago; the slowing partly results from particularly low readings in the monthly price data in the first quarter of 2019, which appear to reflect idiosyncratic price declines in a number of specific categories such as apparel, used cars, banking services, and portfolio management services. Indeed, core inflation picked up after the first quarter and was at an average annual rate of 1.9 percent over the remainder of the year.

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.

The trimmed mean PCE price index, calculated by the Federal Reserve Bank of Dallas, also suggests a transitory element to inflation readings early last year. The trimmed mean provides an alternative way to purge inflation of transitory influences, and it is less sensitive than the core index to idiosyncratic price movements such as those noted earlier.[5] The 12-month change in this measure was about the same in December 2019 as it was in 2018.

9. Spot and futures prices for crude oil

NOTE: The data are weekly averages of daily data. The weekly data begin on Thursdays and extend through January 29, 2020.
SOURCE: ICE Brent Futures via Bloomberg.

Oil prices fluctuated in 2019

After falling from more than $80 per barrel to less than $60 per barrel in late 2018, the Brent spot price of crude oil fluctuated between $60 and $70 for most of 2019. Prices generally moved up in the second half of last year, supported by expectations of supply cuts in OPEC member countries and, later on, diminished concerns about the global outlook (figure 9). Prices also spiked briefly in early January over tensions with Iran. In recent weeks, however, oil prices moved lower amid heightened fears that the coronavirus outbreak that started in China might weigh on economic growth and the demand for oil. Despite these fluctuations in oil prices, retail gasoline prices generally edged lower since mid-2019. For 2019 as a whole, consumer energy prices rose modestly more than the core index. Meanwhile, food prices posted only a small increase in 2019, held down by soft prices for farm commodities, and contributed very little to overall consumer price inflation.

Reported prices of imports other than energy fell

Nonfuel import prices, before accounting for the effects of tariffs on the price of imported goods, have continued to decline from their mid-2018 peak, responding to lower foreign inflation and declines in non-oil commodity

5. The trimmed mean index excludes prices that showed particularly large increases or decreases in a given month. Note that, since 1995, 12-month changes in the trimmed mean index have averaged about 0.3 percentage point above core PCE inflation and 0.2 percentage point above total PCE inflation.

109

prices (figure 10).[6] After declining in the first half of 2019, prices of industrial metals appear to have bottomed out in recent months, consistent with increased optimism about global demand following positive trade developments.

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

Expectations of inflation likely influence actual inflation by affecting wage- and price-setting decisions. Survey-based measures of inflation expectations at medium- and longer-term horizons have remained broadly stable over the past year. In the Survey of Professional Forecasters, conducted by the Federal Reserve Bank of Philadelphia, the median expectation for the annual rate of increase in the PCE price index over the next 10 years has been very close to 2 percent for the past several years (figure 11). In the University of Michigan Surveys of Consumers, the median value for inflation expectations over the next 5 to 10 years has fluctuated within a narrow range around 2½ percent since the end of 2016, though this level is between ¼ and ½ percentage point lower than had prevailed through 2014. In the Survey of Consumer Expectations, conducted by the Federal Reserve Bank of New York, the median of respondents' expected inflation rate three years hence moved lower, on net, in the second half of last year and averaged 2.5 percent, ¼ percentage point below its average over the preceding three years.

. . . and market-based measures of inflation compensation have also been little changed

Inflation expectations can also be gauged by market-based measures of inflation compensation. However, the inference is not straightforward, because market-based measures can be importantly affected

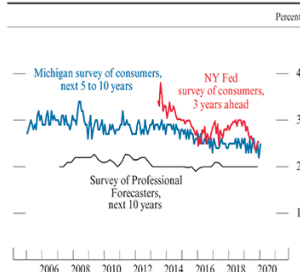
6. Published import price indexes exclude tariffs. However, tariffs add to the prices that purchasers of imports actually pay, and tariff-inclusive import prices have likely increased, rather than declined, since mid-2018.

10. Nonfuel import prices and industrial metals indexes

NOTE: The data for nonfuel import prices are monthly. The data for industrial metals are a monthly average of daily data and extend through January 31, 2020.

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

11. Surveys of inflation expectations



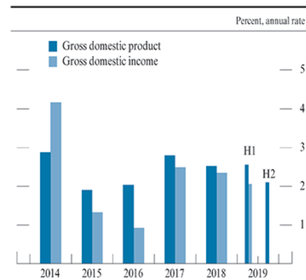
NOTE: The series are medians of the survey responses. The Michigan survey data are monthly and extend through January 2020. The Survey of Professional Forecasters data for inflation expectations for personal consumption expenditures are quarterly and begin in 2007:Q1. The NY Fed survey data are monthly and begin in June 2013.

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

12. 5-to-10-year-forward inflation compensation

Note: The data are weekly averages of daily data and extend through January 31, 2020. TIPS is Treasury Inflation-Protected Securities.
Source: Federal Reserve Bank of New York; Barclays; Federal Reserve Board staff estimates.

13. Change in real gross domestic product and gross domestic income



Note: Gross domestic income is not yet available for 2019:H2.
Source: Bureau of Economic Analysis via Haver Analytics.

by changes in premiums that provide compensation for bearing inflation and liquidity risks. Measures of longer-term inflation compensation—derived either from differences between yields on nominal Treasury securities and those on comparable-maturity Treasury Inflation-Protected Securities (TIPS) or from inflation swaps—have been little changed, on net, since the middle of 2019, with both measures below their respective ranges that persisted for most of the 10 years before the start of notable declines in mid-2014 (figure 12).[7] The TIPS-based measure of 5-to-10-year-forward inflation compensation and the analogous measure from inflation swaps are now about 1¾ percent and 2 percent, respectively.[8]

Growth of gross domestic product was moderate in the second half of 2019 . . .

Real gross domestic product (GDP) is reported to have increased at a moderate average annual rate of 2.1 percent in the second half of 2019, although growth was somewhat slower than in the first half of the year and in 2018 (figure 13). Consumer spending rose at a moderate pace, on average, and residential investment turned up after having declined since the end of 2017. In contrast, business fixed investment declined in the second half of last year, reflecting a number of factors that likely include uncertainty regarding trade tensions and the weak global growth outlook. Those factors also continued to weigh on manufacturing output, which declined

7. Inflation compensation implied by the TIPS breakeven inflation rate is based on the difference, at comparable maturities, between yields on nominal Treasury securities and yields on TIPS, which are indexed to the total consumer price index (CPI). Inflation swaps are contracts in which one party makes payments of certain fixed nominal amounts in exchange for cash flows that are indexed to cumulative CPI inflation over some horizon. Inflation compensation derived from inflation swaps typically exceeds TIPS-based compensation, but week-to-week movements in the two measures are highly correlated.

8. As these measures are based on CPI inflation, one should probably subtract about ¼ percentage point—the average differential with PCE inflation over the past two decades—to infer inflation compensation on a PCE basis.

over the first half of 2019 and has moved roughly sideways since then. (See the box "Manufacturing and U.S. Business Cycles.") Despite those headwinds, the economic expansion continues to be supported by steady job gains, increases in household wealth, expansionary fiscal policy, and supportive domestic financial conditions that include moderate borrowing costs and easy access to credit for many households and businesses.

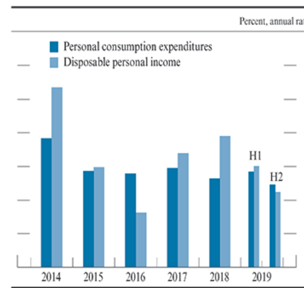
. . . and downside risks to the outlook receded somewhat

Downside risks to the economic outlook seem to have receded somewhat in the latter part of 2019. Labor market conditions and economic growth in the United States have been resilient to the global headwinds in 2019, and conflicts over trade policy diminished somewhat toward the end of the year. Economic growth abroad also shows signs of stabilizing, though the coronavirus outbreak presents a more recent risk. Reflecting these factors as well as more accommodative monetary policy stances in the United States and some foreign economies, financial conditions eased somewhat over the second half of the year. Statistical models designed to gauge the probability of recession using various indicators, including the Treasury yield curve, suggest that the likelihood of a recession occurring over the next year has fallen noticeably in recent months. Similarly, as shown in Part 3, when Federal Reserve policymakers most recently presented their economic projections, in December, fewer participants judged the risks to the outlook to be tilted to the downside compared with their projections from last June.

Ongoing improvements in the labor market continue to support household income and consumer spending

Consumer spending rose at a moderate pace, on average, in the third and fourth quarters of 2019 and posted another solid gain for the year as a whole (figure 14). The growth in real PCE in recent years reflects the continued

14. Change in real personal consumption expenditures and disposable personal income



SOURCE: Bureau of Economic Analysis via Haver Analytics.

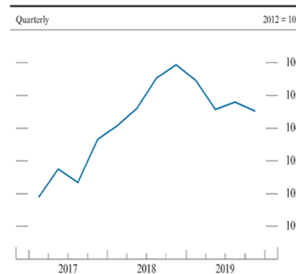
Manufacturing and U.S. Business Cycles

Historically, the manufacturing sector in the United States has been a source of economic strength and of good jobs for workers at all levels of education. It is also a highly cyclical sector that has tended to retrench dramatically during economy-wide contractions and to rebound sharply during expansions.

Concerns by some observers about a possible economy-wide recession were prompted by declines in the industrial production index for manufacturing (IP) in the first two quarters of 2019, particularly when viewed in conjunction with the stagnant manufacturing growth that was occurring in many foreign economies. Manufacturing output in the United States remained weak through the end of the year (figure A). And, for 2019 as a whole, production decreased 1.3 percent, with fairly broad-based declines across both durable and nondurable goods industries. The slump in manufacturing last year is attributable to several factors, including trade developments, weak global growth, softer business investment, lower oil prices engendering a cutback in demand by drillers, and the slower production of Boeing's 737 Max aircraft due to safety issues.[1]

When considering the implications of these declines in manufacturing production for the broader economy, it is important to recognize that this weakness has likely spilled over to other sectors. Manufacturing production requires inputs from other industries, and goods that are produced need to be transported and sold. For example, a reduction in auto assemblies affects automakers' demand both for intermediate inputs like steel and for business services like accounting. In turn, the steelmakers need less iron ore, and the accountants need less tech support. The input-output tables for the

A. Industrial production index for manufacturing



Source: Federal Reserve Board, Statistical Release G.17, "Industrial Production and Capacity Utilization."

U.S. economy imply that every dollar of factory output requires 56 cents of input from other domestic sectors.[2] Manufacturing currently accounts for 12 percent of gross domestic product (GDP), so its 2019 decline of 1.3 percent would have directly subtracted about 0.15 percent from GDP; including inputs purchased from upstream sectors, the drag is a bit more than 0.2 percent. After adding in the downstream activities needed to bring products to market (such as transportation, wholesaling, and retailing), last year's decline in manufacturing likely reduced GDP by less than 0.5 percent—not enough to tip an otherwise-expanding economy into recession.

That modest effect partly reflects the decline in manufacturing's share of the U.S. economy since the middle of the 20th century. Manufacturing employment has dropped from about 30 percent of total employment

(continued)

1. See, for example, Aaron Flaaen and Justin Pierce (2019), "Disentangling the Effects of the 2018–2019 Tariffs on a Globally Connected U.S. Manufacturing Sector," Finance and Economics Discussion Series 2019-086 (Washington: Board of Governors of the Federal Reserve System, December), https://dx.doi.org/10.17016/FEDS.2019.086. Also see Dario Caldara, Matteo Iacoviello, Patrick Molligo, Andrea Prestipino, and Andrea Raffo (2019), "The Economic Effects of Trade Policy Uncertainty," International Finance Discussion Papers 1256 (Washington: Board of Governors of the Federal Reserve System, September), https://dx.doi.org/10.17016/IFDP.2019.1256. Boeing slowed production of the 737 Max in the spring of 2019 and subsequently announced a temporary suspension of production beginning in early 2020.

2. The input-output tables are published by the Bureau of Economic Analysis. Our estimates are from the 2018 sectoral "Domestic Requirements" table, which shows both the intermediate products used directly by manufacturers and the intermediate products used further upstream by their suppliers. The tables do not, however, account for broader general equilibrium effects such as, for example, the lower spending by workers who may have been laid off when there were cutbacks in auto production.

B. Manufacturing share of GDP and employment

Source: Staff estimates of data from the Bureau of Economic Analysis (for gross domestic product) and from the Bureau of Labor Statistics (for employment).

C. Manufacturing IP and its trend

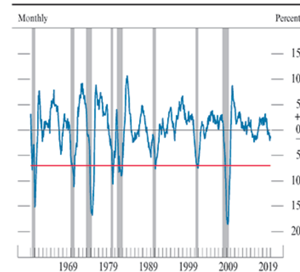
Note: The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.
Source: Federal Reserve Board, Statistical Release G.17, "Industrial Production and Capacity Utilization"; Federal Reserve Board staff estimates of the trend.

to less than 9 percent today, and the value added from manufacturing has fallen from more than 25 percent of GDP to a bit under 12 percent (figure B). However, although the manufacturing sector has shrunk, factory output may still be a good barometer of aggregate demand and of the economy's health.

Growth in the U.S. manufacturing sector has slowed considerably over time. Measured from business cycle peak to business cycle peak, output grew about 3.5 percent per year between 1920 and 1960, as well as from 1960 through 2001. As seen in figure C, factory production has moved up only about 0.5 percent per year since 2001, and only 2 of those 19 calendar years recorded gains of more than 3.5 percent.

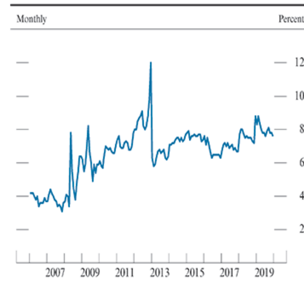
To interpret the recent weakness in manufacturing in this light, figure D shows 12-month changes in "detrended" IP, where values below zero indicate year-over-year changes in IP that are slower than its trend at the time. Notably, most expansions include periods of modest below-trend growth. In 2019, growth averaged about 2 percentage points below trend, a slowdown fairly similar to that in the 2015–16 period. Other episodes of modest below-trend growth appear in the expansions of the early 2000s, the 1990s, the mid-1980s, and the 1960s. In contrast, as shown by the red line in figure D, every recession since 1960—but no expansion—includes at least some months when the 12-month change in IP was at least 7 percentage points below trend. The available data, however, suggest that the recent experience in the United States falls well short of that threshold.

D. 12-month change in detrended manufacturing IP



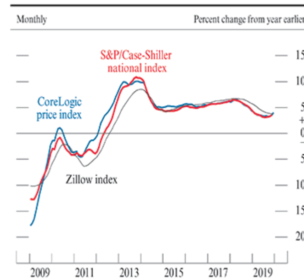
Note: The red line is drawn at -7. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.
Source: Federal Reserve Board, Statistical Release G.17, "Industrial Production and Capacity Utilization."

15. Personal saving rate



Source: Bureau of Economic Analysis via Haver Analytics.

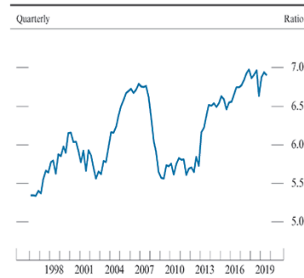
16. Prices of existing single-family houses



Note: The data for the S&P/Case-Shiller index extend through November 2019.

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.)

17. Wealth-to-income ratio



Note: The data extend through 2019:Q3. 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.

improvements in the labor market, which have supported further increases in household income. Real disposable personal income, a measure of households' after-tax purchasing power, increased 2.6 percent in 2019, a solid gain albeit below the robust increase in 2018 that was bolstered by a reduction in personal income taxes. The personal saving rate, at 7.7 percent in the fourth quarter, was little changed from the previous year (figure 15).

Spending was also supported by high household wealth . . .

The relatively high level of aggregate household net worth also supported consumer spending last year. House prices, which are of particular importance for the value of assets held by a large portion of households, continued to increase in 2019, although at a more moderate pace than in recent years (figure 16). In addition, U.S. equity prices, which fell sharply at the end of 2018, have rebounded since then. Equity wealth is more concentrated among high-wealth households with high propensities to save than is housing wealth, however, and may therefore provide less support for consumption. The ratio of aggregate household net worth to household income held steady through the third quarter of last year at 6.9, near its all-time high (figure 17).

. . . and consumer sentiment remains strong

Consumers have remained upbeat during the past year. The Michigan index of consumer sentiment, which declined last summer as trade tensions spiked, recovered in recent months and currently stands at a high level by historical standards. The sentiment measure from the Conference Board, which has been more stable, also suggests consumers are fairly upbeat (figure 18).

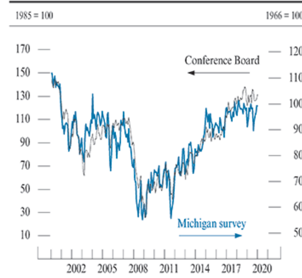
Borrowing conditions for households remain generally favorable, and borrowing costs have moved down since the middle of 2019 . . .

Financing conditions for consumers remain supportive of growth in household spending. Interest rates on credit cards and auto loans declined, on net, during the second half of 2019, and consumer credit continued to expand at a moderate pace (figure 19). Standards and delinquency rates for these loans have been generally stable. For student loans, credit remains widely available, with over 90 percent of such credit being extended by the federal government. After peaking in 2013, delinquencies on such loans have been gradually declining, reflecting in part the continued improvements in the labor market. In the mortgage market, credit has continued to be readily available for households with solid credit profiles but remains noticeably tighter than before the most recent recession for borrowers with low credit scores.

. . . and activity in the housing sector has picked up, likely reflecting lower interest rates

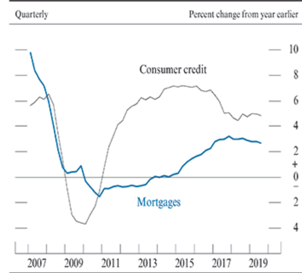
Residential investment picked up in the second half of 2019 after declining for six straight quarters. Housing starts for single-family and multifamily housing units increased sharply in the second half of last year and posted appreciable gains for the year as a whole, with starts and permits for new construction rising to the highest levels in more than 10 years (figure 20). Sales of new and existing homes also increased during 2019 (figure 21). This improvement appears to have importantly reflected the reduction in mortgage interest rates; after increasing appreciably from mid-2017 through 2018, rates declined markedly last year, fully reversing those earlier increases (figure 22). Despite the lower mortgage rates, households' perceptions of homebuying conditions have remained low, likely reflecting ongoing increases in housing prices.

18. Indexes of consumer sentiment



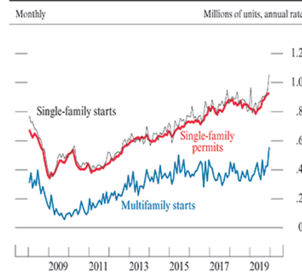
Note: The data are monthly and extend through January 2020.
Source: University of Michigan Surveys of Consumers; Conference Board.

19. Changes in household debt



Note: The data extend through 2019:Q3.
Source: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

20. Private housing starts and permits

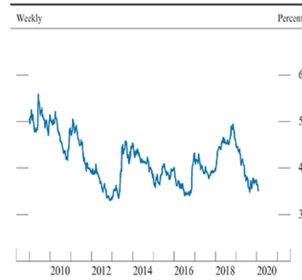


Source: U.S. Census Bureau via Haver Analytics.

21. New and existing home sales

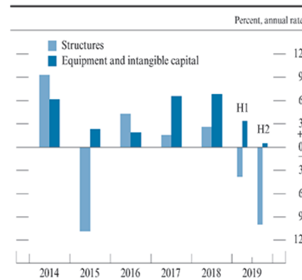
NOTE: Data are monthly. New home sales includes only single-family sales. Existing home sales includes single-family, condo, townhome, and co-op sales.
SOURCE: For new home sales, U.S. Census Bureau; for existing home sales, National Association of Realtors; all via Haver Analytics.

22. Mortgage rates



NOTE: Data are weekly through January 30, 2020.
SOURCE: Freddie Mac Primary Mortgage Market Survey.

23. Change in real business fixed investment



NOTE: Business fixed investment is known as "private nonresidential fixed investment" in the National Income and Product Accounts.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

In contrast, business fixed investment weakened in the second half of 2019 . . .

After increasing more than 5 percent per year in 2017 and 2018, business fixed investment—spending by businesses on structures, equipment, and intangibles such as research and development—stalled in 2019, as a moderate gain in the first quarter was offset by small declines over the rest of the year. The softness in business investment last year was evident in each of the three main components, and a portion of the weakening appears to reflect concerns over trade policy and slower foreign growth; other factors included the suspension of deliveries of the Boeing 737 Max aircraft and the continued decline in drilling and mining structures investment amid oil prices that fell back from the levels reached in 2018. Forward-looking indicators of business spending—such as orders of capital goods, surveys of business conditions and sentiment, and profit expectations from industry analysts—all appear to have stabilized in recent months but suggest that investment is likely to remain subdued (figure 23).

. . . despite corporate financing conditions that remained accommodative overall

Financing conditions for nonfinancial firms have remained accommodative amid lower interest rates. Flows of credit to large nonfinancial firms remained solid overall in the third quarter of 2019 (figure 24). The gross issuance of corporate bonds, although lower than in the first half of last year, was robust across credit categories. Yields on both investment- and speculative-grade corporate bonds continued to decrease and are near historical lows. Spreads on corporate bond yields over comparable-maturity Treasury securities have continued to narrow, on net, since the middle of last year and are at the lower end of their historical distributions. Respondents to the January Senior Loan Officer Opinion Survey on Bank Lending Practices, or SLOOS, reported that banks eased several terms on commercial and industrial (C&I) loans but that demand for C&I loans has continued to weaken, consistent

with the slowdown in business investment. C&I loan growth at banks has slowed since the first half of last year, while commercial real estate loan growth has continued to be strong. Meanwhile, financing conditions for small businesses have remained generally accommodative, but credit growth has been subdued.

Net exports added to GDP growth in 2019, as exports grew little but imports declined

Real exports grew only a touch in 2019, as tariffs on U.S. exports increased and foreign growth weakened (figure 25). Real imports declined last year, in part reflecting higher tariffs on imported goods and weakness in investment and manufacturing. As a result, real net exports—after having subtracted from U.S. real GDP growth in 2018—provided a modest boost to GDP growth in 2019. Relative to 2018, the nominal trade deficit is slightly less negative, and the current account deficit is little changed as a percent of GDP (figure 26).

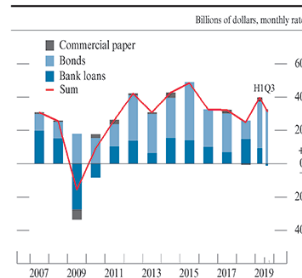
Federal fiscal policy actions continued to boost economic growth in 2019 while raising the federal unified budget deficit . . .

The effects of fiscal policy actions enacted at the federal level in earlier years continued to boost GDP growth in 2019; the Tax Cuts and Jobs Act of 2017 lowered personal and business income taxes, and rising appropriations consistent with the Bipartisan Budget Act of 2018 boosted federal purchases.[9] In 2019, federal purchases rose 4.3 percent, well above the 2.7 percent increase of 2018 (figure 27).

The federal unified budget deficit widened further in fiscal year 2019 to 4½ percent of

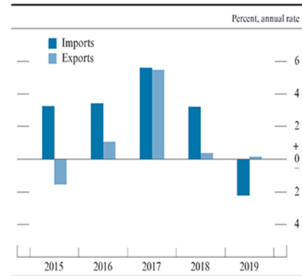
9. The Congressional Budget Office (CBO) estimated that the Tax Cuts and Jobs Act would reduce annual tax revenue by around 1 percent of GDP, on average, from fiscal years 2018 through 2021. This revenue projection includes the CBO's estimated macroeconomic effects of the legislation, which add almost ¼ percentage point to GDP growth, on average, over the same period.

24. Selected components of net debt financing for nonfinancial businesses



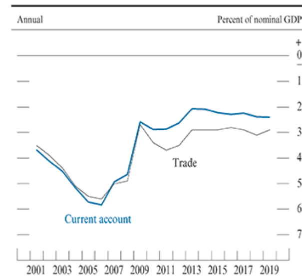
Source: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

25. Change in real imports and exports of goods and services



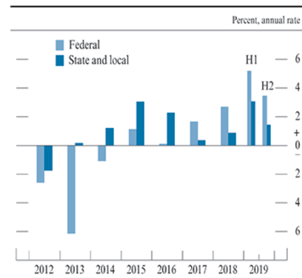
Source: Bureau of Economic Analysis via Haver Analytics.

26. U.S. trade and current account balances



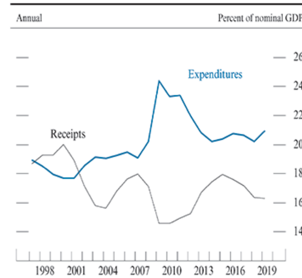
Note: GDP is gross domestic product. Current account data for 2019 are the average of the first three quarters of the year.
Source: Bureau of Economic Analysis via Haver Analytics.

27. Change in real government expenditures on consumption and investment



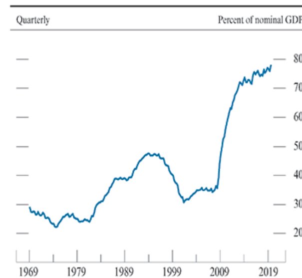
SOURCE: Bureau of Economic Analysis via Haver Analytics.

28. Federal receipts and expenditures



NOTE: The receipts and expenditures data are on a unified-budget basis and are for fiscal years (October through September); gross domestic product (GDP) data are for the four quarters ending in Q3.
SOURCE: Office of Management and Budget via Haver Analytics.

29. Federal government debt held by the public



NOTE: Federal debt extends through 2019:Q3. The data for gross domestic product (GDP) are at an annual rate. 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.
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."

nominal GDP from 3¾ percent of GDP in 2018, as expenditures moved up as a share of the economy while receipts moved sideways (figure 28). Expenditures, at 21 percent of GDP, are above the level that prevailed in the decade before the start of the 2007–09 recession, while receipts have continued to run below their average levels. The ratio of federal debt held by the public to nominal GDP rose to 79 percent in fiscal 2019 and was quite elevated relative to historical norms (figure 29). The Congressional Budget Office projects that this ratio will rise further over the next several years, reflecting large and rising deficits under current fiscal policy.

. . . and the fiscal position of most state and local governments is stable

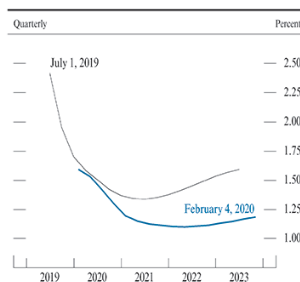
The fiscal position of most state and local governments remains stable, although there is a range of experiences across these governments. Revenues for these governments have continued to grow in recent quarters, as the economic expansion pushes up income and sales tax collections for state governments, and past house price gains continue to push up property tax collections for local governments. Boosted by a rebound in construction spending following two years of weak growth, real purchases by state and local governments rose moderately last year but still remained quite restrained, partly reflecting budget pressures associated with pension and retiree health-care obligations. State and local government payrolls increased moderately in 2019 but have only roughly regained the peak observed before the current expansion, and real outlays for construction are more than 10 percent below their pre-recession peak. The debt of these governments as a share of the economy has continued to edge lower and currently equals around 14 percent of GDP, well below the previous peak of 21 percent following the most recent recession.

Financial Developments

The expected path of the federal funds rate over the next several years shifted down

Market-based measures of the expected path of the federal funds rate over the next several years have moved down, on net, since the middle of last year and show about a 30 basis point decrease in the federal funds rate over 2020 and a relatively flat path thereafter (figure 30). Survey-based measures of the expected path of the policy rate also shifted down from the levels observed in the middle of 2019 but indicate no change to the target range for the federal funds rate over 2020 from its level at the end of 2019. According to the results of the most recent Survey of Primary Dealers and Survey of Market Participants, both conducted by the Federal Reserve Bank of New York in December, the median of respondents' modal projections implies a flat trajectory for the target range of the federal funds rate for the next few years.[10] Additionally, market-based measures of uncertainty about the policy rate approximately one to two years ahead declined, on balance, from their levels at the end of last June and are close to their average level in recent years.

30. Market-implied federal funds rate path

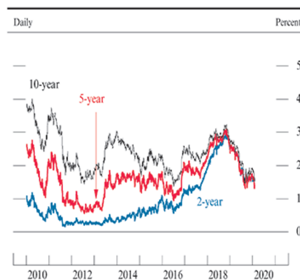


NOTE: The federal funds rate path is implied by quotes on overnight index swaps—a derivative contract tied to the effective federal funds rate. The implied path as of July 1, 2019, is compared with that as of February 4, 2020. The path is estimated with a spline approach, assuming a term premium of 0 basis points. The July 1, 2019, path extends through July 2023 and the February 4, 2020, path through December 2023.
SOURCE: Bloomberg; Federal Reserve Board staff estimates.

U.S. nominal Treasury yields decreased on net

After moving significantly lower over the first half of 2019, nominal Treasury yields also fell sharply in August, largely in response to investors' concerns regarding trade tensions between the United States and China and the global economic outlook (figure 31). Later in the year, as these concerns abated, Treasury yields rose, the yield curve steepened, and uncertainty about near-term Treasury yields—measured by option-implied volatility on short- and longer-dated swap rates—declined.

31. Yields on nominal Treasury securities



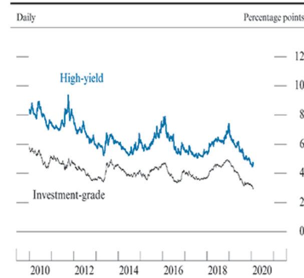
SOURCE: Department of the Treasury via Haver Analytics.

10. 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.

32. 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- and 10-year nominal Treasury yields.
SOURCE: Department of the Treasury; Barclays Live.

33. Corporate bond yields, by securities rating



NOTE: Investment-grade is the 10-year triple-B, which reflects the effective yield of the ICE BofAML 7-to-10-year triple-B U.S. Corporate Index (C4A4). High-yield is the 10-year high-yield and reflects the effective yield of the ICE BofAML 7-to-10-year U.S. Cash Pay High Yield Index (J4A0).
SOURCE: ICE Data Indices, LLC, used with permission.

34. Equity prices

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

However, in the second half of January, investors' concerns about the implications of the coronavirus outbreak for the economic outlook weighed on Treasury yields and led to a flattening of the yield curve as well as some increase in uncertainty about near-term Treasury yields. Since the middle of last year, Treasury yields ended lower on net.

Consistent with changes in the yields on nominal Treasury securities, yields on 30-year agency mortgage-backed securities (MBS)—an important determinant of mortgage interest rates—decreased, on balance, since the middle of last year and remained low by historical standards (figure 32). Meanwhile, yields on both investment- and speculative-grade corporate bonds continued to decline and also stayed low by historical standards (figure 33). Spreads on corporate bond yields over comparable-maturity Treasury yields narrowed moderately, on net, over the second half of 2019 and remained in the lower end of their historical distribution.

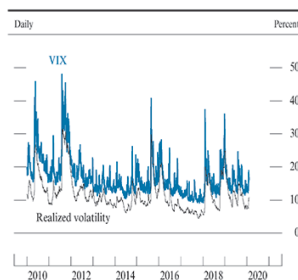
Broad equity price indexes increased notably

Equity prices fluctuated in August and September along with investors' concerns about trade developments and the economic outlook. Later in 2019 and into 2020, as these concerns abated, equity prices rose substantially and were reportedly boosted by greater certainty among investors that monetary policy would remain accommodative in the near term (figure 34). Gains were spread across most major economic sectors, with the exception of the energy sector, for which stock prices declined markedly. Measures of implied and realized stock price volatility for the S&P 500 index—the VIX and the 20-day realized volatility—increased in August to fairly elevated levels but declined later in the year (figure 35). (For a discussion of financial stability issues, see the box "Developments Related to Financial Stability.")

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

While available indicators of Treasury market functioning have generally remained stable since the first half of 2019—including bid-ask spreads, bid sizes, and estimates of transaction costs—some, such as measures of market depth, have decreased. However, the decline in measures of market depth has reportedly not led to any concerns about Treasury market liquidity. Liquidity conditions in the agency MBS market were also generally stable. Credit conditions in municipal bond markets remained stable as well, with yield spreads on 20-year general obligation municipal bonds over comparable-maturity Treasury securities declining notably and standing near historically low levels.

35. 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, five-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®) accessed via Bloomberg; Federal Reserve Board staff estimates.

Money market rates moved down in line with decreases in the FOMC's target range, except for some notable volatility in mid-September

Decreases in the FOMC's target range for the federal funds rate in July, September, and October transmitted effectively through money markets, with yields on a broad set of money market instruments moving lower in response to the FOMC's policy actions.

The effective federal funds rate moved nearly in parity with the interest rate paid on reserves and was closely tracked by the overnight Eurodollar rate. Other short-term interest rates, including those on commercial paper and negotiable certificates of deposit, also moved down in line with decreases in the policy rate. Domestic short-term funding markets were volatile in mid-September—amid large flows related to corporate tax payments and settlement of Treasury securities—and experienced significant tightening of conditions. The effective federal funds rate rose above the target range on September 17 but then moved back within the target range following the Federal Reserve's open market operations, which eased pressures in money markets (see the box "Money Market Developments and Monetary Policy Implementation" in Part 2).

Developments Related to Financial Stability

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, household and business debt, leverage in the financial sector, and funding risks.[1]

Asset prices have risen partly because of declines in interest rates, but valuation pressures are elevated. Equity prices increased nearly 30 percent over 2019, and the forward price-to-earnings ratio has reached the recent peak seen in 2018 (figure A). In corporate debt markets, the spreads of interest rates on newly issued leveraged loans over LIBOR (London interbank offered rate) have decreased since July 2019 across the credit-quality spectrum, with spreads for the relatively higher-rated issuers reaching their post-crisis lows. Spreads on investment- and speculative-grade bonds over comparable-maturity Treasury yields narrowed since July 2019 and stand notably below their respective medians (figure B). In commercial real estate markets, prices continued to grow at a robust pace in recent quarters, with capitalization rates at historically low levels. Although house price growth slowed noticeably in 2019, house prices still appear to lie modestly above the level predicted by their historical relationship with rents.

Vulnerabilities associated with total private-sector debt continue to be at a moderate level relative to their historical norms. Total household debt has grown at a slower pace than economic activity over the past decade, in part reflecting that mortgage credit has remained tight for borrowers with low credit scores, undocumented income, or high debt-to-income ratios. In contrast, business debt levels continue to be elevated compared with either business assets or gross domestic product, with the riskiest firms accounting for most of the increase in debt in recent years (figure C). Although the net issuance of riskier forms of business debt—high-yield bonds and institutional leveraged loans—has slowed since July 2019, it is still solid by historical standards (figure D).

In addition, about half of investment-grade debt outstanding is currently rated in the lowest category of the investment-grade range (triple-B), a share that is near an all-time high. The concentration of investment-grade debt at the lower end of the investment-grade spectrum creates the risk that adverse developments, such as a deterioration in economic activity, could lead to a sizable volume of bond downgrades to speculative-grade ratings. Such conditions could trigger investors to sell the downgraded bonds rapidly, increasing market illiquidity and causing outsized downward price pressures.

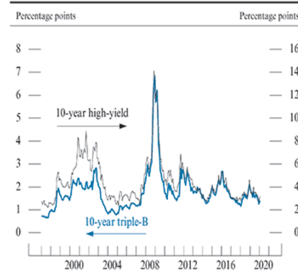
1. The *Financial Stability Report* published on November 15, 2019, presents the most recent, detailed assessment of these vulnerabilities.

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

Note: The data extend through January 2020. 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), IBES Estimates.

B. Corporate bond spreads to similar-maturity Treasury securities

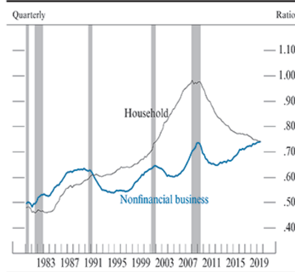


Note: The data are monthly and extend through January 2020. The 10-year triple-B reflects the effective yield of the ICE BofAML 7-to-10-year triple-B U.S. Corporate Index (C4A4), and the 10-year high-yield reflects the effective yield of the ICE BofAML 7-to-10-year U.S. Cash Pay High Yield Index (J4A0). Treasury yields from smoothed yield curve estimated from off-the-run securities.

Source: ICE Data Indices, LLC, used with permission; Department of the Treasury.

(continued)

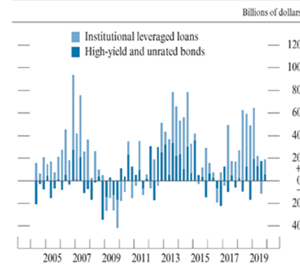
C. Nonfinancial business- and household-sector credit-to-GDP ratios



NOTE: The data extend through 2019:Q3. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research. 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."

D. Net issuance of risky debt



NOTE: Institutional leveraged loans generally exclude loan commitments held by banks.

SOURCE: Mergent, Fixed Investment Securities Database; S&P Global, Leveraged Commentary & Data.

Leverage in the financial sector appears low relative to historical norms. The banking sector is much more highly capitalized, in part due to the regulatory reforms enacted after the financial crisis. In addition, the results of the most recent stress test, released in June 2019, indicated that these banks are well positioned to continue lending to households and businesses even in the event of a severe global recession.[2] However, several large banks have announced plans to distribute capital to their shareholders in excess of expected earnings, implying that capital at those banks will decrease. Outside the banking sector, broker-dealers as well as property-and-casualty insurance companies continue to operate with historically low levels of leverage. Leverage at life insurance companies has risen but continues to be close to its average level over the past two decades, and leverage at hedge funds remains near the top of its range since 2014. Furthermore, the outlook for profitability of a range of financial institutions has weakened following declines in interest rates. Weaker profitability could affect their ability to absorb losses or build capital through retained earnings.

Funding risk in the banking sector remains low. Banks rely only modestly on short-term wholesale funding and maintain large amounts of high-quality liquid assets in compliance with liquidity regulations introduced after the financial crisis and the improved understanding by banks of their liquidity risks. In addition, money market mutual funds remain less prone to runs than they were before the implementation of the money market reforms, as the composition of assets under management remains heavily tilted toward the safer and more liquid government funds. Nonetheless, the volatility in repurchase agreement (repo) markets in mid-September 2019 highlighted the possibility for frictions in repo markets to spill over to other markets.[3]

Foreign financial, economic, and political developments could pose a number of near-term risks to the U.S. financial system. In China, fragilities in the corporate and financial sector leave it vulnerable to adverse developments. Because of the size of the Chinese economy, significant distress in China could spill over to U.S. and global markets through a retrenchment of risk appetite, U.S. dollar appreciation, and declines in trade and commodity prices.

In Europe, the risk of a "no-deal Brexit" passed at the end of January, but the United Kingdom and the European Union are still committed to conclude negotiations over their future relationship—including new trade arrangements—by the end of 2020. Failure to do so could trigger market and economic disruptions in Europe that may weaken systemically important financial institutions and spill over to global markets, leading to a tightening of U.S. financial conditions.

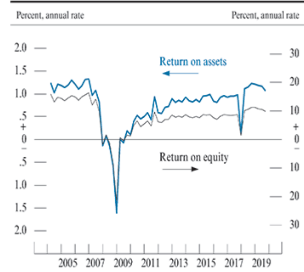
2. See Board of Governors of the Federal Reserve System (2019), *Dodd-Frank Act Stress Test 2019: Supervisory Stress Test Results* (Washington: Board of Governors, June), https://www.federalreserve.gov/publications/files/2019-dfast-results-20190621.pdf.

3. See the box "Money Market Developments and Monetary Policy Implementation" in Part 2.

36. Ratio of total commercial bank credit to nominal gross domestic product

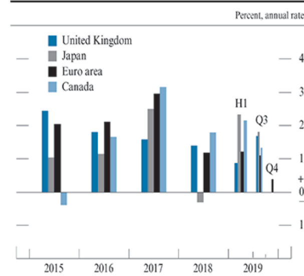
SOURCE: Federal Reserve Board, Statistical Release H.8, "Assets and Liabilities of Commercial Banks in the United States"; Bureau of Economic Analysis via Haver Analytics.

37. Profitability of bank holding companies



NOTE: The data are quarterly and are seasonally adjusted. The data extend through 2019:Q3.
SOURCE: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Bank Holding Companies.

38. Real gross domestic product growth in selected advanced foreign economies



NOTE: The data for the euro area incorporate a preliminary release for 2019:Q4.
SOURCE: For the United Kingdom, Office for National Statistics; for Japan, Cabinet Office, Government of Japan; for the euro area, Eurostat; for Canada, Statistics Canada; all via Haver Analytics.

Bank credit continued to expand, and bank profitability remained robust

Aggregate credit provided by commercial banks continued to expand through the second half of 2019, as the strength in commercial real estate and residential real estate loan growth, helped by falling interest rates, more than offset the slowdown in C&I and consumer loans. In the second half of last year, the pace of bank credit expansion was about in line with that of nominal GDP, leaving the ratio of total commercial bank credit to current-dollar GDP little changed from its value last June (figure 36). Overall, measures of bank profitability ticked down a bit in the third quarter because of narrower net interest margins but remain near their post-crisis highs (figure 37).

International Developments

Growth in advanced foreign economies weakened, but it appears to be stabilizing

Real GDP growth in several advanced foreign economies (AFEs) appears to have stepped down in the second half of the year (figure 38). However, incoming data suggest that the slowdown in the AFEs may have bottomed out. Household spending has generally remained resilient, sustained by low unemployment rates and rising wages. Financial conditions have improved further, supported in part by accommodative monetary policy actions. The protracted slump in global manufacturing, which weighed on external demand across the AFEs, is showing tentative signs of nearing an end. In the euro area, where manufacturing activity was particularly weak, recent indicators suggest that growth may be steadying. In Japan, real GDP appears to have contracted sharply at the end of 2019, following a consumption tax hike in October, but its effects are likely to be transitory.

In the United Kingdom, Brexit-related uncertainty weighed on economic activity throughout 2019; around the turn of the year, U.K. and European Union authorities took the necessary steps to prevent a disorderly Brexit from occurring on January 31, 2020,

but they still need to negotiate a new trade arrangement.

Inflationary pressures remained subdued in many advanced foreign economies

Against a backdrop of slower economic growth, consumer prices in many AFEs continued to rise at a subdued pace, especially in the euro area and Japan (figure 39). Canada remains an exception, as inflation there hovered around 2 percent.

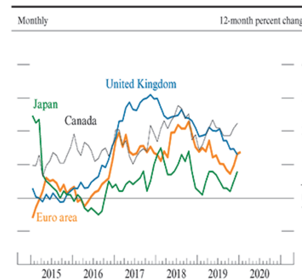
Central banks in several advanced foreign economies provided accommodation

In response to subdued growth and below-target inflation, the European Central Bank introduced a new stimulus package in September of last year, including a deposit rate cut of 10 basis points to negative 0.5 percent, a restart of its Asset Purchase Programme, and more favorable terms for its targeted longer-term refinancing operations. Similarly, the Reserve Bank of Australia and the Reserve Bank of New Zealand reduced their policy rates in the second half of last year, citing concerns about the global outlook. The Bank of Canada, the Bank of England, and the Bank of Japan kept their policy rates unchanged, although communications by their officials took a more dovish tone, emphasizing increased downside risks to the global economy. In contrast, Sweden's Riksbank and Norway's Norges Bank increased their policy rates, citing favorable macroeconomic conditions and concerns about growing financial imbalances.

Financial conditions in advanced foreign economies eased further

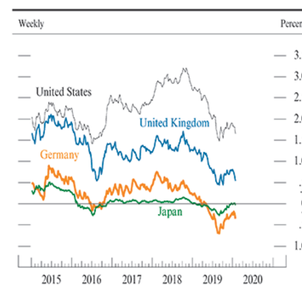
Notwithstanding slowing global growth and bouts of political tensions, financial conditions in the AFEs, on balance, eased further in the second half of 2019, supported by accommodative central bank actions, progress on trade negotiations between the United States and China, and diminished fears of a hard Brexit. Long-term interest rates in many AFEs remained well below the levels seen at the end of 2018 (figure 40). Equity

39. Consumer price inflation in selected advanced foreign economies



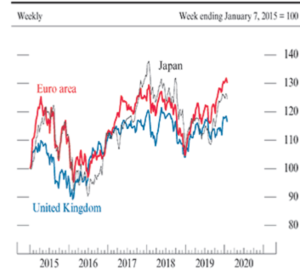
NOTE: The data for the euro area incorporate the flash estimate for January 2020.
SOURCE: For the United Kingdom, Office for National Statistics; for Japan, Ministry of Internal Affairs and Communications; for the euro area, Statistical Office of the European Communities; for Canada, Statistics Canada; all via Haver Analytics.

40. Nominal 10-year government bond yields in selected advanced foreign economies



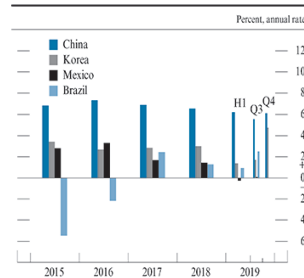
NOTE: The data are weekly averages of daily benchmark yields. The weekly data begin on Thursdays and extend through January 29, 2020.
SOURCE: Bloomberg.

41. Equity indexes for selected advanced foreign economies



Note: The data are weekly averages of daily data. The weekly data begin on Thursdays and extend through January 29, 2020.
Source: For euro area, DJ Euro Stoxx Index; for Japan, TOPIX Stock Index; for United Kingdom, FTSE 100 Stock Index; all via Bloomberg.

42. Real gross domestic product growth in selected emerging market economies



Note: The data for China are seasonally adjusted by Board staff. The data for Korea, Mexico, and Brazil are seasonally adjusted by their respective government agencies. The 2019:Q4 value for Mexico is 0 percent.
Source: For China, National Bureau of Statistics of China; for Korea, Bank of Korea; for Mexico, Instituto Nacional de Estadística y Geografía; for Brazil, Instituto Brasileiro de Geografia e Estatística; all via Haver Analytics.

prices, as well as prices of other risky assets, increased moderately (figure 41). Sovereign bond spreads over German bund yields for euro-area peripheral countries narrowed slightly. In recent weeks, however, equity and bond markets gave up some of their gains as uncertainty about the economic effects of the coronavirus weighed on investors' sentiment.

Growth slowed markedly in many emerging market economies, but there are tentative signs of stabilization

Chinese GDP growth slowed further in the second half of 2019 against the backdrop of increased tariffs on Chinese exports, global weakness in trade and manufacturing, and authorities' deleveraging campaign that continued to exert a drag on the economy (figure 42). However, recent data suggest that China's economic activity picked up at the end of last year, in part supported by some fiscal and monetary policy stimulus and some easing of trade tensions. In emerging Asia excluding China, economic growth was dragged down by a sharp contraction in Hong Kong, where social and political unrest resulted in severe economic disruptions, and by weakness in India, where an ongoing credit crunch continues to weigh on activity. In several other Asian economies, GDP growth held steady but at a lackluster pace amid headwinds from moderating global growth. GDP growth in Korea, Taiwan, and the Philippines rebounded in the last quarter of 2019, consistent with signs of stabilization in the global manufacturing cycle, especially in the high-tech sector. However, the recent emergence of the coronavirus could lead to disruptions in China that spill over to other Asian countries and, more generally, to the rest of the global economy.

Many Latin American economies continued to underperform. Economic stagnation persisted in Mexico, reflecting both domestic factors—including market concerns about economic policies—and external factors, notably, renewed weakness in U.S. manufacturing production. Severe social unrest in several countries—including Chile, Ecuador, and Bolivia—disrupted economic activity. Argentina's financial crisis continued, while Venezuela's economy likely continued to contract. Growth in Brazil, in contrast, edged up as aggregate demand continued to recover, supported by further reductions in policy interest rates.

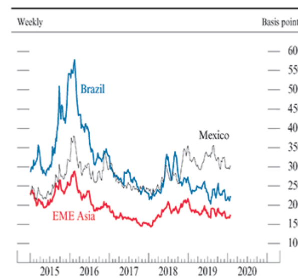
Financial conditions in emerging market economies fluctuated but, on net, eased somewhat

Notwithstanding social and political tensions as well as concerns about the global outlook, financial conditions in the emerging market economies (EMEs) eased somewhat in the second half of 2019. Conditions were supported by the accommodative actions of the FOMC and several foreign central banks and, later in the year, by progress in the negotiations between the United States and its major trading partners as well as improved prospects about global growth. EME equity prices generally increased, especially for Brazil (figure 43). And measures of EME sovereign bond spreads over U.S. Treasury yields generally decreased (figure 44). Political tensions in Hong Kong contributed to an underperformance of Chinese risky assets. After several months of withdrawals, flows to dedicated EME mutual funds resumed in the fourth quarter of 2019, consistent with the improved sentiment toward global prospects

43. Equity indexes for selected emerging market economies

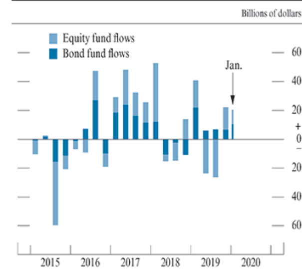
Note: The data are weekly averages of daily data. The weekly data begin on Thursdays and extend through January 29, 2020.
Source: For China, Shanghai Composite Index; for Brazil, Bovespa Index; for South Korea, Korean Composite Index; for Mexico, IPC Index; all via Bloomberg.

44. Sovereign spreads in selected emerging market economies



Note: The data are weekly averages of daily data. The weekly data begin on Thursdays and extend through January 29, 2020.
Source: J.P. Morgan Emerging Markets Bond Index Global via Bloomberg.

45. Emerging market mutual fund flows



NOTE: The bond and equity fund flows data are quarterly sums of weekly data from January 1, 2015, to December 25, 2019. Weekly data span Thursday through Wednesday, and the quarterly and January 2020 values are sums over weekly data for weeks ending in that quarter or month. The data exclude funds located in China.
SOURCE: EPFR Global.

46. U.S. dollar exchange rate indexes

NOTE: The data, which are in foreign currency units per dollar, are weekly averages of daily data. The weekly data begin on Thursdays and extend through January 29, 2020. As indicated by the leftmost arrow, increases in the data represent U.S. dollar appreciation, and decreases represent U.S. dollar depreciation.
SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

(figure 45). However, in reaction to the emergence of the coronavirus, in late January equity and bond markets gave up some of their gains.

The dollar fluctuated but is, on balance, little changed

The foreign exchange value of the U.S. dollar fluctuated but is, on balance, little changed compared with last July (figure 46). While concerns about global growth and trade tensions contributed to the appreciation of the dollar over the summer, monetary policy easing by the Federal Reserve and progress on U.S.–China trade negotiations led to a depreciation of the dollar, especially with respect to the Chinese renminbi. The British pound appreciated notably against the dollar as fears of a disorderly Brexit diminished.

Part 2
Monetary Policy

The Federal Open Market Committee reduced the federal funds rate to support sustained economic expansion and foster a return of inflation to the Committee's 2 percent objective

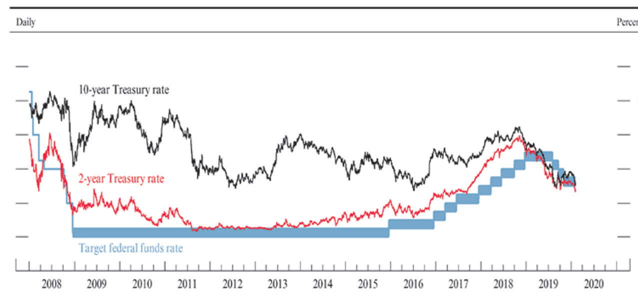
After having gradually increased its target range for the federal funds rate from late 2015 through the end of 2018, the Committee maintained its target range for the federal funds rate at 2¼ to 2½ percent during the first half of 2019. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the Federal Open Market Committee (FOMC) lowered the target range for the federal funds rate at its July, September, and October meetings by 25 basis points each, bringing it to 1½ to 1¾ percent (figure 47).[11] At its December and January meetings, the Committee judged that the prevailing stance of monetary policy was appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation returning to its symmetric 2 percent objective.

Future changes in the federal funds rate will depend on the economic outlook and risks to the outlook as informed by incoming data

The FOMC has continued to emphasize that the actual path of monetary policy will depend on the evolution of the economic outlook and risks to the outlook as informed by incoming data. Specifically, in deciding on the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and symmetric 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation

11. See the FOMC statements issued after the July, September, and October meetings, which are available (along with other postmeeting statements) on the Monetary Policy portion of the Board's website at https://www.federalreserve.gov/monetarypolicy.htm.

47. 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.

expectations, and readings on financial and international developments.

In addition to evaluating a wide range of economic and financial data and information gathered from business contacts and other informed parties around the country, policymakers routinely consult prescriptions for the policy interest rate from various monetary policy rules, which can provide useful guidance to the FOMC. Although many practical considerations make it undesirable for the FOMC to mechanically follow the prescriptions of any specific rule, the FOMC's framework for conducting systematic monetary policy respects key principles of good monetary policy embodied by these rules, while at the same time, providing flexibility to address many of the limitations of these policy rules (see the box "Monetary Policy Rules and Uncertainty in Monetary Policy Settings").

The FOMC concluded the reduction of its aggregate securities holdings in the System Open Market Account . . .

At its July meeting, along with its decision to lower the target range for the federal funds rate, the FOMC also announced that it was ending the runoff of securities holdings two months earlier than the initially planned termination at the end of September.[12] Ending the runoff earlier than initially planned was seen as having only very small effects on the balance sheet, with negligible implications for the economic outlook. Moreover, doing so avoided the appearance of inconsistency in continuing to allow the balance sheet to run off while simultaneously lowering the target range for the federal funds rate.

Since then, the Federal Reserve has rolled over at auction all principal payments from its holdings of Treasury securities and has reinvested all principal payments from its holdings of agency debt and agency mortgage-backed securities (MBS) received during each calendar month. The Committee intends to continue to reduce its holdings of agency debt and agency MBS, consistent with the aim of holding primarily Treasury securities in the long run. To allow for a gradual runoff of the MBS portfolio, principal payments from agency debt and agency MBS of up to $20 billion per month have been reinvested in Treasury securities; agency MBS principal payments in excess of $20 billion each month have been reinvested in agency MBS.[13]

. . . and reaffirmed its intention to implement monetary policy in a regime with an ample supply of reserves

In a monetary policy regime with an ample supply of reserves, control over the level of the federal funds rate and other short-term interest rates is exercised primarily through the setting of the Federal Reserve's administered rates, and active management of the supply of reserves is not required. The Federal Reserve will still conduct periodic open market operations as necessary to accommodate the trend growth in the demand for its nonreserve liabilities, such as currency in circulation, and maintain an ample supply of reserves over time. Separate from such periodic open market operations, beginning in October 2019, the Federal Reserve has implemented a temporary program of open market operations, specifically Treasury bill purchases, aimed at durably raising reserves to levels at or above those prevailing in early September (see the box "Money Market Developments and Monetary Policy Implementation" at the end of Part 2). These actions are purely technical measures to support the effective

12. The Committee had initially indicated in its Balance Sheet Normalization Principles and Plans, issued in March 2019, that it intended to conclude the reduction of its aggregate securities holdings in the System Open Market Account at the end of September 2019. The document is available on the Board's website at https://www.federalreserve.gov/newsevents/pressreleases/monetary20190320c.htm.

13. See the Balance Sheet Normalization Principles and Plans in note 12. Since August, the Federal Reserve has reinvested, on average, about $7 billion per month in agency MBS.

Monetary Policy Rules and Uncertainty in Monetary Policy Settings

Monetary policy rules are mathematical formulas that 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. The prescriptions for the policy interest rate from these rules can provide helpful guidance for the Federal Open Market Committee (FOMC).[1]

This discussion examines prescriptions from selected policy rules and considers how these prescriptions often depend on judgments and assumptions about economic variables that are inherently uncertain and may change over time. Notably, many policy rules depend on estimates of resource slack and of the longer-run neutral real interest rate, both of which are not directly observable and are estimated with a high degree of uncertainty. As a result, the policy stance that these rules prescribe—and whether that stance is appropriate in light of underlying economic conditions—is also uncertain. Such a situation cautions against mechanically following the prescriptions of any specific rule.

Policy Rules: Some Key Design Principles and Historical Prescriptions

In many models of the economy, good economic performance can be achieved by following a monetary policy rule that fosters public understanding and that incorporates key principles of good monetary policy.[2] One such principle is that monetary policy should respond in a predictable way to changes in economic conditions. A second principle is that monetary policy should be accommodative when inflation is below policymakers' longer-run inflation objective and employment is below its maximum sustainable level; conversely, monetary policy should be restrictive when the opposite holds. A third principle is that, to stabilize inflation, the policy rate should be adjusted over time by more than one-for-one in response to persistent increases or decreases in inflation.

Economists have analyzed many monetary policy rules, including the well-known Taylor (1993) rule, the "balanced approach" rule, the "adjusted Taylor (1993)" rule, the "price level" rule, and the "first difference" rule (figure A).[3] These policy rules embody the three key principles of good monetary policy and take into account estimates of how far the economy is from the Federal Reserve's dual-mandate goals of maximum employment and price stability. The Taylor (1993), balanced-approach, adjusted Taylor (1993), and price-level rules provide prescriptions for the level of the federal funds rate; all require an estimate of the neutral real interest rate in the longer run (r_t^{LR})—that is, the level of the real federal funds rate that is expected to be consistent, in the longer run, with maximum

(continued on next page)

1. FOMC policymakers first discussed prescriptions from monetary policy rules in 1995 and have consulted them routinely since 2004.

2. The effectiveness of monetary policy is enhanced when it is well understood by the public. For a discussion of how the public's understanding of monetary policy matters for the effectiveness of monetary policy, see Janet L. Yellen (2012), "Revolution and Evolution in Central Bank Communications," speech delivered at the Haas School of Business, University of California, Berkeley, November 13, https://www.federalreserve.gov/newsevents/speech/yellen20121113a.htm. For a discussion regarding principles for the conduct of monetary policy, see Board of Governors of the Federal Reserve System (2018), "Monetary Policy Principles and Practice," webpage, https://www.federalreserve.gov/monetarypolicy/monetary-policy-principles-and-practice.htm.

3. The Taylor (1993) rule was suggested in John B. Taylor (1993), "Discretion versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy*, vol. 39 (December), pp. 195–214. The balanced-approach rule was analyzed in John B. Taylor (1999), "A Historical Analysis of Monetary Policy Rules," in John B. Taylor, ed., *Monetary Policy Rules* (Chicago: University of Chicago Press), pp. 319–41. The adjusted Taylor (1993) rule was studied in David Reifschneider and John C. Williams (2000), "Three Lessons for Monetary Policy in a Low-Inflation Era," *Journal of Money, Credit and Banking*, vol. 32 (November), pp. 936–66. A price-level rule was discussed in Robert E. Hall (1984), "Monetary Strategy with an Elastic Price Standard," in *Price Stability and Public Policy*, proceedings of a symposium sponsored by the Federal Reserve Bank of Kansas City, held in Jackson Hole, Wyo., August 2–3 (Kansas City: Federal Reserve Bank of Kansas City), pp. 137–59, https://www.kansascityfed.org/publicat/sympos/1984/s84.pdf. 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 comprehensive 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.

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	$R_t^{BA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2(u_t^{LR} - u_t)$
Adjusted Taylor (1993) rule	$R_t^{T93adj} = maximum\ \{R_t^{T93} - Z_t, 0\}$
Price-level rule	$R_t^{PL} = maximum\ \{r_t^{LR} + \pi_t + (u_t^{LR} - u_t) + 0.5(PLgap_t), 0\}$
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^{T93adj}, R_t^{PL}, and R_t^{FD} represent the values of the nominal federal funds rate prescribed by the Taylor (1993), balanced-approach, adjusted Taylor (1993), price-level, and first-difference rules, respectively.

R_t denotes the realized nominal federal funds rate for quarter t, π_t is the four-quarter price inflation for quarter t, u_t is the unemployment rate in quarter t, and r_t^{LR} is the level of the neutral real federal funds rate in the longer run that is expected to be consistent with sustaining maximum employment and inflation at the FOMC's 2 percent longer-run objective, 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 zero. $PLgap_t$ is the percent deviation of the realized level of prices from a price level that rises 2 percent per year from its level in a specified starting period.

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 FOMC's statutory goals. The rules are implemented as responding to core PCE inflation rather than to headline PCE inflation because current and near-term core inflation rates tend to outperform headline inflation rates as predictors of the medium-term behavior of headline inflation. Box note 3 provides references for the policy rules.

employment and stable inflation.[4] The rules feature the unemployment rate gap, measured as the difference between an estimate of the rate of unemployment that is sustainable in the longer run (u_t^{LR}) and the current unemployment rate; the first-difference rule includes the change in the unemployment gap rather than its level.[5] In addition, four of the five rules include the difference between recent inflation and the FOMC's longer-run objective of 2 percent, whereas the price-level rule includes the gap between the level of prices today and the level of prices that would have been realized if inflation had been constant at 2 percent from a specified starting year.[6] The price-level rule thereby takes account of the deviation of inflation from the longer-run objective in earlier periods as well as in the current period, in contrast with the other rules that do not make up past misses of the inflation objective.

The adjusted Taylor (1993) rule recognizes that the federal funds rate cannot be reduced materially below zero and that following the prescriptions of the standard Taylor (1993) rule after a recession during which the federal funds rate has fallen to its effective lower bound may therefore not provide enough policy accommodation. To make up for the

(continued)

4. The expression of the first-difference rule shown in figure A does not involve an estimate of the neutral real interest rate in the longer run. 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.

5. 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. However, movements in these alternative measures of resource utilization are highly correlated. For more information, see the note below figure A.

6. Calculating the prescriptions of the price-level rule requires selecting a starting year for the price level from which to cumulate the 2 percent annual rate of inflation. Figure B uses 1998 as the starting year. Around that time, the underlying trend of inflation and longer-term inflation expectations stabilized at levels consistent with PCE (personal consumption expenditures) price inflation being close to 2 percent.

cumulative shortfall in accommodation, the adjusted Taylor (1993) rule prescribes only a gradual return of the policy rate to the (positive) levels prescribed by the standard Taylor (1993) rule after the economy begins to recover. Similarly, the price-level rule specified in figure A recognizes that the federal funds rate cannot be reduced materially below zero. If inflation runs below the 2 percent objective during periods when the policy rate is constrained by the effective lower bound, this rule will, over time, call for more accommodation to make up for the past inflation shortfall.

Figure B shows historical prescriptions for the federal funds rate from the five rules described earlier. For each period, the figure reports the policy rates prescribed by the rules given prevailing economic conditions and estimates of u_t^{LR} and r_t^{LR} at the time. The prescribed values often vary widely across rules. Because there is no definitive standard for favoring one rule over another, consulting a range of rules is generally preferable to relying on any particular rule.

Estimates of r_t^{LR} and u_t^{LR}: Uncertainty and Revisions

As already noted, the level of the neutral real interest rate and the unemployment rate that is sustainable in the longer run is not directly observable and can be estimated only imprecisely. The neutral real interest rate in the longer run is determined by structural features of the economy, including trend productivity growth, demographics, and risk-taking behavior. The unemployment rate that can be sustained in the longer run is also determined largely by nonmonetary factors, such as demographics, educational attainment, and the structure and dynamics of the labor market. These various determining factors may change over time and may not be directly measurable, hence leading to time-varying and uncertain estimates of u_t^{LR} and r_t^{LR}.

Since 2000, forecasters in the Blue Chip survey have markedly reduced their estimates of the longer-run level of the real short-term interest rate (figure C). FOMC participants have also lowered their estimates of the real federal funds rate in the longer run since the Summary of Economic Projections, or SEP, began reporting this information in 2012. Similarly, in recent years, FOMC participants as well as outside forecasters and analysts generally have lowered their estimates of the longer-run unemployment rate considerably.[7]

Figure D illustrates the imprecision with which the longer-run neutral real interest rate is estimated by reporting values from several time-series models, along with measures of the uncertainty surrounding these values.[8] The models use statistical techniques to capture the variations among inflation, interest rates, real gross domestic product, unemployment, and other data series. The point estimates are dispersed across models, ranging from 0.3 to 2.1 percent. Moreover, the 95 percent uncertainty bands around the estimates illustrate the substantial uncertainty inherent in such estimates.[9]

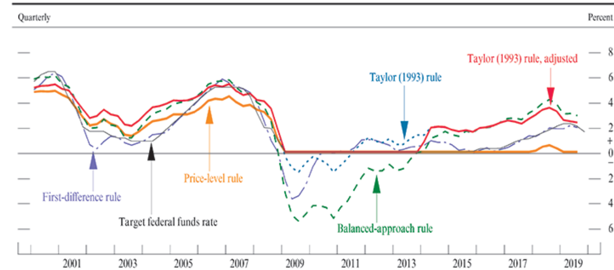
(continued on next page)

7. The SEP median for the longer-run unemployment rate is available since April 2009.

8. The estimates are based on data through 2019:Q3.

9. The range of estimates is computed using published values or values computed using the methodology from the following studies: Jens H.E. Christensen and Glenn D. Rudebusch (2019), "A New Normal for Interest Rates? Evidence from Inflation-Indexed Debt," *Review of Economics and Statistics*, vol. 101 (December), pp. 933–49; Marco Del Negro, Domenico Giannone, Marc P. Giannoni, and Andrea Tambalotti (2017), "Safety, Liquidity, and the Natural Rate of Interest," *Brookings Papers on Economic Activity*,

B. Historical federal funds rate prescriptions from policy rules

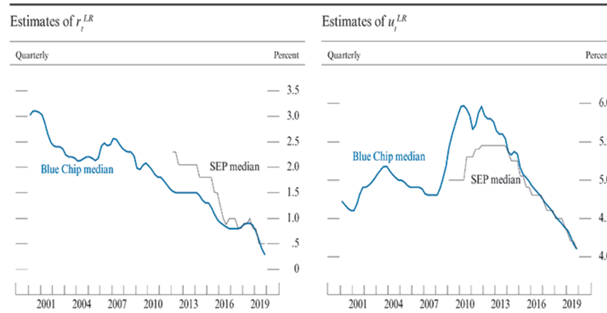


NOTE: The rules use historical values of the federal funds rate, core personal consumption expenditures (PCE) inflation, and the unemployment rate. Quarterly projections of longer-run values for the federal funds rate and the unemployment rate are derived through interpolations of biannual 6-to-10-year-ahead projections from Blue Chip Economic Indicators. The longer-run value for inflation is taken as 2 percent. The target value of the price level is the average level of the price index for PCE excluding food and energy in 1998 extrapolated at 2 percent growth per year. The data extend through 2019:Q3, with the exception of the midpoint of the target range for the federal funds rate data, which go through 2019:Q4.

SOURCE: Federal Reserve Bank of Philadelphia; Wolters Kluwer, Blue Chip Economic Indicators; Federal Reserve Board staff estimates.

Monetary Policy Rules *(continued)*

C. Real-time estimates of the neutral real interest rate and the unemployment rate in the longer run



NOTE: The Blue Chip median for the longer-run neutral real interest rate, r_t^{LR}, equals the 3-month Treasury bill rate projected 6 to 10 years ahead deflated by the corresponding projected annual change in the price index for gross domestic product. The Summary of Economic Projections (SEP) median for the longer-run neutral real interest rate starts in January 2012 and equals the median of Federal Open Market Committee participants' projections of the nominal federal funds rate in the longer run minus the corresponding median projection of personal consumption expenditures inflation. The SEP median for the longer-run unemployment rate, u_t^{LR}, is available since April 2009.

SOURCE: Wolters Kluwer, Blue Chip Economic Indicators; Federal Reserve Board.

Some Implications for Monetary Policy

The longer-run neutral level of the federal funds rate—equal to the sum of the neutral real interest rate in the longer run and the FOMC's 2 percent inflation objective—is one benchmark for evaluating the current stance of monetary policy. Uncertainty about estimates of the longer-run neutral real interest rate leads to uncertainty about how far the current federal funds rate is from its longer-run neutral level. For the Taylor (1993), balanced-approach, adjusted Taylor (1993), and price-level rules, a decrease in the assumed longer-run neutral real interest rate translates

(continued)

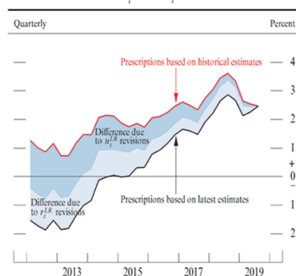
Spring, pp. 235–94, https://www.brookings.edu/wp-content/uploads/2017/08/delnegrotextsp17bpea.pdf; Kathryn Holston, Thomas Laubach, and John C. Williams (2017), "Measuring the Natural Rate of Interest: International Trends and Determinants," *Journal of International Economics*, supp. 1, vol. 108 (May), pp. S59–75; Benjamin K. Johannsen and Elmar Mertens (2016), "The Expected Real Interest Rate in the Long Run: Time Series Evidence with the Effective Lower Bound," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, February 9), https://www.federalreserve.gov/econresdata/notes/feds-notes/2016/the-expected-real-interest-rate-in-the-long-run-time-series-evidence-with-the-effective-lower-bound-20160209.html; Michael T. Kiley (2015), "What Can the Data Tell Us about the Equilibrium Real Interest Rate?" Finance and Economics Discussion Series 2015-77 (Washington: Board of Governors of the Federal Reserve System, August), http://dx.doi.org/10.17016/FEDS.2015.077; Thomas Laubach and John C. Williams (2003), "Measuring the Natural Rate of Interest," *Review of Economics and Statistics*, vol. 85 (November), pp. 1063–70; Kurt F. Lewis and Francisco Vazquez-Grande (2019), "Measuring the Natural Rate of Interest: A Note on Transitory Shocks," *Journal of Applied Econometrics*, vol. 34 (April), pp. 425–36; Thomas A. Lubik and Christian Matthes (2015), "Calculating the Natural Rate of Interest: A Comparison of Two Alternative Approaches," Economic Brief 15-10 (Richmond: Federal Reserve Bank of Richmond, October), https://www.richmondfed.org/-/media/richmondfedorg/publications/research/economic_brief/2015/pdf/eb_15-10.pdf.

D. Point estimates and uncertainty bands for the neutral real rate in the longer run

Study	Point estimate	95 percent uncertainty bands
Christensen and Rudebusch (2019)	.3	(−.7,1.3)
Del Negro and others (2017)	1.3	(1, 1.6)
Holston and others (2017)	.6	(−1.1,2.3)
Johannsen and Mertens (2016)	.4	(−.4,1.2)
Kiley (2015)	.5	(.1,1)
Laubach and Williams (2003)	.9	(−1.7, 3.5)
Lewis and Vazquez-Grande (2019)	2.1	(1.4, 2.8)
Lubik and Matthes (2015)	.7	(−.5,1.7)

NOTE: The estimates use data through 2019:Q3.
SOURCE: Federal Reserve Board staff calculations, along with references listed in box note 9.

E. Historical federal funds rate prescriptions from Taylor (1993) rule conditional on historical and latest estimates of r_t^{LR} and u_t^{LR}



NOTE: The note in figure B provides references to the data and calculations used to derive the historical federal funds rate prescriptions from the Taylor (1993) rule. The data extend through 2019:Q3. For each period, the "prescriptions based on historical estimates" use the interpolated median Blue Chip estimates 6 to 10 years ahead for the neutral real interest rate, r_t^{LR}, and the unemployment rate, u_t^{LR}, as of that period. "Prescriptions based on latest estimates" use the corresponding estimates as of 2019:Q3 for all periods shown.
SOURCE: Wolters Kluwer, Blue Chip Economic Indicators; Federal Reserve Board staff calculations.

one-for-one into a decline in these rules' prescribed settings for the federal funds rate. Therefore, to the extent that the downward revisions to estimates of r_t^{LR} reflect learning that the longer-run neutral rate was lower than had been assessed previously, the historical prescriptions of these rules would be less accommodative than previously thought. Uncertainty about estimates of the longer-run normal unemployment rate also imparts uncertainty to these rules' prescriptions. For example, given current economic conditions, the assumption of a lower sustainable rate of unemployment in the longer run translates one-for-one into reduced unemployment gaps in the rules and, in turn, leads to lower prescribed values of the policy rate.

Figure E compares the prescriptions of the Taylor (1993) rule based on the historical median estimates of u_t^{LR} and r_t^{LR} from the Blue Chip survey (shown in figure C) and the prescriptions generated based on the latest median estimates of these variables. The federal funds rate prescriptions based on the latest estimates (black line) are lower than the prescriptions based on the historical estimates (red line). For example, using the latest median estimates, the rule's prescribed federal funds rates for 2012 are about 3 percentage points lower than the values prescribed based on the historical estimates. Figure E also shows that revisions to the estimates of u_t^{LR} and r_t^{LR} contribute roughly equally to the difference in the policy rate prescriptions of the Taylor (1993) rule based on the historical and the latest estimates of u_t^{LR} and r_t^{LR}.[10]

To conclude, this discussion illustrates that policy rules crucially entail an important element of judgment. Moreover, the inherent uncertainty about some of the variables included in these rules leads to significant uncertainty regarding their policy settings, which cautions against strict adherence to any particular rule.

10. The extent to which these downward revisions to estimates of r_t^{LR} and u_t^{LR} lead to downward revisions in historical policy rate prescriptions varies across policy rules. For example, the historical prescriptions of the balanced-approach rule, which responds more strongly to the unemployment gap than the Taylor (1993) rule, would decrease more than shown in figure E when conditioned on the latest estimates of r_t^{LR} and u_t^{LR}. By contrast, the historical prescriptions of the first-difference rule are essentially unaffected by the downward revisions to r_t^{LR} and u_t^{LR}.

implementation of the FOMC's monetary policy and are not intended to change the stance of monetary policy. These Treasury bill purchases are distinct from the large-scale asset purchase programs that the Federal Reserve deployed after the financial crisis. In those programs, the Federal Reserve purchased longer-term securities to put downward pressure on longer-term interest rates and ease broader financial conditions.

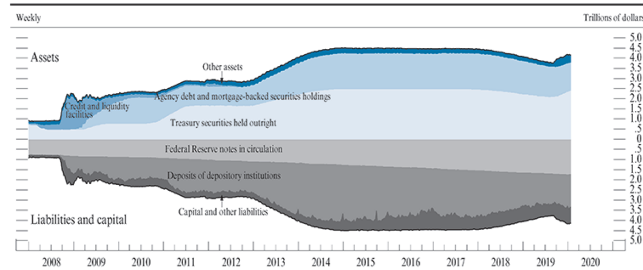
The Federal Reserve's total assets have increased from about $3.8 trillion last July to about $4.1 trillion at present, with holdings of Treasury securities at approximately $2.4 trillion and holdings of agency debt and agency MBS at approximately $1.4 trillion (figure 48). The increase in the size of the balance sheet partly reflects an increase in the level of nonreserve liabilities—such as currency in circulation and the TGA—and a rise in the level of reserve balances, which have increased from approximately $1.5 trillion last July to approximately $1.6 trillion at present.

Meanwhile, interest income on the Federal Reserve's securities holdings has continued to result in substantial remittances to the U.S. Treasury. Preliminary data indicate that the Federal Reserve remitted about $55 billion in 2019.

The effective federal funds rate moved down in line with the FOMC's target range for the federal funds rate

The Federal Reserve reduced the effective federal funds rate following the FOMC's decisions in July, September, and October to lower the target range for the federal funds rate by reducing the interest rate paid on required and excess reserve balances and the interest rate offered on overnight reverse repurchase agreements (ON RRPs). Specifically, the Federal Reserve lowered the interest rate paid on required and excess reserve balances to 2.10 percent in July, 1.80 percent in September, and 1.55 percent in October. In addition, the Federal Reserve lowered the ON RRP offering rate to 2 percent in July, 1.70 percent in September, and 1.45 percent in October. The Federal Reserve also approved a ¼ percentage point decrease in the discount rate (the primary credit rate) in July, September, and October. Yields on a broad set of money market instruments also moved lower, roughly in line with the effective federal funds rate, in response to the FOMC's policy decisions in July, September, and October.

48. Federal Reserve assets and liabilities



NOTE: "Credit and liquidity facilities" consists of primary, secondary, and seasonal credit; term auction credit; central bank liquidity swaps; support for Maiden Lane, Bear Stearns, and AIG; and other credit facilities, including the Primary Dealer Credit Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Commercial Paper Funding Facility, and the Term Asset-Backed Securities Loan Facility. "Other assets" includes repurchase agreements as well as unamortized premiums and discounts on securities held outright. "Capital and other liabilities" includes reverse repurchase agreements, the U.S. Treasury General Account, and the U.S. Treasury Supplementary Financing Account. The data extend through January 29, 2020.

SOURCE: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

The Federal Reserve continued the review of its strategic framework for monetary policy

In the second half of 2019, the Federal Reserve continued the review of its monetary policy strategy, tools, and communication practices. The goal of this assessment is to identify possible ways to improve the Committee's current policy framework in order to ensure that the Federal Reserve is best positioned going forward to achieve its statutory mandate of maximum employment and price stability. (The box "Federal Reserve Review of Monetary Policy Strategy, Tools, and Communication Practices" discusses the review and the public outreach that has accompanied it.)

Federal Reserve Review of Monetary Policy Strategy, Tools, and Communication Practices

Overview

In 2019, the Federal Reserve began a broad review of the monetary policy strategy, tools, and communication practices it uses to pursue its statutory dual-mandate goals of maximum employment and price stability. The Federal Reserve is undertaking the review because the U.S. economy appears to have changed in ways that matter for monetary policy. For example, the neutral level of the policy interest rate appears to have fallen in the United States and abroad, increasing the risk that the effective lower bound on interest rates will constrain central banks from reducing their policy interest rates enough to effectively support economic activity during downturns. The review is considering what monetary policy strategy will best enable the Federal Reserve to meet its dual mandate in the future, whether the existing monetary policy tools are sufficient to achieve and maintain the dual mandate, and how its communication about monetary policy can be improved.

Fed Listens Initiative

A key component of the review has been a series of public *Fed Listens* events aimed at consulting with a broad range of stakeholders in the U.S. economy. The goal of *Fed Listens* was for policymakers to engage directly with a range of individuals and groups on issues pertaining to the dual-mandate objectives of maximum employment and stable prices.

From February to October 2019, the Federal Reserve hosted 14 public *Fed Listens* events—one at the Board of Governors, one at each of the 12 Reserve Banks, and a System research conference at the Federal Reserve Bank of Chicago. The events featured a broad range of participants drawn from the System's existing advisory councils and community networks and from outreach conducted specifically for the *Fed Listens* initiative. The participants represented small businesses, labor unions, state and local governments, schools and community colleges, workforce development organizations, housing groups, community development financial institutions (CDFIs), retirees, and academia.

Most of the events were conducted in a town hall format with one or more panel sessions. A few incorporated site visits to schools and businesses to learn about local initiatives in underserved communities to increase education, combine high school completion with work experience, or offer after-hours vocational training to enhance skill levels.

At the events, participants were asked how they viewed the relative importance of maximum employment and price stability and how monetary policy actions affected them and the people they represent. Participants commented on labor market conditions and whether they saw those conditions as consistent with the dual-mandate objective of maximum employment; they also offered perspectives on inflation, lending conditions, and how people in their organizations or communities responded to interest rate changes. In addition, participants often compared economic conditions today with conditions a few years or a decade ago and assessed the Federal Reserve's public communications. In keeping with the transparency of the review, all of the events were livestreamed, with written summaries of the events posted on System websites afterward.[1]

(continued)

1. Information on the *Fed Listens* events is available on the Board's website at https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications-fed-listens-events.htm.

Takeaways from *Fed Listens*

While the *Fed Listens* events covered a broad range of topics, participants consistently highlighted a few points. Representatives of disadvantaged communities generally saw the strong labor market as providing significant benefits to their constituents—primarily by providing job opportunities for people who had had difficulty finding jobs in the past. These representatives also expressed concern about how newly hired workers would fare in the next downturn and whether the job experience they will have acquired by then would allow them to retain their jobs during the downturn or obtain jobs easily after the economy recovers.

Small business owners and representatives from business organizations said finding qualified workers to fill available positions was a challenge in the current labor market conditions. As a result, businesses are partnering with workforce development agencies or community colleges to devise training programs or specialized curriculums to prepare would-be workers. In addition, firms have been more willing to hire people who would not have been considered in less favorable labor market conditions. However, businesses generally are not increasing wages to attract and retain workers. Instead, they are offering new training or education programs and adding or augmenting health-care and other benefits.

While businesses and CDFIs generally found low interest rates to be beneficial, representatives of underserved populations and retirees conveyed different views. Many people in lower-income communities generally have little or no access to conventional credit. Consequently, they often do not benefit when interest rates on conventional credit fall as a result of the Fed's actions. In addition, we heard that retirees with savings have seen interest income on their savings decline.

Participants acknowledged that inflation is low, and representatives of small businesses or business associations emphasized the importance of stable and predictable inflation for planning and decisionmaking. Participants representing retirees said rising costs of health care and prescription drugs pose challenges for people on fixed incomes, while representatives of low- and middle-income communities said the people they represent still struggle to afford basic necessities such as housing, utilities, and food. Participants generally did not regard the fact that aggregate inflation is running modestly below the Federal Reserve's 2 percent objective as a problem. That perception highlights a challenge for the Federal Reserve as it publicly communicates about the rationale for the review and the importance of anchoring inflation expectations at 2 percent for keeping policy interest rates sufficiently above the effective lower bound.

Policymaker Discussions

Since the summer of 2019, Federal Reserve policymakers have been discussing issues associated with the monetary policy strategy review at meetings of the Federal Open Market Committee (FOMC). At its July, September, and October meetings, the FOMC reviewed the performance of its current approach to monetary policy, discussed possible alternative policy strategies, and reviewed policy tools. Key points of these discussions have been summarized in publicly released meeting minutes. In December, the FOMC considered the views offered at the *Fed Listens* events together with staff analysis on the distributional effects of monetary policy. The FOMC's discussions are continuing into 2020. Policymakers expect to complete the review around the middle of this year. At that time, policymakers will report their findings to the public.

Money Market Developments and Monetary Policy Implementation

Consistent with its decision at the January 2019 meeting, the Federal Open Market Committee (FOMC) reaffirmed, in its Statement Regarding Monetary Policy Implementation on October 11, 2019, the intention to implement monetary policy in a regime with an ample supply of reserves.[1] In such a system, active management of reserves through frequent open market operations is not required, and control over the level of the federal funds rate and other short-term interest rates is exercised primarily through the setting of the Federal Reserve's administered rates.

In recent years, depository institutions' reserve balances held at the Federal Reserve have declined as a result of the normalization of the Federal Reserve's balance sheet as well as growth in nonreserve liabilities. Reserves dropped from a peak of about $2.8 trillion in 2014 to about $2.2 trillion in late September 2017, largely reflecting the expansion of nonreserve liabilities. Subsequently, reserves declined further, reflecting the FOMC's decision to allow a gradual runoff of maturing securities, and, by the time the FOMC decided to conclude the reduction of its aggregate securities holdings in August 2019, reserves had fallen to about $1.5 trillion. Despite the cessation of balance sheet runoff in August 2019, reserves subsequently continued to decline because of increases in currency and other nonreserve liabilities and reached a multiyear low of about $1.4 trillion in September 2019.

Against a backdrop of declining reserves and high levels of Treasury securities outstanding, in mid-September 2019, imbalances in the supply of and demand for short-term funding led to pressures in the repurchase agreement (repo) market—a money market segment in which banks, securities dealers, money market funds (MMFs), and other financial market participants lend to and borrow from each other for short periods against high-quality collateral. On the demand side, dealers' and other investors' needs for financing securities had increased following the settlement of Treasury auctions at mid-month. On the supply side, some institutional investors, such as government-only MMFs and banks, may have been reluctant to increase lending because they faced uncertainty regarding cash outflows as their clients were making corporate tax payments due in mid-September. As a result, repo rates rose sharply in mid-September (figure A). Pressures in the repo market spilled over to other short-term funding markets, including the federal funds market. The federal funds rate firmed, moving out of its target range for one day (as shown in figure A). In response to elevated rates, the Federal Reserve began conducting repo operations to help stabilize money markets and provide reserves to keep the federal funds rate within its target range (figure B). These operations have been effective in meeting these goals.

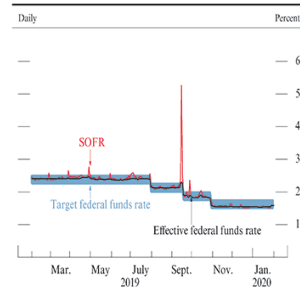
Consistent with its decision to implement monetary policy in a regime with an ample supply of reserves, on October 11, 2019, the Committee announced its decision to purchase Treasury bills at least into the second quarter of 2020 in order to maintain reserves at or above the level that prevailed in early September (as shown in figure B).[2] In addition, the FOMC announced

(continued)

1. See the Statement Regarding Monetary Policy Implementation, which is available on the Board's website at https://www.federalreserve.gov/newsevents/pressreleases/monetary20191011a.htm.

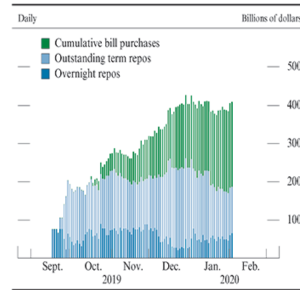
2. For additional information on the FOMC's plans to implement monetary policy over the longer run, see the

A. Selected money market rates



NOTE: The Secured Overnight Financing Rate (SOFR) is a broad measure of rates on overnight Treasury general collateral repurchase agreement (repo) transactions and bilateral Treasury repo transactions.
SOURCE: Federal Reserve Bank of New York; Federal Reserve Board.

B. Federal Reserve open market operations



NOTE: Data are at a business-day frequency, excluding the holidays on October 14, November 11, November 28, December 25, and January 1. Data begin September 18, 2019.
SOURCE: Federal Reserve Bank of New York; Federal Reserve Board staff calculations.

term and overnight repo operations to ensure that the supply of reserves remains ample even during periods of sharp increases in nonreserve liabilities and to mitigate the risk of money market pressures that could adversely affect policy implementation.[3] Repos outstanding, consisting of both overnight and term operations, have been about $209 billion per day, on average, since the announcement on October 11, 2019. These operations are expected to decline over time as Treasury bill purchases supply a larger base of reserves.

The Federal Reserve's open market operations—repo operations and bill purchases—lifted reserves to levels averaging about $1.6 trillion in early 2020. Besides adding reserves, the repo operations damped funding pressures in repo markets that may otherwise have passed through to the federal funds market. As such, the combination of repo operations and bill purchases fostered conditions that helped maintain the federal funds rate within the target range. Notably, with the provision of about $250 billion in liquidity via the Federal Reserve's repo operations, money market conditions were quite calm on year-end. Both secured and unsecured overnight funding rates printed in line with the interest rate on excess reserves (as indicated in figure A).

Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization, which can be found on the Board's website at https://www.federalreserve.gov/newsevents/pressreleases/monetary20190130c.htm.

3. The Statement Regarding Monetary Policy Implementation indicated that the Federal Reserve would conduct term and overnight repo operations at least through January 2020. Such operations will now be continued at least through April 2020; see "Implementation Note Issued January 29, 2020," which is available on the Board's website at https://www.federalreserve.gov/newsevents/pressreleases/monetary20200129a1.htm.

Part 3
Summary of Economic Projections

The following material appeared as an addendum to the minutes of the December 10–11, 2019, meeting of the Federal Open Market Committee.

In conjunction with the Federal Open Market Committee (FOMC) meeting held on December 10–11, 2019, 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 2019 to 2022 and over the longer run. Each participant's projections were based on information available at the time of the meeting, together with his or her 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.[14] "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.

Almost all participants expected that, under appropriate monetary policy, growth of real GDP in 2020 would run at or slightly above 1.9 percent, the median of current estimates of its longer-run rate. The median of the projections for the growth rate of real GDP edges down each year over the projection horizon and, for 2022, is modestly below the median of the current estimates of its longer-run rate. The median of the current projections for the unemployment rate was lower than that in the September Summary of Economic Projections (SEP) for each year of the projection period, and some participants reduced their estimates of the longer-run normal rate of unemployment, resulting in a slight decline in the median estimate. The medians of the projections for both total and core inflation, as measured by the four-quarter percent change in the price index for personal consumption expenditures (PCE), increase significantly from 2019 to 2020 and more modestly in 2021 to reach 2 percent that year. Almost all participants expected that inflation would be at or slightly above the Committee's 2 percent objective in 2021 and 2022. A couple more participants, relative to the September SEP, projected inflation to exceed 2 percent at some point during the projection period. The medians of the projections for both total and core inflation were unchanged for 2020 through 2022, compared with the September SEP. Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, a substantial majority of participants indicated that their expectations regarding the evolution of the economy, relative to the Committee's objectives of maximum employment and 2 percent inflation, would likely warrant keeping the federal funds at its current level through the end of 2020. Compared with the September SEP submissions, the median projection for the federal funds rate was 25 basis points lower in each year over the projection period and retained its modest upward tilt in 2021 and 2022. The median of participants' assessments of the appropriate level for the federal funds rate in 2022 was slightly below the median of estimates of its longer-run level; the median

14. One participant did not submit longer-run projections for real GDP growth, the unemployment rate, or the federal funds rate.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, December 2019

Percent

Variable	Median[1]					Central tendency[2]					Range[3]				
	2019	2020	2021	2022	Longer run	2019	2020	2021	2022	Longer run	2019	2020	2021	2022	Longer run
Change in real GDP	2.2	2.0	1.9	1.8	1.9	2.1–2.2	2.0–2.2	1.8–2.0	1.8–2.0	1.8–2.0	2.1–2.3	1.8–2.3	1.7–2.2	1.5–2.2	1.7–2.2
September projection	2.2	2.0	1.9	1.8	1.9	2.1–2.3	1.8–2.1	1.8–2.0	1.7–2.0	1.8–2.0	2.1–2.4	1.7–2.3	1.7–2.1	1.6–2.1	1.7–2.1
Unemployment rate	3.6	3.5	3.6	3.7	4.1	3.5–3.6	3.5–3.7	3.5–3.9	3.5–4.0	3.9–4.3	3.5–3.6	3.3–3.8	3.3–4.0	3.3–4.1	3.5–4.5
September projection	3.7	3.7	3.8	3.9	4.2	3.6–3.7	3.6–3.8	3.6–3.9	3.7–4.0	4.0–4.3	3.5–3.8	3.3–4.0	3.3–4.1	3.3–4.2	3.6–4.5
PCE inflation	1.5	1.9	2.0	2.0	2.0	1.4–1.5	1.8–1.9	2.0–2.1	2.0–2.2	2.0	1.4–1.7	1.7–2.1	1.8–2.3	1.8–2.2	2.0
September projection	1.5	1.9	2.0	2.0	2.0	1.5–1.6	1.8–2.0	2.0	2.0–2.2	2.0	1.4–1.7	1.7–2.1	1.8–2.3	1.8–2.2	2.0
Core PCE inflation[4]	1.6	1.9	2.0	2.0		1.6–1.7	1.9–2.0	2.0–2.1	2.0–2.2		1.6–1.8	1.7–2.1	1.8–2.3	1.8–2.2	
September projection	1.8	1.9	2.0	2.0		1.7–1.8	1.9–2.0	2.0	2.0–2.2		1.6–1.8	1.7–2.1	1.8–2.3	1.8–2.2	
Memo: Projected appropriate policy path															
Federal funds rate	1.6	1.6	1.9	2.1	2.5	1.6	1.6–1.9	1.6–2.1	1.9–2.6	2.4–2.8	1.6	1.6–1.9	1.6–2.4	1.6–2.9	2.0–3.3
September projection	1.9	1.9	2.1	2.4	2.5	1.6–2.1	1.6–2.1	1.6–2.4	1.9–2.6	2.5–2.8	1.6–2.1	1.6–2.4	1.6–2.6	1.6–2.9	2.0–3.3

Note: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 17–18, 2019. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the September 17–18, 2019, meeting, and one participant did not submit such projections in conjunction with the December 10–11, 2019, 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.

estimate of the longer-run level was unchanged from its value in the September SEP.

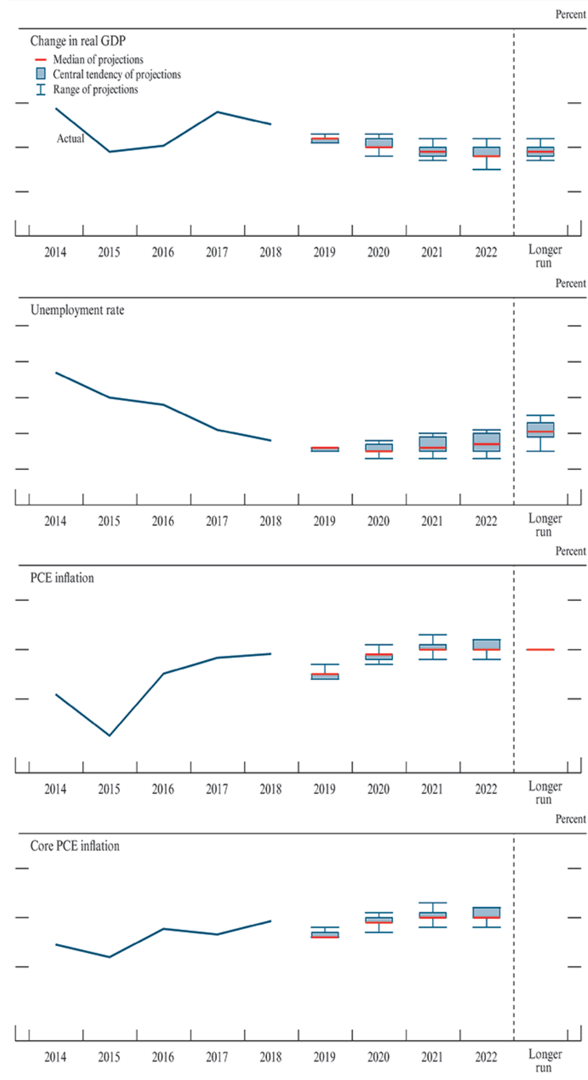
Most participants regarded the uncertainties around their projections as broadly similar to the average over the past 20 years. The majority of participants continued to assess the risks to their outlooks for real GDP growth as weighted to the downside and for the unemployment rate as weighted to the upside. However, compared with the September submissions, several participants shifted their assessments of the balance of risks around these projections to being broadly balanced. Most participants judged the risks to their inflation outlook as broadly balanced, though one-third of participants viewed the risks to their inflation projections as weighted to the downside; no participant assessed the risks to his or her inflation outlook as weighted to the upside. The uncertainties and risks around participants' projections for headline and core inflation were little changed from the September SEP.

The Outlook for Real GDP Growth and Unemployment

As shown in table 1, the medians of participants' projections for real GDP growth in 2019 and 2020, conditional on their individual assessments of appropriate monetary policy, were 2.2 percent and 2.0 percent, respectively, a touch above the median estimate of the longer-run growth rate of 1.9 percent. The median of the projections for the growth rate of real GDP declines slowly over the projection horizon and, in 2022, is modestly below the median of the current estimates of its longer-run rate. The medians of the projections for real GDP growth in all four years of the projection period, as well as in the longer run, were unchanged from the September SEP.

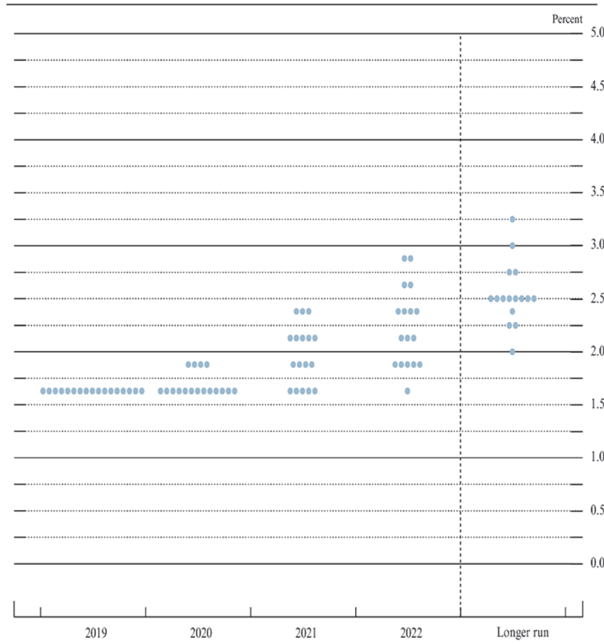
A majority of participants marked down their projections of the unemployment rate in each year of the projection period, and some participants lowered their estimates of the

Figure 1. Medians, central tendencies, and ranges of economic projections, 2019–22 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 ⅛ 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.

longer-run normal rate of unemployment. As a result, the medians of the projections for the unemployment rate in the fourth quarter of 2020 through 2022 were 3.5 percent, 3.6 percent, and 3.7 percent, respectively, each 0.2 percentage point lower than in the September projections. The median estimate of the longer-run normal rate of unemployment was 4.1 percent, 0.1 percentage point lower than in September.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate, respectively, from 2019 to 2022 and in the longer run. The distribution of individual projections for real GDP growth for 2020 tilted slightly higher, as many participants upgraded their projections a bit relative to those in the September SEP, although the median projection was unchanged. The distributions of individual projections of real GDP growth in 2021 and 2022 and in the longer run were little changed overall. The distributions of individual projections for the unemployment rate from 2020 to 2022 and in the longer run shifted lower relative to those in September.

The Outlook for Inflation

As shown in table 1, the median projection for core PCE price inflation was 1.6 percent for 2019, a modest decrease from the September projections. The medians of the projections for both total and core PCE price inflation were each 1.9 percent in 2020 and 2.0 percent in both 2021 and 2022—all unchanged from September. Figures 3.C and 3.D show the distributions of participants' views about their outlooks for inflation. Although the medians of the projections for total and core PCE price inflation from 2020 through 2022 were unchanged from the September SEP, a couple more participants projected inflation to be slightly above the Committee's 2 percent objective in 2022.

Appropriate Monetary Policy

Figure 3.E shows the distributions of participants' judgments regarding the appropriate target—or midpoint of the target range—for the federal funds rate at the end of each year from 2019 to 2022 and over the longer run. A substantial majority of participants projected a federal funds rate of 1.63 percent for the end of 2020. Four participants assessed that the most likely appropriate rate at year-end for 2020 would be 1.88 percent. For subsequent years, the medians of the projections were 1.88 percent at the end of 2021 and 2.13 percent at the end of 2022. The distribution of participants' estimates of the longer-run level of the federal funds rate was little changed, and the median estimate was unchanged from September at 2.50 percent.

Compared with the projections prepared for the September SEP, a number of participants marked down their assessments of the appropriate level of the federal funds rate at the end of 2020, reflecting in part the reduction in the target range at the October meeting and causing both the range and central tendency of projections for 2020 to narrow considerably. Some participants lowered their projections for the appropriate level in 2021 and 2022. The median projection for the federal funds rate was 25 basis points lower in each year in the projection period. Realized inflation running persistently below target and risks associated with trade policy and foreign economic growth were cited as key factors informing participants' judgments about the appropriate path for the federal funds rate.

Uncertainty and Risks

In assessing the appropriate path of the federal funds rate, FOMC participants take account of the range of possible economic outcomes, the likelihood of those outcomes, and the potential benefits and costs should they occur. As a reference, table 2 provides measures of forecast uncertainty—based on the forecast errors of various private and government forecasts over the past 20 years—for real GDP growth, the unemployment rate, and total PCE price inflation. Those measures are represented graphically in the "fan charts" shown in the top panels of figures 4.A, 4.B, and 4.C. The fan charts display the SEP medians for the three variables surrounded by symmetric confidence intervals derived from the forecast errors reported in table 2. If the degree of uncertainty attending these

Table 2. Average historical projection error ranges
Percentage points

Variable	2019	2020	2021	2022
Change in real GDP[1]	±0.8	±1.6	±2.0	±2.0
Unemployment rate[1]	±0.1	±0.8	±1.5	±1.9
Total consumer prices[2]	±0.2	±0.9	±1.0	±0.9
Short-term interest rates[3]	±0.1	±1.4	±2.0	±2.4

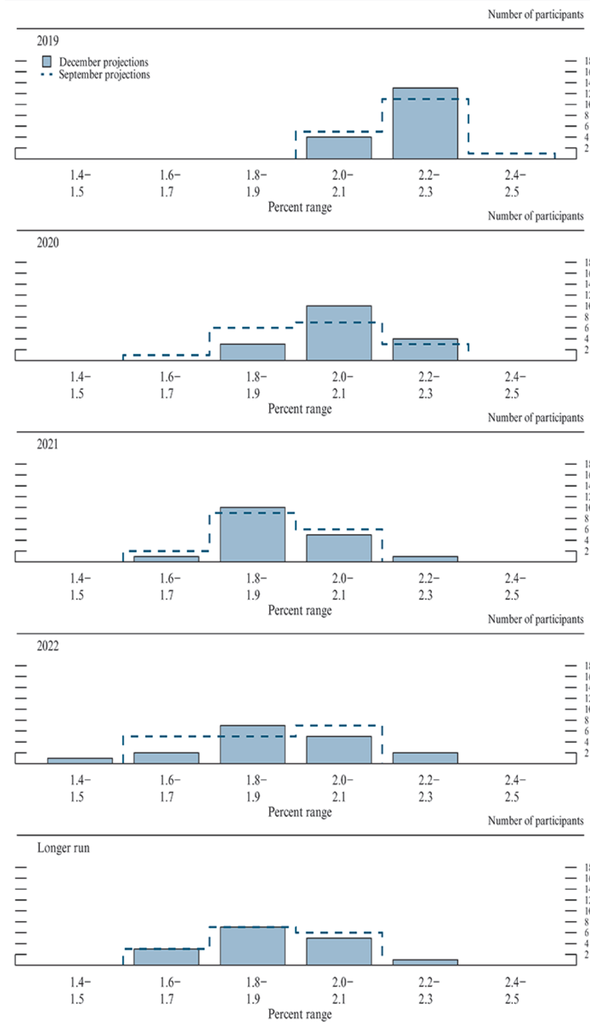
NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1999 through 2018 that were released in the winter by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, consumer prices, and the federal funds rate will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2017), "Gauging the Uncertainty of the Economic Outlook Using Historical Forecasting Errors: The Federal Reserve's Approach," Finance and Economics Discussion Series 2017-020 (Washington: Board of Governors of the Federal Reserve System, February), https://dx.doi.org/10.17016/FEDS.2017.020.

1. Definitions of variables are in the general note to table 1.

2. Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projections are percent changes on a fourth quarter to fourth quarter basis.

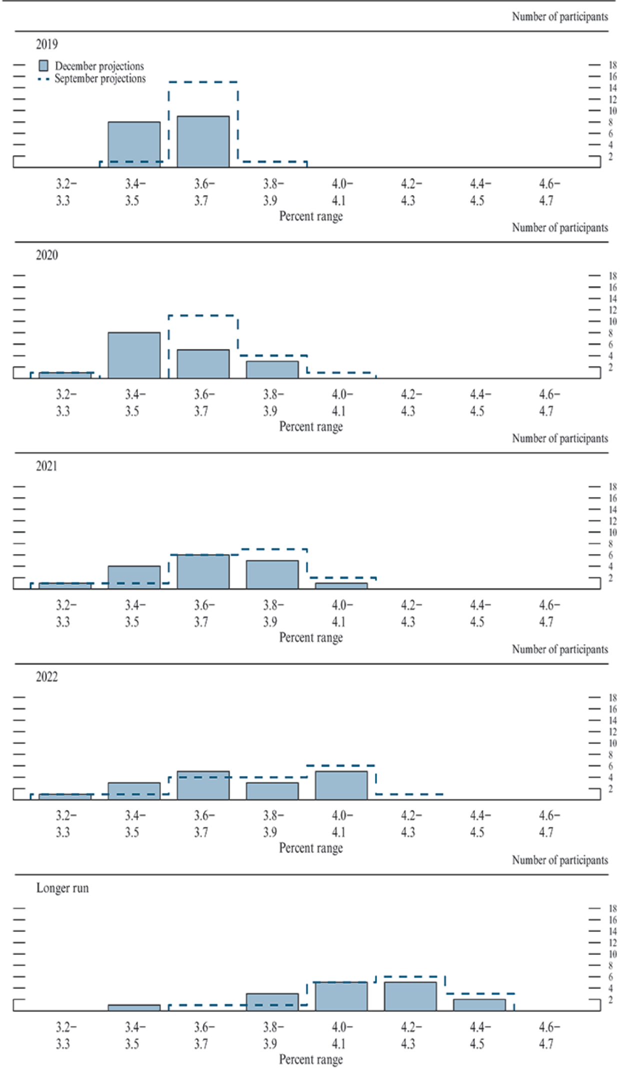
3. For Federal Reserve staff forecasts, measure is the federal funds rate. For other forecasts, measure is the rate on 3-month Treasury bills. Projection errors are calculated using average levels, in percent, in the fourth quarter.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2019–22 and over the longer run



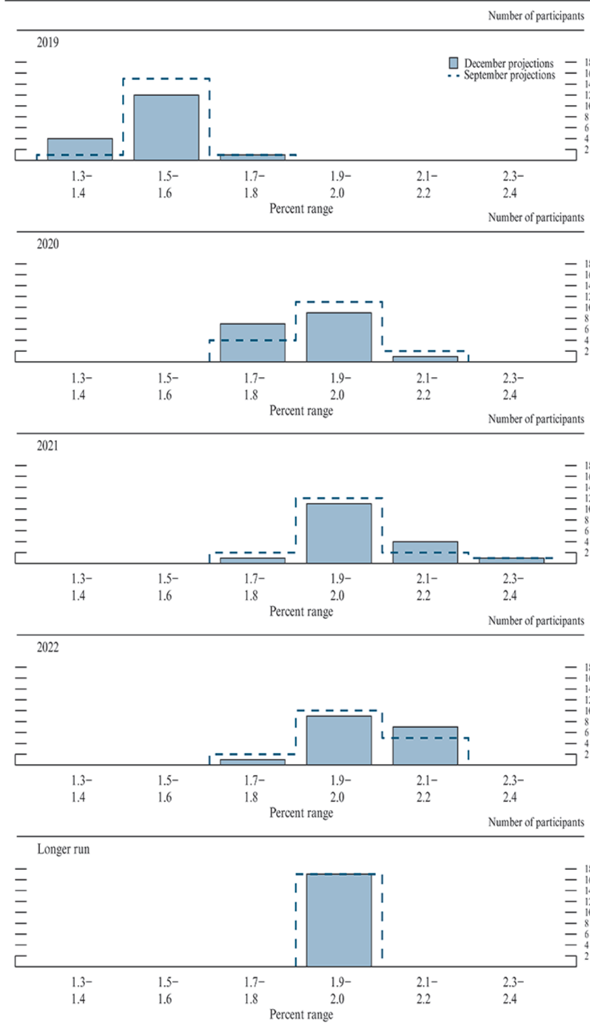
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2019–22 and over the longer run



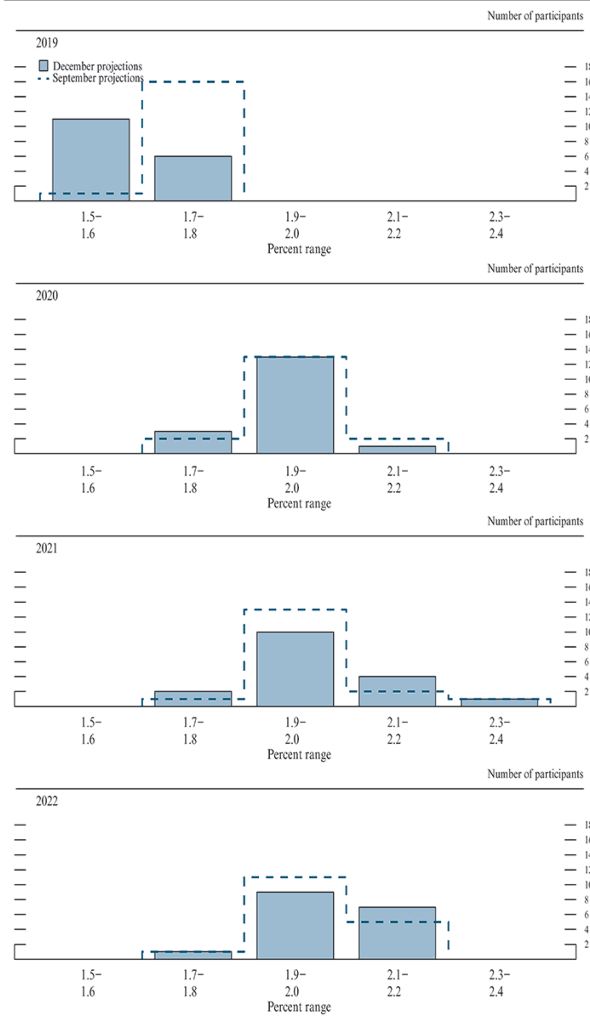
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2019–22 and over the longer run



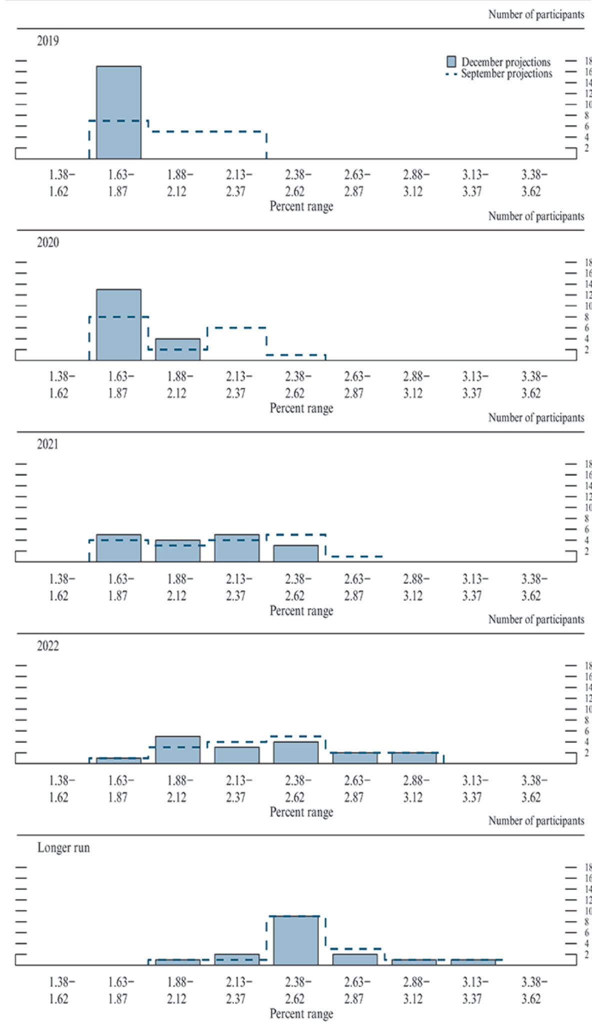
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2019–22



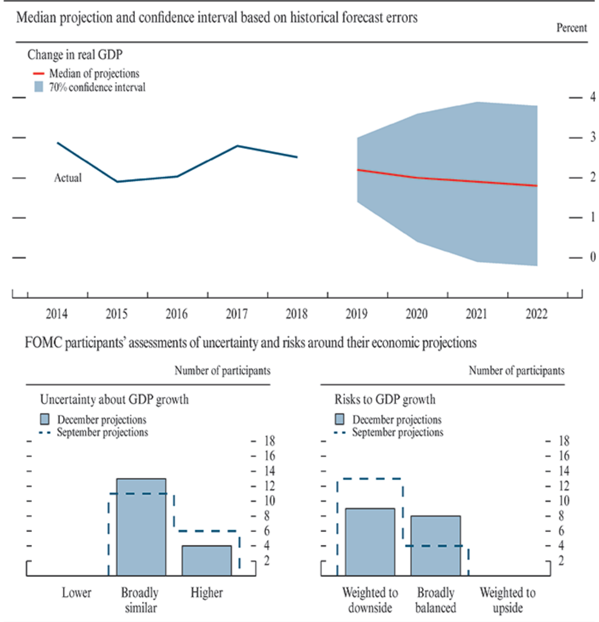
Note: Definitions of variables and other explanations are in the notes to table 1.

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, 2019–22 and over the longer run



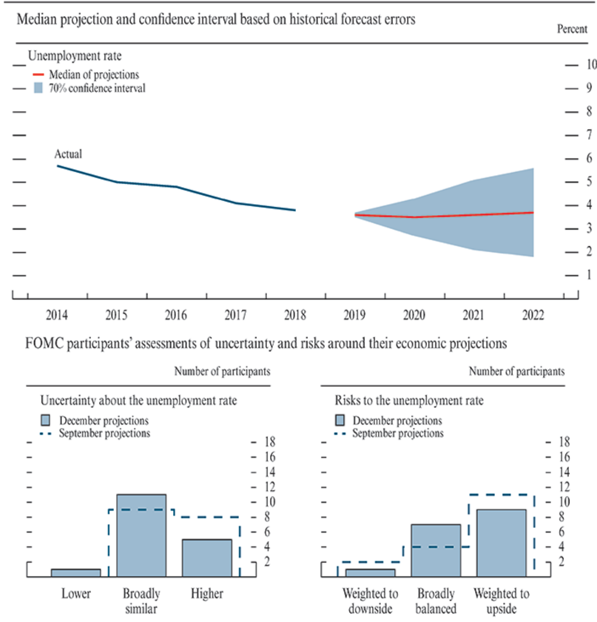
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 4.A. Uncertainty and risks in projections of GDP growth



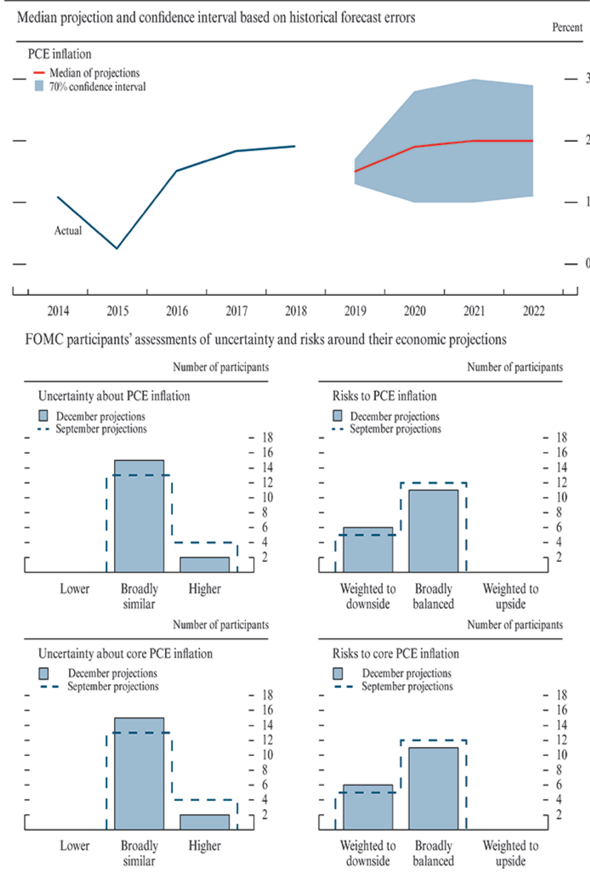
NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected 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 difer 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 difer 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."

projections is similar to the typical magnitude of past forecast errors and the risks around the projections are broadly balanced, then future outcomes of these variables would have about a 70 percent probability of being within these confidence intervals. For all three variables, this measure of uncertainty is substantial and generally increases as the forecast horizon lengthens.

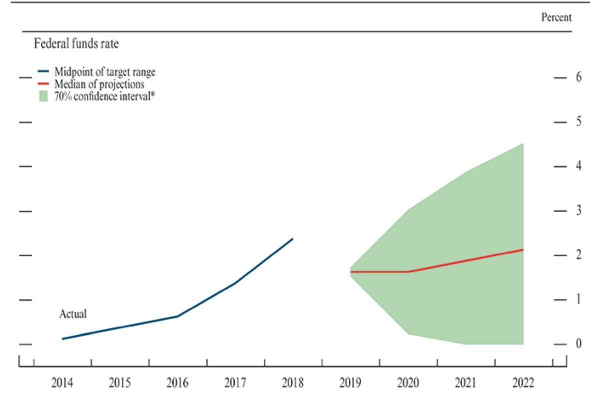
Participants' assessments of the level of uncertainty surrounding their individual economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. A substantial majority of participants viewed the uncertainty surrounding each of the four economic variables as being broadly similar to the average over the past 20 years.

Because the fan charts are constructed to be symmetric around the median projections, they do not reflect any asymmetries in the balance of risks that participants may see in their economic projections. Participants' assessments of the balance of risks to their current economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. Relative to the September SEP, more participants saw the risks to the outlook for real GDP growth and the unemployment rate as broadly balanced, although a small majority continued to view the risks to their outlooks for real GDP growth as weighted to the downside and for the unemployment rate as weighted to the upside. Most participants continued to judge the risks to their inflation outlook as broadly balanced, while some participants viewed the risks to their inflation outlook as weighted to the downside. No participant assessed the risks to his or her inflation outlook as weighted to the upside.

In discussing the uncertainty and risks surrounding their economic projections, some participants mentioned trade developments and concerns about foreign economic growth as sources of uncertainty or downside risk to the U.S. economic growth outlook. In contrast, the underlying strength of both consumer spending and the labor market was cited as balancing the risks around the growth outlook. In addition, most of the participants who shifted their balance of risks for output growth to "broadly balanced" cited more accommodative monetary policy as a contributing factor. For the inflation outlook, the possibility that inflation expectations could be drifting below levels consistent with the FOMC's 2 percent inflation objective was viewed as a downside risk. A couple of participants mentioned higher tariffs as a source of upside risk to their inflation outlook.

Participants' assessments of the appropriate future path of the federal funds rate are also subject to considerable uncertainty. Because the Committee adjusts the federal funds rate in response to actual and prospective developments over time in key economic variables—such as real GDP growth, the unemployment rate, and inflation—uncertainty surrounding the projected path for the federal funds rate importantly reflects the uncertainties about the paths for these economic variables, along with other factors. Figure 5 provides a graphic representation of this uncertainty, plotting the SEP median for the federal funds rate surrounded by symmetric confidence intervals derived from the results presented in table 2. As with the macroeconomic variables, the forecast uncertainty surrounding the appropriate path of the federal funds rate is substantial and increases for longer horizons.

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 difer from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee (FOMC). The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 2.2 to 3.8 percent in the current year, 1.4 to 4.6 percent in the second year, and 1.0 to 5.0 percent in the third and fourth years. The corresponding 70 percent confidence intervals for overall inflation would be 1.8 to 2.2 percent in the current year, 1.1 to 2.9 percent in the second year, 1.0 to 3.0 percent in the third year, and 1.1 to 2.9 percent in the fourth year. Figures 4.A through 4.C illustrate these confidence bounds in "fan charts" that are symmetric and centered on the medians of FOMC participants' projections for GDP growth, the unemployment rate, and inflation. However, in some instances, the risks around the projections may not be symmetric. In particular, the unemployment rate cannot be negative; furthermore, the risks around a particular projection might be tilted to either the upside or the downside, in which case the corresponding fan chart would be asymmetrically positioned around the median projection.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each economic variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty seen in the past 20 years, as presented in table 2 and reflected in the widths of the confidence intervals shown in the top panels of figures 4.A through 4.C.

(continued)

Participants' current assessments of the uncertainty surrounding their projections are summarized in the bottom-left panels of those figures. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, are weighted to the downside, or are broadly balanced. That is, while the symmetric historical fan charts shown in the top panels of figures 4.A through 4.C imply that the risks to participants' projections are balanced, participants may judge that there is a greater risk that a given variable will be above rather than below their projections. These judgments are summarized in the lower-right panels of figures 4.A through 4.C.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward. The final line in table 2 shows the error ranges for forecasts of short-term interest rates. They suggest that the historical confidence intervals associated with projections of the federal funds rate are quite wide. It should be noted, however, that these confidence intervals are not strictly consistent with the projections for the federal funds rate, as these projections are not forecasts of the most likely quarterly outcomes but rather are projections of participants' individual assessments of appropriate monetary policy and are on an end-of-year basis. However, the forecast errors should provide a sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that would be appropriate to offset the effects of shocks to the economy.

If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the fan chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention; it would not have any implications for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate. In such situations, the Committee could also employ other tools, including forward guidance and asset purchases, to provide additional accommodation.

While figures 4.A through 4.C provide information on the uncertainty around the economic projections, figure 1 provides information on the range of views across FOMC participants. A comparison of figure 1 with figures 4.A through 4.C shows that the dispersion of the projections across participants is much smaller than the average forecast errors over the past 20 years.

Abbreviations

AFE	advanced foreign economy
CBO	Congressional Budget Office
CDFI	community development financial institution
C&I	commercial and industrial
CPI	consumer price index
EME	emerging market economy
FOMC	Federal Open Market Committee; also, the Committee
GDP	gross domestic product
IP	industrial production
JOLTS	Job Openings and Labor Turnover Survey
LFPR	labor force participation rate
LIBOR	London interbank offered 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
repo	repurchase agreement
SEP	Summary of Economic Projections
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
SOMA	System Open Market Account
TGA	Treasury General Account
TIPS	Treasury Inflation-Protected Securities
VIX	implied volatility for the S&P 500 index

LISCC GUIDANCE RESPONSE LETTER SUBMITTED BY CHAIRMAN CRAPO

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM
WASHINGTON, D. C. 20551

MARK E. VAN DER W
GENERAL COUNSEL

June 13, 2019

Shirley A. Jones, Esq.
Janet Temko-Blinder
U.S. Government Accountability Office
441 G Street, N.W
Washington, D.C. 20548

Dear Mss. Jones and Temko-Blinder:

This is in response to your letters dated March 14, 2019, and May 13, 2019, requesting information regarding whether three documents relating to large financial institutions[1] (collectively, "LISCC Guidance"), and a document related to model risk management,[2] respectively, are rules subject to the Congressional Review Act ("CRA").

As a prudential regulator, the Board of Governors of the Federal Reserve System ("Board") has broad authority to supervise certain financial organizations to ensure that they operate in a safe and sound manner.[3] To help carry out this mandate, the Federal Reserve organizes and conducts its supervision of these financial organizations based on the size and complexity of each organization. In the years following the 2007–2009 financial crisis, the Federal Reserve developed a supervisory program specifically designed to enhance the resiliency

[1] These documents are SR letter 12-17/CA 12-14, "Consolidated Supervision Framework for Large Financial Institutions (Dec. 17, 2012) ("SR 12-17"); SR letter 14-8, "Consolidated Recovery Planning for Certain Large Domestic Bank Holding Companies" (Sept. 25, 2014) ("SR 14-8"); and SR letter 15-7, "Governance Structure of the Large Institution Supervision Coordinating Committee (LISCC) Supervision Program" (Apr. 17, 2015) ("SR 15-7").

[2] SR letter 11-7, "Supervisory Guidance on Model Risk Management" (Apr. 4, 2011) ("SR 11-7").

[3] These organizations include state banks that are members of the Federal Reserve System, bank holding companies, savings and loan holding companies, U.S. operations of certain foreign banking organizations, and any nonbank financial company that the Financial Stability Oversight Council determines should be supervised by the Federal Reserve. See Federal Reserve Act, 12 U.S.C. § 221 *et seq*.; Bank Holding Company Act of 1956, 12 U.S.C. § 1841 *et seq*.; Home Owners' Loan Act § 10, 12 U.S.C. § 1467a *et seq*.; The *Dodd-Frank Wall Street Reform and Consumer Protection Act*, 12 U.S.C. § 5301 *et seq*.

of, and address the systemic risks posed by, large financial organizations. This included the creation of the Large Institution Supervision Coordinating Committee ("LISCC"), a Federal Reserve System-wide committee that is tasked with overseeing the supervision of the largest, most systemically important financial organizations in the United States.[4]

The Federal Reserve has issued regulations to assist in the supervision of large financial organizations. As a general matter, the Board issues regulations when it intends to establish legally binding requirements or implement statutory provisions. Federal Reserve staff also may provide supervisory statements when staff believes that guidance would be helpful on an issue. Such supervisory statements do not establish binding requirements on any institution. Supervisory statements provide transparency to the industry and Federal Reserve staff concerning supervisory insights, practices, and approaches.

Staff intended the LISCC Guidance to assist supervisors in coordinating their review of large financial firms and to inform financial institutions of supervisory views. While consideration was given as to whether to issue aspects of the LISCC Guidance as regulations, staff ultimately was of the view that it was appropriate to issue each of the documents as a non-binding statement.

SR 12-17 describes the objectives of the Federal Reserve's consolidated supervisory framework for large financial organizations.[5] It includes a discussion of high-level, non-binding supervisory expectations for financial organizations related to, among other things, capital and liquidity planning and positions, corporate governance, and recovery and resolution planning.[6]

SR 14-8 describes non-binding supervisory expectations related to recovery planning for eight specifically identified companies.[7] When SR 14-8 was issued, these firms were identified as posing an elevated risk to U.S. financial stability.

---

[4] These firms currently include: Bank of America Corporation; The Bank of New York Mellon Corporation; Barclays PLC; Citigroup Inc.; Credit Suisse Group AG; Deutsche Bank AG; The Goldman Sachs Group, Inc.; JP Morgan Chase & Co.; Morgan Stanley; State Street Corporation; UBS AG; and Wells Fargo & Company (together, the "LISCC firms").

[5] While some portions of SR 12-17 apply to firms with more than $10 billion in total consolidated assets, most parts of the guidance apply only to firms with $50 billion or more in total consolidated assets.

[6] When describing these expectations, SR 12-17 uses non-prescriptive language such as "each firm should" rather than prescriptive language such as "must" or "shall," which suggest a requirement. See sections A and B of SR 12-17 (pages 4-9). References to any requirements in SR 12-17 are to existing regulations, such as resolution planning.

[7] These firms are: Bank of America Corporation; The Bank of New York Mellon Corporation; Citigroup Inc.; The Goldman Sachs Group, Inc.; JP Morgan Chase & Co.; Morgan Stanley; State Street Corporation; and Wells Fargo & Company.

SR 15-7 outlines the Federal Reserve's internal governance structure and organization of the LISCC supervisory program. Unlike the other supervisory letters, SR 15-7 does not include any supervisory expectations for firms.[8]

SR 11-7 describes non-binding supervisory expectations related to model risk management and applies to all banking organizations supervised by the Federal Reserve.

On April 11, 2019, the Office of Management and Budget ("OMB") issued a memorandum to the heads of the executive departments and agencies providing new guidance on compliance with the CRA.[9] As part of that guidance, OMB indicated that, in its view, the definition of "rule" for purposes of the CRA includes guidance documents, general statements of policy, and interpretive rules. We are currently reviewing OMB's guidance with regard to rules we submit to OMB in connection with its major rule determinations. More broadly, in consultation with the other federal banking agencies, we continue to assess the scope of the Federal Reserve's obligation to send supervisory guidance documents to Congress under the CRA.

We hope this information is helpful. If we may be of any further assistance, please do not hesitate to contact me at (202) 452-2263 or Laurie Schaffer at (202) 452-2272.

Sincerely,

---

[8] SR 15-17 describes the internal Federal Reserve structures for the LISCC supervisory framework, including various sub-committees and groups under LISCC. It does not mention or provide any supervisory expectations for parties outside the Federal Reserve. As such, it is directed at improving the efficient and effective operations of the Federal Reserve rather than determining the rights and obligations of third parties.

[9] Office of Mgmt. & Budget, Memorandum No. M-19-14, "Guidance on Compliance with the Congressional Review Act" (Apr. 11, 2019).