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THE SEMIANNUAL MONETARY POLICY REPORT TO THE CONGRESS

HEARING

BEFORE THE

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

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

ON

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

JULY 11, 2019

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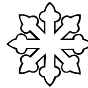

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THE SEMIANNUAL MONETARY POLICY REPORT TO THE CONGRESS

THURSDAY, JULY 11, 2019

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

The Committee met at 10:02 a.m., in room SD–106, Dirksen Senate Office Building, Hon. Mike Crapo, Chairman of the Committee, presiding.

OPENING STATEMENT OF CHAIRMAN MIKE CRAPO

Chairman CRAPO. The hearing will now come to order.

We welcome Chairman Powell back to the Committee for the Federal Reserve's semiannual *Monetary Policy Report* to Congress.

In this hearing, the Banking Committee will evaluate the current state of the U.S. economy, the Fed's implementation of monetary policy, and discuss its supervisory and regulatory activities.

In the last semiannual *Monetary Policy Report*, Chairman Powell provided additional clarity on the Fed's plans to normalize monetary policy, including how the size of the balance sheet would be driven by financial institutions' demand for reserves, plus a buffer.

Since then, the Fed has provided additional information and continued receiving feedback on its monetary policy strategy, tools, and communication, all of which I look forward to hearing an update on today.

The U.S. economy is still strong, growing at 3.1 percent in the first quarter of 2019, according to the Bureau of Economic Analysis, and the unemployment rate remains low at 3.7 percent, as of June, according to the Bureau of Labor Statistics.

Wages have continued rising, as well, with average hourly earnings 3.1 percent higher in June compared to a year earlier, which is the 11th straight month in which wage growth exceeded 3 percent, according to the Bureau of Labor Statistics.

In fact, the U.S. is officially in its longest expansion of economic growth since 1854, according to the National Bureau of Economic Research.

In order to continue this positive economic trajectory, regulators must continually evaluate their regulatory and supervisory activities for opportunities to tailor regulations and to ensure broad access to a wide variety of financial products and services.

With respect to regulation and supervision, it has been over a year since the enactment of S. 2155, the Economic Growth, Regulatory Relief, and Consumer Protection Act.

Mr. Chairman, as you move forward finalizing certain rules required under S. 2155 and consider proposing new ones, I encourage you to consider carefully the following:

Simplify capital rules for smaller financial institutions while ensuring they maintain significant capital by setting the Community Bank Leverage Ratio at 8 percent;

Simplify the Volcker rule, including by eliminating the proposed accounting prong and revising the "covered funds" definition's overly broad application to venture capital, other long-term investments, and loan creation, to improve market liquidity and preserve access to diverse sources of capital for businesses;

Harmonize margin requirements for interaffiliate swaps with treatment by the CFTC by quickly making a targeted change to your margin rules to enhance end users' ability to hedge against risks in the marketplace;

Examine whether the recent proposal that applies to U.S. operations of foreign banks is appropriately tailored and whether regulations on intermediate holding companies should be applied based on the assets of the intermediate holding company alone, rather than the assets of all U.S. operations. I also encourage you to align the foreign bank proposal with the domestic bank proposal and exclude interaffiliate transactions from each of the risk-based indicator calculations;

Index any dollar-based thresholds in the tailoring proposals to grow over time to improve the rules' durability;

And modernize the Community Reinvestment Act (CRA) to ensure banks are not ignoring their mandate to serve their "entire communities," which should include legal businesses that banks disfavor operating in their communities.

A bank responding to political pressure or attempting to manage social policy by withholding access to credit from customers and/or companies that it disfavors is not meeting the credit needs of the entire community.

These approaches would promote economic growth by ensuring that rules are balanced, work for all stakeholders, and do not unnecessarily impede access to financial products and services in the marketplace.

On a different topic, Facebook announced it is partnering with both financial and nonfinancial institutions to launch a cryptocurrency-based payments system using its social network.

The project has raised many questions among U.S. and global lawmakers and regulators, including about its potential systemic importance, consumer privacy, data privacy and protection, and more.

I am particularly interested in its implications for individuals' data privacy.

The Bank of England Governor Mark Carney said, "Libra, if it achieves its ambitions, would be systemically important. As such, it would have to meet the highest standards of prudential regulation and consumer protection. It must address issues ranging from anti–money laundering to data protection to operational resilience."

I look forward to hearing more about how the Fed, in coordination with other U.S. and global financial regulators, plans to en-

gage on important regulatory and supervisory matters with Facebook throughout and after the project's development.

While Libra's systemic importance depends on several factors in its future development, there are already some too-big-to-fail institutions that must be addressed: Fannie Mae and Freddie Mac.

They continue to dominate the mortgage market and expose taxpayers in the case of an eventual downturn.

In a 2017 speech, you, Mr. Chairman, publicly referred to Fannie and Freddie as "systemically important."

Although my strong preference is for comprehensive legislation, the Banking Committee recently explored one option for addressing Fannie and Freddie, which is for the Financial Stability Oversight Council to designate Fannie and/or Freddie as "systemically important financial institutions," and to subject them to Fed supervision and enhanced prudential standards.

Chairman Powell, I appreciate you joining the Committee today to discuss these and many other important issues.

We will now turn to Senator Brown.

OPENING STATEMENT OF SENATOR SHERROD BROWN

Senator BROWN. Thank you, Mr. Chairman. And, Chairman Powell, thank you for joining us and for your public service.

The stock market is soaring, but most American families get their money from a paycheck, not an account statement from their stockbroker.

A critical part of your job, Mr. Chairman, is measuring and evaluating the economy, and those measurements need to take into account workers, not just wealth. Talk to workers who have not had a meaningful raise in years, who have seen their retirement cut, who watch their health care premiums rise, who have seen the cost of their child care and their kids' college and paying off their own student loans going up and up and up.

To those workers, to most Americans, the idea that a stock market rally means more money in their pockets is laughable.

As the Fed's own data reveals, the economy has not helped most Americans. Corporate profits go up and up and up; executive compensation explodes upwards. Workers are more and more productive, but workers do not share in the wealth that they create. The top 1 percent have an average net worth of $24 million; the bottom half of all Americans each has about $20,000. That is less than one one-thousandth of their wealthiest neighbors. Meanwhile the share of workers who have been unemployed for over 26 weeks continues to climb.

Mitch McConnell and Donald Trump responded a year or so ago by giving the wealthiest Americans and multinational corporations a $2 trillion bonus. Those corporations turned around and funneled the money back to their executives through stock buybacks.

We are in the midst of the longest economic expansion in modern times, beginning, frankly, around the time this Committee decided to rescue the auto industry. We know interest rates are low, yet it is worrying that interest rate-sensitive sectors of the economy that provide good-paying jobs, like the auto industry, are not doing better. Employment in auto manufacturing, critical to Ohio and the industrial Midwest, continued to fall in June.

The Fed's policies should ensure that everyone who contributes to the economy also shares in the wealth that they create. All work has dignity. We need an economy that rewards and honors work, not just wealth.

Some of the challenges facing our economy can only be addressed by Congress. Millions of Americans struggle to pay for prescription drugs, which are increasing at five times the rate of inflation. Yet the White House looks like a retreat for drug company executives. Too many feel the squeeze of rising housing costs, with more than a quarter of renters spending over half their income on housing.

The Fed cannot fix all these issues on its own. Only Congress can.

But there are things that you can and should do to help the economy work for the vast majority of Americans, through careful monetary policy and doing your job of policing Wall Street.

I appreciate, Mr. Chairman, your recent recognition that this expansion has the potential to benefit communities that have missed out on prior economic expansions. I hope your comments expressing frustration that wages have not increased as much as you expected means you will take action. I urge you to continue with policies that both lower unemployment and increase wages.

In previous hearings, I have raised concerns about threats to the financial system, including the Fed's steps to weaken the rules on the largest banks, the failure to activate the Countercyclical Capital Buffer to prepare for the next financial crisis, and the lack of action to address risks posed by leveraged lending. Just this week, Deutsche Bank announced a significant restructuring, overhauling several businesses, cutting 18,000 jobs—almost 20 percent of its workforce. After several failed turnarounds in recent years, Deutsche Bank's latest effort shows it is too large and complex and has been mismanaged and underregulated. It is not the only megabank in that situation.

I continue to be concerned that the Fed and other banking regulators are not doing enough. I add a new worry today to the list: private corporations, Facebook in this case, that have gotten carried away with their own wealth and their own power and are now attempting to ape the role of Government, creating their own currencies and monetary policy and payment systems.

So now, in addition to complex and risky Wall Street banks, we face new risks from unregulated giant tech companies—armed with vast amounts of personal data—with the intent, as far as I can tell, of conducting monetary policy on their own terms.

You and I have a duty to serve the American people, but these private corporations have no duty to the broader economy or consumers. They are motivated by one thing: surely their own bottom line. Allowing big tech companies to take over the payments system or position themselves to influence monetary policy would be a huge mistake and is surely a threat to our democracy.

Too many times, when the stock market soars and banks make money hand over fist, regulators have been complacent. As we have seen in the past, though, bank profitability is not a reliable indicator of a bank's true health. The stock market is not a reliable indicator of the real economy's performance.

I hope this is not another example of the Fed taking a pass from the responsibility to protect Americans from corporations taking big risks with our entire financial system. It is your responsibility, Mr. Chairman, to use your tools over monetary policy, the payment system, and prudential regulation to protect the financial system and make our economy work for all Americans, not just wealthy stockholders and huge corporations.

Thank you for being here.

Chairman CRAPO. Thank you, Senator Brown. And, again, thank you, Chairman Powell, for being here with us today.

Before I turn the time over to Chairman Powell for his statement, I want to remind our colleagues that we have a vote at 11:00—three votes at 11 o'clock. We obviously are not going to get through all the questions for all the Senators here in that timeframe. Senator Brown and I will try to rotate during that and keep the hearing going, but I would like to ask all of our Senators to be careful, especially this time, to pay attention to your 5-minute term on your questions so that your colleagues can all have an opportunity to ask questions.

With that, Chairman Powell, we look forward to your statement. Please proceed.

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

Mr. POWELL. Thanks very much, and good morning. Chairman Crapo, Ranking Member Brown, and Members of the Committee, I am pleased to present the Federal Reserve's semiannual *Monetary Policy Report* to Congress.

Let me start by saying that my colleagues and I strongly support the goals of maximum employment and price stability that Congress has set for monetary policy. We are committed to providing clear explanations about our policies and activities. Congress has given us an important degree of independence so that we can effectively pursue our statutory goals based on objective analysis and data. We appreciate that our independence brings with it an obligation for transparency so that you and the public can hold us accountable.

Today I will review the current economic situation and outlook before turning to monetary policy. I will also provide an update of our ongoing public review of our framework for setting monetary policy.

The economy performed reasonably well over the first half of 2019, and the current expansion is now in its 11th year. However, inflation has been running below the FOMC's symmetric 2-percent objective, and crosscurrents, such as trade tensions and concerns about global growth, have been weighing on economic activity and the outlook.

The labor market remains healthy. Job gains averaged 172,000 per month from January through June. This number is lower than the average of 223,000 a month last year but above the pace needed to provide jobs for new workers entering the labor force. Consequently, the unemployment rate moved down from 3.9 percent in December to 3.7 percent in June, close to its lowest level in 50 years. Job openings remain plentiful, and employers are increas-

ingly willing to hire workers with fewer skills and train them. As a result, the benefits of a strong job market have been more widely shared in recent years. Indeed, wage gains have been greater for lower-skilled workers. That said, individuals in some demographic groups and in certain parts of the country continue to face challenges. For example, unemployment rates for African Americans and Hispanics remain well above the rates for whites and Asians. Likewise, the share of the population with a job is higher in urban areas than in rural communities, and this gap has widened over the past decade. A box in the *Monetary Policy Report* provides a comparison of employment and wage gains over the current expansion for individuals with different levels of education.

GDP increased at an annual rate of 3.1 percent in the first quarter of 2019, similar to last year's pace. This strong reading was driven largely by net exports and inventories—components that are not generally reliable indicators of ongoing momentum. The more reliable drivers of growth in the economy are consumer spending and business investment. While growth in consumer spending was weak in the first quarter, incoming data show that it has bounced back and is now running at a solid pace. However, growth in business investment seems to have slowed notably, and overall growth in the second quarter appears to have moderated. The slowdown in business fixed investment may reflect concerns about trade tensions and slower growth in the global economy. In addition, housing investment and manufacturing output declined in the first quarter and appear to have decreased again in the second quarter.

After running close to our 2-percent objective over much of last year, overall consumer price inflation, measured by the 12-month change in the price index for personal consumption expenditures, or PCE inflation, declined earlier this year and stood at 1.5 percent in May. The 12-month change in core PCE inflation, which excludes food and energy prices and tends to be a better indicator of future inflation, has also come down this year and was 1.6 percent in May.

Our baseline outlook is for economic growth to remain solid, labor markets to stay strong, and inflation to move back up over time to the Committee's 2-percent objective. However, uncertainties about the outlook have increased in recent months. In particular, economic momentum appears to have slowed in some major foreign economies, and that weakness could affect the U.S. economy. Moreover, a number of Government policy issues have yet to be resolved, including trade developments, the Federal debt ceiling, and Brexit. And there is a risk that weak inflation will be even more persistent than we currently anticipate. We are carefully monitoring these developments, and we will continue to assess their implications for the U.S. economic outlook and inflation.

The Nation also continues to confront important longer-run challenges. Labor force participation by those in their prime working years is now lower in the United States than in most other Nations with comparable economies. As I mentioned, there are troubling labor market disparities across demographic groups and different parts of the country. The relative stagnation of middle and lower incomes and low levels of upward mobility for lower-income families are also ongoing concerns. In addition, finding ways to boost

productivity growth, which leads to rising wages and living standards over the longer term, should remain a high national priority. And I remain concerned about the longer-term effects of high and rising Federal debt, which can restrain private investment and, in turn, reduce productivity and overall economic growth. The longer-run vitality of the U.S. economy would benefit from efforts to address these issues.

Against this backdrop, the FOMC maintained the target range for the Federal funds rate at 2¼ to 2½ percent in the first half of this year. At our January, March, and May meetings, we stated that we would be patient as we determined what future adjustments to the Federal funds rate might be appropriate to support our goals of maximum employment and price stability.

At the time of our May meeting, we were mindful of the ongoing crosscurrents from global growth and trade, but there was tentative evidence that these crosscurrents were moderating. The latest data from China and Europe were encouraging, and there were reports of progress in trade negotiations with China. Our continued patient stance seemed appropriate, and the Committee saw no strong case for adjusting our policy rate.

Since our May meeting, however, these crosscurrents have re-emerged, creating greater uncertainty. Apparent progress on trade turned to greater uncertainty, and our contacts in business and agriculture report heightened concerns over trade developments. Growth indicators from around the world have disappointed on net, raising concerns that weakness in the global economy will continue to affect the U.S. economy. These concerns may have contributed to the drop in business confidence in some recent surveys and may have started to show through to incoming data.

In our June meeting, we indicated that, in light of increased uncertainties about the economic outlook and muted inflation pressures, we would closely monitor the implications of incoming information for the economic outlook and would act as appropriate to sustain the expansion. Many FOMC participants saw that the case for a somewhat more accommodative monetary policy had strengthened. Since then, based on incoming data and other developments, it appears that uncertainties around trade tensions and concerns about the strength of the global economy continue to weigh on the U.S. economic outlook. Inflation pressures remain muted.

The FOMC has made a number of important decisions this year about our framework for implementing monetary policy and our plans for completing the reduction of the Fed's securities holdings. At our January meeting, we decided to continue to implement monetary policy using our current policy regime with ample reserves, and we emphasized that we are prepared to adjust any of the details for completing balance sheet normalization in light of economic and financial developments. At our March meeting, we communicated our intention to slow, starting in May, the decline in the Fed's aggregate securities holdings and to end the reduction in these holdings in September. The July *Monetary Policy Report* provides details on these decisions.

The report also includes an update on monetary policy rules. The FOMC routinely looks at monetary policy rules that recommend a level for the Federal funds rate based on inflation and unemploy-

ment rates. I continue to find these rules helpful, although using these rules requires careful judgment.

We are conducting a public review of our monetary policy strategy, tools, and communications—the first review of its kind for the FOMC. Our motivation is to consider ways to improve the Committee's current policy framework and to best position the Fed to achieve maximum employment and price stability. The review has started with outreach to and consultation with a broad range of people and groups through a series of *Fed Listens* events. The FOMC will consider questions related to the review at upcoming meetings, and we will publicly report the outcome of our discussions.

Thank you, and I am happy to respond to your questions.

Chairman CRAPO. Thank you very much, Chairman Powell. I am going to use my time to focus on the question of cryptocurrency and the development of the new cryptocurrency payment system by Facebook and its partners.

The Federal Reserve has played a significant role in overseeing data protection and privacy across the U.S. financial system, including payments. Cryptocurrency payments, particularly those based on blockchain technology, pose a number of new challenges for data protection and privacy and the effective oversight of those issues. I am sure that the members of the Federal Reserve have been looking at this, and I would just be interested in what your understanding of this point is of how the Federal Reserve's role for data protection and privacy with respect to traditional financial services can be applied to Libra and Calibra.

Mr. POWELL. Thank you, Mr. Chairman. I guess I would start by saying that we do support responsible private sector innovation in the financial system as long as that is carried out in a way that addresses the associated risks and preserves safety and soundness. So the project sponsors hold out the possibility of public benefits, including greater access to the financial system for some. But I think we agree that Libra raises a lot of serious concerns, and those would include around privacy, money laundering, consumer protection, financial stability, and those are going to need to be thoroughly and publicly assessed and evaluated before this proceeds.

And so we have set up a working group to focus on this at the Fed, and we are in contact with the other regulatory agencies. Indeed, we are in contact with central banks and Governments around the world on this and really just getting started. And I would just stress I think it is a great thing that you are having a hearing on this, I guess next week. I think it is important that this process of understanding and evaluating this proposal be a patient one and not a sprint to implementation.

You asked specifically about data privacy. One of the features of this project is you would want to see a particular regulatory body that has oversight over the whole project, and that does not appear to be the case. There is not any one agency that can stand up and have oversight over this. We do not have oversight over Facebook. The privacy rules that we apply to banks, we have no authority to apply them to Facebook or to Libra or to Calibra, or to the Libra Association. So we are just in the process of thinking this through,

but I think one of the notable features of the project is that the supervision and regulation of it would fall in front of many, many different agencies—State, national, and international—and we need to get our arms around that for starters.

Chairman CRAPO. Well, thank you, and you have actually led into my second question on that. I was going to talk about how we fit in all of our banking regulators, the SEC, FinCEN, CFPB, and, frankly, going beyond even financial regulators to capture the entire scope of not just this but many other aspects of the data collection that is going on in the global experience that we are having, the human experience we are having on the Internet these days.

Do you think that we need to look at the possibility of creating a new regulator dealing with data protection?

Mr. POWELL. I think that is exactly the question we need to be focused on, one of the many questions we need to be focused on. It is not obvious at all from our current regulatory system that we have in place what we need to assess and provide oversight over this. And I expect we will be working hard on this and, ideally, working with your staff as we explore it.

Chairman CRAPO. Well, thank you, and I look forward to—I am glad to hear that you have got a working group together and that you are reaching out to other regulators who have a piece of this issue and of the broader issue of data collection, and I look forward to working with you on this.

Senator Brown.

Senator BROWN. Thank you, Mr. Chairman. And thank you for your questions about Facebook. Clearly this alternative banking system clearly implicates monetary policy and payments and regulatory issues. Your concerns, I appreciate the concerns you express.

Talk in a little more detail, if you would, Mr. Chair, about what kinds of risks this alternative Facebook currency would pose to ordinary people.

Mr. POWELL. Well, I think you start with privacy and the privacy of financial data, and then it moves quickly, I think, into the question that these things become—is the blockchain going to be so private that it becomes a vehicle for somehow evading money-laundering rules and that kind of thing. So there is a balance to be struck there.

In addition, the potential scale of this, given the size of Facebook's network, means it could be essentially immediately systemically important, and I think the company has acknowledged that. So that means—and I would echo what you quoted, Mr. Chairman, what Governor Carney said. That means that this should be subject to the highest level, the highest expectations in terms of privacy, but also prudential regulation. And the question is: Who is going to provide that and how and when?

I wish we had an easy answer, but that is the question.

Senator BROWN. You, in response to the Chairman's question, mentioned you have been in touch with your counterparts in central banks. Can you tell me what you are hearing from them, whatever publicly you can tell us what you are hearing from other central banks, I know China and Japan and Britain? Just your thoughts.

Mr. POWELL. I think, you know, everyone wants to start with the proposition that we want there to be innovation in the financial system. We do not want to be, you know, just reacting negatively to innovation. We want to find a way to incorporate it. But there just are serious concerns all around the table on how this will fit in our regulatory system and what it will really mean. And so I expect we will be making quite a bit of progress. In fact, there is a G7 meeting, Ministers and Governors, in Paris next week, and I know it will be a topic there. And so I think we are at the early stages, really, of understanding—I think we understand what is in the White Paper and that sort of thing, but what are the right ways to assure that the public is protected, and the financial system.

Senator BROWN. The working group that the two of you talked about certainly let us know—give us regular updates on where you are going and what you are suggesting. The Fed's latest *Monetary Policy Report* says credit standards for new leveraged loans are weak and have deteriorated further over the past 6 months. A slowdown in economic activity could pose risks to borrowing firms and their creditors. These borrowing firms are companies that employ millions of people, including many in the regional sector.

How would a crash in the leveraged lending market decrease economic activity and how would it affect employment?

Mr. POWELL. Well, I think the thought is that if the business sector as a general matter has a lot of debt, companies that are highly levered will be more affected by an economic downturn should one happen. They will be more likely to cut back on capital expenditures and maybe hiring and that sort of thing. So highly levered companies are more vulnerable to economic shocks, and I think that is the nature of the risk we see around leveraged lending.

We do not see it as akin to the risks that existed before the financial crisis, which were more risks to the financial system as such. Most of this risk is now held in market-based vehicles which have stable funding—not all of it, but most of it is held in that. So it is really for us a macroeconomic risk, and we have called it out, and, you know, we are looking hard at those vehicles and assuring that they do have stable funding, as we believe they do, for the most part.

Senator BROWN. And we need you to pay special attention to those risks, as you know.

Let me talk for a moment about CCAR. The Fed recently approved capital distributions from the largest banks. Not surprisingly, you can expect the largest banks will spend tens of billions of dollars rewarding themselves and their investors with dividends and stock buybacks. That has been their history. That is likely to be their future. This clearly does not help workers and consumers. Why does the Fed continue to approve these kind of exorbitant capital plans and direct so much money away from the real economy?

Mr. POWELL. So the sense of the stress test is that after the shock that we apply, the global market shock in the case of many of the largest institutions, and then the economic shock to the others, the banks have to exceed certain minimum capital requirements, even after this shock. And those requirements are higher than the actual level of capital that the banks had in 2007, so they

are quite high. And the shocks are quite large. And the stronger the economy is, the biggest the shock is. That is their obligation.

Above that, if they have capital that is well in excess of that, or if they have—then they have the ability to pay dividends, as long as they meet that test. It is a consequence of the fact that we have spent a decade with stress tests and requirements having the banks raise their capital higher and higher and higher, and they now are in a position where they can pay out all of their earnings for that year and still be in compliance with the test, with a margin of error—and a margin. So that is really where we are.

Senator BROWN. Thank you.

Chairman CRAPO. Senator Shelby.

Senator SHELBY. Thank you, Mr. Chairman.

Chairman Powell, thank you for your service. Thank you for your work to keep the Federal Reserve independent of both parties and do your job for what it was set up to be. We salute you for that.

Mr. Chairman, before I get into a few questions, I am going to try to stay within the 5 minutes. I have a number of questions I would like to ask for the record, without objection, if you would.

Chairman CRAPO. Without objection.

Senator SHELBY. Thank you.

You mentioned trade as a cloud perhaps on the economy, you know, some certainty there. We all know the economy is the best that I have seen in my lifetime at the moment. We want to sustain that. Trade is one way to sustain it if we have certainty there. That is not the only one. Would you elaborate on that, how important that is to the economy?

Mr. POWELL. I will. I should start by saying that we, of course, play no role in setting trade policy and, please, no one should construe anything we say about——

Senator SHELBY. But it affects what we do in the economy, does it not?

Mr. POWELL. Yes. But it should not be construed as in any way a criticism, because those are assigned to you and to the Administration. But what we get from our business contacts—and I imagine this is fairly widely the same as what you are hearing—is if you are a manufacturing company in the United States these days of any size, you probably have a supply chain that goes across international lines. And that is a really important part of your business, and so the trade negotiations that have been going on have injected uncertainty for those businesses into their supply chain. So many of them have moved their supply chains. Some moved them to Mexico and then found that Mexico might be the target of tariffs. Others are considering what to do.

In any case, at a minimum, it is a distraction from going out there and, you know, rolling out new products and that sort of thing. And so it shows up a lot in the Beige Book, just overall concerns, and I think it is weighing on the outlook. It does seem to be weighing on the outlook. We see, you know, weakness in manufacturing and investment and trade in the United States, and that is where it shows up.

Senator SHELBY. Your mandate as Chairman of the Fed is to do what you can for full employment and also price stability. Sometimes you have got to balance that. As we all know, it is very im-

portant for our monetary system, and I think overall you are doing a good job on that.

I do worry down the road about inflation, as you do, and so forth. It seems to be fairly tame at the moment and so forth, but we have observed in the past that there has been some type of relationship in previous years between inflation rates and unemployment rates. As unemployment goes way down, jobs, there is pressure on wages and salaries and so forth.

Is there a new paradigm out there as far as evaluating this today? And is it because of the global economy? Or what is it? Because we have low unemployment, but we have at the moment not a lot of pressure, from your testimony and what we observe, on inflation.

Mr. POWELL. The relationship between slack in the economy, or unemployment, and inflation was a strong one 50 years ago. If you remember, in the 1960s there was a close correlation there, and that has gone away, and it has really been——

Senator SHELBY. But we had a different economy then, did we not?

Mr. POWELL. Very different economy in so many ways, and in this way, that really—I would say that period—at least 20 years ago that period was over, and the relationship between unemployment and inflation became weak. It has become weaker and weaker and weaker.

In addition to that, I think we are learning that interest rates—that the neutral interest rate is lower than we had thought, and I think we are learning that the natural rate of unemployment is lower than we had thought. So monetary policy has not been as accommodated as we had thought. So I think we are learning all of those things. At the end of the day, there has to be a connection because low unemployment will drive wages up and ultimately higher wages will drive inflation, but we have not reached that point. And in any case, the connection between the two is quite small these days.

Senator SHELBY. What is your take on the ability for the German Nation to borrow money, their bond, at a lower rate than we do, say a 10-year bond? Is it based on what we traditionally know in economics as the least likelihood of default? Or what is that? Because they are borrowing money around 2 percent lower than we are.

Mr. POWELL. I think it is a range of factors, and I would not know them for sure. But I would say it is low inflation in Europe. That goes into rates. It is also the amount of quantitative easing and asset purchases that the European Central Bank has done. It is also expectations of slower growth. All of those things I think go into driving those extraordinarily low European sovereign rates.

Senator SHELBY. Thank you, Mr. Chairman.

Chairman CRAPO. Thank you.

Senator Menendez.

Senator MENENDEZ. Thank you, Mr. Chairman. And thank you, Chairman Powell, for your service.

During your testimony in front of the House Financial Services Committee, you stated that any problems that could emerge through Libra would "rise to a systemically important level just be-

cause of the mere size of Facebook." So is Facebook simply too big to build its own digital currency?

Mr. POWELL. I think it is early to say that. I think we are at the beginning of assessing that. But I think the size of their network does focus your attention on the very likely systemic importance of this currency, and that does not mean they should not do it, but it means that—at a minimum it means that the standards that need to be applied to it will be the highest.

Senator MENENDEZ. And as such, then, if Libra moves forward, we will—is it possible that our concerns rise and that we will have another too-big-to-fail institution tethered to the U.S. economy?

Mr. POWELL. I certainly hope not, Senator. Again, we are at the very beginning of assessing all this. I do not know that Facebook itself—I mean, Libra is actually 28 companies, including Facebook. I do not know that Facebook would be too big to fail no matter what happens with Libra.

Senator MENENDEZ. Yeah, I was referring to Libra. Let me ask you about this. If Libra moves forward as a cryptocurrency, should FSOC consider classifying Libra as a nonbank SIFI?

Mr. POWELL. That is a very good question. I know the FSOC will be focusing on this. We have not had a principals meeting at FSOC since this was announced. There have been staff level meetings on it, though. So we will be focusing on it. It is the Treasury Secretary's lead there. He is the Chair.

Senator MENENDEZ. Yeah, but I would assume you would have some comments and say on that.

Mr. POWELL. Yes, absolutely.

Senator MENENDEZ. I look forward to seeing how that evolves.

Chairman Powell, we see what happens in countries like Venezuela when central banks stop making decisions based on economic data and instead change monetary policy to suit the political goals of those in power. The results are pretty ugly. Now, of course, I do not always think the Fed gets things right, but our system is infinitely superior to one where the President dictates interest rates, especially when we are heading into elections.

President Trump has on several occasions threatened to either fire or demote you in what is clearly an attempt to intimidate you into taking certain actions, and I think I speak for all of my colleagues when I say that we applaud your efforts to keep the Federal Reserve as an independent and nonpartisan institution.

So in your *Monetary Policy Report*, you talk a lot about how uncertainty is holding back economic growth. Is it fair to say that the President's comments about you and the Fed's monetary policy decisions are contributing to that uncertainty?

Mr. POWELL. I would be reluctant to address that. I think we are really referring to uncertainties around trade and global growth in what we said in the *Monetary Policy Report*.

Senator MENENDEZ. OK. So then let us turn to that. If it is trade, you noted several times that uncertainty over trade policy is weighing on the economy. And I can tell you not a week goes by that I do not hear from folks in New Jersey that they are finding it harder and harder to grow their businesses and hire more workers because of the Administration's unpredictable trade policy.

So when you talk about "uncertainty in trade policy," isn't what you are really talking about the President's unpredictable behavior and his obsession with tariffs, which are really just taxes on Americans? Probably the most stark example of this is when the President put tens of thousands of American jobs at risk by threatening tariffs on Mexico to address an issue completely unrelated to trade. Would you agree that threatening to put tariffs on imports from the second largest trading partner in the world on an issue completely unrelated to trade has increased uncertainty and held back our economy in the past few months?

Mr. POWELL. I think businesses, like people, like a settled rule book. They like to know what the rules are so that they can act as aggressively or carefully as they want to. And I think when you go through a series of trade negotiations with your major trading partners, inevitably there will be uncertainty around that.

Again, that is not to judge whether these conversations in any way—not to judge them in any way, but I think——

Senator MENENDEZ. But I am not talking about——

Mr. POWELL. ——that is what it is.

Senator MENENDEZ. Excuse me, Mr. Chairman. I am not talking about trading negotiations in general. I am talking about using tariffs for nontrade purposes. That creates uncertainty. Every CEO I had when we were talking about, you know, tax reform, they would say to me, "Regardless of what policy you come up with, give me predictability and certainty, and I will figure out a way to make money." Certainly it becomes enormously unpredictable when tariffs are used for nontrade issues.

Mr. POWELL. I think that the reaction to that was actually pretty strong in the business community.

Senator MENENDEZ. Thank you.

Chairman CRAPO. Senator Toomey.

Senator TOOMEY. Thank you, Mr. Chairman. Welcome back, Mr. Chairman. Good to see you here.

I just want to follow up a little bit on a point that Senator Menendez was making. I, too, observed parts of your testimony before the House Financial Services Committee yesterday, and I noted that you were asked whether you intend to serve out the entirety of your term. And you said that you definitely are intending to do that, and I want to say I for one am glad to hear that that is your conclusion, in part because I do think it is important that the Fed remain insulated from political pressure. But I also want to say for the record that I think you have done an outstanding job. I would remind my colleagues, on the day that you were sworn in, the Fed funds rate was still on a real basis very close to zero. We had an enormous balance sheet. We had not yet exited the extremely abnormal monetary policy that we had pursued for about a decade. And I think that was a very dangerous experiment, and the unwind of that had no road map. There was no precedent. We had never experienced this before. And the central banks in other parts of the world were not in the process of normalizing.

And so you had to figure out a way to do that because I think you believed that it was important to normalize. And you went about doing that, and we went about doing some things on our side. We did major tax reform. We rolled back some regulation that

we thought was excessive. And what is the result? What are the results of that work? The result is the strongest economy of my lifetime: 3 percent economic growth last year, 3 percent in the first question of this year, record low unemployment, record job creation. We now have more job openings than we have people looking for work.

We helped to expand the productive capacity of the economy. The economy has responded tremendously. And now we are seeing an acceleration of wage gains which is strongest at the low end of the income spectrum, so this policy and this economy is narrowing the income gap, the wealth gap. And, Mr. Chairman, we used to have an expression for an economy like this. We used to call it the "Goldilocks economy," strong growth, very low unemployment, rising wages, and very low inflation. That is exactly what you hope for in an economy.

So I am not suggesting you get all the credit for it. We certainly do not get all the credit for it. But you were able to normalize from this very strange experiment, and here we are with some terrific consequences.

That leads me to my question. In light of the sovereign, the fundamental strengths to the economy, as I see them—and I acknowledge that there are doubts and uncertainties. There always are. But I have to confess I have been a little surprised to see over recent weeks that the market has estimated about a 100-percent certainty that we are going to get a reduction in the Fed funds rate. I am not asking you to tell us what the Committee is going to decide to do at the end of this month. But in light of the strength, the fundamental strength, it is surprising to me the breadth of the consensus that we are going to lower interest rates. And one of the things that I wonder about is to what extent is this driven by market-driven interest rates. So as you know, virtually the entire Treasury yield curve is trading below the Fed funds rates. I think you have got to go out to the 20-year maturity to get close to where Fed funds are. And maybe that is the private market telling us that the price of money should be lower than it is. And I just wonder how you think about the fixed income markets, especially the Treasury markets. To what extent does that influence the judgment of you and your colleagues in determining where interest rates should be?

Mr. POWELL. Thank you, Senator. So we see it quite similarly to the way you described it. The U.S. economy is in a very good place, but we also see those uncertainties I mentioned as weighing on the outlook, and we also see some weakness in the United States economy that I mentioned—housing, manufacturing, trade. And I think, you know, we have signaled—and central banks around the world are seeing weakness everywhere, and they are also providing more accommodation. We have signaled that we are open to doing that, and you are seeing that in the curve now. You are seeing that embedded in the United States interest rate curve, the fact that we have said that we are going to——

Senator TOOMEY. It seemed to me that the yield curve was suggesting that even before.

Mr. POWELL. It was, and so what does that reflect? I think it reflected the real concerns that arose really beginning in May. You

saw business confidence surveys gapping out and, you know, quite negative, fairly broadly. It was a bit of a confidence shock.

Now, I think some of that has recovered, but that in part is because we have stepped forward and indicated that we are—you know, that is what happens, is we address that through our policy and indicated at our last meeting that we were looking at changing rates.

The bottom line is the economy is in a very good place, and we want to use our tools to keep it there. It is very important that this expansion continue as long as possible.

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

Chairman CRAPO. Thank you.

Senator Tester.

Senator TESTER. Thank you, Mr. Chairman, Ranking Member Brown. I also want to echo what many of the Members have said already, that is, thank you for the job you are doing, Chairman Powell. I very, very much appreciate it.

I think I am going to start here. It was in 2007 or 2008 that we had a hearing in here with the Secretary of Treasury when he said that we were on the cusp of a total financial meltdown. We are looking at an economy that is flying right along. We are racking up debt of $1 trillion a year. We have got a President that puts tariffs on at whims without any exit strategy with the tariffs. We have got allies that have been pushed away. We are witnessing China's influence internationally that has been incredible, plus their investment in infrastructure in their own country. We are seeing health care becoming unaffordable. We are seeing higher education being unaffordable. And we have invested virtually nothing in infrastructure in this country, especially when we look at a 21st century economy.

I remember that hearing that we had in this Banking Committee very, very vividly because the question I asked of the Treasury is: How come we hear about this when it is such a crisis situation that we are looking at a financial meltdown situation worldwide? And he had been in front of our Committee—you are not Secretary of Treasury, but you have a very important job. He had been in front of our Committee before and never said a word about it.

So my question to you is: Since your job is very, very important and looking at the underlying factors, what is the thing that you are looking at or two or three things that you are looking at that would tip the scale? Because I think there are a lot of things going on right now that are very concerning. Even as we talk about low unemployment, we also fail to mention the fact that many of these families have to work multiple jobs to be able to afford even to rent a house.

So could you tell me what the underlying factors are that you are looking at that would give me assurance that this strong economy is actually as strong as we think it is?

Mr. POWELL. In terms of our economy in the near and medium term, I think we really are in a good place. Mainly the consumer part of the economy is pretty much intact. That is 70 percent of the economy. You have low unemployment. You have good job creation. You have rising wages. You have people spending. All of that is—housing is more or less sideways, and you do not see the kind of

risky problems that you saw before the crisis. So those are all good things.

You see some weakness in the business sector here, and that is really tied to manufacturing around the globe. That is the thing that I worry about. If you talk to international economic authorities, people are very concerned about global growth, and we will feel that over time. So I would say that is the main thing I worry about.

The other thing I worry about—and I mentioned some of these—is just the longer-run issues that we face as a country. We do not want to be at the bottom of the league table on labor force participation by prime-age workers. We do not want to have an opioid problem that keeps——

Senator TESTER. That is correct. So I guess there are a lot of things out there that are cruising along as we look at it, and I will tell you that the infusion of $1 trillion off the credit card every year into this economy I would say has a pretty significant effect on its ability to grow. You give me $20,000 a year extra, I guarantee you I am going to spend more money and things are going to happen. But I have got to pay that off at some point in time. Does the debt come into this equation at all? And then if you want to address the debt limit, potentially playing games with that, you could address that, too.

Mr. POWELL. Household debt is actually——

Senator TESTER. I am talking about national debt.

Mr. POWELL. National debt, that is different. I would say the United States Federal budget is on an unsustainable path. I think we all know that, and it is something that will have to be addressed. At the same time, we are the world's reserve currency. We borrow very cheaply, and there is no competitor really at the current timeframe in terms of another reserve currency. So what will happen, I think, is we will just spend more and more of our precious resources paying interest on debt as opposed to investing in the stuff that we really need.

Senator TESTER. OK. I am out of time. Thank you very much. I do have some questions for the record, and I want to talk about the impact that these tariffs are having on ag and what you are seeing with the bigger banks and the smaller banks.

Thank you for being here, Chairman Powell.

Senator BROWN [presiding]. Senator Cotton.

Senator COTTON. Welcome back, Mr. Chairman.

Mr. POWELL. Thank you.

Senator COTTON. The last time you were here, we spoke about the labor share of income and why more profits are not going down to regular workers. Today I would like to explore a related concept on economic mobility. On that front, I would like to say that I am pleased to be chairing next week a hearing of the Economic Policy Subcommittee with Senator Cortez Masto, the Ranking Member, on economic mobility and whether the American Dream is in crisis.

There was an interesting article today in the *Wall Street Journal*, based in part of your semiannual report, that mentions the record expansion surprise winner—the low-skilled—and it talks about how so many people who had been on the sidelines have gotten back into the economy, including some of the groups that you

mentioned that traditionally have been hurt the worst in recessions—minorities or the youth, the disabled, and so forth. But it also says that it takes on average 8 years for less educated workers to recover the wages they lost in the recession. It is much shorter for college-educated or even those more highly educated.

So, Mr. Chairman, I want to get your take on whether upward mobility depends in part on strong economic recoveries making it all the way into the eighth or even the ninth inning, so to speak. And are we currently in that state of this recovery, the eighth or the ninth inning, maybe even in extra innings?

Mr. POWELL. The good news is I think that we are in those innings, and we are seeing that, and it is very gratifying to speak to people in low- and moderate-income communities who work there or live there or both and have them say that they have not seen a labor market like this really ever. It is very, very tight, and that means employers are looking through all kinds of blemishes on resumes and hiring people and they are training people up and things like that. So that is really good. That is the good news.

The bad news is, as that box indicates, that started about 8 years into this recovery, so that is not really a great national strategy as to wait 8 years into it. We do not have that many recoveries—or expansions, rather. You know, we need a better strategy than that. It is working now, but ultimately the last time we had an expansion this long was 50 years ago. They do not tend to last this long. It also underscores again how important it is for us to keep this going, because a couple of more years of this, it is going to be very beneficial to those communities.

Senator COTTON. I want to highlight your remarks a couple months ago at a Federal Reserve conference. You noted that the widening gap in economic status and prospects between those with a college degree and those without one, and I will quote more directly from your speech to illustrate just how wide that gap has become.

"In the 1960s, well over 90 percent of working-age men held a job, and there was very little difference in employment between those with or without a college degree."

"While the share of college-educated working-age men with a job has fallen from more than 95 percent in 1967 to around 90 percent in 2017, it has plunged for others. Ninety-five percent of male high school graduates were working in 1967, but only about 80 percent of them were working in 2017. Among working-age men without a high school diploma, about 90 percent had a job in 1967 versus a bit more than 70 percent in 2017."

That is a pretty stark difference between men with a college degree on one hand and men without one on the other hand. What, in your opinion, explains this new situation, Mr. Chairman?

Mr. POWELL. The way I think about this is that what is really—a couple of major, you know, trends have been happening, and those are really globalization and the advance of technology. And for many of us, both of those things are advantages. If you are on the right side of those trends, probably this is the best time in human history for you. But there are people who, because they do not have the training and the skills and the background to benefit from advancing technology, then they fall on the other side of the

divide, and that is what you are seeing. You are seeing similar patterns, maybe not as extreme but similar patterns in other advanced economies that have faced these same challenges.

So at the end of the day, it comes down to an educational system and a society that produces people who have the skills and aptitudes to benefit from technology, increasing technology, more complicated technology. And when you have that, you can have declining inequality and widespread prosperity. Without it, it will be very hard to achieve.

Senator COTTON. It sounds to me like if, say, China had had a completely open market for American manufactured goods for the last 30 years but completely foreclosed the American market in investment banking and management consulting, we might be hearing a different tune, kind of those who are on the right side of globalization right now. I will not ask you to comment on it, though.

I will note, though, that I think immigration plays an important role here. In the period of time you were talking about from the 1950s to the late 1990s, less than 10 percent of the American workforce was foreign born. Right now we are reaching a point of our highest in over a century, and I think it is important that we focus on immigration policy, too, the role that it plays in blue-collar, working-class jobs, something we will explore next week on the Economic Subcommittee.

Thank you.

Senator BROWN. Senator Warner.

Senator WARNER. Thank you. Mr. Chairman, it is good to see you again. I will make an editorial comment first.

I was proud to support you when you became Chair. You made a commitment to me that you would realize this job and role required an independent Fed Chair that would not be subject to political lobbying and haranguing, whether it comes from this end of Pennsylvania Avenue or the other end. I think you have stuck to your guns so far, but I want you to keep sticking to your guns.

I would like to turn to some questions about Facebook and its proposed cryptocurrency Libra. I am a supporter of innovation in the financial sector, and if done right, this notion of a cryptocurrency could really deliver, I think, real benefits for increased friction, more access for consumers. But I have also got to tell you, as somebody who has spent a lot of time in the last couple years dealing with social media, and Facebook in particular, I think it would be safe to say—and, frankly, for people on both sides of the aisle—that Facebook has developed something of a trust deficit, and that the kind of Silicon Valley mindset of move fast and break things maybe works when you are just thinking about it in a technology framework, but when we are thinking about the kind of implications social media has had around consumer privacy, public discourse, that break things and move fast, no regulation, does not always work.

Now, yesterday, I think at the House Financial Services Committee, you noted that Libra posed many serious concerns, "including potential risk of the stability of the financial system." And, again, while I am open to the public benefits, I share your concerns about systemic risks, money laundering, privacy, other items.

This past week, former FDIC Chair Sheila Bair called on the Fed to exercise additional oversight over Libra, the possibility if this currency is fully built out, particularly if Calibra, which would be the Facebook wallet in Libra, the ability to have credit disruptions, consumer losses, foreign currency risks, financial mismanagement of the Libra reserve. The truth is we could be creating a system without the kind of regulatory oversight that led to the gaps that the crisis that took place, as Senator Tester pointed out. I think back about when the reserve fund broke the buck. We did not think that was going to be the thing that potentially brought down the system, but you could end up with the same circumstances around Libra.

Could you expand a little bit on what you see around these regulatory risks? And do you basically share Sheila Bair's concerns regarding the liquidity risks presented by Libra?

Mr. POWELL. I do. I think the risks are—I think we need to do a very careful, patient, thorough assessment of what the risks really are, and I think that is going to take a little bit of time. The idea that this would be going into implementation within 12 months I think is not going to be proven right. I think we are going to take more time than that. And as I mentioned earlier, one of the key issues really is that there is not a single, credible regulatory authority that can be responsible for oversight and held accountable for its oversight. It falls into many, many pockets—State, Federal, international.

So we are going to be looking at that. I did see that op-ed. I thought that was an interesting idea. I would not want to prejudge what we do or where we come out. We really have not even kind of gotten to the basics yet, but——

Senator WARNER. My hope would be, though, that you would—we have not been great recently at getting things across the finish line. My hope would be that you would, you know, take a serious look here. I think back to concerns I had back in the late 1990s when social media was set up. I was a telecom guy, and the rules of the road that were set up were basically thinking social media, these are just dumb pipes, we are not going to put any regulatory structure around it. We are now 20 years later; 65 percent of Americans get their news from Facebook and Google. We have the ability to disrupt our democratic processes. We see hate speech from either end of the political spectrum being brought forward.

I would be really concerned, as we think about the innovation that comes from this space, that we do not make the same exact mistakes back in the late 1990s, that if we do move forward with this innovation, that we ensure—whether it is Facebook or any other dominant players, that we make sure that there really is going to be access for third-party wallets, not just a Facebook product; that we really think about the ability for third-party developers to plug into this new financial system.

You know, getting this right on the front end is so terribly important, and I look forward to trying to work with you and the other regulators to make sure we get it right.

Mr. POWELL. Thank you. And I will just say this has gotten people's attention in a way that is very—I hope that is very clear, not

just ours but the other regulatory agencies and Governments and similar bodies around the world.

Senator WARNER. I will say—my time is up, but Facebook has taken advantage of the gaps within the current system, and we have got to make sure we do not have those gaps if we are going to talk about a whole new financial system.

Thank you, Mr. Chairman.

Senator BROWN. Senator Rounds.

Senator ROUNDS. Thank you, Mr. Chairman.

Chairman Powell, first of all, thank you very much for being here today. Before I begin my questions, I just wanted to comment on the insurance capital standard being developed by the IAIS. I think my colleague from Wisconsin, Congressman Steil, hit the nail on the head yesterday in his conversation with you in which he made it very clear that any version of the ICS that fails to recognize the aggregation method in the United States is simply unacceptable. And I appreciated your comments basically agreeing with that, that it has got to work for us, too.

I also appreciated the response from Vice Chairman Quarles to the Senate letter that I led on this issue, but I remain concerned that the EU is using the ICS as a back door to implement its Solvency II insurance capital framework worldwide. The EU's insurance regulator took a victory lap at the end of the latest annual report saying that they have achieved their goal of having, and I quote, "Solvency II as the practical implementation of the ICS." So moving forward, it is imperative that we see a very strong, assertive response from the Fed and from Team USA to the IAIS activity.

My first question concerns the capital plans that banks are required to develop under the CCAR framework. The CEO of JPMorgan, one of the banks required to participate in CCAR, said something about CCAR in his annual shareholders letter that I found rather striking. According to Mr. Dimon, and I quote, "Under the Fed's most extreme stress-testing scenario, where 35 of the largest American banks bear extreme losses . . . , the combined losses are about 6 percent of the total loss absorbing resources of those 35 banks. JPMorgan Chase alone has nearly three times the loss absorbing resources to cover the projected losses of all of these 35 banks."

Mr. Chairman, it seems a little absurd to me that we are forcing an institution like JPMorgan to hold not just enough capital to cover its own losses, but also the losses of the other 35 largest institutions three times over. This is coming at a tremendous opportunity cost in my opinion. The capital tied up under CCAR is capital that could be deployed to help first-time homebuyers purchase a home or budding Main Street entrepreneurs start a small business.

Vice Chairman Quarles said at a conference in Boston earlier this week that capital stress tests need to be more predictable and easier for firms to pass.

I guess my question would be: Do you agree that CCAR framework should be revised? Is it an item which is up for debate?

Mr. POWELL. Well, I think that we are going to have to continue to change—well, the tests will have to evolve over time, or they will

inevitably, like anything else, become out of touch with reality. So we are committed to making appropriate changes.

I would say, though, that the banks' obligation is to have a minimum level of capital post stress, and they are going to want to have a buffer on top of that. That is the test they have to pass. And we do not want them to be able to go—you know, we have made a pretty good judgment about what that minimum amount would be. I think the level of capital in the system is just about right. I do not think that it should be less, particularly for the largest banks. I do not believe that.

I think there is lots of work going on on CCAR, though, and it was the subject of that conference in Boston on, I guess, Monday or Tuesday, lots of changes. But, again, we are going to preserve the overall strength and power of them while making them more transparent.

Senator ROUNDS. Yeah, and look, I appreciate that, and I understand that capital requirements are important. It just seemed a little surprising to me what the current guidelines would do in terms of the amount of capital that they are, and I think there is a cost when you maintain that versus being able to put that back out in terms of loans to places that need it.

I recognize that this is something which is ongoing, but I just want to point out that seems to me to be a little bit larger than what I would ever have expected it to be in terms of the capabilities today.

Mr. POWELL. Well, again, I think the level of capital that we have required of the largest institutions in particular is about right, and it is high. It is high. It has not even been 10 years since the financial crisis. We have not even been through a downturn. So I think it is early to be talking about reducing those standards.

Senator ROUNDS. OK. One other question. In the semiannual *Monetary Policy Report*, you point out that credit provided by commercial banks to fund businesses as well as commercial and residential real estate continued to grow in 2019 and that bank profitability remained solid in the first quarter of 2019. I was encouraged to read this because the pressures that farmers are facing due to our trade disputes and other headwinds have led to questions about whether or not banks will continue to be able to make loans in the ag sector. Given your view of the economy, should banks be in a position to continue to provide credit to farmers and ranchers during this time in which net farm income is down 50 percent in the last 5 years?

Mr. POWELL. Well, the answer is yes to that. I think our farm belt banks have had a lot of experience in dealing with the issues that farmers are confronting right now. I know the whole agricultural sector is in a difficult place. It is a tough time. And I know that banks are trying to work through those difficulties with farmers.

Senator ROUNDS. Very good. Thank you, Mr. Chairman. I appreciate the work you are doing.

Thank you, Mr. Chairman.

Mr. POWELL. Thank you.

Chairman CRAPO [presiding]. Senator Schatz.

Senator SCHATZ. Thank you, Chairman.

Chairman Powell, thank you for being here. I am going to ask you a series of questions about severe weather and climate change, and the first thing I want to say is that I do not expect monetary policy to solve a public policy problem. But I do think it is important in your prudential supervision capacity that you measure risk accurately and completely.

And so the first question I have is: Does increased severe weather pose a risk to the institutions that you supervise?

Mr. POWELL. Yes, I mean, we—and you know this, Senator. We do require financial institutions that we supervise to have a plan and an understanding to deal with severe weather events, particularly those that are in areas that are exposed to increased risk of severe weather.

Senator SCHATZ. Is severe weather increasing due to climate change?

Mr. POWELL. I believe it is, yes.

Senator SCHATZ. Has the Fed changed the approach that it uses in assessing severe weather risk over the last 10 or 20 years?

Mr. POWELL. We have had a policy in place. I would tell you there has been quite a lot of research done at the Fed around severe weather and its effect on the economy, and we do incorporate that into our supervision of these institutions. So it has definitely evolved. I think we have, you know, a cutting-edge understanding of the effect of severe weather events on the economy, and we do incorporate that into our supervision.

Senator SCHATZ. But has the process changed?

Mr. POWELL. Has the process changed? You know, I would have to go back and look.

Senator SCHATZ. And the reason I am asking this specific question is that severe weather, generally speaking, over the last 10 or 20 years has been treated sort of force majeure; it cannot be helped, and to a certain extent it cannot be accounted for except that there is this sort of outside risk. But when that risk, say, of a 500-year storm rises 10 times in, say, 15 years, then the question becomes: Are your systems adequate to the conditions on the ground? And I can take that for the record if you do not want to puzzle through it——

Mr. POWELL. No, I can——

Senator SCHATZ. Go ahead.

Mr. POWELL. One way to get at that is to go back to Superstorm Sandy. In a world where you have water lapping at the foot of the New York Fed, which is not that close to the water, in downtown Manhattan, you know that you are going to need robust plans and redundancy and all those things to deal with severe weather events. And that happened in, what, 2013 or 2014. So we know that, and we do apply very high standards to the key payment utilities and other financial institutions.

Senator SCHATZ. Let me read you something from the Bank of England: "The costs of climate change are having a devastating effect. As financial policymakers and prudential supervisors, we cannot ignore the obvious risks before our eyes. We must integrate the monitoring of climate-related financial risks into the day-to-day supervisory work, financial stability monitoring, and board risk management."

Do you agree with the Bank of England?

Mr. POWELL. You know, I guess I see climate change as a longer-run issue. I do not know that incorporating it into the day-to-day supervision of financial institutions would add much value. We have lots of things to supervise them for.

Senator SCHATZ. Let me make the case for day-to-day supervision, especially prudential supervision. You measure cybersecurity risk, political risk, balance sheet risk. You measure risk. This risk is accelerating. And I understand the desire for the Fed to sort of stay out of the political fray and even to stay out of the public policy fray. But this risk is accelerating, and I am not quite—I am satisfied that you are puzzling through this and that the staff is trying to get this right. But I am not satisfied that you are drawing the correct distinctions between weather and climate and that you are adequately accounting for the increased frequency and severity of severe weather events due to climate change.

And there is one other part of climate change. It is not just individual events. It is changes in weather patterns that could cause individual portfolios to be more at risk. And so do I have your commitment to continue to work with our office on this problem, especially given that, as you know, more than a dozen central banks around the planet are working really hard on this, and, again, without an ideological lens but just to try to adequately measure the risk?

Mr. POWELL. Yes, and I will also say there is really nothing going on in the other central banks that we are not quite well aware of, as I think you know.

Senator SCHATZ. Thank you.

Mr. POWELL. Thank you.

Chairman CRAPO. Senator Perdue.

Senator PERDUE. Mr. Chairman, good to see you again.

Mr. POWELL. Nice to see you.

Senator PERDUE. Thank you for your forbearance, your second day going through this.

I would like to go back to a topic that we covered just a little bit earlier. Today we have in the world about $60 trillion of sovereign debt. The United States has about 22 of that. Corporate debt since 2008 in the United States between—the last decade, between 2008 and 2018, about doubled, but still only represents about 4 percent of more than $60 trillion in overall U.S. capital market assets.

My question is, basically, after reviewing all the data around corporate debt, sovereign debt, and particularly the increase in corporate debt, do you believe that leveraged lending has reached the point where it is beginning to be a systemic risk? If so, could you explain what information you are using to look at that?

Mr. POWELL. So as far as corporate debt is concerned, I would tell you I do not see it as rising to the level of a systemic risk or a financial stability risk, which we think of as something that could threaten the functioning of the financial system. And the reason is a couple of things.

First, the risk is really held in—more than half of the risk in leveraged lending is held in collateralized loan and debt obligations, and those are market-based vehicles. They are not on the balance

sheet of banks, and they are not runnable. I mean, it was runs during the crisis that caused a lot of damage. The funding for those vehicles actually has longer life, expected life, than the assets that they own. So that is an important thing.

The next biggest holder of that paper is mutual funds, and those in theory could be subject to accelerated withdrawals and that kind of thing. We monitor that very carefully. There is a risk there, but we have seen them weather lots of downturns. So just empirically, we have seen them weather, you know, spikes in volatility and that kind of thing.

We are not in any way backing away from this and saying it is not a problem. I think we are very focused on monitoring it and confirming that it does not evolve into something that could threaten the system. And in the meantime, it clearly can be an amplifier to an unexpected macroeconomic downturn.

Senator PERDUE. You know, I tried to buy a couple of carefully in China last year with a credit card and with cash, and you just could not do it. So it was all, you know, AliPay, WePay, et cetera. With the cryptocurrency question you had earlier, in all the technology that is coming, it just seems to me that technology is running ahead of us in our ability to look at how currency is managed around the world, how cash-flows are managed, and the impact that it could have on how we for the last 100 years or so have used reserve currency in the world, and we have benefited that in the United States. The ability to borrow $22 trillion of debt and potentially $10 trillion more over the next decade depends heavily on our ability to be the reserve currency, have the dollar as the reserve currency.

What risk to the structure itself and then also to the fact that the dollar has enjoyed for over 100 years now, or about 100 years, being the reserve currency?

Mr. POWELL. You know, I think being the reserve currency does confer benefits and costs. One of the potential costs is that you are a little bit immune from market discipline because everyone wants to be in the most liquid asset. And it tends to be a pretty stable equilibrium, so there tends to be one reserve currency, or two, and it tends to last for a long time. But if you are going to keep that role, you have to run your fiscal house successfully. You have to be running up a sustainable fiscal policy. And we are not. I do not think in the near term there is anything to threaten our status such as a reserve currency, but in the medium and longer term, we will have to address our fiscal issues.

Senator PERDUE. With $30 trillion in a decade—and that would be approaching probably 40 to 50 percent of all sovereign debt in the world at that point, because a lot of other countries are deleveraging to some degree. All of a sudden then that does—your medium to long term—I am not trying to get you to quantify that, but if you look at the next decade and we are going to add 50 percent—if we were to add 50 percent more, that near- to long-term definition could fall in within the next decade or so, could it not?

Mr. POWELL. Well, you have to have another reserve currency that has more attractive features. We have the best—we have the rule of law. We have institutions. We are a trading Nation. We are open to trade. And we have a highly developed financial system.

That is really important because when you are the reserve currency, you can have inflows and outflows, and you have to have a financial sector that can absorb and manage that, or you will have spikes in inflation and currency volatility and that kind of thing.

So another currency would have to emerge that could take over that role, and there really is not one right now that could check all of those boxes. So it could be a long time.

Senator PERDUE. And the market basket concept has no more appeal today than it did a decade ago when they started talking about that?

Mr. POWELL. It has not really taken off yet, if you are talking about special drawing rights.

Senator PERDUE. Agree. Yes, sir. Right.

Mr. POWELL. But, nonetheless, we should not assume that it will last forever, because it will not.

Senator PERDUE. Yes, sir. Thank you for being here.

Thank you, Mr. Chairman.

Chairman CRAPO. Thank you.

Senator Smith.

Senator SMITH. Thank you, Chair Crapo, and thank you so much, Chair Powell, for being here today. I very much appreciate your service, and I want to just note that I believe in the first 30 seconds of your testimony this morning, you used the word "independence." I believe that I heard colleagues on both sides of the aisle pay tribute to how important it is to have an independent Fed, so I want to thank you for that, for your steadfast defense of that.

I also want to just quickly follow up on comments that my colleagues Senator Tester and Senator Schatz said. You know, Senator Tester asked, What is going to tip the scale to bad when it comes to our long-term economic prospects? And I would like to just for the record say that I do really believe that our increasingly volatile climate, climate change, is on the same scale as the long-term threats to a growing national debt in terms of the stability of our economy. And trust me, the farmers in Minnesota who are looking at lost yields and a complete shake-up of the world in which they operate, for them this is a short-term and an immediate issue. So I wanted to just add my thoughts to that point.

Speaking of issues that are long-term challenges to the economy, you mentioned housing and sort of the lagging of housing construction. You know, what we are seeing all over the country and certainly in Minnesota is that housing costs are growing faster than wage growth, and the market is producing, so we have shortages of housing at price points that people can afford. And we are seeing, of course, more high-end homes being built but not homes that people can actually afford.

So I would like to have you just talk a bit more about the impact of this. This has impacts on employment in rural areas, impacts on long-term economic prospects for the country, and what you see the Fed's role could be and what our role should be.

Mr. POWELL. I think what we hear from the home builders is that it is a series of factors that are really holding them back and driving—and challenging affordability. And it is in many cases that there was a big home-building sector in 2005, and a lot of those people retired in 2007, 2008, 2009, 2010, and 2011, and now you

have a shortage of skilled labor, so it is hard to get people on the job—electricians, plumbers, carpenters, and other people. That is one issue, just to get the people. No matter what you pay them, just finding people who can do that work expertly.

Senator SMITH. Would you say our immigration policy might have something to do with that?

Mr. POWELL. I think that—that is what we hear from home builders.

Senator SMITH. Me, too.

Mr. POWELL. That is part of it for sure. It is also hard to get lots. You know, in many metropolitan areas, you have a lot of homes and traffic and that kind of thing, and the rules for creating new lots are challenging. Material costs too have gone up, and some of that is tariffs for sure. So the home builders feel almost like they have been hit by a perfect storm here. I think with rates on mortgages having dropped quite significantly over the course of the year, we do expect a turn-up there. But these longer-run challenges I think are going to be there, and affordability is going to be a challenge.

Senator SMITH. What I hear from businesses and communities, especially in rural Minnesota but really all over the State, is that the lack of workforce housing, affordable housing for people who have good jobs is actually a real limit on economic growth. I am doing a series of roundtables around the State to try to get at this, so I appreciate your comments on that. Thank you.

Let me just ask you on another topic, Senator Shelby was talking about the relationship, maybe the shifting relationship between interest rates and growth. You are under political pressure, which I do not approve of, to lower interest rates. I am not asking you what you are going to do, but I want to look at the lesson of what we are seeing in the EU. So in Europe, the central bank essentially has negative interest rates. Economic growth is only about 1.2 percent a year, and inflation is also below target. So my question is: What can we learn from the experience in Europe? It looks to me or some could conclude that you end up losing many tools in your toolbox when you—that seems to be sort of the challenge that they have. Now, obviously, some of this is monetary policy and some of it is fiscal policy. But could you comment on that?

Mr. POWELL. I will, and it is really the same lesson that we have learned, I think, from Japan that you see that in a less extreme form in Europe, and that is that you do not want to let—you do not want to get behind the curve and let inflation drop well below 2 percent, because what happens is you get into this unhealthy dynamic, potentially, where lower expected inflation gets baked into interest rates, which means lower interest rates, which means less room for the central bank to react, and that becomes a self-reinforcing thing. We have seen it in Japan. We are now seeing it in Europe. And that is why we think it is so important that we defend our 2-percent inflation goal here in the United States, and we are committed to doing that.

Senator SMITH. Thank you.

Chair Crapo, I have several other questions that I would like to submit for the record. I am especially interested in submitting a question around Deutsche Bank. Last night, the *New York Times*

reported that Deutsche Bank's private banking managers urged the bank to retain Jeffrey Epstein as a client, even after the compliance officers recommended that the bank drop him as a client because of reputational risks. So I am going to submit a question about what type of customer does represent a reputational risk, and if not Epstein, then who? Thank you.

Chairman CRAPO. Thank you.

Senator Kennedy.

Senator KENNEDY. Thank you, Mr. Chairman. And thank you, Mr. Chairman.

Mr. Chairman, what is the economic impact, in your judgment, of illegal immigration on America's economy?

Mr. POWELL. I would have to answer it in generalities. I have not tried to quantify that. But people who come in legally or illegally, they add to our workforce, and they contribute to GDP certainly. So that is part of it.

I think that part of growth—you can really boil growth down into labor force growth and productivity increases, and immigration, total immigration, has contributed more than half of the growth to our workforce in the last few years. So it is important.

Senator KENNEDY. What about illegal immigration? Does it have an impact on wages?

Mr. POWELL. You know, there has been a lot of research on that, and it has really not reached a clear conclusion. There is research that finds no visible impact, and there is research that finds it has a modest impact.

Senator KENNEDY. Well, do you think illegal immigration is a good thing?

Mr. POWELL. You know, it is really not in our—it is really not at all in our say-so. It is like trade or guns or some other things that we do not really take part in.

Senator KENNEDY. Well, in part it is, and let me explain my perspective. We welcome about a million of our world's neighbors to become American citizens every year. I think that makes our country stronger. I think we can probably agree on that.

Unfortunately, we have a lot of folks that come into our country illegally. I think part of the reason that so many people want to come to America is because we have rights and we cherish them and we protect them. I mean, when is the last time you heard of somebody trying to sneak into China. They want to come to America.

But with rights go responsibilities. One of our responsibilities is to abide by the rule of law. Federal law is not an a la carte menu. You cannot pick and choose which laws you want to abide by. And to come into our country illegally is a violation of Federal law. And it would seem to me that we would want to do everything we can, if you believe, as I said, that people respond to incentives, not to give people an incentive to violate the law. Now, that is kind of my perspective on it.

Properly vetting people who come into your country, in my judgment, is not racist. It is prudent, in the interest of public safety.

Are you familiar with the program called "Directo a Mexico"?

Mr. POWELL. I am not, at least by that name.

Senator KENNEDY. I understand it is a program under the Fed. It facilitates remittances from people in America to other countries with low transaction and exchange fees.

Mr. POWELL. This must be part of our ACH operation, and we do some remittance business through our ACH internationally.

Senator KENNEDY. OK. Will you make it easier for people in our country to send money to another country?

Mr. POWELL. Very, very limited. Most of that happens in the commercial banking system—almost all of it. But I think we do—see, we have something called—this is complicated, but "automated clearing house" is really set up to do things like payrolls, and we do that internationally. It is not a great tool at all for sending back remittances.

Senator KENNEDY. OK. But you do have a program—you are just not familiar with it—called "Directo a Mexico"?

Mr. POWELL. I am not familiar with it. Sorry. I will look into it.

Senator KENNEDY. OK. Do you know if U.S. citizenship is a prerequisite to being able to use the program?

Mr. POWELL. I do not. I would have to check on that.

Senator KENNEDY. Do you know the impact of your program on the American economy? What does it do for us?

Mr. POWELL. I would have to look into all those things, and I would be glad to do it.

Senator KENNEDY. OK. You are aware that remittances form a huge portion of the GDP in other countries, like Mexico, for example?

Mr. POWELL. Yes, I think a number of countries rely on remittances from relatives usually who work in the United States and send money back home.

Senator KENNEDY. Right. And if someone is here illegally, this program could be an incentive, could it not?

Mr. POWELL. In principle, yes. Again, I am completely unfamiliar with it, so I should really——

Senator KENNEDY. OK. That is fair. I do not want to catch you off guard. I will be calling you. I would like to visit more about this.

Mr. POWELL. Good.

Senator KENNEDY. And whether this is a good idea or whether it improperly incents people to break the law. OK?

Mr. POWELL. Thank you, Senator.

Senator KENNEDY. Thanks for your good work.

Chairman CRAPO. Senator Van Hollen.

Senator VAN HOLLEN. Thank you, Mr. Chairman. And welcome, Mr. Chairman, and thank you for your leadership.

As you know from previous questions I have asked you at these hearings, I have been very frustrated—very frustrated—about the lack of the development of a real-time payment system at the Federal Reserve. There were some questions in the House yesterday about this. As you acknowledged, the Fed has been looking at this for 5 or 6 years. In the meantime, every day that goes by, the lack of a real-time payment system is costing millions of Americans lots of money. And over the course of a year, we are talking about millions of Americans losing billions of dollars, especially those who are going paycheck to paycheck.

At the same time, other countries—Great Britain, the EU countries, lots of other countries—have gotten there before us, and there is no reason we should not have gotten there a long time ago.

In the meantime, because of lack of progress, there has been more momentum for a de facto private sector version of a consortium of big banks, The Clearing House, and there are lots of concerns about that system. Mr. Hoenig, who is formerly the Vice Chair of the FDIC, and Bruce Summers, formerly at the Fed, recently wrote an editorial about their concerns with the largest banks in the country controlling the payment system. I just want to quote from their article, and they say: "The needs of consumers and businesses, and the depository institutions nationwide that provide them services, will be best served by the Federal Reserve continuing to play its role as a payments processor. The alternative, we believe, is to award The Clearing House a de facto monopoly, resulting in a less competitive and less efficient market for immediate payments."

Question: Do you share the concerns they expressed in that editorial?

Mr. POWELL. Senator, as you, I am sure, know, we actually have a proposal out to provide a real-time settlement system, 24/7/365, and asked the public to comment on it. We sent it out late last year. We have got several hundred—900, I think—comment letters and all that, and there has been—this proposal came out of our Faster Payments Initiative. We chose to pull people together. As you know——

Senator VAN HOLLEN. Not to cut you off, but when do you expect to get this done? I mean, again, other countries have done this. It is not that complicated. It is really just a question of making a decision. So do you share the concerns that were expressed by those two individuals in their editorial? And as you think about your answer, I want to point out that 2½ years ago, when the big bank consortium was preparing to launch a real-time payment system, they told the Department of Justice that they would charge the same price to all depository institutions regardless of their size. About a year later, the Justice Department cited that assurance when it told The Clearing House that it had no intention to take any antitrust action against them. But last month, The Clearing House added a big caveat to its pledge. They said that they would only maintain that commitment if there was no other competition, meaning the Federal Reserve. And community bankers are very worried about this. Here is a quote from Bob Steen. He is the CEO of a $93 million asset Bridge Community Bank in Mount Vernon, Ohio, talking about the Fed, "If they do not take that as a dare, then I do not know what it takes for the Fed to serve as a central bank role."

So we have just got to make a decision here because the lack of the Fed making a decision is essentially putting in place the de facto clearing house. Now, if that is the result of a deliberate decision, that is one thing. But if it is the result of inaction, then there are real risks at stake here.

Mr. POWELL. We are working our way through the comments and approaching a decision, and we have to weigh this very carefully

under the law, under the Monetary Control Act and under our regulations.

You are absolutely right that the smaller institutions are strongly in favor of our doing this, but there is a range of commentary. We have a process we need to go through. We have been going through it and, you know, expect to reach a decision.

Senator VAN HOLLEN. All right. I would just be concerned with providing the biggest banks a monopoly over this big an area of transactions.

Very quickly, you have indicated how important it is for the Fed to be independent, but the President does give you a call from time to time, right?

Mr. POWELL. He has.

Senator VAN HOLLEN. Has he ever raised the issue of Deutsche Bank in those conversations?

Mr. POWELL. By longstanding practice, of course, I respect the privacy of my conversations with any elected official, including the President.

Senator VAN HOLLEN. Right. There is no executive privilege, though, between the President and the Federal Reserve, is there?

Mr. POWELL. This is——

Senator VAN HOLLEN. It is an independent body, right?

Mr. POWELL. That is correct. It is not a legal matter. It is just out of respect for—I would give you the same respect.

Senator VAN HOLLEN. Well, as you know, a group of Senators on this Committee have written to you about the Deutsche Bank situation where senior executives at Deutsche Bank overruled one of their experts who wanted to issue a suspicious activity report with respect to certain Trump entities, financial entities. That was overruled. Deutsche Bank has under your regulatory purview. How can you provide us assurances that that will be looked into when you have a whistleblower case like that?

Mr. POWELL. As you know, we have an enforcement action in place against Deutsche Bank for its system and money-laundering issues, and, you know, we are providing absolutely standard oversight to that at this time.

Senator VAN HOLLEN. OK. Can you provide us assurances that that kind of situation would come under that purview and investigation?

Mr. POWELL. That kind of situation, yeah.

Senator VAN HOLLEN. Thank you, Mr. Chairman.

Chairman CRAPO. Senator Jones.

Senator JONES. Thank you, Mr. Chairman. And, Chairman Powell, thank you for being here and thank you for your testimony.

One of the short-term risks to the economy that I fear and I think you have highlighted are the ongoing negotiations in Congress over both Government spending and the debt ceiling. In the June FOMC minutes, for example, it was written that participants generally agreed that a downside risk was a sharp reduction in Government spending, and all told, if Congress does not reach an agreement, there is a potential for a $120 billion immediate reduction in Federal spending for national security and a host of domestic programs.

Would you just elaborate a little bit on what you believe what kind of risk does this represent to the economy and how is the Fed processing this risk?

Mr. POWELL. I think that it is essential that Congress raise the debt ceiling in a timely way, by which I mean in a way that allows the U.S. Government to pay all of its bills when and as they are due. That is essential. Any other outcome is unthinkable. We have always paid our bills, and it simply must happen that Congress raises the debt ceiling in time to allow that to happen. The consequences of failing to do so would be highly unpredictable, and no one should assume that the Fed or any other agency can be relied upon to shield our economy from the short-, medium-, and long-term negative consequences of such an act.

Senator JONES. Is there risk in protracted negotiations? I mean, if we are in the 11th hour of discussions—and, you know, so many times we have seen, like last year with the Government shutdown, with disaster relief, there is all this political posturing and, you know, dueling press conferences, and we end up getting down the road and getting close, and then they fall apart. Is there risk just in the protracted negotiations and waiting until the 11th hour to do something?

Mr. POWELL. I think markets have seen this movie, and I think they think they know how it ends. And so they tend to look through that. You do see some of the Treasury securities that are maturing; they might trade and they are now trading a bit off because they—on the theory that there might be some delay in payments. But, clearly, everyone is assuming that this will get worked out. And if that were not to happen, that would be, I think, a big surprise and not a good one.

Senator JONES. Well, I appreciate your answer. Maybe Congress and the President can take a lesson from that and just go ahead and get it done now instead of going through the protracted, you know, "Who shot John?" kind of things and where we are.

I want to go back to a question my colleague Senator Shelby talked about just a little bit with regard to trade and the apparent progress in trade. And I want to kind of couple that a little bit with what you have talked about with regard to so many sectors of the economy that are not feeling the buoyancy of their jobs, of their wages, and things like that. Our manufacturers in my State and farmers in my State, I am not sure they have seen the apparent progress that was initially seen that you talked about. But, regardless, they are certainly feeling the pain of the uncertainty, and those challenges are broad in scope. We have got uncertainty with China. There is uncertainty with Canada and Mexico. There are steel tariffs. There are potential auto tariffs. There are retaliatory tariffs on farmers. And yesterday we heard there may be French tariffs, and even our Eximbank needs reauthorization.

In my State, that seems to be affecting folks in those rural areas, the African American folks probably more than most. It has not hit directly the consumer, I do not think just yet with the tariffs, but it is going to happen. I mean, we are seeing now—we are seeing now that in the short term we are going to see tariffs that are going to cause an increase in depletion and supply of things like

Bibles and artificial fishing lures, which are fairly standard staples in Alabama, most Alabama households.

Can you elaborate for me on which of all of this in particular is the thing that concerns you most about the current situation with tariffs? What are the concerns that you have most? Because they are all over the board, and we seem to be going this alone.

Mr. POWELL. I would just say I think it is general uncertainty on the part of businesses, and you do not really see that—as you noted, you do not really see that in household confidence surveys and things like that. I think you do see it in business confidence surveys now. And the concern would be that over time it will just be—it will weigh on the economic outlook, and it is a concern. I think we have been hearing that all year long from our business contacts.

Senator JONES. In particular, let me ask about—the President right now has on his desk a report from the Commerce Department about whether or not foreign automobiles and suppliers are a national security threat. That has been sitting on his desk since February. It has not been released despite many of us on this panel, including Senator Toomey and I, have been asking. Is the fact that that is sitting there and the President is not even releasing it publicly, does that add to the uncertainty?

Mr. POWELL. You know, I would be reluctant to comment on any particular aspect of trade policy, which is clearly not our job. At the same time, we try to call out the things that we are seeing. We owe that to the public, and so I would just leave it at the level of high uncertainty.

Senator JONES. Well, I appreciate the answer. It is really more of a comment from me than anything else. Thank you, Mr. Chairman, so much for being here. And thank you, Chairman Crapo.

Chairman CRAPO. Thank you, Senator Jones. And as you can see, Mr. Chairman, we do not have any other here, but we have Senators coming. So we are in the second vote at this point. Senator Brown will be back in a few moments. He and I are switching out. And while we wait for some of the other Senators who want to have a chance to ask you some questions, I get to ask a few more of my own.

I would like to go back for just a moment to the cryptocurrency issue. You indicated before, as you start to look at the new Libra proposal, that you have been in communication with some of the other central banks and other regulators, as well as the United States regulator. Are you aware of any other cryptocurrency proposals that are out there other than Libra, something else globally that is being developed?

Mr. POWELL. I mean, not really. There are companies that are looking at internal stable coin-type ideas to use with their customers, but nothing that—I am not aware of anything that could potentially be quite so scalable so quickly as this given the existing network that the company has.

Chairman CRAPO. All right. And to return to the question that Senator Perdue had asked you about, the impact of a cryptocurrency system on our reserve currency in the world, particularly in the United States reserve currency, which, as you both indicated in your conversation, has—I think the United States has

benefited from our currency being the world's reserve currency. If a cryptocurrency system were to become prevalent throughout the globe, would that diminish or remove the need for a reserve currency in the traditional sense?

Mr. POWELL. I think things like that are possible, but we really have not seen them. We have not seen widespread adoption. I mean, bitcoin is a good example. Really almost no one uses bitcoin for payments. They use it more as an alternative to gold, really. It is a store of value. It is a speculative store of value like gold. So we do not have—and people, of course, have been talking about this since cryptocurrencies emerged. But we have not seen it. But that is not to say we will not see it. And if we do see it, yes, you could see a return to an era in the United States where we had many different currencies, and, you know, in the so-called, I guess, national banking era.

Chairman CRAPO. All right. Thank you. I do have more questions, but some of our Senators are returning now, and I will turn to Senator Tillis.

Senator TILLIS. Thank you, Mr. Chairman. Chair Powell, thank you for being here.

A quick question on payments, maybe a couple of questions. Do you think that the current private sector payment systems are broken?

Mr. POWELL. I would not say they are broken.

Senator TILLIS. Then what part of the problem exists out there that is prompting the Fed to move forward with a payments platform?

Mr. POWELL. Well, we have not decided to do that, although we do, of course, play an active role in the payment system in a number of ways already. Where the U.S. lags is real-time payments broadly available on an equitable basis. Other countries are way ahead of us on that, and so for the last 5 years, the Fed has been trying to push us—we do not have plenary authority in this area—trying to push us generally into a place where that will be available to people, as it is in many other countries around the world.

Senator TILLIS. How do we go about funding it, funding the implementation of the ongoing operation?

Mr. POWELL. Of?

Senator TILLIS. If you decide to move forward with a Fed payment system.

Mr. POWELL. Ah. So anything that we do in the way of a payment service is subject to the Monetary Control Act, and the Monetary Control Act requires that we—a couple of things. One is—and I will not get the language exactly right, but the sense of it is that it must pay for itself on a basis that is comparable to a private provider, meaning, including the cost of capital and taxes.

Senator TILLIS. I have got a series of questions that I will submit for the record on the decision process and going forward. But I for one hope that we can get to a point to where perhaps we can facilitate a private sector solution that addresses some of the things that I think you rightly point out, but not necessarily take on that.

First off, I should have thanked you for the great work you are doing. I think you are doing great work as Chair, and I appreciate——

Mr. POWELL. Thank you.

Senator TILLIS. ——everything that you do in some, I think, of the most confusing times for somebody in your position, and I appreciate it.

I think someone mentioned earlier when I was out—I apologize. We have got multiple committees and multiple votes going on right now. But I think that we had some of the folks on the other side of the aisle that are concerned that as Deutsche Banks takes itself apart, that the bigger banks will pick up those assets and maybe even get bigger. But I do not necessarily think that that is going to happen. What I think is probably going to happen is we are going to see that move into private equity where they are probably chomping at the bit to buy things for pennies on the dollar. What is your view?

Mr. POWELL. You know, as you know, as you remember, that is exactly the kind of thing I used to spend my time doing. But I honestly have not looked at the company with that question in mind. I will come back to you on that.

Senator TILLIS. Thank you.

Another area that I am kind of curious about, you know, if you were in the private sector and you had a 10-year yield that was close to 2 percent, would you extend your maturity profile and lock in financing based on today's market conditions?

Mr. POWELL. I mean, as a general matter, I think this would be a nice time to lock in. This is a low rate——

Senator TILLIS. So as we take a look at our own debt, is it time to potentially consider—I know there are some short-term transition costs, but potentially consider what other countries are doing on longer-term bonds up to and including I think more recently 100-year bonds?

Mr. POWELL. This one is squarely in the wheelhouse of the Treasury Department which does the debt management. I know they looked carefully, as you obviously know, at doing very long bonds.

Senator TILLIS. Do you have any view on the pros and cons of doing it?

Mr. POWELL. I really do not. You know, I think they looked quite carefully at it. When I was at Treasury 25 years ago, we looked at it and concluded that the market would—there might or might not be a market to do it, so we did not get it done, anyway.

Senator TILLIS. The last thing I will leave you with, because I want to make sure that the other Members get in their questions, is we will be submitting additional questions for the record for some of my age-old priorities in terms of regulatory work that you are doing specifically around interaffiliate margin, Volcker, recalibrating the G–SIB surcharge, and a number of other things. We really believe that these are things that are very positive that we need to see progress on, so we will be submitting questions for the record so that we can see what the progress is and timelines for results.

Thank you for being here.

Mr. POWELL. Thank you.

Senator BROWN [presiding]. Senator Reed, are you ready? Or should I go with Senator Cortez Masto?

Senator REED. Go ahead, please.
Senator BROWN. Senator Cortez Masto.
Senator CORTEZ MASTO. Thank you. Chairman Powell, thank you. It is good to see you again.
Mr. POWELL. Good to see you.
Senator CORTEZ MASTO. And thank you for all the good work that you are doing.
At yesterday's hearing, you said that American workers have missed 10 years of wage growth. You said the Federal Reserve needs to do a better job of calling out the declining returns to workers, and you also said more business owners realize that an economy where the richest 1 percent of families control 40 percent of the Nation's wealth is problematic. And yet you said one answer was for workers to increase their education, and you said this before. I think last time you were before us we had this conversation. And correct me if I am wrong. I am looking at the Fed's data, and I think it is on page 8—it is on page 8 of the *Monetary Policy Report* that just came out. If I read this correctly, it shows that wages have barely increased for both high school and lower-educated workers and college-educated workers. So if you look at that graph, how I am reading it—and correct me if I am wrong—from 2007 to 2017 wages were basically flat for both. In the past year and a half, wages have gone up by about 1.5 percent over 2007 levels for both college-educated and high school-educated workers. Am I reading that correctly? So it has been flat for both.
Mr. POWELL. These are real wages after inflation. That is what the trick is here. If you added inflation back in, nominal wages, of course, have increased.
Senator CORTEZ MASTO. But for both categories, it has pretty much been flat. There has been a nominal increase for both categories. Is that correct?
Mr. POWELL. So if you look at the table on the right, the picture on the right, what you see is that you had declines in real wages and then you see them increasing. Around 2015 it became positive for college-plus, but, generally speaking, yeah, that is the picture.
Senator CORTEZ MASTO. Yeah, and so would you agree that at least what I see here, that the 1.5 wage increase over a decade is completely inadequate?
Mr. POWELL. I was actually referring to the first decade of this century when I made that comment.
Senator CORTEZ MASTO. OK.
Mr. POWELL. So what happened beginning in about 2000, the share of profits going to labor declined. It had sort of oscillated around a particular level for a long time, and then around the year 2000 it went gradually down over a period of 10 years. So my point was, when we talk about wage growth, we are talking about 3-percent wage growth, which is a pretty healthy level of wage growth. The problem is not the change. It is the level in the sense that we missed that period where workers were losing ground in wages against what they would have gotten traditionally. So it is kind of a complicated point, but that is what I was referring to.
Senator CORTEZ MASTO. So can I ask you this, because you touch on—I am going to go back to this idea that somehow increasing one's education will lead to higher wages for them. Do you agree?

Because you have said that a couple of times, and I heard the conversation you had with Senator Cotton as well. Is that something you are saying to address and increase higher wages for individuals as to ensure that they get a better education? And what do you mean by that?

Mr. POWELL. Well, I think people with higher education tend to have substantially higher compensation in their jobs. The value of a college degree compared to not having a college degree in terms of lifetime earnings is enormous, and it has never been bigger——

Senator CORTEZ MASTO. Yeah, so let me just——

Mr. POWELL. By the way, I am not saying——

Senator CORTEZ MASTO. No, and I appreciate that. But here is the problem and concerns I have with these numbers and these categories. Come to my State of Nevada. High-skilled labor, organized labor, individuals graduate high school but they do not get a college degree. They go get a skilled—go through an apprenticeship and learn a skill or a trade, and they are making good money, sometimes better than some of the folks that go to college. So what I see in these numbers is not a reflection of the true demographic of who we are as a country. That is my concern. And this idea that we are categorizing people as whether they are low-income or high-income, I think it is a false narrative. I think people with a high school education can make good jobs. They may not be destined to go to a college or university, but they can go through an apprenticeship program. They can be that skilled labor that we need in this country. And it goes back to this issue, because you have identified the weaknesses we have in housing manufacturing and trade. And I will tell you housing is the number one issue in the State of Nevada. Part of that issue is we have lost all the skilled trade because of the downturn in the economy. So we should be investing in those individuals and getting them back to a level where they can go through those apprenticeship programs.

And the final thing is with this unemployment market. I do see and I agree with you that because we have low unemployment, that has increased the wages a little bit because it has forced these companies to say, "Wow, it is a really competitive market now, and I am going to have to pay more to get more people in." But that should not be the only condition for increasing wages for individuals across this country.

And the other thing you need to know—if you do not know, come to my State—whether you are a single mother or you are a two-parent family, these families are working more than one job. I think one job should be enough, don't you? I do not think you should have to work two jobs just to be able to make minimum wage. And, by the way, a minimum wage of $7 an hour is poverty level.

So my concern with these statistics is I want to see you get into the true demographics of who we are as a country and what is going on with these false narratives that I keep hearing even from this President who keeps arguing that somehow unemployment for African Americans and Latinos is wonderful, and you even show it right here, so I appreciate that. But it is not. We have got to do a better job. And so that is all I am asking for. Let us look at the true numbers that we have in this country, because that is the

challenge that I see here and not these false narratives that keep being thrown out there.

So I appreciate the hard work you are doing, and I thank you for that. I look forward to working with you in the future, but I ask you and invite you to come in and let us have a further conversation on the data itself.

Mr. POWELL. Great.

Senator CORTEZ MASTO. Thank you.

Senator BROWN. Senator Scott.

Senator SCOTT. Thank you, Ranking Member Brown.

Chairman, thank you for being here this morning—or now this afternoon, basically. I do want to continue perhaps that current narrative because it does draw my attention. I listened to your testimony earlier this morning. I had meetings in the office and I had a chance to listen to your exchange with Senator Cotton on the labor force participation rate, frankly, that the labor force participation rate has been ticking up slightly. One of the reasons why we saw the 3.6 percent unemployment got to 3.7 percent is because more folks were coming back to the workforce, which is a positive development.

As it relates to the power of education and wages, I was raised by a single mother who had a high school education, and I thank God that she had the skills necessary to support her two sons. But one of the things I think we could take away from the numbers specifically as it relates to education is that there is power in education. These numbers that I remember are 3 or 4 years old, maybe 2 or 3 years old, but the person who does not finish high school has an average wage around $19,000; the high school graduate has an average wage around $29,000; the person who has a college education has an average wage around $58,000; and if you go on to a postgraduate degree, you have closer to a six-figure income. So you multiply that over a 40-year work life, the numbers are so drastic and undeniable that, without question, consistently speaking throughout this Nation, one of the fastest ways forward is, in fact, education. Your comment—do you agree or disagree with that?

Mr. POWELL. I totally agree with that.

Senator SCOTT. Well, your comment with Senator Cotton that got my attention was that part of the challenge that we have with upward mobility in our society, which I think pinned or put the focus on education, is the importance of understanding globalization and technology and the chasm that it creates in our workforce for those on the one side are going to be detrimentally impacted by this growing technology and technological gap that is being created. This gig economy requires perhaps even a different type of education. So it may not be the formal education that we are all used to, and those figures that I talked about from the high school dropout to the person with an advanced degree, that still works. In addition to that, one of the reasons why myself and Cory Booker and others have focused on apprenticeships is because our Nation, comparatively speaking to someplace like Germany, we are woefully behind on using apprenticeships as a mechanism or vehicle to help those folks who may not want the 4-year track to still achieve the type of income that Senator Cortez Masto wants for her constituents and that I need for mine as well. Is that an accurate depiction

of the comment with Senator Cotton around globalization, technology, and the importance of education?

Mr. POWELL. Yes, and I would just say education for me is a shorthand term that includes things like apprenticeship programs and trade schools and things like that. It just means things that enable you to get skills and aptitudes and succeed in the economy.

Senator SCOTT. So in a technologically advancing society, a lifelong learner will do better than one who is not.

Mr. POWELL. Absolutely. Absolutely, yes.

Senator SCOTT. Pat Toomey talked about the Goldilocks economy, which I thought was—I like the term. Sometimes I want to compare that as the "woe is me" economy that we seem to hear a lot about. I have a question as it relates to the number of Americans who actually work multiple jobs. My understanding is that it is somewhere around 7 to 8 percent of Americans have more than one job, one in 15. I read an article recently in the *Wall Street Journal* that said the number was closer to 5 percent. Can you help me understand what is the number? Is there a way for us to discern it?

Mr. POWELL. Yes, we can run that number down for you.

Senator SCOTT. OK. Is it less than 10 percent?

Mr. POWELL. I do not know.

Senator SCOTT. OK.

Mr. POWELL. I think there is a way to know that. It may be just the difference between the household survey and the establishment survey. We can get that number for you.

Senator SCOTT. I think it is important for the American people to understand and appreciate what the number is and how many folks are actually working more than one job. I think both sides of this aisle have a strong passion to make sure that upward mobility is, in fact, still alive and well and a part of the American Dream. And a part of that American Dream is being able to achieve a standard of living that is comfortable without two jobs. It would be important, I think, to both side for us to, A, figure out what the number is; B, see if there are solutions, be it a lifelong learner or the standard college track. I would love to have more information on that.

My final thought is on trade. You answered the question on trade. You have been very clear on what your role is and what your role is not. When you look around the world, GDP activity is tough, whether it is Japan at 0.6 percent or the U.K. at 0.4 percent; Germany is at 0.5 percent. That plus tariffs and this trade volatility, how does that impact a State like mine where 1 in 11 employees are connected to the exports of our State?

Mr. POWELL. Well, I would guess that those companies and people are feeling that weak global growth and uncertainty around trade are weighing on their outlook. And, currently, things are OK, but businesses are beginning to hold back on investment. For example, we see business investment having weakened. After having been quite strong in 2017 and most of 2018, business investment is critical. It has really slowed down here, and one of the reasons is uncertainty around trade and global growth.

Senator SCOTT. Thank you.

Mr. POWELL. Thank you.

Senator SCOTT. Thank you, Mr. Ranking Member.

Senator BROWN. Senator Reed.

Senator REED. Thank you very much. Thank you, Mr. Chairman. I apologize. We had a hearing with the Chairman of the Joint Chiefs of Staff simultaneously, so forgive my late arrival.

Mr. Chairman, how much economic uncertainty has the President delivered as he constantly moves the goal posts and tweets about trade, about the debt ceiling, about multiple issues? Does that help?

Mr. POWELL. So I would not comment on trade policy as though we were responsible for it. We do not comment on it in any way. I will say that trade policy uncertainty, as you can see from one of our charts in the *Monetary Policy Report* is quite elevated, and many U.S. manufacturing companies have supply chains that reach across national borders around the world, and those companies are facing an uncertain situation. A natural thing to do is to hold back, and so I think we are seeing some of that and not making investments and that sort of thing.

Senator REED. And there is a correlation between the day-to-day tweets, comments, advances, movements that the President——

Mr. POWELL. What we have been hearing really for more than a year now is uncertainty is going up and down, and it went up quite a bit in May. May was a real month where we saw trade uncertainty spike around various events, and I think that will show up in the data.

Senator REED. The economy is doing well, but why does Wall Street expect you to cut rates? Typically in a booming economy, rates are either stable or go up.

Mr. POWELL. Well, we do see an economy that is in a good place, but what we see is a number of things that are weighing on the outlook. I mentioned global weakness. Around the world you do see really weak economic performance. You see that in Asia; you see it in Europe. And you see central banks beginning to address that by providing more accommodation. And we see that as a downside risk here in the United States.

We also see subdued inflation. We are in our 11th year of this expansion, I am happy to say, and we are at 3.7 percent unemployment. We have been there for 15 months. And yet inflation is below our target. So I think many of my colleagues on the FOMC have come to the view that a somewhat more accommodative monetary policy may be appropriate.

Senator REED. Let me just change this topic to one issue of importance, I think, to all of us, and that is, recently, more so than the past, the independence of the Fed has been questioned, and even your role has been questioned. And as the Federal Reserve's own website points out, your policy decisions have to be based on data and your judgment, not political pressures that could lead to undesirable outcomes. So what are some of those undesirable outcomes that would be produced if, in fact, the Fed became less independent and more adjunct to political forces?

Mr. POWELL. We have, you know, a pretty narrow set of protections that amount to what we call our "independence," and we think that those institutional arrangements have served the public and served the economy well over a period of time.

What we see in countries or in areas in the United States when those protections are not in place is we have seen bad outcomes happening. In particular, the high inflation that the United States experienced in the 1960s and really in the 1970s was a failure on the part of the Fed to do what needed doing. Paul Volcker came in and did it. It was incredibly unpopular as you will recall, but it really put the United States in a great place really for a long period of time, having inflation under control. So those are the kinds of things.

Senator REED. Right, but I think that comes back to my initial question, which is, you know, the agitation by the President for lower interest rates to keep the economy going is as much political as it is monetary policy. Does that influence your decision to lower rates?

Mr. POWELL. Not at all. I would want the public—it is critical that the public understand that we are always going to do our work objectively based on data, with transparency, and we are going to do what we think is right for the U.S. economy. That is what we are going to do, and that is what we are always going to do.

Senator REED. So with that data you are prepared to raise rates, if necessary?

Mr. POWELL. Absolutely. We will do what we think is right.

Senator REED. Thank you. Just a final quick question, and one only someone who was here for the Sarbanes–Oxley legislation would ask. The Federal Reserve banks are subject to several levels of audit and review, and the Reserve banks' financial statements are audited by independent public accountants retained by the Board of Governors. The question is: Do you believe it is important for the Board of Governors to know whether the auditor has been disciplined in the past for poor performance before you select them?

Mr. POWELL. It is important, and we do demand all relevant information on that question, including just about any kind of a question that has been raised. We get that information before we make a hiring decision.

Senator REED. Thank you, Mr. Chairman. Thank you for your service.

Mr. POWELL. Thank you.

Chairman CRAPO [presiding]. Senator Brown would like to ask another couple questions, and then we will be done, Mr. Chairman.

Senator BROWN. Thank you. Thanks for your patience as you sit through this, Mr. Chairman. Two brief questions, and then a short statement.

During the debate of passage of S. 2155, we repeatedly heard from the Fed and the sponsors of the bill that Section 401 would not weaken the prudential standards on foreign G–SIBs operating in the U.S. Yet the Fed released an implementing proposal in April that appeared to do just that. What led to that about-face?

Mr. POWELL. I think that that proposal is just a matter of providing national treatment to banks that do business in our country. We try to treat similar banks similarly, whether they are foreign banks or U.S. banks. And we expect the same for our banks in foreign countries.

Senator BROWN. I understand, Mr. Chairman, that is the argument for it now, but it is not what we were hearing from many people prior to this because we made the argument this could increase systemic risk, and they either consented to that belief or that then seemed to change their minds, you all seemed to change your mind after this happened, but I will leave it at that.

A couple other things. The last financial crisis was caused in part by huge financial institutions, Wall Street banks that largely were given free reign to take big risks with entire sectors of our economy, as Senator Warner said, taking advantage, as he termed it, of gaps in the regulatory system. You have raised concerns about the ability to regulate Facebook, that what would be the best—I would like to ask you what would be the best, most effective way to regulate a complex Internet-based company like Facebook with billions of users and a digital currency based on a Swiss bank account. How will you look at doing that?

Mr. POWELL. That is a question we are just beginning to address. We certainly do not want to regulate their social media activities. That is not at all something we would have any interest in. And I do not know what the right way to get at this is, but I do think that this is a question we are going to have to get our arms around. It is the reason we are working on that now.

Senator BROWN. OK. Listening to your comments, both Senator Scott's comments and Senator Cortez Masto, both interchanges, interactions that you had with each of them, I want to just—this is not a question. I just want to make a point about how important this is, that we know that unemployment rates for African American and Latino American workers are consistently higher than those for white workers. One economist, Algernon Austin, said the experience of black America is one of permanent recession. One of the benefits of aggressively pursuing a high-employment economy is that job opportunities improve substantially for workers who face the largest barriers. You said a few minutes ago that waiting 8 years for that in a recovery is just simply not acceptable public policy. You are, of course, right about that.

You go on to say the black rate of unemployment in the best of times is not much better than the white rate in the worst of times in the economic situation of workers. So you had talked about subdued inflation, and I think we miss opportunities when there seems to be—I do not think I have seen that in you; I have seen it in the past—a bias toward fighting inflation over fighting unemployment, and I think this disparity in unemployment rates between white workers and workers of color is another strong argument for weighing the benefits of a high-employment economy and assessing maximum employment, especially with the likelihood of an outbreak of unacceptable inflation as it remains remote. So I hope you will keep that focus as you think about interest rates, as you think about your role in this economy.

Mr. POWELL. Thank you.

Chairman CRAPO. Thank you, Chairman Powell. I told you those were the last two questions, but Senator Brown's question about Senate bill 2155 has prompted me to ask a follow-up. And I think this is self-evident, but I just want to be sure and let this be made part of the record.

The proposal that the Fed is looking at right now in terms of how to treat foreign banks or the subsidiaries of foreign banks that operate in the United States will not introduce systemic risk or increase systemic risk, will it?

Mr. POWELL. No. No, these are—remember, they only apply to the U.S. entities, and they are not of that size or caliber.

Chairman CRAPO. And it is the same standards that we apply to our U.S.——

Mr. POWELL. Our own, that is right.

Chairman CRAPO. Our U.S. banks.

Mr. POWELL. That is right.

Chairman CRAPO. Did you want to follow up on that at all? All right. We will debate this between ourselves later.

[Laughter.]

Chairman CRAPO. Well, Chairman Powell, thank you again for being here with us today. That concludes our questioning for the hearing.

For the Senators who wish to submit questions for the record, those questions are due to the Committee by Thursday, July 18th. We ask you, Chairman Powell, to please respond to those questions as promptly as you can.

With that, again, thank you for being here, and this hearing is adjourned.

Mr. POWELL. Thank you.

[Whereupon, at 12:15 p.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

We welcome Chairman Powell back to the Committee for the Federal Reserve's Semiannual *Monetary Policy Report* to Congress.

In this hearing, the Banking Committee will evaluate the current state of the U.S. economy, the Fed's implementation of monetary policy, and discuss its supervisory and regulatory activities.

In the last semiannual *Monetary Policy Report*, Chairman Powell provided additional clarity on the Fed's plans to normalize monetary policy, including how the size of the balance sheet would be driven by financial institutions' demand for reserves, plus a buffer.

Since then, the Fed has provided additional information and continued receiving feedback on its monetary policy strategy, tools, and communication, all of which I look forward to hearing an update on today.

The U.S. economy is still strong, growing at 3.1 percent in the first quarter of 2019, according to the Bureau of Economic Analysis, and the unemployment rate remains low at 3.7 percent, as of June, according to the Bureau of Labor Statistics.

Wages have continued rising, as well, with average hourly earnings 3.1 percent higher in June compared to a year earlier, which is the 11th straight month in which wage growth exceeded 3 percent, according to the Bureau of Labor Statistics.

In fact, the U.S. is officially in its longest expansion of economic growth since 1854, according to the National Bureau of Economic Research.

In order to continue this positive economic trajectory, regulators must continually evaluate their regulatory and supervisory activities for opportunities to tailor regulations and to ensure broad access to a wide variety of financial products and services.

With respect to regulation and supervision, it has been over a year since the enactment of S. 2155, the Economic Growth, Regulatory Relief and Consumer Protection Act.

Mr. Chairman, as you move forward finalizing certain rules required under S. 2155 and consider proposing new ones, I encourage you to consider carefully the following:

Simplify capital rules for smaller financial institutions while ensuring they maintain significant capital by setting the Community Bank Leverage Ratio at 8 percent;

Simplify the Volcker Rule, including by eliminating the proposed accounting prong and revising the "covered funds" definition's overly broad application to venture capital, other long-term investments and loan creation, to improve market liquidity and preserve access to diverse sources of capital for businesses;

Harmonize margin requirements for interaffiliate swaps with treatment by the CFTC by quickly making a targeted change to your margin rules to enhance end users' ability to hedge against risks in the marketplace;

Examine whether the recent proposal that applies to U.S. operations of foreign banks is appropriately tailored and whether regulations on intermediate holding companies should be applied based on the assets of the intermediate holding company alone, rather than the assets of all U.S. operations. I also encourage you to align the foreign bank proposal with the domestic bank proposal and exclude interaffiliate transactions from each of the risk-based indictor calculations;

Index any dollar-based thresholds in the tailoring proposals to grow over time to improve the rules' durability; and

Modernize the Community Reinvestment Act (CRA) to ensure banks are not ignoring their mandate to serve their "entire communities," which should include legal businesses that banks disfavor operating in their communities.

A bank responding to political pressure or attempting to manage social policy by withholding access to credit from customers and/or companies it disfavors is not meeting the credit needs of the entire community.

These approaches would promote economic growth by ensuring that rules are balanced, work for all stakeholders, and do not unnecessarily impede access to financial products and services in the marketplace.

On a different topic, Facebook announced it is partnering with both financial and nonfinancial institutions to launch a cryptocurrency-based payments system using its social network.

The project has raised many questions among U.S. and global lawmakers and regulators, including about its potential systemic importance, consumer privacy, data privacy and protection, and more.

I am particularly interested in its implications for individuals' data privacy.

The Bank of England Governor Mark Carney said, "Libra, if it achieves its ambitions, would be systemically important. As such, it would have to meet the highest

standards of prudential regulation and consumer protection. It must address issues ranging from anti–money laundering to data protection to operational resilience."

I look forward to hearing more about how the Fed, in coordination with other U.S. and global financial regulators, plans to engage on important regulatory and supervisory matters with Facebook throughout and after the project's development.

While Libra's systemic importance depends on several factors in its future development, there are already some too-big-to-fail institutions that must be addressed: Fannie Mae and Freddie Mac.

They continue to dominate the mortgage market and expose taxpayers in the case of an eventual downturn.

In a 2017 speech, Chairman Powell, you publicly referred to Fannie and Freddie as "systemically important."

Although my strong preference is for comprehensive legislation, the Banking Committee recently explored one option for addressing Fannie and Freddie, which is for the Financial Stability Oversight Council to designate Fannie and/or Freddie as "systemically important financial institutions," and to subject them to Fed supervision and enhanced prudential standards.

Chairman Powell, I appreciate you joining the Committee today to discuss many important issues.

PREPARED STATEMENT OF SENATOR SHERROD BROWN

Mr. Chairman, welcome. The stock market is soaring—but most American families get their money from a paycheck, not an account statement from their stock broker.

A critical part of your job is measuring and evaluating the economy, and those measurements need to take into account workers, not just wealth. Talk to workers who haven't had a meaningful raise in years, who have seen their retirement cut, who watch their health care premiums rise, who have seen the cost of child care and college and paying off their own student loans go up and up.

To those workers—to most Americans—the idea that a stock market rally means more money in their pockets is laughable.

As the Fed's own data reveals, the recovery hasn't helped most Americans—corporate profits go up and up, but workers don't share in the growth they create. The top 1 percent of have an average net worth of almost 24 million dollars, while the bottom half of all Americans have only about 20 thousand dollars. That's less than one one-thousandth of their wealthiest neighbors. Meanwhile the share of workers who have been unemployed for over 26 weeks continues to climb.

Mitch McConnell and Donald Trump responded by giving the wealthiest Americans and multinational corporations a two trillion dollar bonus. And those corporations turned around and funneled the money back to their executives through record stock buybacks.

We are in the midst of the longest economic expansion in modern times and interest rates are low, and yet it's worrying that interest rate-sensitive sectors of the economy that provide good-paying jobs, like the auto industry, are not doing better. Employment in auto manufacturing—which is critical to Ohio—continued to fall in June.

The Fed's policies should ensure that everyone who contributes to our economy also shares in growth they create. All work has dignity, and we need an economy that rewards work, not just wealth.

Some of the challenges facing our economy can only be addressed by Congress. Millions of Americans struggle to pay for prescription drugs, which are increasing at five times the rate of inflation. And too many feel the squeeze of rising housing costs, with more than a quarter of renters spending over half their income on housing.

The Fed can't fix all of these issues on its own.

But there are things that you can and should do to help the economy work for the vast majority of Americans, through careful monetary policy and doing your job of policing Wall Street.

I appreciate your recent recognition that this expansion has the potential to benefit communities that have missed out on prior economic expansions. And I hope your comments expressing frustration that wages haven't increased as much as you expected means you will take action. I urge you to continue with policies that both lower unemployment while increasing wages.

In previous hearings, I have raised my concerns about threats to the financial system, including the Fed's steps to weaken the rules on the largest banks, the failure to activate the Countercyclical Capital Buffer to prepare for the next financial crisis,

and the lack of action to address risks posed by leveraged lending. As you know, those concerns remain.

However, today I can add a new worry to the list—private corporations, Facebook in this case, that have gotten carried away with their own power and are now attempting to ape the role of Government, creating their own currencies, monetary policy, and payment systems.

So now, in addition to complex and risky Wall Street banks, we face new risks from unregulated, giant tech companies—armed with vast amounts of personal data—with the intent, as far as I can tell, of conducting monetary policy on their own terms.

You and I have a duty to serve the American people, but these private corporations have no duty to the broader economy or consumers. They're motivated by one thing: their own bottom lines. Allowing big tech companies to take over the payments system or position themselves to influence monetary policy would be a huge mistake, and undermine our democracy.

Too many times, when the stock market is soaring and banks are making money hand over fist, regulators have been complacent. But as we have seen in the past, bank profitability is not a reliable indicator of a bank's true health, and the stock market is not a reliable indicator of the real economy's performance.

I hope this is not another example of the Fed taking a pass from its responsibilities to protect Americans from corporations taking big risks with our entire financial system. It is your responsibility to use your tools over monetary policy, the payment system, and prudential regulation to protect the financial system and make our economy work for all Americans, not just wealthy stockholders and huge corporations.

Thank you Chairman Powell for being here, and I look forward to hearing your testimony.

PREPARED STATEMENT OF JEROME H. POWELL

CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

JULY 11, 2019

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

Let me start by saying that my colleagues and I strongly support the goals of maximum employment and price stability that Congress has set for monetary policy. We are committed to providing clear explanations about our policies and activities. Congress has given us an important degree of independence so that we can effectively pursue our statutory goals based on objective analysis and data. We appreciate that our independence brings with it an obligation for transparency so that you and the public can hold us accountable.

Today I will review the current economic situation and outlook before turning to monetary policy. I will also provide an update of our ongoing public review of our framework for setting monetary policy.

Current Economic Situation and Outlook

The economy performed reasonably well over the first half of 2019, and the current expansion is now in its 11th year. However, inflation has been running below the Federal Open Market Committee's (FOMC) symmetric 2 percent objective, and crosscurrents, such as trade tensions and concerns about global growth, have been weighing on economic activity and the outlook.

The labor market remains healthy. Job gains averaged 172,000 per month from January through June. This number is lower than the average of 223,000 a month last year but above the pace needed to provide jobs for new workers entering the labor force. Consequently, the unemployment rate moved down from 3.9 percent in December to 3.7 percent in June, close to its lowest level in 50 years. Job openings remain plentiful, and employers are increasingly willing to hire workers with fewer skills and train them. As a result, the benefits of a strong job market have been more widely shared in recent years. Indeed, wage gains have been greater for lower-skilled workers. That said, individuals in some demographic groups and in certain parts of the country continue to face challenges. For example, unemployment rates for African Americans and Hispanics remain well above the rates for whites and Asians. Likewise, the share of the population with a job is higher in urban areas than in rural communities, and this gap widened over the past decade. A box in the July *Monetary Policy Report* provides a comparison of employment and wage gains over the current expansion for individuals with different levels of education.

Gross domestic product increased at an annual rate of 3.1 percent in the first quarter of 2019, similar to last year's pace. This strong reading was driven largely by net exports and inventories—components that are not generally reliable indicators of ongoing momentum. The more reliable drivers of growth in the economy are consumer spending and business investment. While growth in consumer spending was weak in the first quarter, incoming data show that it has bounced back and is now running at a solid pace. However, growth in business investment seems to have slowed notably, and overall growth in the second quarter appears to have moderated. The slowdown in business fixed investment may reflect concerns about trade tensions and slower growth in the global economy. In addition, housing investment and manufacturing output declined in the first quarter and appear to have decreased again in the second quarter.

After running close to our 2 percent objective over much of last year, overall consumer price inflation, measured by the 12-month change in the price index for personal consumption expenditures (PCE), declined earlier this year and stood at 1.5 percent in May. The 12-month change in core PCE inflation, which excludes food and energy prices and tends to be a better indicator of future inflation, has also come down this year and was 1.6 percent in May.

Our baseline outlook is for economic growth to remain solid, labor markets to stay strong, and inflation to move back up over time to the Committee's 2 percent objective. However, uncertainties about the outlook have increased in recent months. In particular, economic momentum appears to have slowed in some major foreign economies, and that weakness could affect the U.S. economy. Moreover, a number of Government policy issues have yet to be resolved, including trade developments, the Federal debt ceiling, and Brexit. And there is a risk that weak inflation will be even more persistent than we currently anticipate. We are carefully monitoring these developments, and we will continue to assess their implications for the U.S. economic outlook and inflation.

The Nation also continues to confront important longer-run challenges. Labor force participation by those in their prime working years is now lower in the United States than in most other Nations with comparable economies. As I mentioned, there are troubling labor market disparities across demographic groups and different parts of the country. The relative stagnation of middle and lower incomes and low levels of upward mobility for lower-income families are also ongoing concerns. In addition, finding ways to boost productivity growth, which leads to rising wages and living standards over the longer term, should remain a high national priority. And I remain concerned about the longer-term effects of high and rising Federal debt, which can restrain private investment and, in turn, reduce productivity and overall economic growth. The longer-run vitality of the U.S. economy would benefit from efforts to address these issues.

Monetary Policy

Against this backdrop, the FOMC maintained the target range for the Federal funds rate at 2¼ to 2½ percent in the first half of this year. At our January, March, and May meetings, we stated that we would be patient as we determined what future adjustments to the Federal funds rate might be appropriate to support our goals of maximum employment and price stability.

At the time of our May meeting, we were mindful of the ongoing crosscurrents from global growth and trade, but there was tentative evidence that these crosscurrents were moderating. The latest data from China and Europe were encouraging, and there were reports of progress in trade negotiations with China. Our continued patient stance seemed appropriate, and the Committee saw no strong case for adjusting our policy rate.

Since our May meeting, however, these crosscurrents have reemerged, creating greater uncertainty. Apparent progress on trade turned to greater uncertainty, and our contacts in business and agriculture report heightened concerns over trade developments. Growth indicators from around the world have disappointed on net, raising concerns that weakness in the global economy will continue to affect the U.S. economy. These concerns may have contributed to the drop in business confidence in some recent surveys and may have started to show through to incoming data.

In our June meeting statement, we indicated that, in light of increased uncertainties about the economic outlook and muted inflation pressures, we would closely monitor the implications of incoming information for the economic outlook and would act as appropriate to sustain the expansion. Many FOMC participants saw that the case for a somewhat more accommodative monetary policy had strengthened. Since then, based on incoming data and other developments, it appears that uncertainties around trade tensions and concerns about the strength of the global

economy continue to weigh on the U.S. economic outlook. Inflation pressures remain muted.

The FOMC has made a number of important decisions this year about our framework for implementing monetary policy and our plans for completing the reduction of the Fed's securities holdings. At our January meeting, we decided to continue to implement monetary policy using our current policy regime with ample reserves, and emphasized that we are prepared to adjust any of the details for completing balance sheet normalization in light of economic and financial developments. At our March meeting, we communicated our intention to slow, starting in May, the decline in the Fed's aggregate securities holdings and to end the reduction in these holdings in September. The July *Monetary Policy Report* provides details on these decisions.

The July *Monetary Policy Report* also includes an update on monetary policy rules. The FOMC routinely looks at monetary policy rules that recommend a level for the Federal funds rate based on inflation and unemployment rates. I continue to find these rules helpful, although using these rules requires careful judgment.

We are conducting a public review of our monetary policy strategy, tools, and communications—the first review of its kind for the FOMC. Our motivation is to consider ways to improve the Committee's current policy framework and to best position the Fed to achieve maximum employment and price stability. The review has started with outreach to and consultation with a broad range of people and groups through a series of *Fed Listens* events. The FOMC will consider questions related to the review at upcoming meetings. We will publicly report the outcome of our discussions.

Thank you. I am happy to respond to your questions.

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

Q.1. *Capital*—You have said that capital levels at the largest banks are much higher than they were before the financial crisis. Do you think that using capital levels during the financial crisis is the correct benchmark from which to analyze what is the appropriate level of capital? Do you agree that we should not lower capital levels for the largest banks?

A.1. The Federal Reserve Board considers a number of factors in assessing current capital levels, including the findings of researchers and studies since the financial crisis on optimal capital levels. I believe that the current overall level of bank capital is about right. Maintaining the safety and soundness of the largest banking firms is fundamental to maintaining the stability of the U.S. financial system and the broader economy. The banking agencies have substantially strengthened regulatory capital and liquidity requirements for large banking firms. The increase in requirements has significantly increased the financial resiliency of these firms. At the same time, regulation and supervision should be tailored according to banking firms' size, complexity, and risks posed to the financial system. I do not expect that refinements to the postcrisis regulatory regime will result in meaningful changes to capital levels, particularly for the largest, most systemically important banks.

Q.2. *Stress Capital Buffer*—At the Fed's recent stress test conference, Vice Chair for Supervision Randal Quarles indicated that the Fed would soon finalize the stress capital buffer proposal. You have said that the overall level of capital, particularly at the largest firms, is about right. [1] If this proposal leads to lower capital levels at the largest banks, however, will the Fed adjust the supervisory and CCAR stress tests to offset that reduction and how?

A.2. As noted in the response to Question 1, I believe that the current overall level of bank capital is about right, and I do not expect that refinements to the postcrisis regulatory regime will result in meaningful changes to capital levels, particularly for the largest, most systemically important banks.

Q.3. *Stress Tests: Qualitative Objection*—The Fed recently eased the qualitative portion of the stress test regime and removed the qualitative objection, which allowed the Fed to prevent banks from making capital distributions based on the quality of their risk management and internal controls.

Without a strong qualitative component and qualitative objection, what incentive does a bank have to understand how capital distributions would reduce the amount of capital needed to survive another financial crisis? Before the 2008 financial crisis, existing examination and supervision tools were not enough to identify and correct mismanagement of capital risk. Please explain how the Fed will address these risks without the qualitative objection.

A.3. Given the importance of effective capital planning to safety and soundness, we will continue to assess annually the largest firms' capital planning practices through the rigorous, horizontal

[1] Monetary Policy and the State of the Economy Before the Hous. Comm. on Fin. Servs., 116th Cong. (Feb. 27, 2019).

Comprehensive Capital Analysis and Review's exercise, as we have done since the last financial crisis. To the extent a firm exhibits capital planning deficiencies that call into question their ability to determine their capital needs under normal or stressed financial conditions, the Federal Reserve will use its full complement of supervisory tools—including deficient capital ratings, enforcement actions, and capital directives—to ensure prompt and thorough remediation of identified weaknesses by the firm.

Q.4. *Distributional Financial Accounts*—The Federal Reserve recently introduced distributional financial accounts, a new set of statistics on the distribution of wealth in the United States. These estimates once again confirm the clear increase in wealth inequality in recent decades. I want to express my appreciation to the Board for your attention to this issue and for the hard work of the team that put this together.

Tell us, what do you see as the key findings from this new research?

A.4. The distributional financial accounts (DFAs) provide a new tool for monitoring quarterly changes in the distribution of wealth in the U.S. Like other studies of the wealth distribution, the DFAs show a substantial difference between the amount of wealth held by the top of the distribution and the bottom. For example, the wealth of the top 1 percent is considerably larger than that of the bottom 50 percent, with this difference increasing significantly over the last 30 years. In terms of shares, the top 1 percent owned about 31 percent of total wealth in the first quarter of 2019, while the bottom half owned about 1 percent.

Looking at the components of wealth in DFAs, another key finding is that business equity, which includes both corporate stock and unincorporated business ownership, is an important driver of increasing wealth concentration. Business equity as a share of total wealth has increased, on net, over the last 30 years, and the share of business wealth held by the top of the wealth distribution also has increased.

Q.5. How does this research, coupled with low interest rates, guide your efforts to push for both job and wage growth?

A.5. The DFAs show that the bottom half of the wealth distribution holds a very small slice of aggregate U.S. wealth. This suggests that, for many of these households, good jobs are crucial to their well-being and their ability to save for the future. Our goal is to sustain the current expansion, with a strong labor market and stable prices, for the benefit of all households.

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

Q.1. At our hearing, a number of my colleagues had the opportunity to ask you about the future path for interest rates and I appreciate your thoughts on that issue. I concur that the Fed shouldn't exhaust all of the tools in its toolbox and leave our economy unprepared for a response from the central bank in a future downturn.

I'd like to ask a related question about the Fed's balance sheet. You announced earlier this year that the Fed will end its balance sheet runoff at some point in 2019. One point that you have yet to address is what kind of Treasury securities that the Federal Reserve will hold once the runoff is complete. I understand that holding short-term notes will give the Fed more flexibility in the event you need to respond to a downturn in the economy.

What kind of Treasury securities will the Fed hold in the future? If you can't say for certain at this point, what will factor into your thinking on that front?

A.1. Since the Federal Open Market Committee (FOMC) ended balance sheet runoff in August 2019, the Federal Reserve has begun purchasing Treasury securities across the maturity spectrum. As a result, the Federal Reserve is holding Treasury securities with maturities from a few days to 30 years.

These purchases reflect two factors. First, at the conclusion of its July 2019 meeting, the FOMC announced that it intended to cease the runoff of its securities portfolio, noting that beginning in August 2019, principal payments received from agency debt and agency mortgage-backed securities (MBS) up to $20 billion per month would be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month would continue to be reinvested in agency MBS. Also beginning in August, all maturing treasury securities in the Federal Reserve's portfolio would be rolled over at Treasury auctions following usual practices; maturing and prepaying securities are reinvested. Second, in light of increases in the Federal Reserve's nonreserve liabilities, in early October, the FOMC determined it would purchase Treasury bills at least into the second quarter of next year in order to maintain over time an ample level of reserve balances at or above the level that prevailed in early September. This action is consistent with the FOMC's intention to implement monetary policy in a regime in which an ample supply of reserves ensures that 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 in which active management of the supply of reserves is not required. These recent purchases are purely technical measures to support the effective implementation of the FOMC's monetary policy, and do not represent a change in the stance of monetary policy.

The FOMC has also begun discussions about the longer-run composition of the Federal Reserve's holdings of Treasury securities, but has not made any decisions. The FOMC is considering numerous factors that will influence its deliberations. Some factors include how the portfolio composition would interact with the setting of the target range for the Federal funds rate, how the portfolio composition could allow the FOMC to use balance sheet policy in a future economic downturn, and how the portfolio composition would interact with the Treasury and broader financial markets. Any decision the FOMC ultimately reaches will be implemented with considerable advance notice to the public and in a manner that allows for smooth adjustment in financial markets.

Q.2. I would also like to understand your views on the yield curve for Treasury securities and what that means for the potential for a recession in the future. At an event for Congressional staff in March, the Fed's Director of the Division of Monetary Affairs, Thomas Laubach, said that he, quote, "would not draw too much" from an inverted yield curve for a few reasons.

Among the reasons that Dr. Laubach cited were asset purchases from central banks in the U.S., EU, and Japan that have caused a decrease in return premiums. In years past, when monetary policy was tighter, an inverted yield curve would indicate that a recession was ahead. Now, thanks to those asset purchases, the yield curve is more indicative of where the market sees interest rates remaining in the short term.

Do you share Dr. Laubach's thinking? In your opinion, is the inverted yield curve still cause for concern?

A.2. Measures of long-term yield spreads, such as the difference between the yield on a 10-year Treasury note and the yield on a 3-month Treasury bill were negative in recent months. Some academic research has documented that, in the past, such inversions have often preceded recessions. Some of these studies have further speculated that this pattern arises because long-term yields tend to fall, inverting the curve, precisely when market participants have come to believe that that risk of recession is elevated and that the central bank will soon reduce interest rates to support economic activity.

However, there are reasons to suspect that long-term rates may be lower now than in years past for reasons that are unrelated to expectations of a recession. For instance, strong demand among investors around the world for long-term risk-free assets likely has depressed long-term yields. In addition, purchases of long-term sovereign bonds by central banks have lowered long-term yields around the world, making inversions of the yield curve more likely.

For these and other reasons, inversions of the yield curve are by no means flawless predictors of recessions. In evaluating the outlook for economic activity and inflation in order to achieve its goals as mandated by Congress, the yield curve is just one of many indicators that the FOMC considers. The Committee expects that sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective are the most likely outcomes, but uncertainties about this outlook remain.

Q.3. The Coalition for Derivatives End Users pointed out that the rule implementing SA–CCR—as it is proposed—disproportionately burdens bank counterparties by increasing the capital they have to hold with respect to transactions with end-user counterparties.

Those end-user counterparties are currently exempt from posting margin, so if the proposed rule moved forward, bank counterparties would have to reset the imbalance by passing through the cost of capital fees to the end-user counterparties in the form of higher transaction fees or by dropping out of market making activities. This means that our markets would become less liquid and that farmers and Main Street consumers would pay more for simple commodities like corn, wheat, or gas.

Can you tell me more about why the Fed designed the SA–CCR rule this way and what impact you believe this will have on everyday Americans?

A.3. The Federal Reserve Board (Board) proposed the implementation of standardized approach for counterparty credit risk (SA–CCR) to provide important improvements to risk sensitivity and calibration relative to the current exposure methodology (CEM), a standardized approach that uses supervisory provided formulas to determine capital requirements for the counterparty credit risk of derivative contracts. In particular, the implementation of SA–CCR is responsive to concerns that CEM, developed a few decades ago, has not kept pace with certain market practices used predominantly by large and sophisticated banking organizations. The agencies anticipated that the proposal would not materially change the amount of capital in the banking system. Rather, any change in a particular banking organization's capital requirements, through either an increase or a decrease in regulatory capital, would reflect the banking organization's own derivative portfolio, the enhanced risk sensitivity of SA–CCR relative to CEM, and market conditions. Commenters have raised concerns regarding how SA–CCR could affect commercial end-users' ability to access the derivatives market, and the Board is considering carefully these comments, along with all other comments submitted, in formulating a final rulemaking that would implement SA–CCR.

Q.4. Wire fraud through email poses tremendous risks to our constituents, especially homebuyers, and their confidence in our payment system's ability to safely transfer large amounts of money as part of the homebuying process.

How is the Federal Reserve addressing criminal exploitation of weaknesses in the U.S. wire system?

Which Federal agencies has the Federal Reserve coordinated with on the issue of wire fraud?

A.4. The Federal Reserve has taken a number of steps to address criminal exploitation of the U.S. wire system. The Board, jointly with the Financial Crimes Enforcement Network, the Office of the Comptroller of the Currency, the Federal Deposit Insurance Corporation, and the National Credit Union Administration, promulgated the Customer Identification Program (CIP) rule. The CIP rule requires banks to obtain sufficient information from their customers in order to form a reasonable belief regarding the identity of each customer.[1] The CIP rule requires verification procedures designed to ensure that financial institutions know their customers and to assist in identifying potential bad actors. Such procedures are important in combating wire fraud related to real estate, and other transactions.

Additionally, the Federal Reserve has been engaged in efforts to reduce fraud more broadly in wire payments. We have worked collaboratively with other central banks as part of the efforts by the Bank for International Settlement's Committee on Payments and Market Infrastructures (CPMI) to reduce the risk of wholesale payments fraud related to endpoint security with the broader objective

[1] See 31 CFR §1020.220.

of supporting financial stability.[2] As a result, the Federal Reserve and CPMI member central banks have developed a strategy to encourage and focus industry efforts to reduce the risk of fraud related to endpoint security.[3] The strategy includes key elements that payment system and messaging operators should consider as part of their efforts to mitigate payments fraud, and it encourages a holistic approach to address all areas relevant to preventing, detecting, responding to and communicating about fraud. Domestically, the Federal Reserve has collaborated with payment system stakeholders through its Secure Payments Task Force (Task Force) to advance information sharing for the mitigation of payment fraud.[4] In 2018, the Task Force published a number of recommendations aimed at standardizing fraud definitions, setting requirements for fraud data collection and formatting, implementing a framework for sharing fraud information domestically, and facilitating fraud information sharing internationally.

Q.5. An effort by the Federal Reserve to develop a real time payments (RTP) system would not be an easy undertaking. An existing RTP infrastructure already exists and is operated in the United States today. On its face, this would conflict with provisions in the Monetary Control Act that prohibit the Federal Reserve from competing with the private sector. In addition, should the Fed move forward, it would transmit and hold a tremendous amount of sensitive data.

Please tell me more about what the Fed is planning for real time payments.

A.5. The Board announced on August 5, 2019, that the Reserve Banks will develop a new real-time payment and settlement service, called the FedNow(SM) Service, to support faster payments in the United States.[5] In making this decision, the Board adhered to the requirements of the Monetary Control Act of 1980 (MCA) and long-standing Federal Reserve policies and processes.[6] The FedNow Service would operate alongside private-sector real-time gross settlement (RTGS) services for faster payments. This service is consistent with the operations of most other payment systems in the United States, such as funds transfers, checks, and automated clearinghouse payments, whereby the Reserve Banks operate payment and settlement services alongside and in support of similar private-sector services.

The MCA requires that Federal Reserve services be priced competitively and made available equitably to depository institutions. The MCA encourages competition between the Reserve Banks and the private sector through an expectation that the Reserve Banks will recover costs of services, both actual expenses associated with providing the services as well as certain imputed costs, including the taxes and cost of capital that would be paid by a private-sector competitor.

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[2] See *https://www.federalreserve.gov/newsevents/pressreleases/other20180508a.htm.*

[3] See *https://www.bis.org/cpmi/publ/dl-78.pdf.*

[4] See *https://fedpaymentsimprovement.org/payments-security/secure-payments-task-force-archive/.*

[5] See *https://www.federalreserve.gov/newsevents/pressreleases/other20190805a.htm.*

[6] Board of Governors of the Federal Reserve System, "The Federal Reserve in the Payments System" (Issued 1984; Revised 1990).

The Board also adheres to internal policy criteria established in 1984 and revised in 1990[7] for the provision of new or enhanced payment services that specify the Federal Reserve must expect to (1) achieve full cost recovery over the long run, (2) provide services that yield a public benefit, and (3) provide services that other providers alone cannot be expected to provide with reasonable effectiveness, scope, and equity. The Board's August 2019 *Federal Register* Notice provides a full analysis of how the FedNow Service meets the requirements of the MCA as well as the Board's policy criteria for the provision of new or enhanced services.

Also in support of real-time payments, the Federal Reserve announced its intention to explore the expansion of hours for the Fedwire® Funds Service and the National Settlement Service, up to 24x7x365, to support a wide range of payment activities, including liquidity management in private-sector services for faster payments. Subject to the outcome of additional risk, operational, and policy analysis, the Board will seek public comment separately on plans to expand Fedwire Funds Service and National Settlement Service hours.

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

Q.1. Traditionally, the Federal Reserve Board (Fed) has not been subject to audit, for fear of the audit undermining the independence of its monetary policy function. There appears to be no similar justification with respect to a business run by the Fed in competition with the private sector, and where budgets need to be reviewed for compliance with the Monetary Control Act. Assuming the Fed proceeds in this area, would you relax your traditional opposition to Fed audits if all monetary policy functions were exempt?

A.1. Currently, the Federal Reserve is subject to several levels of audit and review. Under existing law, the financial statements of the Federal Reserve Board (Board) and the Reserve Banks are audited annually by an independent accounting firm (under the supervision of the Office of the Inspector General of the Board and the Board's Division of Reserve Bank Operations and Payment Systems, respectively). Our audited financial statements are made publicly available and provided to Congress annually.

In addition, the Congress and the Government Accountability Office (GAO) may conduct financial and operational audits of the Federal Reserve and have done so on many occasions. In particular, for non- monetary policy activities undertaken by the Federal Reserve, such as banking supervision and regulation, the GAO already has full audit review authority. As of the end of June 2019, nearly 170 audits have been conducted since the financial crisis.

The GAO also has reviewed specifically the Federal Reserve's role in providing payment services such as check, automated clearinghouse (ACH) transactions, and wire, and concluded that the payment system and its users have benefited over the long run

[7] See *https://www.federalreserve.gov/paymentsystems/pfs-frpaysys.htm.*

from the Federal Reserve's operational involvement and competition with other providers. [1]

Q.2. You have indicated that the Fed is considering a new business of providing a real-time payments service in competition with the existing RTP system operated by The Clearing House, and potentially other private sector actors. The Monetary Control Act requires the Fed to establish a fee schedule for Reserve Bank payment services that are based on the basis of all direct and indirect costs actually incurred in providing the priced services, including imputed costs (including taxes) that would be incurred by a private-sector provider.

A.2. Please see the responses to Questions 4 and 5.

Q.3. What is the Fed's estimate of how much it would cost to build such a system, and operate it annually?

A.3. Based on what we have learned from central banks in other countries and our own experience with building and modernizing our existing Federal Reserve payment services, we expect the costs to be within a range that would allow us to achieve cost recovery over the long run.

The exact costs of building the FedNow(SM) Service would be predicated on its specific features and functionality, which we will specify after receiving and considering public comment as part of our normal process for new services or major service enhancements, and other factors, such as technical architecture and build-versus-buy decisions.

Q.4. How would the Fed fund the initial outlay, for example, would you increase prices on your existing payments system products to fund it? Would these outlays reduce Fed remittances to the Treasury in the years they are made?

A.4. FedNow Service outlays would be funded in a similar manner as all Reserve Bank outlays. Our practice is to recover development costs over the long run much like a private-sector firm. This includes imputing capital and certain other costs, for example taxes, to priced services as required by the MCA.

As with any Federal Reserve service, remittances to the Treasury may fluctuate based on the Federal Reserve's cost recovery.

Q.5. Can you commit that before incurring any start-up costs, you would have in place a business plan that envisioned pricing consistent with the Monetary Control Act, and share that plan with this Committee prior to any decision to move ahead?

A.5. The MCA requires that "(o)ver the long run, fees shall be established on the basis of all direct and indirect costs actually incurred in providing the Federal Reserve services." [2] In addition, the MCA requires the Federal Reserve to "give due regard to competitive factors and the provision of an adequate level of such services nationwide."

Reflecting the MCA requirement also to give due regard to both competitive factors and the provision of an adequate level of serv-

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[1] See GA0-16-614, "Federal Reserve's Competition With Other Providers Benefits Customers, but Additional Reviews Could Increase Assurance of Cost Accuracy" (2016), *https://www.gao.gov/products/GA0-16-614.*

[2] 12 U.S.C. 226.

ices nationwide, the Board's longstanding policy (since 1980) recognizes that, during an initial start-up period, new operational requirements and variations in volume may temporarily change unit costs for a service. Our intention is to match revenues and costs as soon as possible and monitor progress in meeting this goal. We would be happy to discuss the progress on the FedNow Service with the Committee.

Q.6. My understanding is that with regard to the existing ACH services provided by the Fed, small banks are charged more than large banks. The discount is used in order to attract the greater volume provided by the large banks. Will you commit, and construct your business plan on the assumption that the Fed will never do volume discount pricing for any real-time payment service?

A.6. The Federal Reserve has not yet determined the pricing structures or levels that will be applicable to the FedNow Service. Before the FedNow Service is launched, the Board will announce the service's fee structure and fee schedule. Based on prevailing market practices, the Board expects that the fee structure would include a combination of per-item fees, charged to sending banks and potentially, to receiving banks, and fixed participation fees. The ultimate fee structure and schedule would be informed by the Board's assessment of market practices at the time of implementation, which could evolve from today's practices. Separate per-item fees could also be charged for other message types that may be offered in the future. This approach is consistent with the approach currently taken with respect to other priced services provided by the Federal Reserve.

Q.7. The Clearing House is owned by the Nation's largest banks, which are already participating in the RTP system, and have built all the necessary connections to it. It seems exceedingly unlikely therefore—whether with volume discounts or without them—that those banks will abandon the RTP system to join any Fed system in the future. Is part of the Fed plan to require the largest banks to join the Fed System—in effect, outlawing a private sector option? If not, please explain (and include in your business plan an explanation of) how the Fed could price in compliance with the Monetary Control Act when its system does not process the volume of any of the large banks. What would pricing have to look like in order to recoup start-up and operating costs if only small banks, representing a fraction of total volume, were participating in the Fed system?

A.7. Many banks today, particularly large ones, have signed up for Federal Reserve and private-sector services in other payment systems. We expect large banks would benefit from joining the FedNow Service both from a business perspective, in order to extend reach to a broader array of banks, and from a resiliency perspective to have a back-up option. We expect these benefits would outweigh the costs of joining two services, as is the case today for other payment services.

Q.8. How many Fed employees (at the Board and the Reserve Banks) are employed to operate the ACH network? How many em-

ployees do you roughly estimate would be employed to operate a real-time network? Would Reserve Banks need to add staff or would they be transitioned from ACH (as the move towards real-time could lead to fewer employees devoted to ACH)?

A.8. Approximately 70 employees work on day-to-day operations of the Federal Reserve's FedACH service in order to support the service's approximately 10,000 financial institution customers. Staff from across the Federal Reserve System provide additional support functions for various Federal Reserve services, including FedACH, such as technology development.

The FedNow Service is a priority for the Federal Reserve, and as such we will devote the necessary resources required to deliver the highest quality service in a timely manner. Resources will likely come both from existing staff within the Federal Reserve as well as new staff. Staff will not be drawn exclusively from any single service or other Reserve Bank function. The Board requires all Federal Reserve services, including FedACH and FedNow Service, to recover the actual and imputed long-run costs, which includes staffing costs, associated with operating the service.

Q.9. If the Fed offers real-time payments, why should it continue to also be the regulator of the payments system? Should that responsibility be conferred to another agency who could more dispassionately assess the Fed's compliance with the provisions of the Monetary Control Act and all other applicable laws?

A.9. The Board does not have plenary regulatory or supervisory authority over the U.S. payment system. Rather, the Board has limited authority to influence private-sector payment systems in specific circumstances. For example, the Bank Service Company Act grants the Board (and the other Federal banking agencies) the authority to regulate and examine third party service providers, but only for the performance of certain covered services and only when services are performed for depository institutions under the agency's supervision.

Under the Federal Reserve Act, the Board supervises the activities of the Reserve Banks through rules, policies, and examinations. The decision to build the FedNow Service adheres to the MCA and the longstanding Federal Reserve policies and processes. [3]

Q.10. In January 2015, the Fed stated in its Strategies for Improving the U.S. Payment System that they "would not consider expanding its service provider role unless it determines that doing so is necessary to bring about significant improvements to the payment system and that actions of the private sector alone will likely not achieve the desired outcomes for speed, efficiency, and safety in a timely manner." While you have stated that no final decisions have been made, the request for comments issued clearly states that the Fed is in fact considering expanding its role, despite the significant improvements made by the private sector. In the future, how can you expect the private sector to respond to the Fed's calls for innovation, when the Fed fails to hold itself to its commitments?

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[3] See *https://www.federalreserve.gov/paymentsystems/pfs_policies.htm.*

A.10. The decision to build the FedNow Service is responsive to requests from the Faster Payments Task Force (FPTF) and a recommendation from the U.S. Department of the Treasury (U.S. Treasury). Through the Strategies for Improving the U.S. Payment System (SIPS) initiative, the Federal Reserve and industry stakeholders worked together to identify desirable improvements to the U.S. payment system and the most effective way to achieve those improvements.

The FPTF, a diverse group of more than 300 industry stakeholders convened as part of the SIPS initiative, issued in 2017 a final report with 10 consensus recommendations intended to advance the goal of ubiquitous, safe, faster payments in the United States.[4] Among those recommendations was a request for the Federal Reserve to provide a 24x7x365 settlement service for faster payments. The request was intended to "enable a needed infrastructure to support faster payments." At that time, the members of the FPTF were aware of and anticipated the launch of the private-sector service.

The U.S. Treasury made a similar recommendation in its 2018 report on financial innovation: "Treasury recommends that the Federal Reserve move quickly to facilitate a faster retail payments system, such as through the development of a real-time settlement service."[5] The FPTF request and U.S. Treasury recommendation reflect the foundational role that the Federal Reserve, as the Nation's central bank, has served since its inception in providing payment and settlement services to banks.

Q.11. The FHFA has currently proposed a Conservatorship Capital Framework that provides capital credit for Enterprise Credit Risk Transfer (CRT) transactions in strong structures and/or with strong counterparties which seems appropriate at a high level. In a speech in July 2017 you expressed support for the GSEs' credit risk transfer efforts, and I believe there is a fair amount of consensus that these transactions have helped reduce taxpayer risks and introduce more private capital in support of the U.S. housing market. Among the often-cited objectives of housing finance reform is to level the playing field for private capital willing to price and invest in mortgage credit risk. Also, one of the overarching principals of the postcrisis regulatory environment has been that similarly situated companies should be regulated similarly regardless of charter type. With those objectives in mind, it seems appropriate to me that banks should have a similar opportunity to receive capital relief for CRT transactions that are fully collateralized and/or insured by strong counterparties. This could expand mortgage options for consumers, allowing banks to retain the AAA risk on a mortgage, maintain the consumer relationship, and sell off the credit risk to entities better equipped to hold that risk given the duration mismatch for banking institutions.

Would you commit to taking a fresh look with your fellow banking regulators at the circumstances under which banks should be

[4] See *https://fasterpaymentstaskforce.org/*.
[5] See *https://home.treasury.gov/sites/default/files/2018-08/A-Financial-System-that-Creates-Economic-Opportunities-Nonbank-Financials-Fintech-and-lnnovation-O.pdf*.

allowed capital credit for bona fide credit risk transfer transactions that involve sound structures and counterparties?

A.11. The Federal Housing Financing Agency's (FHFA) proposal on "Enterprise Capital Requirements" is specifically designed for Fannie Mae and Freddie Mac and their specialized lending niche. The FHFA has calibrated its proposed capital requirements and tailored its credit risk mitigation rules to two specific categories of exposures: single-family home loan and multifamily loan portfolios. These products have standardized characteristics that are incorporated in the FHFA's proposed approach for risk weighting these exposures.

Banks have a wider variety of exposures than Fannie Mae and Freddie Mac. Thus, banks require a different calibration of capital requirements and a more general set of rules governing the recognition of credit risk mitigation.

The banking agencies' approach for recognizing credit risk transfer through a securitization needs to be flexible enough to accommodate a wide variety of securitized asset classes without standardized characteristics. The approach may require more capital on a transaction-wide basis than would be required if the underlying assets had not been securitized, in order to account for the complexity introduced by the securitization structure. Furthermore, the agencies' capital rule requires banking organizations to meet certain operational requirements. An inability by a banking organization to meet these operational requirements may lead to higher risk weighting, relative to the FHFA's proposed approach. That said, you raise a number of important considerations, and we are reviewing policies related to credit risk transfers.

Q.12. What are you doing to ensure that examiners are not downgrading ratings, issuing enforcement actions, or imposing Matters Requiring Attention and Immediate Attention (MRAs and MRIAs) based on guidance or informal standards? Banks are probably going to be reluctant to raise these issues publicly, so given the lack of transparency, how do we know that examiners are really basing their ratings and findings on rules and not guidance?

A.12. In September 2018, the Federal financial regulatory agencies issued an Interagency Statement Clarifying the Role of Supervisory Guidance (Interagency Statement). The Interagency Statement reaffirmed that supervisory guidance, unlike laws and regulations, is not legally enforceable, and therefore supervisory actions cannot be based on supervisory guidance.

Where appropriate and helpful to explain the identified issue and possible remediation steps to the firm, examiners may, as the statement indicates, refer to guidance. The Board issues guidance to increase the transparency of our supervisory expectations. We have reminded our examiners to be clear when communicating with financial institutions in order to minimize possible confusion between the principles and sound practices described in guidance and the requirements of regulations.

Since the issuance of the Interagency Statement, the Federal Reserve has taken several steps to ensure that System supervisory staff understand its content and are acting consistent with it. These steps include:

- Issuing internal talking points, FAQs, and training materials after publication of the Interagency Statement;
- Conducting a mandatory training session for all supervisory staff on the Interagency Statement, with examples of acceptable language for supervisory communications, as well as additional, more targeted training sessions with staff;
- Instituting a greater use of templates for supervisory communications to firms to ensure consistency in messages, including related to guidance;
- Confirming with all Reserve Bank supervisory staff and staff of all portfolio management groups that they have implemented the Interagency Statement in their respective Districts and portfolios;
- Coordinating with the other Federal banking agencies so that any interagency guidance is consistently applied; and
- Indicating to firms that if they have concerns about how supervisory guidance is being applied, they should feel free to reach out to Federal Reserve staff, either at their local Reserve Bank or to Board staff directly.

In addition, an appeals process exists for firms who wish to challenge supervisory findings, including MRAs and MRIAs.

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

Q.1. As you mentioned, our economic expansion continues, as evident in the 3.7 percent unemployment rate and average of 172,000 jobs added to the economy each month. But we aren't seeing the economic boom to the same degree in rural areas.

Farmers have seen their net income plummet by half since 2013 and are now expected to hold nearly $427 billion in debt this year—the most since the farm crisis in the 1980s—while many segments of the ag industry continue struggling to fill jobs.

Aside from trade, where does the Federal Reserve's incoming data indicate Congress should focus its efforts on to avoid another farm crisis, and what are the Fed's future considerations for providing support to this segment of the economy?

A.1. Federal Reserve data suggest that the U.S. farm economy has weakened since 2013 and is expected to remain relatively weak in the coming months. Farm income declined sharply from 2013 to 2015 and has remained relatively flat in the years since. The decline in farm income primarily has been due to persistently low agricultural commodity prices and elevated input costs. The weakness in farm income has led to gradual but persistent declines in working capital due to ongoing cash flow shortages. This has, in turn, led to increased financing needs and a modest increase in financial stress in recent years in the U.S. farm sector.

The root cause of the suppressed U.S. farm economy has been persistently low farm income due to an ongoing environment of low agricultural commodity prices. The weakness in agricultural commodity prices has come about primarily from slower growth in the global demand for U.S. agricultural commodities and an increase in supply relative to previous years. The supply of agricultural prod-

ucts from one year to the next tends to respond to the broad undercurrent of global demand.

The Federal Reserve monitors all aspects of the U.S. economy and incorporates developments in each segment of the economy into its key mission areas. When evaluating the appropriate stance of monetary policy, for example, developments in the agricultural economy are regularly included in its deliberations, in addition to an evaluation of conditions in other areas of the U.S. economy. The Federal Reserve also works to ensure that commercial banks are evaluated properly in the provision of credit to the agricultural sector. Finally, the Federal Reserve also interacts regularly with the public, including agricultural stakeholders, to share insights on the farm sector and gather information in an effort to enhance decision making on matters related to agriculture.

Q.2. It is disappointing to see final rules implementing 2155 provisions that are no different than the rule proposals despite input from this body after the initial proposal; with the short form call report final rule being a prime example after hearing from a significant portion of the Senate.

Can you provide me with any vote of confidence that the same thing won't happen with the final rule of the Community Bank Leverage Ratio?

A.2. The Federal Reserve Board of Governors, the Office of the Comptroller of the Currency and the Federal Deposit Insurance Corporation (the agencies) recently adopted a community bank leverage ratio (CBLR) framework that is consistent with the Economic Growth, Regulatory Relief, and Consumer Protection Act's objective of reducing the regulatory burden on community banking organizations while maintaining safety and soundness. The agencies carefully considered the public comments on the proposal and actively consulted with State bank supervisors in developing the final rule.[1] Relative to the proposal, the final rule incorporates a number of changes advocated by commenters, notably including a "grace period" for films which temporarily fail to meet certain qualifying criteria and removal of the proposal's separate prompt corrective action framework specific to the CBLR framework.

Q.3. I understand that the Federal Reserve buys the majority of the GSE's debt.

As the largest creditor for Fannie Mae and Freddie Mac, are you concerned that the GSEs have not been designated as SIFIs by FSOC—and wouldn't at least going through the SIFI designation process help ensure that the GSEs have a strong prudential framework?

A.3. Both the direct obligations issued by, and the mortgage-backed securities (MBS) guaranteed by, Fannie Mae and Freddie Mac are eligible for purchase by the Federal Reserve because they are fully guaranteed as to principal and interest by Fannie Mae and Freddie Mac. During the financial crisis and subsequent recession, the Federal Reserve purchased agency debt and agency MBS to help reduce the cost and increase the availability of credit for the purchase of houses.

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[1] See: *https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191029a.htm.*

In late 2014, the Federal Open Market Committee (Committee) stopped increasing its holdings of MBS and in late 2017 announced plans for the gradual reduction of the Federal Reserve's securities holdings. Moreover, as part of its 2014 statement on policy normalization principles and plans, the Committee stated that "it will hold primarily Treasury securities, thereby minimizing the effect of Federal Reserve holdings on the allocation of credit across sectors in the economy." As of August 2019, Federal Reserve holdings of agency securities are approximately $1.5 trillion, down from their October 2017 level of $1.8 trillion.

The Federal Reserve Board (Board) recognizes that the Government-sponsored enterprises (GSEs) are important entities in the mortgage markets and in the financial system generally. Whether or not the Financial Stability Oversight Council (FSOC) should designate the GSEs would depend on the FSOC's consideration of the required statutory factors to determine whether the GSEs are systemically important.

It is important to note that the GSEs already have a consolidated prudential regulator with substantial regulatory authorities. Indeed, following enactment of the Housing and Economic Recovery Act of 2008 (HERA), the Federal Housing Finance Agency (FHFA) came into existence with an enhanced array of supervisory tools. These tools include explicit authority to:

- impose and enforce prudential standards, including capital standards;
- conduct targeted and full scope examinations;
- obtain reports from parties on a regular and on an as-requested basis;
- oversee executive compensation, including incentive compensation and golden parachutes;
- require remedial actions; and
- undertake a full range of enforcement actions.

In addition, as part of HERA, Congress granted the Director of FHFA the discretionary authority to appoint FHFA as conservator or receiver of Fannie Mae, Freddie Mac, or any of the Federal Home Loan Banks upon determining that specified criteria had been met. This authority was used in September 2008 to avoid mortgage financing and financial market disruptions that may have resulted from the failure of Fannie Mae or Freddie Mac at that time.

Q.4. How important do you think it is for Congress to reform the housing finance market and take action to end the conservatorship of Fannie Mae and Freddie Mac?

A.4. A robust, well-capitalized, well-regulated housing finance system is vital to the stability of the financial system and to the long-run health of our economy. We need a system that provides mortgage credit in good times and bad to a broad range of creditworthy borrowers. While reforms have addressed some of the problems of the precrisis system, there is broad agreement that the job is far from done. Today, the Federal Government's role in housing finance is even greater than it was before the crisis. The overwhelming majority of new mortgages are issued with Government

backing in a highly concentrated securitization market. That leaves us with both potential taxpayer liability and systemic risk. It is important to learn the right lessons from the failure of the old system. Above all, we need to move to a system that attracts ample amounts of private capital to stand between housing sector credit risk and taxpayers. We should also use market forces to increase competition and help to drive innovation.

Q.5. One of the most common sentiments I have heard from farmers over the years is that whether the rest of the economy is booming or struggling, the opposite occurs in the ag economy.

Do you and the Federal Reserve have an explanation for these disparities, and where do we need to focus our efforts to ensure our economic expansion benefits the ag economy and the economy as a whole?

A.5. Cycles in the agricultural economy may differ from those of the broader U.S. economy due, in part, to differences in the time required for production to fully respond to underlying changes in demand. The strength of the U.S. farm sector depends crucially on the price of agricultural commodities, which is significantly determined by global supply and demand conditions. As global demand for agricultural products strengthens, the price of agricultural commodities tends to increase, which boosts farm income. Agricultural producers, both in the U.S. and globally, tend to respond to these higher prices by increasing production. However, unlike other economic sectors, history has shown that it often takes a number of years for agricultural production to fully adjust to the increase in demand. Likewise, as global demand growth slows, it may take a number of years for agricultural production to adjust, resulting in persistently low agricultural commodity prices.

In the mid-2000s, two primary drivers of demand for agricultural commodities were economic growth in China and growth in U.S. biofuels (i.e., ethanol). This increase in demand for agricultural products caused agricultural commodity prices to increase significantly from 2006 to 2013. Although agricultural production responded to the increase in prices, it took several years for supply to meet the increased demand. Since 2013, the pace of growth in these components of demand appears to have slowed. In general, however, the production of agricultural commodities, has remained relatively high. The slower demand growth, coupled with elevated supplies of agricultural commodities, has been a primary factor in keeping agricultural commodity prices relatively low.

Q.6. Does the Federal Reserve have any monetary policy tools to help offset the disparities between the benefits of an expanding economy as a whole and the ag economy specifically?

A.6. In conducting monetary policy, the Federal Reserve incorporates information on all aspects of the U.S. economy into its regular policy deliberations. These deliberations take into account the strengths and weaknesses of various sectors, including agriculture. The Federal Reserve's monetary policy tools are powerful, but blunt, and not intended to address individual sectors of the economy. Rather, the Federal Reserve sets policy to achieve its overall aggregate goals of maximum employment and stable prices.

Q.7. In its report last year on nonbank financials, FinTech, and innovation, the Department of the Treasury made specific policy recommendations to the financial regulatory agencies, including the Federal Reserve, that were designed to ensure that the U.S. financial system keeps pace with financial systems abroad. One of the key areas of focus was the need to assure consumers and small businesses that they own their own financial data and should have the ability to grant permission to third parties to provide products or services that rely on customer data.

What steps has the Federal Reserve taken since the Treasury report was published last July to meaningfully improve consumer and small businesses digital financial data access?

A.7. As the Department of Treasury recently highlighted, "[t]he only express statutory provision regarding access to a consumer's own financial account and transaction data is Section 1033 of the Dodd–Frank Wall Street Reform and Consumer Protection Act (Dodd–Frank)."[2] Section 1033 provides the Consumer Financial Protection Bureau (CFPB) with the authority to prescribe rules regarding consumer rights in data related to financial products and services obtained from a financial institution. The CFPB identifies policy work related to this authority in its Spring 2019 release of "Long-Term Actions."[3]

As the Department of Treasury also indicated, other regulators have a role to play as well. FinTech innovators generally rely on connections to banks for access to consumer deposits or related account data, access to the payment system, or credit origination. Accordingly, as banks explore advances in FinTech products and services, the Federal Reserve has a responsibility to ensure that institutions we supervise operate in a safe and sound manner and that they comply with applicable statutes and regulations, including consumer protection laws.

The Federal Reserve coordinates our activities on digital financial access with those of other regulators in a number of fora, including the Federal Financial Institutions Examination Council (FFIEC) Task Force on Supervision and the FFIEC Task Force on Consumer Compliance.

This calendar year, the Federal Reserve has also organized a number of meetings with industry actors, trade associations, and consumer advocates in a variety of FinTech areas, including financial account aggregation, which have included joint participation from a number of relevant regulators, including the Office of the Comptroller of the Currency (OCC), Federal Deposit Insurance Corporation (FDIC), CFPB, the Federal Trade Commission, and the Conference of State Bank Supervisors. We will continue to facili-

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[2] U.S. Department of the Treasury (U.S. Treasury), "A Financial System That Creates Economic Opportunities—Nonbank Financials, FinTech, and Innovation" (July 2018), *https://home.treasury.gov/sites/default/files/2018-08/AFinancial-System-that-Creates-Economic-Opportunities-Nonbank-Financials-Fintech-and-Innovation.pdf*. As described by the U.S. Treasury, the statute states that, subject to rules prescribed by the CFPB, "financial services companies subject to the Bureau's jurisdiction as covered persons are required to make available to a consumer, upon request, certain financial account and transaction data concerning any product or service obtained by the consumer from that financial services company."

[3] See *https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201904&RIN=3170-AA78* (Consumer Access to Financial Records [as described in section 1033 of the Dodd–Frank Act]). Other consumer laws and regulations might also be relevant to the CFPB's policy response to issues involving account aggregation. See, e.g., *https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201904&RIN=370-AA79* (Regulation E Modernization).

tate and to engage in collaborative discussions with other relevant financial regulators in these and other settings.

We also are reviewing how our guidance relates to expectations regarding the way banks should engage with FinTech firms, including data-sharing agreements between banks and data aggregators. For example, the Federal Reserve often receives questions about the applicability of our vendor risk management guidance. Staff are reviewing this guidance to determine whether any adjustments or clarifications would be helpful to promote responsible innovation.

Q.8. As you know, the United Kingdom began deploying its Open Banking regime—designed to empower consumers and small businesses to choose any financial services provider they like, be they an incumbent or challenger—in January of last year. Since then, a number of other countries, including Australia, New Zealand, Canada, Singapore, Hong Kong, Mexico, and South Africa—just to name a few—have signaled their intentions to implement similar regimes.

Is there a risk that the U.S. falls behind if we don't start considering what a U.S. version of Open Banking should look like?

A.8. As regulators, we have a responsibility to ensure that the institutions subject to our supervision are operated in a safe and sound manner and that they comply with applicable statutes and regulations, including consumer protection laws. We have a strong interest in permitting responsible innovations to flourish, but first must ensure the risks that they may present are appropriately managed, consistent with relevant legal requirements. With regard to open banking, the Federal Reserve has continued to monitor closely developments in other jurisdictions and analyze potential opportunities and challenges posed by the adoption of open banking models in the United States. [4]

From our study of these overseas directives, several important considerations for adopting a United States' version of open banking via regulation have emerged. For example, certain approaches in other jurisdictions to address attendant data-security and consumer-protection risks, by and large, are not readily available policy options to Federal banking regulators in the United States. Moreover, third parties that access bank accounts are often subject to licensing and registration requirements, as well as associated capital and insurance requirements. Likewise, overseas directives may also require that electronic payments (both bank and nonbank) be authorized by two-factor authentication.

Perhaps most importantly, the jurisdictions that have moved forward with open banking requirements have less diverse banking systems materially, where the rules may impact fewer than ten very large institutions. In contrast, a U.S. version of open banking would impact a more diverse set of financial institutions, including thousands of small and community financial institutions. For institutions with limited resources, the necessary investments in application programming interface technology and in negotiating and

[4] For example, Board members have spoken about some of these issues. See, e.g., Lael Brainard, "Where Do Banks Fit in the FinTech Stack" (April 28, 2017), *https://www.federalreserve.gov/newsevents/speech/files/brainard20170428a.pdf*. See also Lael Brainard, "Where Do Consumers Fit in the FinTech Stack" (Nov. 16, 2017), *https://www.federalreserve.gov/newsevents/speech/files/brainard20171116a.pdf*.

overseeing data-sharing agreements with data aggregators and third-party providers may be beyond their reach, especially as they usually rely on service providers for their core technology.

Accordingly, U.S. efforts to craft approaches that enhance the connectivity of banks with nonbanks have benefited from the engagement of multiple agencies, along with input from the private sector and other stakeholders. In that regard, the private sector is continuing to experiment actively with a variety of different approaches to the connectivity issue and may itself move toward one or more widely accepted standards.

We support ensuring that connectivity issues are appropriately addressed in a way that allows community banks to participate in innovative platforms, and that this should be an important priority.

Q.9. Should a financial institution retain the ability to restrict the ability of one of its customers to permission access to their data for any reason other than an imminent security threat?

A.9. In light of the CFPB's authority in this area (see response to Question 7), the Board has not articulated an independent position regarding consumer-permissioned data access. Board members have, however, articulated general concerns about appropriate risk management relating to safety and soundness and consumer protection, as described in the response to Question 8.

Q.10. The proliferation of bilateral contractual agreements between large financial institutions and data aggregators has been heralded by some policymakers as a positive development for innovation.

But isn't this model of disparate, opaque agreements between financial institutions and the facilitators of technology-powered tools on which millions of American consumers and small businesses rely likely to lead to a markedly uneven playing field, with outcomes for end users dependent entirely on with which institutions they conduct their banking business?

A.10. We are aware that large data aggregators and financial institutions are seeking to negotiate the appropriate balance of tradeoffs for various issues relating to consumer data access, including data security and other prudential concerns, in bilateral contractual agreements. We are monitoring these and other collaborative efforts involving data aggregators and financial institutions that seek to establish industrywide norms that could be used by a broader array of participants.

The Federal Reserve regularly organizes meetings with industry actors, trade associations, and consumer advocates in a variety of FinTech areas, including financial account aggregation to track developments. These meetings include joint participation from a number of relevant regulators, including the OCC, FDIC, CFPB, the Federal Trade Commission, and the Conference of State Bank Supervisors to ensure information sharing and maximize the opportunity for regulatory cooperation on these issues.

Throughout these discussions, we have consistently stressed the importance of involving relevant stakeholders, including smaller financial institutions and consumer advocates. We will continue to facilitate and engage in collaborative discussions with other relevant financial regulators in these and other settings.

Q.11. Is the Federal Reserve concerned about this outcome?

A.11. Please see the response to Question 10.

Q.12. What is the Federal Reserve doing to facilitate a more level playing field across the industry for financial institution customers?

A.12. Please see the response to Question 10.

Q.13. The OCC is working diligently to modernize the Community Reinvestment Act, and I understand that FDIC Chairman McWilliams is also working jointly with Comptroller Otting.

Is the Federal Reserve engaged in this process and will you be part of any coordinated joint rulemaking effort?

A.13. We are working closely and diligently with the FDIC and the OCC to determine how best to modernize the regulations implementing the Community Reinvestment Act (CRA). While the timing of a proposal is uncertain, we continue to discuss important aspects of reform with them and are committed to actively engaging in interagency discussions. We agree on the goals of improving the regulations by establishing more clarity about where and how CRA activities will be considered. We continue to discuss various ideas about how best to accomplish those goals.

Q.14. If the Federal Reserve does not engage in a joint rulemaking with the OCC and FDIC, will you undertake a separate rulemaking and what are the key aspects of the Community Reinvestment Act would you like to address?

A.14. Given our significant engagement in the interagency rulemaking process, I will refrain from speculating on what would happen if the Federal Reserve does not sign on to a joint rulemaking with the OCC and FDIC.

Q.15. Technological advancements within banking are helping to transform the industry to suit the needs of customers in the digital space. What are the Federal Reserve's thoughts regarding what changes are needed to modernize the Community Reinvestment Act since customers are less reliant on branches?

A.15. The Board understands the need to update the CRA regulations' approach to delineating assessment areas in order to reflect how technology and other advancements have significantly changed the manner in which financial services are accessed and delivered. Industry consolidation and adoption of new technologies have resulted in an increasing provision of banking services beyond geographic areas where banks have branches.

No matter how the agencies define a bank's assessment area in the future, a modernized CRA regulatory framework needs to be designed and implemented in a way that encourages banks to help meet the credit needs of all the communities that they serve, including those areas that are not major markets for the bank.

Q.16. I have heard a number of concerns from commercial end users about the notice of proposed rulemaking published by the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation and the Office of the Comptroller of the Currency, which would implement the standardized approach for counterparty credit risk in derivative contracts (SA–CCR). One

area of particular concern is the proposed 1.4 calibration of the alpha factor applied to transactions with commercial end users.

Is there empirical analysis or justification for this alpha factor which conflicts with policy objectives of ensuring commercial end users can use derivatives to hedge and mitigate their commercial risk?

A.16. The alpha factor was included in the proposal to implement the standardized approach for counterparty credit risk (SA–CCR) to ensure that SA–CCR, a standardized approach for determining capital requirements for the counterparty credit risk of derivative contracts, does not produce lower exposure amounts than the existing internal models methodology (IMM). IMM is a models-based approach that certain large and internationally active banking organizations may use to calculate their risk-weighted assets under the capital rule. In particular, IMM includes an alpha factor of 1.4 to add a level of conservatism to the model-based calculation and to address certain risks, such as wrong-way risk (meaning the exposure amount of the derivative contract increases as the counterparty's probability of default increases). As part of the SA–CCR rulemaking process, the Board is carefully considering commenters' concerns regarding the effect the application of the alpha factor will have on commercial end-user counterparties.

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

Q.1. In a speech earlier this year, you stated that any revision to the Community Reinvestment Act (CRA) should "more effectively encourage banks to seek opportunities in underserved areas." Recently, the Urban Institute found that 60 percent of CRA-qualifying loans in low- and moderate-income census tracts are made to middle- and upper-income borrowers, including 29 percent to higher income borrowers. While lending to middle- and upper-income borrowers in low- and moderate-income communities can encourage community diversity, it should not be the predominant form of CRA lending.

Chair Powell, how is the Federal Reserve planning to ensure that the majority of CRA qualifying loans are being made to low- and moderate-income borrowers?

A.1. The Federal Reserve currently is working with the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC) to consider improvements to modernize the existing Community Reinvestment Act (CRA) regulatory framework. As part of that review, we are considering evaluation approaches that would ensure that banks are meeting the credit needs of both low- and moderate-income households and low- and moderate-income communities.

Q.2. What other steps is the Fed taking to ensure banks "seek opportunities in underserved areas?"

A.2. There are several options that the Federal Reserve staff have discussed with the FDIC and the OCC to encourage banks to seek opportunities in underserved areas. In our outreach with banks, community organizations, and other stakeholders, the Federal Re-

serve has heard support for updating the CRA regulations as they relate to a bank's assessment area(s) so there is more clarity regarding where banks may get CRA consideration for activities. Specifically, we are considering an approach that would retain assessment areas around a bank's branches in order to keep the CRA's focus on nearby local communities, including low- and moderate-income neighborhoods, while adding assessment areas where banks conduct significant activity apart from branches.

In addition, we are considering whether to more clearly define a separate, larger assessment area for the purposes of evaluating a bank's community development activities. A larger, more clearly defined area for community development activities could mitigate the artificial competition for investments in areas served by many banks and benefit perennially underserved rural areas or small metropolitan areas. We are also exploring ways to adjust the definition of low- and moderate-income in high-poverty rural areas where incomes overall may be low, relative to Federal benchmarks. This type of adjustment could be helpful in encouraging more CRA activity in underserved rural areas.

Q.3. Our country's affordable housing crisis is making it increasingly hard for working families to find an affordable place to live anywhere near economic opportunity. The percentage of housing stock available for rent or sale has fallen sharply since the financial crisis and is now as low as it has been in more than 30 years. The current annual supply of new housing units is running an estimated 370,000 units below the trend for new housing demand.

Chair Powell, are you concerned that the affordable housing crisis is reducing labor mobility? What impact does reduced labor mobility have on the broader economy?

A.3. Housing has indeed been a growing share of household budgets in recent years. Between 2000 and 2017, the share of households spending more than 30 percent of their income on rent increased from 39 percent to 49 percent. Families with lower incomes tend to spend much larger shares of their incomes on housing, and their share of income spent on rent has risen by an even larger amount.[1] Increases in rent expenditure shares have been widespread across the country, with four out of five metropolitan areas experiencing an increase of at least five percentage points since 2000.

Migration across States and metropolitan areas has trended down over the past several decades across all segments of the population.[2] Additionally, migration rates continue to be lower among people without a college degree, and highly educated workers have become more geographically concentrated. Furthermore, there was little migration out of the hardest-hit areas after the Great Recession.[3] Many have raised concerns that a lack of affordable housing

[1] Jeff Larrimore and Jenny Schuetz, "Assessing the Severity of Rent Burden on Low-Income Families", FEDS Notes (Washington: Board of Governors of the Federal Reserve System, December 22, 2017), *https://www.federalreserve.gov/econres/notes/feds-notes/assessing-the-severity-of-rent-burden-on-low-income-families-20171222.htm.*

[2] Raven Molloy, Christopher L. Smith, and Abigail Wozniak, "Internal Migration in the United States", *Journal of Economic Perspectives* 25, no. 3 (2011): 173–196.

[3] See the following studies for more information on these phenomena: Abigail Wozniak "Are College Graduates More Responsive to Distant Labor Market Opportunities?" *Journal of Human Resources* 45, no. 4 (2010): 944–970; Enrico Moretti, "Real Wage Inequality", *American Economic*

in areas with the strongest employment opportunities has impeded labor mobility and prevented migration from workers who would benefit from moving to these areas—particularly workers without a college education.

Economic theory can predict very large effects of a lack of affordable housing on aggregate productivity, by preventing workers from moving to locations where skills would be most productive.[4] However, evidence on the connection between housing affordability and migration has not been clear cut. Some research has found that high house prices reduce migration,[5] but other research has found little effect.[6]

Other factors outside of a lack of affordable housing also are likely responsible, in part, for the decline in migration. Research has suggested that the decline in migration may reflect a decline in labor market dynamism more generally, since fewer workers change employers each year even when they do not move. There is also some evidence that there are fewer opportunities in large cities for workers without a college degree, and that part of the decline in migration also reflects workers staying longer in central cities into middle age.[7] And, consistent with the possibility that the lack of affordable housing is not driving low-income households out of expensive cities, lower income workers in areas with high rents are about equally satisfied with the quality of their housing as lower income workers in other areas.[8]

Ultimately, the impact of declining migration depends on its cause. If declining migration is due to a Jack of affordable housing, then we might expect reduced economic output and increased economic inequality as fewer people move to economic opportunities. If declining migration is due to lower fluidity in the labor market more generally, then declining migration could be a symptom, not a cause, of other difficulties in the labor market. And, if declining migration is due to workers increasingly believing that their current job best matches their skills and interests—reducing the need to move elsewhere for employment—then it could be a positive development.

Q.4. If the affordable housing crisis reduces labor mobility, affecting the entire economy, what role does the Federal Reserve have in addressing the affordable housing crisis in the U.S.?

A.4. A wide range of factors and policies outside of the purview of the Federal Reserve affect the availability and affordability of

Journal: Applied Economics 5, no. 1 (2013); and Danny Yagan, "Employment Hysteresis From the Great Recession", NBER Working Paper No. 23844 (Cambridge, MA: September 2017).

[4] Chang-Tai Hsieh and Enrico Moretti, "Housing Constraints and Spatial Misallocation", *American Economic Journal: Macroeconomics* 11, no. 2 (2019): 1–39; and Peter Ganong and Daniel Shoag, "Why Has Regional Income Convergence in the U.S. Declined?" *Journal of Urban Economics* 102 (2017): 76–90.

[5] Relevant studies finding an effect of house prices on migration include: Jelle Barkema and Tam Bayoumi, "Stranded! How Rising Inequality Suppressed U.S. Migration and Hurt Those Left Behind", IMF Working Paper No. 19/122 (2019); Matthew Notowidigdo, "The Incidence of Local Labor Demand Shocks", NBER Working Paper No. 17167 (Cambridge, MA: 2011); Andrew Plantinga, Cecile Detang-Dessendre, Gary Hunt, and Virginie Piguet, "Housing Prices and Interurban Migration", *Regional Science and Urban Economics* 43, no. 2 (2013), 296–306.

[6] Studies finding limited effects include Molloy, Smith, and Wozniak, "Internal Migration in the United States"; and Jeffrey Zabel, "Migration, Housing Market, and Labor Market Responses to Employment Shocks", *Journal of Urban Economics* 72 (2012): 267–284.

[7] David Auter, "Work of the Past, Work of the Future", American Economic Association Richard T. Ely Lecture (2019).

[8] See *https://www.federalreserve.gov/consumerscommunities/shed.htm.*

housing in the United States. The Federal Reserve monitors developments in housing and labor markets to assist in our understanding of the broader economy. With respect to our regulatory and supervisory responsibilities, we are committed to promoting a fair and transparent consumer financial services marketplace and effective community development, including for traditionally underserved and economically vulnerable households and neighborhoods. As discussed in my response to Question 1, the Federal Reserve is actively engaged in an interagency effort to modernize the CRA to encourage lending in low- and moderate-income communities. Access to credit by households and businesses is certainly a factor that contributes to the availability and affordability of housing.

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

Q.1. Over the past year, we have discussed the risks to the financial system from leveraged lending several times. In your press conference following the June 19, 2019, Federal Open Markets Committee meeting, you said that you "feel like" the safety and soundness risk from leveraged lending to the banks is "in a good place," and that the paper "is pretty stably funded, in the sense that there's no run risk, but there's still macroeconomic risk." [1]

Does the 2013 leveraged lending guidance still reflect the Fed's thinking about the prudent levels of debt, understanding that guidance by definition does not have the force of law?

A.1. The leveraged loan market continues to warrant attention. We are closely monitoring how risks are evolving and the potential impact of these risks on the broader financial system, as well as assessing the adequacy of bank risk management and controls. The 2013 guidance remains in effect, but, as you note, it does not have the force and effect of law. Supervised banks can continue to participate in leveraged lending activities, provided such activities, as with all lending activities, are conducted in a prudent manner, consistent with safety and soundness standards.

Although banks originate the majority of leveraged loans, a large percentage of leveraged loans are sold to investors outside the regulated banking system. While these loan sales allow the risks to be shared more broadly, we continue to evaluate whether some of that risk diversification is being diluted by banks increasing their exposure to collateralized loan obligations (CLOs) and other holding vehicles to which the loans are sold. We will continue to monitor the evolution of the nature and risk profile of these holding vehicles.

Q.2. In 2018, the D.C. Circuit overturned 2014 rules mandate by Dodd–Frank that exempted collateralized loan obligations from risk retention rules that apply to other asset classes. Have the rules been successful in aligning the incentives of the managers and investors with respect to asset classes where they're in effect?

A.2. The credit risk retention rule for securitization, introduced in the 2010 Dodd–Frank Wall Street Reform and Consumer Protection Act and finalized by regulators in 2014, is designed to curtail

[1] The Federal Reserve, "Chairman Powell's Press Conference", June 19, 2019, *https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20190619.pdf.*

risky lending and securitization practices. The rule has had the biggest impact on commercial mortgage-backed securities (CMBS) and CLOs, where the lowest equity tranche of a deal (the riskiest part of the security) was historically held by a party other than the issuer. In contrast, issuers historically took the first-loss risk in many other types of asset-backed securities, including by retaining risk in excess of the requirement.

CMBS deals issued after the rules took effect generally have better credit characteristics than deals issued before the effective date of the rules.[2] Investors and industry professionals have also relayed anecdotally that risk retention has been among the factors that has contributed to the improvement in CMBS underwriting, and that they believe risk retention aligns the interests of securitization sponsors and investors.[3]

Meanwhile, the private-label residential mortgage backed securities new-issue market remains relatively small, and so discerning the longer-term effects of risk retention is more difficult.

Q.3. Would the reimposition of risk retention requirements with respect to CLOs improve their quality and lessen the macroeconomic risk you cited?

A.3. The decision in the U.S. Appeals Court in February 2018 exempted open-market CLOs—the most common type of CLOs, which acquire their assets from arms-length negotiations and trading on the open market—from adhering to risk retention.[4] Because the rule was changed early in 2018, it is instructive to compare some statistics from 2017 and 2018 to glean evidence of effects. For instance, overall issuance of new CLOs was robust in 2017 and increased only slightly from that amount in 2018. Looking at pricing, the spreads on highly rated CLO debt increased in mid-2017 and remained about at that level in 2018, hence investors do not seem to have priced in additional risk as a result of the change in risk retention rules.

Q.4. According to the industry's trade group, private equity-owned companies employ 5.8 workers in the United States. Are these jobs more vulnerable to a recession than jobs in an industry less reliant on debt?

A.4. We are not aware of research that has systematically studied the employment sensitivity to downturns for private equity-owned firms. There is, however, ample theoretical and empirical evidence that employment at more highly leveraged firms is more sensitive to macroeconomic fluctuations and to changes in financial-market conditions.[5] The typical business model followed by private equity

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[2] See "Credit Metrics Comparison: Risk Retention Versus Non-Risk Retention", DBRS, June 13, 2017; and Sean Flynn, Andra Ghent, and Alexei Tchistyi, "Informational Efficiency in Securitization after Dodd–Frank", May 21, 2019.

[3] See Paul Fiorilla, "No Joke. It Really Is Different This Time . . . Right?" *Commercial Property Executive*, January 15, 2018.

[4] Balance-sheet CLOs, which are less common, are created by originators of loans to transfer the loans off their balance sheets and into a securitization vehicle. They are still subject to risk retention as per the Agencies' rule.

[5] See Steven Sharpe (1994), "Financial Market Imperfections, Firm Leverage, and the Cyclicality of Employment", *American Economic Review*, Vol. 83, No. 4, pp. 1060–1074. Recent corroborating empirical evidence is also provided by Xavier Giroud and Holger Mueller (2017), "Firm Leverage, Consumer Demand, and Employment Losses During the Great Recession", *Quarterly Journal of Economics*, Vol. 132, No. 1, pp. 271–316. Using microlevel data from the

Continued

firms tends to involve leveraged buyouts.[6] Other things equal, higher leverage could drive greater employment variability. Nonetheless, leverage is not the only characteristic relevant for assessing employment sensitivity to business cycle fluctuations. For instance, recent research that has attempted to measure the quality of management practices has highlighted that private equity-owned firms tend to have very strong management practices relative to other ownership groups. Although this research has not scrutinized the effect of management practices on employment variability, it seems plausible that better management practices could influence the sensitivity of employment to business cycle fluctuations. Moreover, private equity-owned firms may be better positioned to obtain external funding during credit market disruptions.[7] Accordingly, absent further study of private equity owned firms, it is unclear whether better management or other characteristics could more than offset the effects of leverage on employment sensitivity to a recession.

Q.5. I continue to be concerned with the lack of a real-time payments system operated by the Federal Reserve—in my view, it's not question of whether the United States will have a real time payments system, it's a question of whether it will be operated by the Fed, the big banks or big tech. In my view, it's imperative that the Fed provide a competitive system, quickly.

Last fall the Fed released a plan to establish a real-time payments system for comment. The comment period closed more than 7 months ago. When does the Fed intend to announce its next steps toward establishing a real-time system?

A.5. The Federal Reserve Board (Board) announced on August 5, 2019, that the Reserve Banks will develop a new real-time payment and settlement service, called the FedNow Service, to support faster payments in the United States.[8] In making this decision, the Board adhered to the requirements of the Federal Reserve Act, the Monetary Control Act (MCA), and longstanding Federal Reserve policies and processes.[9]

The Board's assessment of the planned FedNow Service pursuant to the requirements of the MCA and the Board's criteria for new services and major service enhancements, proposed features and functionality for the service, and initial competitive impact analysis of the service can be found in our August 2019 *Federal Register* Notice.[10]

U.S. Census Bureau, Giroud and Mueller find that establishments of more highly levered firms experienced significantly larger employment losses in response to declines in local consumer demand.

[6] See Steven Davis, John Haltiwanger, Kyle Handley, Ron Jarmin, Josh Lerner, and Javier Miranda (2014), "Private Equity, Jobs, and Productivity", *American Economic Review*, Vol. 104, No (12), pp. 3956–3990.

[7] A recent study of firms based in the United Kingdom found that during the 2008 crisis, firms backed by private equity investors decreased investments less than did their peers and experienced greater equity and debt inflows, higher asset growth, and increased market share. See Shai Bernstein, Josh Lerner, and Filippo Mezzanotti (2019), "Private Equity and Financial Fragility During the Crisis", *The Review of Financial Studies*, Vol. 32, No. 4, pp. 1309–1373.

[8] *https://www.federalreserve.gov/newsevents/pressreleases/other20l90805a.htm*

[9] See the Federal Reserve Act, *https://www.federalreserve.gov/aboutthefed/fract.htm*; Depository Institutions Deregulation and Monetary Control Act of 1980, Pub. L. No. 96-221 (Mar. 31, 1980), *https://fraser.stlouisfed.org/title/1032*; Board of Governors of the Federal Reserve System, "The Federal Reserve in the Payments System", (Issued 1984; revised 1990), *https://www.federalreserve.gov/paymentsystems/pfs-frpaysys.htm.*

[10] *https://www.federalreserve.gov/newsevents/pressreleases/files/other20190805a1.pdf*

Q.6. When does it expect a real-time system to be operational?

A.6. The Federal Reserve recognizes that establishing FedNow Service would need to be carried out as soon as practicably possible and that time-to-market is an important consideration for many industry participants. However, the achievement of true nationwide reach, as opposed to initial availability of a service, is a critical measure of success for faster payments. Pending engagement between the Federal Reserve and the industry to inform the final service design, the FedNow Service is expected to be available in 2023 or 2024. However, it will likely take longer for any service, whether the FedNow Service or a private-sector service, to achieve nationwide reach regardless of when the service is initially available. In advance of the service's availability, the Federal Reserve will work closely with banks and their technology partners to prepare for expeditious onboarding.

Q.7. Have market developments, including the announcement by Facebook and other companies that they intend to launch a digital currency for payment, expedited the Fed's timeframe.

A.7. See Question 6.

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

Q.1. How much of the wage gains reported by the Federal Reserve researchers, especially those of those with a high-school education are less, are due to increases in the minimum wage at the State and local level and how much to market forces?

A.1. Many factors affect the wages of individuals with differing levels of education. There is no consensus regarding their relative importance, but some of the factors cited by economists include minimum wages, the strength of unions, globalization, demographic change, hidden labor market slack (that is, the low labor force participation rate), rising employer concentration (which gives an employer more bargaining power in a given labor market), and an increase in the prevalence of noncompete and antipoaching agreements. As a result, it is difficult to determine with any precision how much of the increase in wages of less educated workers over the past few years is due to an improving labor market and how much is due to increases in minimum wages or other factors.

Q.2. Does the Federal Reserve have data showing the wage gain impacts for workers with less than a college degree by State? If so, does that wage data differentiate between States with higher minimum wages and/or stronger unions?

A.2. Yes, the wage data for workers with less than a college degree, which are collected as part of the Current Population Survey conducted by the Census Bureau and the Bureau of Labor Statistics, are available by State. [1] Comparing wage changes across States can be difficult, given the many variables that affect wages.

Q.3. Press reports that Federal bank regulators have formed an interagency working group to consider increasing their coordination

[1] See *https://www.census.gov/programs-surveys/cps/data-detail.html.*

in assessing cybersecurity at large banks. Are these press accounts accurate? What do the bank regulators plan to do to assess cybersecurity at large banks?

A.3. The acceleration of cybersecurity risk management is a top supervisory priority for Federal regulatory agencies, as it has implications for the safe and sound operations of financial institutions as well as financial stability. To that end, an interagency goal is to improve regulatory harmonization and the supervision of cybersecurity through better coordination of examinations at large financial institutions and to be more efficient with the use of resources. As such, a joint interagency cybersecurity examination is being planned. The Federal Reserve is currently working with the Office of the Comptroller of the Currency (OCC) and Federal Deposit Insurance Corporation (FDIC), and we are in early stages of developing an approach for a joint risk-based assessment of cybersecurity at large financial institutions.

Q.4. The Federal Reserve Board has said it would consider on a case-by-case basis whether to allow a recipient of the OCC FinTech charter to obtain direct access to the Federal Reserve payment systems. But the Federal Reserve Act requires national banks to become members of the Federal Reserve System and to become insured by the FDIC. Given that the recipient of a FinTech charter would not be eligible for and could not obtain FDIC insurance, why would the decision as to whether to allow a FinTech charter recipient to obtain a master account be made on a case-by-case basis?

A.4. As Governor Brainard has indicated in prior remarks,[2] the OCC's proposal raises interpretive legal and policy issues for the Federal Reserve regarding whether chatter recipients would become Federal Reserve members or have access to Federal Reserve accounts and services. As you note, the Federal Reserve Act does require national banks to become members of the Federal Reserve System and to be insured by the FDIC. Currently, however, certain types of national banks that do not accept insurable deposits, such as trust banks, are members. Given the breadth of potential applicants for the OCC's special purpose chatter, each applicant receiving such a chatter would require the Board to determine, as a threshold question, whether the facts and circumstances of that particular applicant should cause the applicant to be eligible for membership or Reserve Bank services under the Federal Reserve Act.

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

Q.1. A reality of our economic system is that unemployment rates for African Americans are stubbornly and consistently higher than for white workers.

There are innumerable structural and historical reasons for this reality, but the fact is that it is true, and it is persistent.

[2] See, e.g., Lael Brainard, "Where Do Banks Fit in the FinTech Stack" (April 28, 2017), *https://www.federalreserve.gov/newsevents/speech/files/brainard20170428a.pdf*; Lael Brainard, "Where Do Consumers Fit in the FinTech Stack" (Nov. 16, 2017), *https://www.federalreserve.gov/newsevents/speech/files/brainard20171116a.pdf*.

Knowing this, do you believe it is appropriate for the Federal Reserve to consider this disparity when developing monetary policy and especially when determining proper metrics for "full employment," especially at a time when inflation risk has waned?

A.1. The benefits of the current economic expansion have been broadly shared, and the long expansion in economic activity has also lessened the employment disparities across demographic groups. For example, the unemployment rate for African Americans, although still above the rate for other groups, has noticeably narrowed its gap with the white unemployment rate and is now near the lowest readings since the Bureau of Labor Statistics began publishing this data series in the early 1970s. That said, there are long-standing disparities in unemployment rates across different segments of the population that the Federal Reserve does not have the tools or the mandate from Congress to address. Progress to further narrow these long-standing disparities in labor market outcomes by race and ethnicity are more likely to be found in structural policies that promote education, training, and equality of opportunity across all segments of our society. Monetary policy can best help by focusing on our dual mandate of fostering full employment and low inflation.

In setting monetary policy, the Federal Reserve has a statutory goal to promote maximum employment and stable prices. Because the Federal Reserve's policy actions affect the economy as a whole, it cannot directly target particular groups of workers. However, by fulfilling the maximum employment component of our dual mandate, the Federal Reserve can ensure that the conditions are in place to keep labor demand high and stable for as many workers as possible, which in turn allows workers to more easily find jobs that best match their abilities and that provide them with the greatest opportunity to increase their skills, productivity, and earnings. Indeed, a highlight for me of our *Fed Listens* events have been the panels focusing on the real world experiences of diverse groups in labor markets and in accessing credit. These panels underscore the importance of looking beyond the traditional macroeconomic statistics in gauging the effects of monetary policy and make clear what the Federal Reserve's mandate to promote maximum employment and stable prices really means in people's lives.

Q.2. Do you believe the Federal Reserve possesses the monetary policy tools available to continue to lower unemployment in communities that have been historically left behind in our labor markets?

A.2. In setting monetary policy, to be consistent with the dual mandate of maximum employment and price stability for the economy as a whole, the Federal Open Market Committee (FOMC) considers a range of experiences and economic outcomes across the country. For example, prior to every meeting, Reserve Banks prepare summaries of economic conditions in their districts that are compiled and published in the Federal Reserve's "Beige Book."[1] In addition, at every FOMC meeting, Reserve Bank presidents regularly describe economic conditions in their Districts. That said, monetary policy is a broad tool that cannot directly target particular commu-

[1] See *https://www.federalreserve.gov/monetarypolicy/beige-book-default.htm.*

nities. Despite that limitation and as stated above, the Federal Reserve, through our maximum employment mandate, can ensure that the conditions are in place to keep labor demand high and stable for as many workers as possible, which in turn helps workers in lower income communities to more easily find employment. In addition to our monetary policy tools, we regularly work with an array of partners—from nonprofits, bankers and academics to practitioners and policymakers—to help strengthen and revitalize communities through housing and other place-based strategies.

Q.3. I believe an important question with critical importance to my constituents is if the nature of inflation has in any way changed in our modern economy.

I understand there may be no perfect measure of inflation, but for millions of people, young and old, official inflation measures do not seem to align with their view of the economy.

Inflation, officially, is low and steady.

But for three of the largest expenses in a modern family's budget—housing, health care, and education—there have been year after year of cost growth that outpace our official inflation measures.

I know that policymakers at the Federal Reserve are aware of these trends, but do you believe our current inflation measurements are accurately capturing cost increases in these critical areas?

A.3. The measurement of inflation is challenging, but U.S. statistical agencies do a good job and I think our measures of inflation are reasonably accurate. One of the greatest challenges in price measurement is capturing the effect of changes in product quality. New or improved varieties of goods and services can give consumers more (or less) for their money, in a way that is often quite hard to measure—though our statistical agencies do attempt to do so. This challenge is particularly acute for health care, where it is very difficult to quantify the benefits that come from advances in treating disease.

Notwithstanding the issue of quality change, it is true that prices of housing, health care, and education have all risen faster than overall inflation. Those faster-than-average price increases have been offset by other prices, such as for apparel, cars, and televisions and other electronics, which have risen more slowly than overall inflation.

Q.4. And what are the consequences in the long term of these core items continually outpacing overall inflation?

A.4. Some households, especially lower-income households, likely spend an above-average share of their income on necessities. If the prices of necessities rise faster than average, one would want to take this fact into account when assessing the economic situation of these households.

Q.5. In the bipartisan Economic Growth, Regulatory Relief, and Consumer Protection Act (S. 2155), one of the provisions directed at relieving regulatory burden for community institutions allowed for small depository institutions to file streamlined Call Reports.

As the Federal Reserve and other prudential regulators have worked to finalize these rules, we have heard concerns from Ala-

bama institutions that the final rules do not ultimately streamline the reports in a meaningful manner—and many of the reporting requirements that were removed had little impact on small institutions.

What input from community institutions did the Federal Reserve take while finalizing the rule, and does the Federal Reserve have plans to revisit and further streamline the call reports, consistent with S. 2155?

A.5. The Board of Governors (Board), Office of Comptroller of the Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC) (the agencies) considered all comments received on the proposal to implement section 205 of S. 2155 and streamline regulatory reporting requirements for small institutions. Finalizing the proposal was one step in the agencies' efforts to meaningfully streamline reporting requirements. The agencies are committed to actively exploring additional revisions to Call Reports in an effort to further reduce any unduly reporting requirements.

Q.6. As you know, the Federal Reserve has begun the process of reviewing and fine-tuning the regulation of the U.S. operations of international banks. I believe the Federal Reserve's initial efforts are largely positive, and in many aspects, show an appropriate understanding of the importance of international banks to our domestic economy, while balancing the need to effectively regulate these institutions based on their individual risks.

However, there are certain aspects of the proposed rules which I believe deserve further attention.

First, when considering whether to include interaffiliate transactions as part of the risk-based factors that the Federal Reserve considers for international institutions, given that these transactions are conducted wholly within the bank, what are the risk factors that led Federal Reserve to the decision to exempt these transactions for domestic institutions, but not international institutions?

A.6. The tailoring proposals issued by the Board, along with the OCC and the FDIC (the agencies), would apply prudential requirements to large domestic and foreign firms based on the risk profile of the firms using risk-based indicators.

Under the proposals, standards would be applied and calibrated to U.S. firms at the global parent, where interaffiliate transactions are eliminated in consolidation. Standards applied to foreign banks would be tailored based on the foreign bank's operations in the United States, rather than the global parent. As a result, transactions between the U.S. operations and the foreign parent generally would be included in the calculation of the risk-based indicators for foreign banks. To address the structural differences between foreign and domestic films, the proposal would exclude interaffiliate liabilities and certain collateralized claims with affiliates from the measure of cross-jurisdictional activity.

The agencies requested comment on the treatment of interaffiliate transactions and the methodology for computing the risk-based indicators under the tailoring proposals, and are currently evaluating those comments.

Q.7. Second, when considering the proper measure of a U.S. Intermediate Holding Company's (IHC) overall domestic profile, what factors led the Federal Reserve to determine that both the IHC's assets, as well as the assets of the international institution's U.S. branch, should be combined for purposes of applying liquidity requirements? As you know, IHC's are purposefully structured as a legal entity that is separate than the U.S. branch.

A.7. The foreign bank tailoring proposals would generally apply the same framework to foreign banks as would apply to domestic firms, with certain adjustments to reflect the structure of foreign banks' operations in the United States. Most significantly, the proposals would determine regulatory requirements for a foreign bank based on the risk profile of the foreign bank's U.S. operations, rather than on the risk profile of the global consolidated firm. For liquidity, the proposals would assign a foreign bank a category of standards based on the risk profile of the firms' combined U.S. operations, including any U.S. subsidiaries (such as a U.S. intermediate holding company) and any U.S. branches.

The proposed approach for the calibration of liquidity requirements reflects the fact that a foreign bank's U.S. intermediate holding company and U.S. branch network are both part of a single firm, and is consistent with the Board's current enhanced prudential standards framework for liquidity risk management, stress testing, and buffer requirements. The Board is carefully considering all comments on the proposals, including with respect to tailoring of liquidity standards, as we work to develop a final rule.

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

Q.1. On July 10, the *New York Times* reported that Deutsche Bank private banking managers retained notorious child predator Jeffrey Epstein as a client, even after Deutsche Bank's compliance officers recommended that the bank drop him as a client because of reputational risks to the bank.

In general, what type of customer presents reputational risks to a bank? How does the Fed assess a bank's reputational risks, and how does the Fed account for reputational risks in its supervision of banks?

A.1. The Federal Reserve expects firms to consider reputational risks in their interactions with potential and existing clients. In the examination process, supervisors assess whether firms have adequate processes in place to detect and address reputational risks. In general, the Federal Reserve will focus on whether any risks, including reputational risks, present safety and soundness concerns for the firm or present a risk of noncompliance with a law or regulation.

Q.2. Could having Jeffrey Epstein—one of the most well-known sex offenders in the world—present a reputational risk to a bank?

A.2. Any individual client engaging in illegal or unethical behavior potentially could present reputational risks for an institution depending on the severity of the infraction or behavior. The Federal Reserve does not comment on specific individuals.

Q.3. If a bank doesn't think Jeffrey Epstein presents a reputational risk, then what sort of customer would be notorious enough that a bank should be concerned about reputational risk?

A.3. Please see response to Question 2.

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

Q.1. According to the Fed's 2019 Consumer and Community Context report, from 2005 to 2014 over 400,000 young Americans were unable to buy a home due to the rise in student loan debt. According to Freddie Mac's June 2019 survey, 89 percent of millennials made different housing choices specifically to afford student loan payments, including postponing the purchase of a home. This survey also found that majorities of renters and homeowners in the West feel home ownership has become less accessible. Many Arizonans plan on selling their homes to retire. Are you concerned about the implications that a decline in home ownership by younger Americans will have on existing homeowners? Are you concerned about the implications of this trend for the housing market more broadly?

A.1. It is true that young Americans today have a notably lower home ownership rate than previous generations did at the same stage of life. This could reflect a variety of factors including changing preferences and demographic trends, reduced credit access for some borrowers, and insufficient income or savings for downpayments given the cost of renting, house prices, and student loan debt. Federal Reserve Board researchers have specifically examined the potential role of student loans and found it could only explain a small portion of the decline in home ownership. [1]

It is too soon to say for certain whether the low home ownership rate among millennials reflects a permanent shift or a delay in first home purchases. For instance, a recent survey by Fannie Mae suggests that most millennials plan to become homeowners eventually. [2] Moreover, the current environment of relatively low mortgage rates, a strong labor market, a return to more accessible mortgage credit, and generally healthy household balance sheets should encourage home ownership going forward and support the housing market more broadly. Another promising sign is that household formation rates have recovered since the depths of the recession.

If the home ownership rate of millennials were to remain low, the implications for existing home owners are unclear. The future value of existing homes will be determined not only by the demand for housing by younger generations but also by the housing supply, which will depend in large part on construction of new homes.

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[1] Mezza, Alvaro, Daniel Ringo, and Kamila Sommer (January 2019), "Can Student Loan Debt Explain Low Home Ownership Rates for Young Adults?" Consumer and Community Context, Board of Governors of the Federal Reserve System, Vol 1., No. 1.

[2] Betancourt, Kim, Steven Deggendorf, and Sarah Shahdad (September 2018), "Myth Busting: The Truth About Multifamily Renters", Fannie Mae, available at *https://www.fanniemae.com/resources/file/research/emma/pdf/MF_Market_Commentary_091718.pdf.*

ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

For use at 11:00 a.m. EDT
July 5, 2019

MONETARY POLICY REPORT

July 5, 2019

Board of Governors of the Federal Reserve System

Letter of Transmittal

Board of Governors of the
Federal Reserve System

Washington, D.C., July 5, 2019

The President of the Senate
The Speaker of the House of Representatives

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

Sincerely,

Jerome H. Powell

Jerome H. Powell, 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.

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Note: This report reflects information that was publicly available as of noon EDT on July 2, 2019. Unless otherwise stated, the time series in the figures extend through, for daily data, July 1, 2019; for monthly data, May 2019; and, for quarterly data, 2019:Q1. In bar charts, except as noted, the change for a given period is measured to its final quarter from the final quarter of the preceding period.

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Summary

Economic activity increased at a solid pace in the early part of 2019, and the labor market has continued to strengthen. However, inflation has been running below the Federal Open Market Committee's (FOMC) longer-run objective of 2 percent. At its meeting in June, the FOMC judged that current and prospective economic conditions called for maintaining the target range for the federal funds rate at 2¼ to 2½ percent. Nonetheless, in light of increased uncertainties around the economic outlook and muted inflation pressures, the Committee indicated that it will closely monitor the implications of incoming information for the economic outlook and will act as appropriate to sustain the expansion, with a strong labor market and inflation near the Committee's symmetric 2 percent objective.

Economic and Financial Developments

The labor market. The labor market has continued to strengthen. Over the first five months of 2019, payrolls increased an average of 165,000 per month. This rate is down from the average pace of 223,000 in 2018, but it is faster than what is needed to provide jobs for new entrants into the labor force. The unemployment rate moved down from 3.9 percent in December to 3.6 percent in May; meanwhile, wage gains have remained moderate.

Inflation. Consumer price inflation, as measured by the 12-month change in the price index for personal consumption expenditures, moved down from a little above the FOMC's objective of 2 percent in the middle of last year to a rate of 1.5 percent in May. The 12-month measure of inflation that excludes food and energy items (so-called core inflation), which historically has been a better indicator than the overall figure of where inflation will be in the future, was 1.6 percent in May—down from a rate of 2 percent from a year ago. However, these year-over-year declines mainly reflect soft readings in the monthly price data earlier this year, which appear to reflect transitory influences. Survey-based measures of longer-run inflation expectations are little changed, while market-based measures of inflation compensation have declined recently to levels close to or below the low levels seen late last year.

Economic growth. In the first quarter, real gross domestic product (GDP) is reported to have increased at an annual rate of 3.1 percent, bolstered by a sizable contribution from net exports and business inventories. By contrast, consumer spending in the first quarter was lackluster but appears to have picked up in recent months. Meanwhile, following robust gains last year, business fixed investment slowed in the first quarter, and indicators suggest that investment decelerated further in the spring. All told, incoming data for the second quarter suggest a moderation in GDP growth—despite a pickup in consumption—as the contributions from net exports and inventories reverse and the impetus from business investment wanes further.

Financial conditions. Nominal Treasury yields moved significantly lower over the first half of 2019, largely reflecting investors' concerns about trade tensions and the global economic outlook, as well as expectations of a more accommodative path for the federal funds rate than had been anticipated earlier. On net, since the end of 2018, spreads of yields on corporate bonds over those on comparable-maturity Treasury securities have narrowed, and stock prices have increased. Moreover, loans remained widely available for most households, and credit provided by commercial banks continued to expand at a moderate pace. Overall, domestic financial conditions for businesses and households continued to be supportive of economic growth over the first half of 2019.

Financial stability. The U.S. financial system continues to be substantially more resilient than in the period leading up to the financial crisis. Asset valuations remain somewhat elevated in a number of markets, with investors continuing to exhibit high appetite for risk. Borrowing by businesses continues to outpace GDP, with the most rapid increases in debt concentrated among the riskiest firms. In contrast, household borrowing remains modest relative to income, and the debt growth is concentrated among borrowers with high credit scores. Key financial institutions, including the largest banks, continue to be well capitalized and hold large quantities of liquid assets. Funding risks in the financial system remain low relative to the period leading up to the crisis.

International developments. After slowing in 2018, foreign economic growth appears to have stabilized in the first half of the year, but at a restrained pace. While aggregate activity in the advanced foreign economies (AFEs) increased slowly from the soft patch of late last year, activity in emerging Asia generally struggled to gain a solid footing, and several Latin American economies continued to underperform. Growth abroad has been held down in part by a slowdown in the manufacturing sector against the backdrop of softening global trade flows. With both inflation and activity in the AFEs remaining subdued, AFE central banks took a more accommodative policy stance.

Despite trade tensions that weighed on financial markets, financial conditions abroad generally eased in the first half of the year, supported by accommodative communications by major central banks. On balance, global equity prices moved higher, sovereign yields in major foreign economies declined, and sovereign bond spreads in the emerging market economies were little changed. Market-implied paths of policy rates in AFEs generally declined.

Monetary Policy

Interest rate policy. In its meetings over the first half of 2019, the FOMC judged that the stance of monetary policy was appropriate to achieve the Committee's objectives of maximum employment and 2 percent inflation, and it decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. These decisions reflected incoming information showing the solid fundamentals of the U.S. economy supporting continued growth and strong employment. For most of this period, the Committee indicated that, in light of global economic and financial developments and muted inflation pressures, it would be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate. At the June FOMC meeting, however, the Committee noted that uncertainties about the global and domestic economic outlook had increased. In light of these uncertainties and muted inflation pressures, the Committee indicated that it will act as appropriate to sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective.

In the most recent Summary of Economic Projections, which was compiled at the time of the June FOMC meeting, participants generally revised down their individual assessments of the appropriate path for monetary policy relative to their assessments at the time of the March meeting. (The participants' most recent economic projections—released after the June FOMC meeting—are discussed in more detail in Part 3 of this report.) However, as the Committee has continued to emphasize, the timing and size of future adjustments to the target range for the federal funds rate will depend on the Committee's assessment of realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation.

Balance sheet policy. Over the first half of the year, the FOMC made two announcements regarding the longer-run policy implementation framework and its plans for normalizing the balance sheet. Following its January meeting, the Committee noted that it decided to continue to implement monetary policy in a regime with ample reserves. Consistent with that decision, in March, the Committee announced plans to conclude the reduction of its aggregate securities holdings at the end of September 2019. (See the box "Framework for Monetary Policy Implementation and Normalization of the Federal Reserve's Balance Sheet" in Part 2.) The Committee is prepared to adjust the details for completing balance sheet normalization in light of economic and financial developments, consistent with its policy objectives of maximum employment and price stability.

Special Topics

Labor market conditions for lower- and higher-educated workers. The labor market has strengthened since the end of the last recession, but the pattern of recovery has varied across workers with different levels of education. Workers with a college degree or more experienced a swifter recovery in employment, while those with a high school degree or less had a much more delayed recovery in employment. This pattern is typical of business cycles, and recent research sheds light on mechanisms that may lead to differences in the timing of recovery for lower- and higher-educated workers. (See the box "How Have Lower-Educated Workers Fared since the Great Recession?" in Part 1.)

Global manufacturing and trade. Growth in global trade and manufacturing has weakened significantly since 2017 even as growth in services has held up. Trade policy developments appear to have lowered trade flows to some extent, while uncertainty surrounding trade policy may be weighing on investment. The global tech cycle and a general slowdown in global demand, reflecting idiosyncratic factors specific to different economies, have also likely weighed on demand for traded goods. (See the box "The Persistent Slowdown in Global Trade and Manufacturing" in Part 1.)

Monetary policy rules. 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 FOMC. This discussion presents five policy rules—illustrative of the many rules that have received attention in the research literature—and provides examples of two ways to compute historical prescriptions of policy rules. (See the box "Monetary Policy Rules and Their Interactions with the Economy" in Part 2.)

Monetary policy implementation and balance sheet normalization. Since the beginning of this year, the FOMC has made important decisions regarding its framework for monetary policy implementation and the process of normalizing the size of its balance sheet. The Committee decided to continue to implement monetary policy in a regime with an ample supply of reserves and announced that it intends to conclude the reduction of its aggregate securities holdings in the System Open Market Account at the end of September 2019. (See the box "Framework for Monetary Policy Implementation and Normalization of the Federal Reserve's Balance Sheet" in Part 2.)

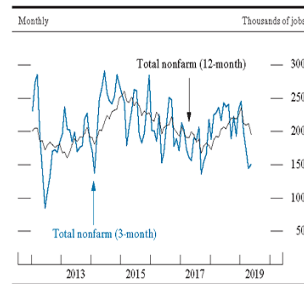
Part 1
Recent Economic and Financial Developments

Domestic Developments

The labor market strengthened further during the first half of 2019 but at a slower pace than last year . . .

Labor market conditions have continued to strengthen so far this year but at a pace slower than last year. Total nonfarm payroll employment has averaged gains of about 165,000 per month over the first five months of 2019, according to the Bureau of Labor Statistics. This pace is slower than the average monthly gains in 2018, but it is faster than what is needed to provide jobs for net new entrants into the labor force as the working-age population grows (figure 1).[1]

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.

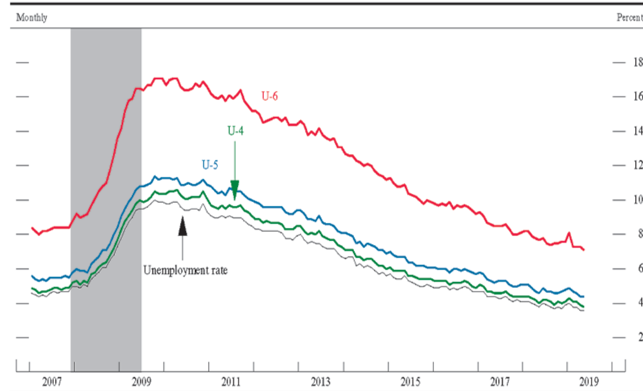
In April and May of this year, the unemployment rate stood at 3.6 percent, ¼ percentage point lower than its level in December 2018 and its lowest level since 1969 (figure 2). In addition, the unemployment rate is ½ percentage point below the median of Federal Open Market Committee (FOMC) participants' estimates of its longer-run normal level.[2]

In May, the labor force participation rate (LFPR) for individuals 16 and over—that is, the share of the population either working or actively seeking work—was 62.8 percent, and it has changed little, on net, since late 2013. The aging of the population is an important contributor to an underlying downward trend

1. Owing to population growth, roughly 115,000 to 145,000 jobs per month need to be created, on average, to keep the unemployment rate constant with an unchanged labor force participation rate. However, the participation rate fell over the December to May period, reducing the number of job gains that would have been needed. 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.

2. See the most recent economic projections that were released after the June 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.

in the overall participation rate. In particular, members of the baby-boom cohort are increasingly moving into their retirement years, ages when labor force participation typically falls. The flat trajectory in the overall LFPR is therefore consistent with strengthening labor market conditions; indeed, 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 (figure 3). Combining both the unemployment rate and the LFPR, the employment-to-population ratio (EPOP) for individuals 16 and over—the share of that segment of the population who are working—was 60.6 percent in May and has been gradually increasing throughout the expansion. The increase has been considerably larger for those with at least some college education than for those with no more than a high school diploma. (The box "How Have Lower-Educated Workers Fared since the

Great Recession?" discusses movements in the EPOP by educational level over the current expansion.)

Other indicators are also consistent with strong labor market conditions. As reported in the Job Openings and Labor Turnover Survey (JOLTS), the average of the private-sector job openings rate over the first four months of the year was near its historical high, consistent with surveys indicating that businesses see vacancies as hard to fill. Similarly, the quits rate in the JOLTS is also 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 wish to. This interpretation accords 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 have both remained quite low.

. . . and unemployment rates have fallen for all major demographic groups over the past several years

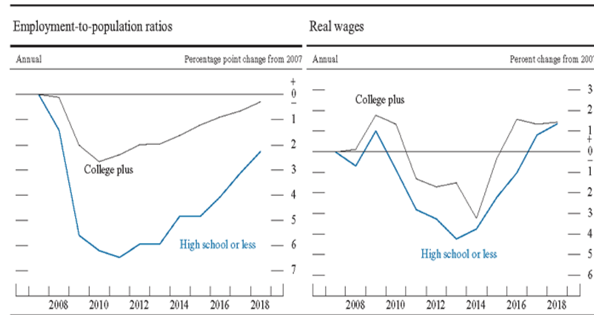
Differences in unemployment rates across ethnic and racial groups have narrowed in recent years, as they typically do during economic expansions, after having widened during the recession (figure 4). However, unemployment rates for African Americans and Hispanics remain substantially above those for whites and Asians. 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 picked up but remain moderate by historical standards . . .

Despite strong labor market conditions, the available indicators generally suggest that increases in hourly labor compensation have remained moderate. The employment cost index—a measure of both wages and the cost to employers of providing benefits—was

How Have Lower-Educated Workers Fared since the Great Recession?

A. Prime-age employment and wages by education, 2007–18



SOURCE: Staff calculations using the Current Population Survey.

The U.S. labor market has been strengthening since the end of the Great Recession. Over this period, the unemployment rate has fallen roughly 6 percentage points, and the employment-to-population ratio (EPOP) for individuals between 25 and 54 years old (prime age) has increased about 4¼ percentage points. However, labor market outcomes during the expansion have been quite different for lower- and higher-educated individuals. The EPOP for prime-age college graduates declined about 2.5 percentage points during the recession, but it began a steady and sustained recovery in 2010 and was nearly at its pre-recession level by 2018 (left panel of figure A). In contrast, the EPOP for prime-age individuals with a high school degree or less fell much more sharply during the recession and lingered near its trough for several years before it began to recover in 2014.[1] As of 2018, the EPOP for lower-educated workers remained well below its pre-recession level. In addition, real (or inflation-adjusted) hourly wages for lower-educated workers fell more over the 2007–13 period than real wages for college graduates (right panel of figure A). Real wages subsequently picked up for both groups, but cumulative real wage gains for lower-educated workers have only recently caught up, in percentage terms, to those for workers with college degrees.[2]

The relative underperformance of employment and wage growth for lower-educated workers has been a characteristic of all business cycles since at least 1980. This pattern is likely due, at least in part, to a long-term downward trend in the demand for lower-educated workers that is unrelated to the business cycle and caused, perhaps, by changes in technology and globalization.[3] To focus on the effects of business cycles distinct from these longer-term trends, we examine business cycles at the state level to estimate the

(continued)

1. The analysis excludes those with some college education but not a four-year degree. The labor market experience of such individuals, though, is similar to that of individuals with a high school degree or less.

2. Another measure of wage growth using the same Current Population Survey data source is the Federal Reserve Bank of Atlanta's Wage Growth Tracker (WGT), which calculates the median, year-over-year percent change in nominal wages of individuals employed 12 months apart. The WGT measure shows that median wage growth for workers with a high school degree was lower than median wage growth for workers with a college degree through 2015. Since then, median wage growth for both groups has been similar.

3. The EPOP for lower-educated, prime-age individuals has been trending lower for men since 1950 and for women since 2000, largely reflecting the trends in those groups' labor force participation rates (LFPRs). For an overview of factors affecting the LFPRs of prime-age individuals, see the box "The Labor Force Participation Rate for Prime-Age Individuals" in Board of Governors of the Federal Reserve System (2018), *Monetary Policy Report* (Washington: Board of Governors, July), pp. 8–10, https://www.federalreserve.gov/monetarypolicy/files/20180713_mprfullreport.pdf; and Congressional Budget Office (2018), *Factors Affecting the Labor Force Participation of People Ages 25 to 54* (Washington: CBO, February, https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53452-lfpr.pdf).

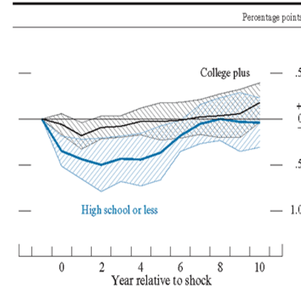
"typical" cyclical decline and recovery of employment for both education groups.

The typical state-level business cycle shows a starkly different evolution of employment for lower-educated workers compared with that for workers with college degrees. Typically in a recession, the EPOP declines immediately for both groups, but the decline is deeper and longer lasting for those with a high school degree or less (figure B).[4] Once that group's EPOP begins a sustained recovery, though, it increases at a more rapid pace than the EPOP for those with a college degree. These results indicate that the EPOP for lower-educated workers may not fully recover for at least eight years, on average, following the end of a recession.

The differences in labor market outcomes over the business cycle for different education groups may in part be due to employers changing their hiring standards. Some research shows that employers raise skill requirements for new hires in a recession and then gradually lower skill requirements as the labor market recovers.[5] Other research suggests that when high-skilled workers lose their jobs during recessions, they take jobs that require fewer skills, making these jobs less likely to be filled by low-skilled individuals.[6] This pattern could at least in part explain the differences in labor market outcomes for lower- and higher-educated workers since the most recent recession.

As the unemployment rate falls and employers relax their hiring standards, more opportunities are likely to open for lower-educated workers. Aaronson and others (2019) present some evidence that disadvantaged groups, such as nonwhite individuals and those with less education, benefit more from further improvement in the labor market relative to more advantaged groups when the unemployment rate is below its natural rate.[7] Indeed, real wages for lower-educated workers rose faster over the past few years as the labor market tightened, and total wage growth for those workers since 2007 is now close to wage growth for more-educated workers (as shown in the right panel of figure A). Hotchkiss and Moore (2018) find that exposure to a low-unemployment economy is particularly beneficial for individuals who entered the labor market during periods of high unemployment and would otherwise face persistently worse labor market outcomes.[8] Thus, periods of low unemployment may particularly improve labor market outcomes of lower-educated workers.

B. Response of EPOP by education to state-level recessions



NOTE: EPOP refers to the employment-to-population ratio. Shaded areas are 95 percent confidence bands. Data extend from 1978 through 2018.

SOURCE: Tomaz Cajner, John Coglianese, and Joshua Montes (2019), "Cyclical Dynamics of the U.S. Labor Market," unpublished paper, Board of Governors of the Federal Reserve System, Division of Research and Statistics, March.

4. For ease of interpretation, we define a typical recession as a state experiencing a temporary 1 percent decline in state output growth in a given year, returning to normal growth in the following year. To get the estimated effect of a larger or smaller recession, simply multiply the estimates by the specified decline in output growth.

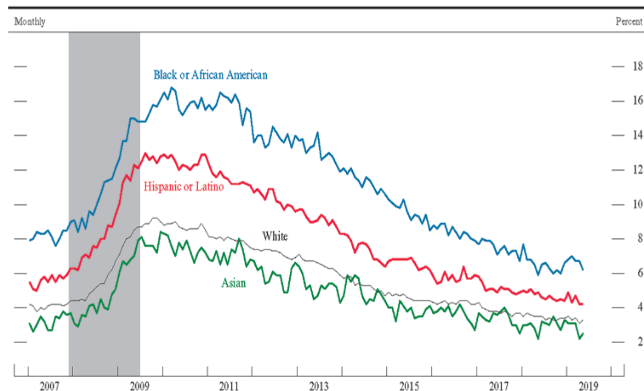
5. See Brad Hershbein and Lisa B. Kahn (2018), "Do Recessions Accelerate Routine-Biased Technological Change? Evidence from Vacancy Postings," *American Economic Review*, vol. 108 (July), pp. 1737–72; and Alicia Sasser Modestino, Daniel Shoag, and Joshua Ballance (2016), "Downskilling: Changes in Employer Skill Requirements over the Business Cycle," *Labour Economics*, vol. 41 (August), pp. 333–47.

6. See Regis Barnichon and Yanos Zylberberg (2019), "Underemployment and the Trickle-Down of Unemployment," *American Economic Journal: Macroeconomics*, vol. 11 (April), pp. 40–78.

7. See Stephanie R. Aaronson, Mary C. Daly, William Wascher, and David W. Wilcox (2019), "Okun Revisited: Who Benefits Most from a Strong Economy?" paper presented at the Brookings Papers on Economic Activity Conference, held at the Brookings Institution, Washington, March 7–8, https://www.brookings.edu/wp-content/uploads/2019/03/Okun-Revisited-Who-Benefits-Most-From-a-Strong-Economy.pdf.

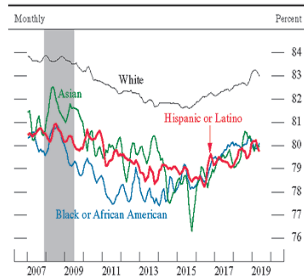
8. See Julie L. Hotchkiss and Robert E. Moore (2018), "Some Like It Hot: Assessing Longer-Term Labor Market Benefits from a High-Pressure Economy," Andrew Young School of Policy Studies Research Paper Series 18-01 (Atlanta: Georgia State University, February), https://aysps.gsu.edu/files/2018/03/18-01-HotchkissMoore-SomelikeitHot.pdf.

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 seasonally adjusted by Board staff and are 3-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.

2¾ percent higher in March of 2019 relative to its year-earlier level (figure 6). Compensation per hour in the business sector—a broad-based but volatile measure of wages, salaries, and benefits—rose 1½ percent over the four quarters ending in 2019:Q1, less than the annual increases over the preceding couple of years. Among measures that do not account for benefits, average hourly earnings rose 3.1 percent in May relative to 12 months earlier, a slightly faster rate of increase than during the same period of a year ago. According to the Federal Reserve Bank of Atlanta, the median 12-month wage growth of individuals reporting to the Current Population Survey increased about 3¾ percent in May, near the upper portion of its range over the past couple of years.[3]

3. 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.

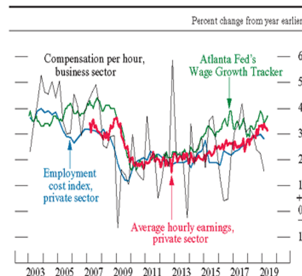
. . . and likely have been restrained by slow growth in labor productivity over much of the expansion

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 2017, labor 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 during the most recent recession and the relatively slow recovery that followed. More recently, however, labor productivity rose 1¾ percent in 2018 and picked up further in the first quarter of 2019.[4] While it is uncertain whether this faster rate of growth will persist, a sustained pickup in productivity growth, as well as additional labor market strengthening, would support stronger gains in labor compensation.

Price inflation has dipped below 2 percent this year

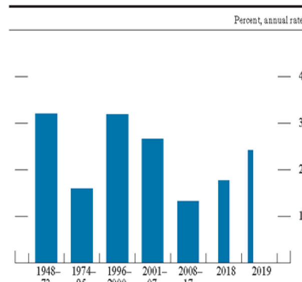
Consumer price inflation has moved down below the FOMC's objective of 2 percent this year.[5] As measured by the 12-month change in the price index for personal consumption expenditures (PCE), inflation is estimated to have been 1.5 percent in May after being at or

6. Measures of change in hourly compensation



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

7. Change in business-sector output per hour

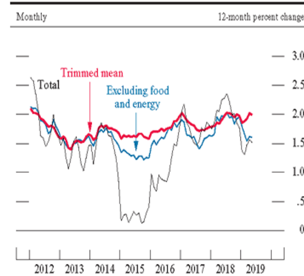


NOTE: Changes are measured from Q4 of the year immediately preceding the period through Q4 of the final year of the period except 2019 changes, which are calculated from 2018:Q1 to 2019:Q1.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

4. In the first quarter, labor productivity surged 3½ percent at an annual rate, bringing the four-quarter change to 2½ percent, reflecting a strong pickup in business-sector output and unusual weakness in hours relative to measured gains in payroll employment. This weakness is attributable to a steep decline in a volatile component of hours that is not directly measured in the Bureau of Labor Statistics' establishment survey.

5. The increases in tariffs on imported goods last year likely provided only a small boost to inflation in 2018 and in the first half of this 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.

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 July 1, 2019.
SOURCE: ICE Brent Futures via Bloomberg.

above 2 percent for much of 2018 (figure 8). Core PCE inflation—which excludes consumer food and energy prices that are often quite volatile, and which therefore typically provides a better indication than the total measure of where overall inflation will be in the future—also moved lower in recent months and is estimated to have been 1.6 percent over the 12 months ending in May. The slowing in core inflation to date reflects particularly low readings in the first three months of the year that appear due to idiosyncratic price declines in a number of specific categories such as apparel, used cars, and banking services and portfolio management services. Indeed, in April and May, core inflation accelerated, posting larger average monthly gains than in the first quarter.

The trimmed mean PCE price index, produced by the Federal Reserve Bank of Dallas, 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.[6] The 12-month change in this measure was 2 percent in May.

Oil prices rebounded through the spring but have moved down recently . . .

After dropping sharply late last year, the Brent price of crude oil moved up to almost $75 per barrel in mid-April, partly reflecting declines in production in Iran and Venezuela and voluntary supply cuts by other OPEC members and partner countries (figure 9). More recently, however, prices have fallen back to around $65 per barrel because of concerns about global growth. The changes in oil prices have contributed to similar movements in retail gasoline prices, which rose through early spring but have also fallen back recently.

6. The trimmed mean index excludes whichever prices showed the largest increases or decreases in a given month. Note that, since 1995, 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.

. . . and 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 dollar appreciation, lower foreign inflation, and declines in non-oil commodity prices (figure 10).[7] In particular, prices of industrial metals have fallen in recent months, partly on concerns about weak global demand.

Survey-based measures of inflation expectations have been stable . . .

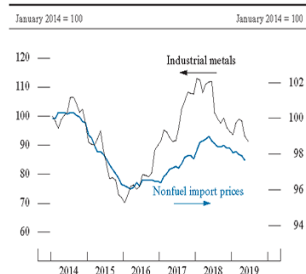
Expectations of inflation likely influence actual inflation by affecting wage- and price-setting decisions. Survey-based measures of inflation expectations at medium- and longer-term horizons have remained generally stable over the past year. In the Survey of Professional Forecasters, conducted by the 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 around 2½ percent since the end of 2016, though this level is about ¼ 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 has fluctuated between 2½ percent and 3 percent over the past five years.

. . . while market-based measures of inflation compensation have come down since the first half of 2018

Inflation expectations can also be gauged by market-based measures of inflation

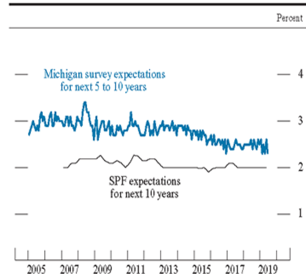
7. Published import price indexes exclude tariffs. However, tariffs add to the prices that purchasers of imports actually pay.

10. Nonfuel import prices and industrial metals indexes



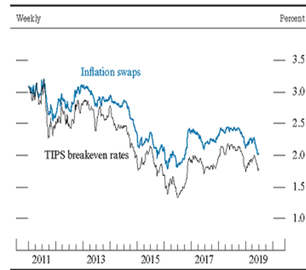
NOTE: The data for nonfuel import prices are monthly. The data for industrial metals are a monthly average of daily data and extend through June 28, 2019.
SOURCE: For nonfuel import prices, Bureau of Labor Statistics; for industrial metals, S&P GSCI Industrial Metals Spot Index via Haver Analytics.

11. Median inflation expectations



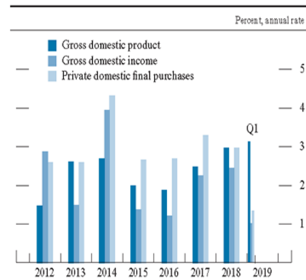
NOTE: The Michigan survey data are monthly and extend through June 2019. The SPF data for inflation expectations for personal consumption expenditures are quarterly and extend from 2007:Q1 through 2019:Q2.
SOURCE: University of Michigan Surveys of Consumers; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters (SPF).

12. 5-to-10-year-forward inflation compensation



NOTE: The data are weekly averages of daily data and extend through June 28, 2019. 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



SOURCE: Bureau of Economic Analysis via Haver Analytics.

compensation. However, the inference is not straightforward, because market-based measures can be importantly affected by changes in premiums that provide compensation for bearing inflation and liquidity risks. Measures of longer-term inflation compensation—derived either from differences between yields on nominal Treasury securities and those on comparable-maturity Treasury Inflation-Protected Securities (TIPS) or from inflation swaps—tend to fall when markets are volatile because of the incorporation of liquidity risks. Such declines occurred around the turn of the year and again in May and June, when market volatility picked up again. Despite the fluctuations this year, these measures of inflation compensation remain notably below levels that prevailed in the summer of 2018 (figure 12).[8] 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, with both measures below their respective ranges that prevailed for most of the 10 years before the start of the notable declines in mid-2014.[9]

Real gross domestic product growth was strong in the first quarter, but there are recent signs of slowing

Real gross domestic product (GDP) rose at an annual rate of 3 percent in 2018 (figure 13). In the first quarter, real GDP again moved up at an annual rate of around 3 percent.

8. 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.

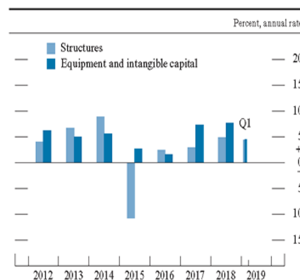
9. As these measures are based on the CPI inflation index, one should probably subtract about ¼ percentage point—the average differential with PCE inflation and CPI inflation over the past two decades—to infer inflation compensation on a PCE price basis.

However, there are indications that growth will moderate in the second quarter.[10] Net exports and business inventories provided a sizable boost to first-quarter GDP growth, but their contributions appear to have reversed in the months following. Notably, private domestic final purchases—that is, final purchases by households and businesses, which tend to provide a better indication of future GDP growth than most other components of overall spending—posted only a modest increase in the first quarter. The slowing that occurred in consumer spending appears to have been temporary, but the slowing in business fixed investment appears to be more persistent. Manufacturing output fell in the first quarter, and it moved down further in April before posting a small gain in May. Although lower production levels of motor vehicles and aircraft were important contributors to the weakness, the recent declines in manufacturing were broad based.[11] Nevertheless, the economic expansion continues to be abetted by steady job gains, increases in household wealth, expansionary fiscal policy, and still-supportive domestic financial conditions, including moderate borrowing costs and easy access to credit for many households and businesses.

Growth in business fixed investment has softened after strong gains in 2018

Investment spending by businesses rose rapidly in 2018 but appears to have decelerated sharply this year. In the first quarter, growth slowed to an annual rate of 4½ percent, while new orders for nondefense capital goods, excluding the volatile aircraft category, have declined modestly, on balance, in recent months (figure 14). In addition, forward-

14. Change in real private nonresidential fixed investment

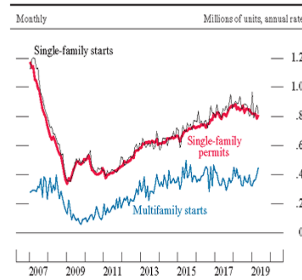


SOURCE: Bureau of Economic Analysis via Haver Analytics.

10. It is worth noting that gross domestic income (GDI) has been notably weaker than GDP. GDI is reported to have risen only 1.7 percent in the first quarter relative to the same period of a year ago, 1½ percentage points less than measured GDP growth. GDP and GDI measure the same economic concept, and any difference between the two figures reflects measurement error.

11. Recently, a large aircraft manufacturer slowed its production and temporarily halted deliveries of an aircraft model. This production slowdown lowers manufacturing output and generates a small drag on real GDP growth in the first half of the year.

15. Private housing starts and permits



SOURCE: U.S. Census Bureau via Haver Analytics.

16. 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.

17. Mortgage rates and housing affordability

NOTE: The housing affordability index data are monthly through April 2019, and the mortgage rate data are weekly through June 27, 2019. At an index value of 100, a median-income family has exactly enough income to qualify for a median-priced home mortgage. Housing affordability is seasonally adjusted by Board staff.

SOURCE: For housing affordability index, National Association of Realtors via Haver Analytics; for mortgage rates, Freddie Mac Primary Mortgage Market Survey.

looking indicators of business spending such as capital spending plans have deteriorated amid downbeat business sentiment and profit expectations from industry analysts, reportedly reflecting trade tensions and concerns about global growth.

By contrast, activity in the housing sector had been declining but recently shows signs of stabilizing

Residential investment fell in 2018 and declined further in the first quarter. More recently, the pace of construction activity appears to have stabilized as housing starts for single-family and multifamily housing units rose, on average, in April and May (figure 15). Existing home sales moved higher as well over the same period, while new home sales moved down a bit following a sizable increase in the first quarter (figure 16). Consumers' perceptions of homebuying conditions and housing affordability have improved, which is consistent with the declines in mortgage rates this year and the slowing in growth of home prices (figure 17).

Ongoing improvements in the labor market and gains in wealth continue to support household income and consumer spending . . .

After increasing at a moderate pace of 2½ percent in 2018 as a whole, real consumer spending slowed considerably in the first quarter (figure 18). However, incoming data suggest that consumer spending picked up in recent months, with PCE in May up at an annual rate of 2½ percent relative to the average level in the fourth quarter.

Real disposable personal income (DPI), a measure of households' after-tax purchasing power, increased at a solid annual rate of 3 percent in 2018; however, so far this year, growth in real DPI has been more moderate despite strong gains in wage and salary income. With consumer spending rising more than disposable income so far this year, the personal saving rate moved down from an average of

6½ percent in the fourth quarter to around 6 percent in May (figure 19).

Ongoing gains in household wealth have likely continued to support consumer spending. House prices, which are of particular importance for the balance sheet positions of a large portion of households, continued to increase through May, although at a more moderate pace than in recent years (figure 20). In addition, U.S. equity prices, which fell sharply at the end of 2018, have rebounded this year. Buoyed by increases in home and equity prices, aggregate household net worth moved up to 6.8 times household income in the first quarter (figure 21).

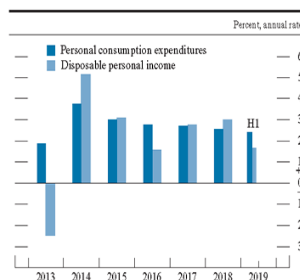
. . . and consumer sentiment remains strong

Consumers have remained upbeat. Although the Michigan index of consumer sentiment dipped at the turn of the year, it has since rallied, and the sentiment measure from the Conference Board survey also climbed in the second quarter from its first-quarter level (figure 22). In June, both the Michigan and the Conference Board indexes of consumer sentiment were about in the middle of their ranges over the past few years.

Borrowing conditions for households remain generally favorable . . .

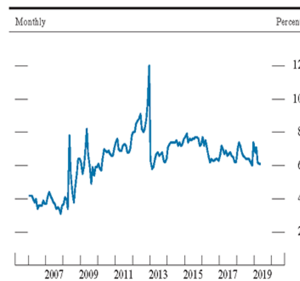
Despite increases in interest rates for consumer loans and some reported further tightening in credit card lending standards, financing conditions for consumers largely remain supportive of growth in household spending. Consumer credit expanded at a moderate pace in the first quarter, rising faster than disposable income (figure 23). Mortgage 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. Standards for automotive loans have been generally stable, and overall delinquency rates for these loans were little changed in the first quarter at a

18. Change in real personal consumption expenditures and disposable personal income



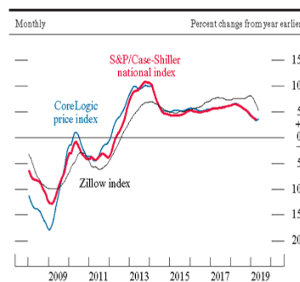
NOTE: The values for 2019:H1 are the annualized May/Q4 changes.
SOURCE: Department of Commerce, Bureau of Economic Analysis via Haver Analytics.

19. Personal saving rate



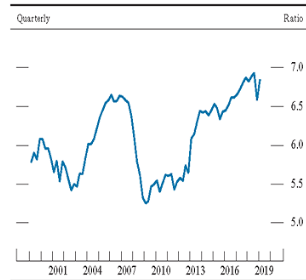
SOURCE: Bureau of Economic Analysis via Haver Analytics.

20. Prices of existing single-family houses



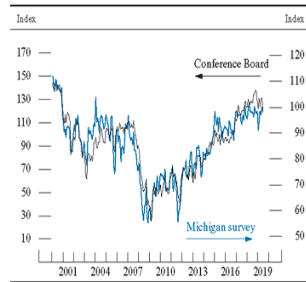
NOTE: The data for the S&P/Case-Shiller index extend through April 2019.
SOURCE: CoreLogic Home Price Index; Zillow; S&P/Case-Shiller U.S. National Home Price Index. The S&P/Case-Shiller Index is a product of S&P Dow Jones Indices LLC and/or its affiliates. (For Dow Jones Indices licensing information, see the note on the Contents page.)

21. Wealth-to-income ratio



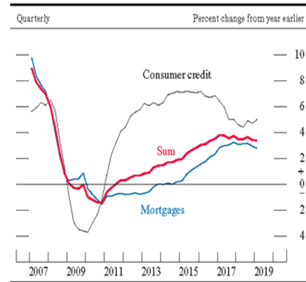
Note: The series is the ratio of household net worth to disposable personal income.
Source: For net worth, Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; for income, Bureau of Economic Analysis via Haver Analytics.

22. Indexes of consumer sentiment



Note: The data are monthly and extend through June 2019. The Conference Board data are indexed to 100 in 1985; the Michigan survey data are indexed to 100 in 1966.
Source: University of Michigan Surveys of Consumers; Conference Board.

23. Changes in household debt



Source: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

moderate level. Financing conditions in the student loan market remain firm, 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.

. . . while corporate financing conditions tightened somewhat relative to last year but remained accommodative overall

Aggregate flows of credit to large nonfinancial firms remained strong in the first quarter, supported in part by relatively low interest rates and accommodative financing conditions (figure 24). The gross issuance of corporate bonds, which had fallen substantially in December, rebounded in the first quarter as market volatility receded. After increasing notably in late 2018, spreads on both investment- and speculative-grade corporate bonds over comparable-maturity Treasury securities have both declined, on net, this year as investors' risk appetite seems to have recovered. In April, respondents to the Senior Loan Officer Opinion Survey on Bank Lending Practices, or SLOOS, reported that demand for commercial and industrial loans weakened in the first quarter even as lending standards remained unchanged and terms for such loans eased.[12] However, banks reported tightening lending standards on all categories of commercial real estate loans. Meanwhile, financing conditions for small businesses have remained generally accommodative, but credit growth has been subdued.

Net exports supported GDP growth in the first quarter

After being a small drag on U.S. real GDP growth last year, net exports, which can have sizable swings from quarter to quarter, added about 1 percentage point to the rate of growth in the first quarter. Real U.S. exports increased at an annual rate of about 5½ percent, as

12. The SLOOS is available on the Board's website at https://www.federalreserve.gov/data/sloos/sloos.htm.

exports of agricultural products and automobiles expanded robustly. Real imports fell 2 percent following solid increases in 2018 (figure 25). Nominal goods trade data through May suggest that exports edged down in the second quarter, while imports were about flat. The available data suggest that the trade deficit and the current account in the first half of the year were little changed as a percent of GDP from 2018 (figure 26).

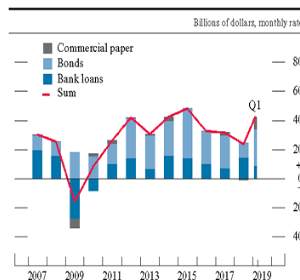
Federal fiscal policy actions boosted economic growth in 2018 but had a smaller effect on first-quarter real GDP because of the partial government shutdown . . .

Fiscal policy at the federal level boosted GDP growth in 2018 because of lower personal and business income taxes from the Tax Cuts and Jobs Act of 2017 and because of an increase in federal purchases due to the Bipartisan Budget Act of 2018.[13] After increasing 2¾ percent in 2018, federal government purchases were flat in the first quarter of 2019, reflecting the effects of the partial federal government shutdown (figure 27). The government shutdown, which was in effect from December 22 through January 25, held down GDP growth in the first quarter, largely because of the lost work of furloughed federal government workers and affected federal contractors. That said, federal purchases are expected to rebound in the second quarter.

The federal unified budget deficit widened in fiscal year 2018 to around 4 percent of nominal GDP from 3½ percent of GDP in 2017 because receipts moved lower, to 16 percent of GDP (figure 28). Expenditures are currently around 21 percent of GDP, slightly above the level that prevailed in the decade before the start of the 2007–09 recession. The ratio

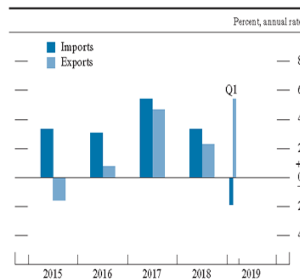
13. The Joint Committee on Taxation estimated that the Tax Cuts and Jobs Act would reduce average annual tax revenue by a little more than 1 percent of GDP starting in 2018 and for several years thereafter. This revenue estimate does not account for the potential macroeconomic effects of the legislation.

24. Selected components of net debt financing for nonfinancial businesses



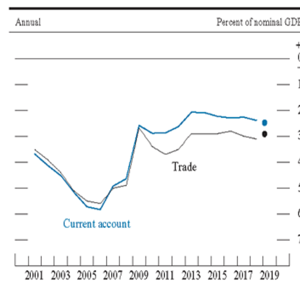
SOURCE: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

25. Change in real imports and exports of goods and services



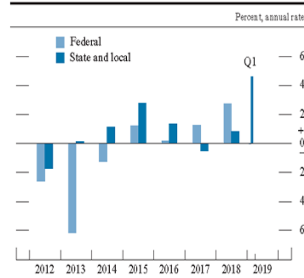
SOURCE: Bureau of Economic Analysis via Haver Analytics.

26. U.S. trade and current account balances



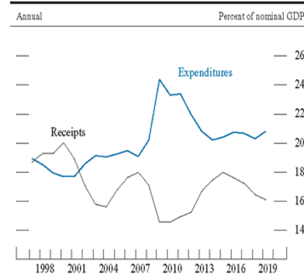
NOTE: GDP is gross domestic product. The dots refer to the current account and trade balances in the first quarter of 2019.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

27. Change in real government expenditures on consumption and investment



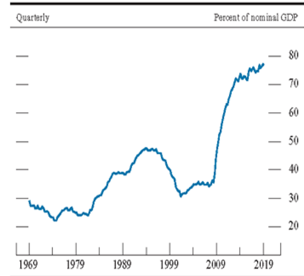
NOTE: The federal value for 2019:Q1 is -0.05.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

28. Federal receipts and expenditures



NOTE: Through 2018, receipts and expenditures are for fiscal years (October to September); gross domestic product (GDP) is for the four quarters ending in Q3. For 2019, receipts and expenditures are for the 12 months ending in May; GDP is the average of 2018:Q4 and 2019:Q1. Receipts and expenditures are on a unified-budget basis.
SOURCE: Office of Management and Budget via Haver Analytics.

29. Federal government debt held by the public



NOTE: 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."

of federal debt held by the public to nominal GDP rose to around 77 percent in fiscal 2018 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.

. . . and the fiscal position of most state and local governments is stable

The fiscal position of most state and local governments is stable, although there is a range of experiences across these governments. The revenue of state governments has grown moderately in recent quarters, as the economic expansion continues to push up income and sales tax collections. At the local level, property tax collections continue to rise, pushed higher by past house price gains. Real state and local government purchases grew modestly last year; however, outlays have surged so far this year, driven largely by a boost in construction spending. State and local infrastructure spending was weak for many years, and there appears to be demand for higher expenditures in this area. State and local government payrolls expanded slowly last year and over the first five months of 2019, and employment by these governments remains below its peak before the current expansion.

Financial Developments

The expected path of the federal funds rate over the next several years has moved down

Market-based measures of the expected path for the federal funds rate over the next several years have declined substantially since the end of 2018 (figure 30). Various factors contributed to this shift, including increased investor concerns about downside risks to the global economic outlook and rising trade tensions. In addition, investors reportedly interpreted FOMC communications over the first half of 2019 as signaling the Federal Reserve is likely to lower the target range for the federal funds rate in light of muted

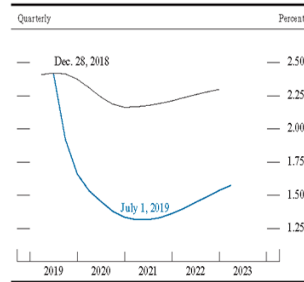
inflation pressures and uncertainties about the global economic outlook.

Survey-based measures of the expected path of the policy rate also shifted down relative to the levels observed at the end of 2018. 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 just before the June FOMC meeting, the median of respondents' modal projections implies a declining trajectory for the target range of the federal funds rate for 2019, which flattens out in 2020. Relative to the December survey, the median of these projections moved down 50 basis points for July 2019 and 100 basis points for December 2019.[14] Additionally, market-based measures of uncertainty about the policy rate approximately one to two years ahead increased, on balance, from their levels at the end of last December.

The nominal Treasury yield curve has moved down and continued to flatten

Since the end of 2018, the nominal Treasury yield curve shifted down and flattened further, with the 2-, 5-, and 10-year nominal Treasury yields all declining about 70 basis points on net (figure 31). The decrease in Treasury yields, which is consistent with the revision in market participants' expectations for the path of policy rates, largely reflects FOMC communications as well as investors' concerns about the global economic outlook and the escalation of trade disputes. Option-implied volatility on swap rates—an indicator of uncertainty about Treasury yields—has increased notably, on net, since the beginning of the year. In particular, measures of near-

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 December 28, 2018. The path is estimated with a spline approach, assuming a term premium of 0 basis points. The July 1, 2019, path extends through March 2023 and the December 28, 2018, path through December 2022.

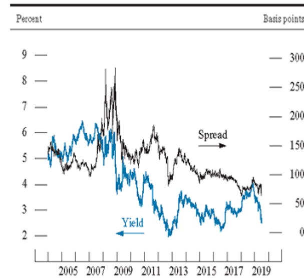
SOURCE: Bloomberg; Federal Reserve Board staff estimates.

31. Yields on nominal Treasury securities

SOURCE: Department of the Treasury via Haver Analytics.

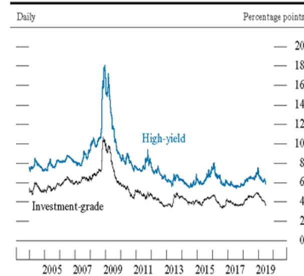
14. The results of the Survey of Primary Dealers and the Survey of Market Participants are available on the Federal Reserve Bank of New York's website at https://www.newyorkfed.org/markets/primarydealer_survey_questions.html and https://www.newyorkfed.org/markets/survey_market_participants, respectively.

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. Data extend through June 26, 2019.
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). Data extend through June 26, 2019.
SOURCE: ICE Bank of America Merrill Lynch Indices, used with permission.

term interest rate uncertainty have reached the levels seen at the end of 2018.

Yields on 30-year agency mortgage-backed securities (MBS)—an important factor influencing mortgage interest rates—decreased in line with the decline in the 10-year nominal Treasury yield and remained low by historical standards (figure 32). Likewise, yields on both investment-grade and high-yield corporate debt declined significantly from the levels in late 2018 and stayed very low (figure 33). Despite widening in May, the spreads on corporate bond yields over comparable-maturity Treasury yields have narrowed, on net, over the first half of 2019 and are close to their historical medians.

Broad equity price indexes increased on net

After declining sharply at the end of 2018, broad U.S. stock market indexes have recovered, on net, over the first half of 2019 (figure 34). The broad rebound in stock prices—which included all major economic sectors—was reportedly supported by Federal Reserve communications that were perceived as more accommodative than previously anticipated. Stocks fluctuated in May and June as downside risks and trade tensions were offset by further expectations of easier monetary policy.

Measures of implied and realized stock price volatility for the S&P 500 index declined notably on net. Following the highs seen at the end of 2018, these volatility measures declined until late April, with the VIX—a measure of implied volatility—returning to near the 10th percentile of its historical distribution and with realized volatility close to the 30th percentile of its historical range (figure 35). At the beginning of May, following the escalation of trade tensions, these volatility measures increased and have remained elevated since then, but they have stayed well below the high levels of December and now stand close to their historical medians. Several measures of financial conditions that aggregate large sets

of financial data into summary indexes eased considerably since the end of 2018 but have tightened a bit since the beginning of May, in line with the decline in stock prices over that month, and have remained relatively elevated since then. (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

Available indicators of Treasury market functioning have generally remained stable since the beginning of 2019, with a variety of measures—including bid-ask spreads, bid sizes, and estimates of transaction costs—displaying few signs of liquidity pressures. 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 somewhat on net.

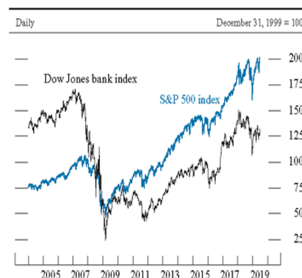
Money market rates were little changed

Rates across money markets were little changed, on balance, in the first half of 2019. Conditions in domestic short-term funding markets continued to be broadly stable since the end of 2018. Overnight secured and unsecured rates declined in line with the technical adjustment announced after the May FOMC meeting, which lowered the interests paid on required and excess reserve balances by 5 basis points. Other short-term interest rates, including those on commercial paper and negotiable certificates of deposit, were also little changed since the beginning of the year.

Bank credit continued to expand, and bank profitability remained robust

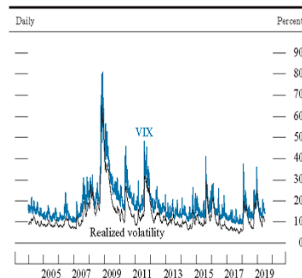
Credit provided by commercial banks to fund businesses as well as commercial and residential real estate continued to grow in 2019, albeit at a slower pace than in the second

34. Equity prices



Source: Standard & Poor's Dow Jones Indices via Bloomberg. (For Dow Jones Indices licensing information, see the note on the Contents page.)

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.

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. The *Financial Stability Report* published on May 6, 2019, presents the most recent, detailed assessment of these vulnerabilities.[1] This discussion summarizes its key findings, updated, where appropriate, to reflect developments since its publication.

Asset valuations remain somewhat elevated in a number of markets. Treasury term premiums are near record lows. Forward-looking measures of Treasury market volatility have recently increased, especially for shorter-dated Treasury securities. Equity prices appear to be somewhat elevated relative to earnings, with the forward equity price-to-earnings ratio for the S&P 500 remaining above the median value of its historical distribution since the mid-1980s (figure A). In commercial real estate markets, capitalization rates remain at historically low levels. Residential real estate prices are also somewhat high relative to rents (accounting for borrowing costs and long-run trends), although house price growth slowed materially in the past year. Valuation pressures in the leveraged loan market eased somewhat in recent months, and the spreads on lower-rated leveraged loans are now above the median value over the past 20 years. In corporate bond markets, spreads of 10-year corporate bonds over benchmark rates are close to the median of their historical distributions.

Vulnerabilities associated with total private-sector credit remain at a moderate level relative to the past several decades, and total debt has advanced roughly in line with economic activity over the past five years. Leverage in the business sector remains near its highest level in the past 20 years, and business debt has grown faster than gross domestic product (GDP) since 2012

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

NOTE: Aggregate forward price-to-earnings ratio of S&P 500 firms. Data are based on expected earnings for 12 months ahead and extend through June 2019. The plus sign shows daily data corresponding to July 1, 2019.

SOURCE: Federal Reserve Board staff calculations using Refinitiv (formerly Thomson Reuters), IBES Estimates.

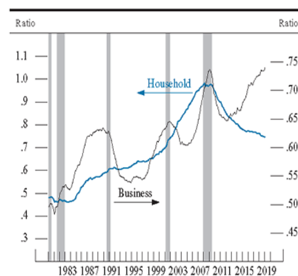
(figure B). Rapid debt growth, while broad based across different parts of the business sector, is concentrated among the riskiest firms, and there are signs that credit standards for new leveraged loans are weak and have deteriorated further over the past six months. In the corporate bond market, the distribution of credit ratings among investment-grade bonds has worsened, with the share of bonds rated Baa (or triple-B) reaching near-record levels. While broader corporate credit performance remains solid amid a growing economy and debt-service costs are relatively low, a broader repricing of risk or a slowdown in economic activity could pose notable risks to borrowing firms and their creditors. Such developments could increase the downside risk to economic activity more generally. In contrast, in the household sector, debt growth is concentrated among borrowers with high credit scores, and the debt-to-GDP ratio continues to trend down (figure B).

Vulnerabilities stemming from leverage at financial institutions remain low. Capital relative to risk-weighted

(continued)

1. See Board of Governors of the Federal Reserve System (2019), *Financial Stability Report* (Washington: Board of Governors, May), https://www.federalreserve.gov/publications/2019-may-financial-stability-report-purpose.htm.

B. Business- and household-sector credit-to-GDP ratio



NOTE: Data are quarterly. 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, Statistical Release Z.1, "Financial Accounts of the United States"; Bureau of Economic Analysis via Haver Analytics, national income and product accounts, Table 1.1.5: Gross Domestic Product; Board staff calculations.

assets at the largest banks has remained largely stable over the past few years. Results of the annual Dodd-Frank Act Stress Tests, released on June 21, 2019, indicate that participating banks are sufficiently resilient to continue lending to creditworthy borrowers even in a severe macroeconomic scenario. The exposure of banks to nonbank financial institutions—such as finance companies, asset managers, securitization vehicles, and mortgage real estate investment trusts—continued to increase in the first quarter of 2019. Some of those firms are significant business lenders, adding to banks' exposure to elevated losses in the corporate sector. Leverage of broker-dealers increased slightly in 2018 but remains near historically low levels. Leverage has also stayed low at life insurance companies and at property and casualty insurance firms. At hedge funds, leverage increased in the first quarter of 2019 to levels slightly below its 2018 peak.

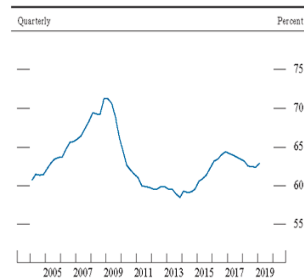
Vulnerabilities stemming from liquidity and maturity mismatches remain low. Banks hold large quantities of liquid assets, and their reliance on short-term wholesale funding is near its historical lows. Although assets under management at prime money market funds—which are more susceptible to runs than government funds—have increased since the U.S. Securities and Exchange Commission (SEC) reforms went into place in 2016, they remain well below their pre-reform levels. Holdings of U.S. corporate bonds by mutual funds increased substantially over the past decade, raising concerns about the mismatch between daily redemptions allowed by these funds and the time required to sell their assets. Rules adopted in 2016 by the SEC to strengthen mutual funds' and exchange-traded funds' liquidity risk management have started going into effect in the past year.[2]

Downside risks to U.S. financial stability from abroad remain moderate, but several near-term risk events could generate meaningful spillovers to the United States. Two prominent European risks are a "no deal" Brexit, which remains a possible outcome later in the year, and Italian fiscal challenges. Also, an escalation of the trade tensions between the United States and its major trading partners, along with financial market reactions, could exacerbate uncertainty and increase the downside risk to global economic activity. In China, high levels of nonfinancial-sector debt expose the financial sector to a slowdown in economic growth. The effects of any of these events on global financial markets could be amplified if they deepen the stresses in already vulnerable emerging market economies. These dynamics could tighten financial conditions in the United States and negatively affect the creditworthiness of U.S. firms.

The countercyclical capital buffer (CCyB) is a macroprudential tool that the Federal Reserve can use to increase the resilience of the financial system by raising capital requirements on internationally active banking organizations when financial vulnerabilities are meaningfully above normal. On March 6, 2019, the Board voted to maintain the CCyB at 0 percent.

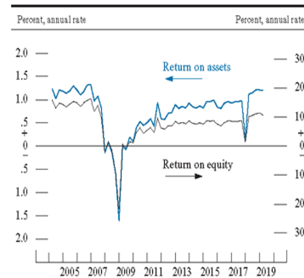
2. See Securities and Exchange Commission (2016), "Investment Company Liquidity Risk Management Programs," final rule, 17 C.F.R. pts. 210, 270, and 274, October 13, https://www.sec.gov/rules/final/2016/33-10233.pdf.

36. Ratio of total commercial bank credit to nominal gross domestic product



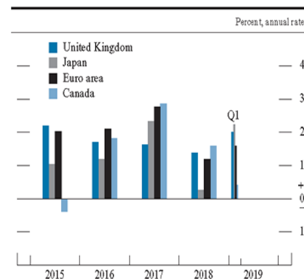
SOURCE: Federal Reserve Board, Statistical Release H.8, "Assets and Liabilities of Commercial Banks in the United States"; Bureau of Economic Analysis via Haver Analytics.

37. Profitability of bank holding companies



NOTE: The data are quarterly and are seasonally adjusted.
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



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.

half of 2018. By contrast, consumer loan growth accelerated since the beginning of the year. In the first quarter of 2019, the pace of total 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 relative to last December (figure 36). Overall, measures of bank profitability remained solid in the first quarter of 2019, supported by wider net interest margins and steady loan growth (figure 37).

International Developments

Advanced foreign economies have been slowly emerging from the recent soft patch

After a significant slowdown in the second half of last year, growth picked up in many advanced foreign economies (AFEs) at the start of 2019, but at a still restrained pace (figure 38). Notwithstanding continued weakness in the manufacturing sector and softening external demand, domestic demand in the AFEs generally improved amid rising employment and wages as well as easier financial conditions. The pickup in growth also reflected temporary factors. Economic activity in the euro area was boosted by the fading effects of car production disruptions in Germany and protests in France in 2018. Growth in the United Kingdom surged as expectations of trade disruptions surrounding the original date of the United Kingdom's exit from the European Union, or Brexit, led to stockpiling by households and firms. Economic activity in Canada, by contrast, remained depressed by oil production cuts, but recent indicators point to a rebound in growth in the second quarter.

Core inflation remained low in advanced foreign economies

The rebound in energy prices earlier in the year pushed up consumer price inflation in many AFEs (figure 39). However, despite further

improvement in labor market conditions, inflationary pressures remained contained, with core inflation readings notably muted in the euro area and Japan. In Canada and the United Kingdom, by contrast, core inflation rates moved close to 2 percent.

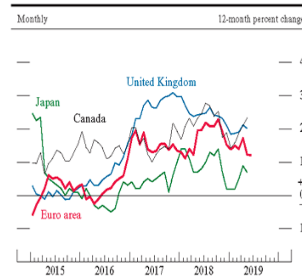
AFE central banks took a more accommodative policy stance

With activity only slowly picking up and core inflation persistently low, European Central Bank (ECB) communications took a more accommodative tone. In March, the ECB indicated that it would keep its policy rate in negative territory through at least the middle of next year and rolled out a new round of loans for euro-area banks to reduce the risk of renewed funding pressures. In June, ECB President Mario Draghi added that the ECB would introduce new stimulus measures if the economic outlook did not improve. The Bank of Canada and Bank of England signaled more-gradual increases in interest rates, given a moderation in the pace of global economic activity. The Reserve Bank of Australia in June and July cut its policy rate in response to below-target inflation and weak economic growth.

Central banks' more accommodative policy stances supported AFE asset prices

The more accommodative policy stance in major AFEs contributed to an overall easing of financial conditions in the first half of the year. Market-implied paths of policy rates and long-term interest rates on sovereign bonds have generally fallen sharply, as in the United States (figure 40). Broad stock market indexes across AFEs are up, on net, since January (figure 41). However, concerns about global growth and rising trade tensions weighed on risky asset prices over the course of May and June. Sovereign bond spreads in Italy fluctuated amid uncertainty about the country's fiscal outlook.

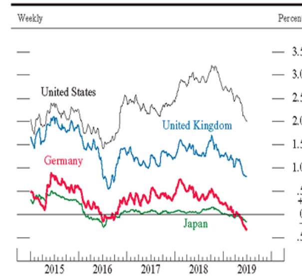
39. Consumer price inflation in selected advanced foreign economies



NOTE: The data for the euro area incorporate the flash estimate for June 2019.

SOURCE: For the United Kingdom, Office for National Statistics; for Japan, Ministry of International Affairs and Communications; for the euro area, Statistical Office of the European Communities; for Canada, Statistics Canada; all via Haver Analytics.

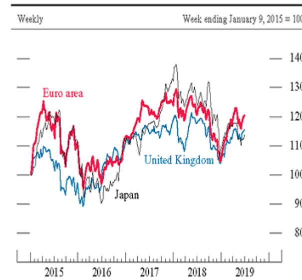
40. Nominal 10-year government bond yields in selected advanced economies



NOTE: The data are weekly averages of daily benchmark yields. The weekly data begin on Thursdays and extend through July 1, 2019.

SOURCE: Bloomberg.

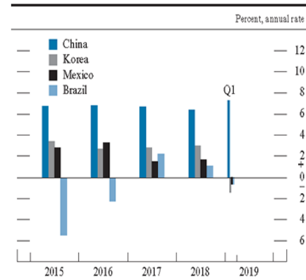
41. Equity indexes for selected foreign economies



NOTE: The data are weekly averages of daily data. The weekly data begin on Thursdays and extend through July 1, 2019.

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.

SOURCE: For China, China National Bureau of Statistics; for Korea, Bank of Korea; for Mexico, Instituto Nacional de Estadistica y Geografia; for Brazil, Instituto Brasileiro de Geografia e Estatistica; all via Haver Analytics.

Economic activity in emerging Asia struggled to gain a solid footing

In China, real GDP growth picked up in the first quarter, supported in part by fiscal and monetary policy measures that targeted smaller businesses and infrastructure spending, as well as by the more favorable financial conditions amid investor optimism on a U.S.–China trade deal (figure 42). Recent activity indicators, however, suggest that the underlying momentum in the economy remains relatively subdued against the backdrop of reemerging trade tensions, global weakness in trade and manufacturing, and the Chinese authorities' continued caution about providing substantial further credit stimulus. Amid moderating global trade and activity, real GDP growth in other Asian economies in the first quarter generally remained below their 2018 pace, with growth in Korea turning negative (see the box "The Persistent Slowdown in Global Trade and Manufacturing").

Latin American economies continued to underperform

In Mexico, real GDP contracted in the first quarter following generally weak performance in the past two years. Tighter fiscal policy and disruptions from labor unrest weighed on activity amid a backdrop of softening U.S. manufacturing demand and persistent declines in petroleum production. Recent indicators suggest some improvement in the second quarter, although uncertainty regarding trade relations with the United States appears to have increased. In Brazil, real GDP also contracted in the first quarter, as a mining disaster and ongoing weakness in the Argentine economy weighed on Brazilian economic activity. Investment continued to decline, held down by uncertainty over whether Brazil's government would enact major fiscal and other economic reforms.

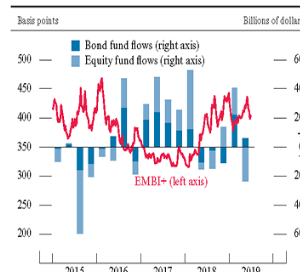
Financial conditions in many emerging market economies improved, on net, despite the reemergence of trade tensions

Financial conditions in many emerging market economies (EMEs) eased earlier in the year in response to the more accommodative policy stance of the Federal Reserve and major AFE central banks. However, in recent months, political uncertainties in some EMEs and renewed trade tensions between the United States and major trading partners have weighed on EME asset prices. On net, broad measures of EME sovereign bond spreads over U.S. Treasury rates are down a little, while benchmark EME equity indexes are a bit higher since the beginning of the year. Flows to dedicated EME mutual funds increased earlier in the year but turned negative in the second quarter (figure 43). While deteriorations in asset prices and capital flows have been sizable for some economies, particularly Turkey and Argentina, broad indicators of financial stress in EMEs are below those seen during other periods of significant stress in recent years.

The dollar depreciated a little

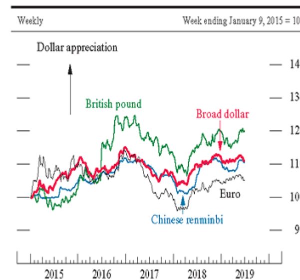
Over the first half of the year, the foreign exchange value of the U.S. dollar fluctuated but was, on net, a little lower (figure 44). Increased investor optimism about prospects for trade negotiations early this year as well as downward-revised expectations for U.S. interest rates led to a depreciation of the dollar. But the more accommodative tone of communications from major foreign central banks and safe-haven flows—in part in response to trade tensions and concerns about global growth—helped push the dollar up. In addition, the Chinese renminbi has come under some downward pressure since trade tensions escalated in recent months.

43. Emerging market mutual fund flows and spreads



Note: The bond and equity fund flows data are quarterly sums of weekly data from January 1, 2015, to June 26, 2019. The fund flows data exclude funds located in China. The J.P. Morgan Emerging Markets Bond Index Plus (EMBI+) data are weekly averages of daily data. The weekly data begin on Thursdays and extend through June 28, 2019.
Source: For bond and equity fund flows, EPFR Global; for EMBI+, J.P. Morgan Emerging Markets Bond Index Plus via Bloomberg.

44. U.S. dollar exchange rate indexes



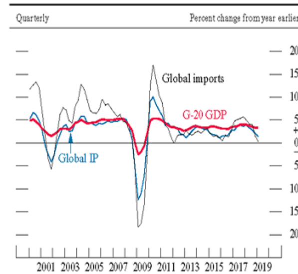
Note: The data, which are in foreign currency units per dollar, are weekly averages of daily data. The weekly data begin on Thursdays and extend through July 1, 2019. As indicated by the arrow, increases in the data represent U.S. dollar appreciation, and decreases represent U.S. dollar depreciation.
Source: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

The Persistent Slowdown in Global Trade and Manufacturing

After expanding briskly in 2017, the growth of global goods trade and manufacturing, as indicated by industrial production, has slowed significantly (figure A). Even so, other aspects of economic activity, importantly services, have held up. A number of factors are likely contributing to the recent slowdown in trade and manufacturing growth, and disentangling them is difficult. First, new tariffs appear to have lowered imports and exports in the United States and elsewhere, while uncertainty surrounding trade policy could be leading firms to delay investment decisions and reduce capital expenditures. Second, a downturn in global sales for technology goods has restrained trade and manufacturing activity, especially in emerging Asia. Finally, a general slowdown in global demand, reflecting idiosyncratic factors specific to different economies, has likely weighed on demand for traded goods.

Regarding the first of these factors, global trade tensions have risen sharply since early 2018, fueled by both higher tariffs and uncertainty about the prospects for future trade policy. The United States has increased tariffs on over $250 billion in imports by an average of nearly 25 percentage points, and U.S. trading partners have retaliated. Several studies indicate that most of the cost of these higher tariffs has been passed through to U.S. importers.[1] If we assume a commonly used elasticity of 1.5 for the response of imports to changes in prices, it implies that tariffs may have lowered U.S. imports by about $70 billion, or about 0.5 percent of world goods imports.[2] Taking into account the effect

A. Change in global trade, industrial production, and GDP



NOTE: Imports and industrial production (IP) are quarterly averages of monthly data. G-20 GDP is seasonally adjusted gross domestic product (GDP) volume estimates at 2010 purchasing power parities (PPPs) for the Group of 20 economies.

SOURCE: Netherlands Bureau for Economic Policy Analysis via Haver Analytics; Organisation for Economic Co-operation and Development, OECD.Stat.

of higher tariffs imposed by foreign countries as well, these estimates suggest that the overall direct effects of higher tariffs on global trade flows are, to date, likely to be material but modest relative to the observed step-down from 5.7 percent growth in 2017 to 1.5 percent growth in 2018.

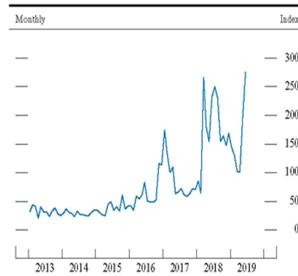
In addition to the direct effect of the tariffs, however, rising uncertainty about the prospects for trade policy may also be weighing on trade and manufacturing. Measures of trade policy uncertainty spiked last year, largely reflecting concerns about current and prospective tariff hikes along with renegotiations of trade agreements (figure B). Higher uncertainty may lead businesses to delay investment purchases as they wait for the policy uncertainties to be resolved. Indeed,

(continued)

1. For two recent working papers that analyze the effects of the tariff changes on trade volumes and import prices, see Mary Amiti, Stephen J. Redding, and David E. Weinstein (2019), "The Impact of the 2018 Trade War on U.S. Prices and Welfare," CEPR Discussion Paper DP13564 (London: Centre for Economic Policy Research, March), https://cepr.org/sites/default/files/news/FreeDP_Mar05.pdf; and Pablo D. Fajgelbaum, Pinelopi K. Goldberg, Patrick J. Kennedy, and Amit K. Khandelwal (2019), "The Return to Protectionism," NBER Working Paper Series 25638 (Cambridge, Mass.: National Bureau of Economic Research, March).

2. See David K. Backus, Patrick J. Kehoe, and Finn E. Kydland (1994), "Dynamics of the Trade Balance and the Terms of Trade: The J-Curve?" *American Economic Review*, vol. 84 (March), pp. 84–103.

B. Trade policy uncertainty



NOTE: The data extend through June 2019. At an index value of 100, 1 percent of news articles contain references to trade policy uncertainty.
SOURCE: Dario Caldara, Matteo Iacoviello, Patrick Molligo, Andrea Prestipino, and Andrea Raffo (2019), "The Economic Effects of Trade Policy Uncertainty," manuscript presented at the 91st meeting of the Carnegie-Rochester-NYU Conference on Public Policy, held at New York University, New York, April 12–13.

investment spending growth has slowed in many areas of the global economy since 2017. Although this slowdown may reflect a number of factors, concerns about trade policy have been flagged in many recent surveys of business attitudes and intentions, including the Beige Book.

The global tech cycle—a synchronized pattern of production and trade in electronics and software across economies—has also contributed to the decline in global trade and manufacturing growth. This cycle is particularly important for emerging Asia, where about one-third of exports are technology related. Global semiconductor sales surged in 2017 but fell sharply in the last months of 2018 (figure C). The fall in large part reflected a contraction in demand in China, particularly evident in mobile phone purchases. Recent data, however, suggest that this cycle may have bottomed out, as Chinese mobile phone production picked up in April along with exports of electronics in emerging Asia through May.

Finally, a regular feature of the data is that trade and manufacturing production move with overall gross domestic product (GDP) growth but with considerably more cyclical volatility (a pattern that can be seen in figure A). Trade and manufacturing production largely consist of durable goods, the purchase of which tends to be especially sensitive to economic conditions. Thus, although global trade and manufacturing slowed much more sharply than GDP last year, part of their sharp slowing likely just reflected a response to a more general slowing in global economic growth. A number of factors have contributed to the step-down in global activity. A deleveraging campaign by China's authorities was an important factor in the slowdown of the Chinese economy. Growth in Europe has been restrained by complications with meeting tighter emissions standards for new motor vehicles in Germany, protests in France, and the ongoing uncertainties associated with Brexit. And financial stresses have weighed on some emerging market economies, especially Argentina and Turkey.

C. Global semiconductor sales

NOTE: The semiconductor data are 3-month moving averages.
SOURCE: Semiconductor Industry Association via Haver Analytics.

Part 2
Monetary Policy

The FOMC maintained its target range for the federal funds rate

From late 2015 through the end of 2018, the Federal Open Market Committee (FOMC) gradually increased its target range for the federal funds rate as the economy continued to make progress toward the Committee's congressionally mandated objectives of maximum employment and price stability. In its meetings over the first half of 2019, the Committee judged that the stance of monetary policy was appropriate to achieve its dual mandate, and it decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent (figure 45). These decisions reflected incoming information showing the solid fundamentals of the U.S. economy supporting continued growth and strong employment.

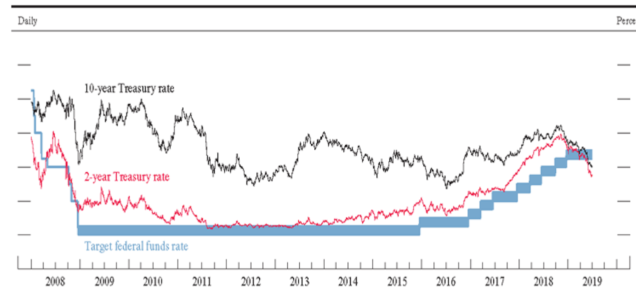
Looking ahead, the FOMC will act as appropriate to sustain the expansion, with a strong labor market and inflation near its 2 percent objective

At its meetings since the beginning of the year, the Committee stated that it continued to view a sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. For much of this period, the Committee indicated that, in light of global economic and financial developments and muted inflation pressures, it would be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.

At the June meeting, however, the Committee noted that uncertainties about the outlook had increased.[15] Since the beginning of May, the tenor of incoming information on economic activity, on balance, has become somewhat more downbeat, and uncertainties about the economic outlook have increased. Growth indicators from around the world have disappointed, on net, raising concerns about the strength of the global economy. Meanwhile, contacts in business and agriculture have reported heightened concerns over trade developments. In light of these uncertainties and muted inflation pressures,

15. See the FOMC statement issued after the June meeting, which is available on the Monetary Policy portion of the Board's website at https://www.federalreserve.gov/monetarypolicy.htm.

45. Selected interest rates



Note: The 2-year and 10-year Treasury rates are the constant-maturity yields based on the most actively traded securities.
Source: Department of the Treasury; Federal Reserve Board.

the Committee indicated that it will act as appropriate to sustain the expansion, with a strong labor market and inflation near its objective. The Committee is firmly committed to its symmetric 2 percent inflation objective. In the Committee's economic projections released after the June meeting, participants generally revised down their individual assessments of the appropriate path for the policy rate from their assessments at the time of the March meeting (see Part 3 of this report for more details).

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 expectations, and readings on financial and international developments.

In addition to weighing a wide range of economic and financial data and information received from business contacts and other informed parties around the country, policymakers regularly consult prescriptions for the interest rate arising from various monetary policy rules. These rule prescriptions can serve as useful guidelines to the FOMC in the course of arriving at its policy decisions. Nonetheless, numerous practical considerations make clear that the FOMC cannot mechanically set the policy rate by following the prescriptions of any specific rule. The FOMC's framework for conducting monetary policy involves a systematic approach in keeping with key principles of good monetary policy but allows for more flexibility than is implied by simple policy rules (see the box "Monetary Policy Rules and Their Interactions with the Economy").

Since the beginning of the year, the FOMC has issued two statements regarding monetary policy implementation and balance sheet normalization

At its January meeting, the Committee indicated that it intends to continue to implement monetary policy in a regime in which the provision of an ample supply of reserves ensures that 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 in which active management of the supply of reserves is not required.[16] After the March FOMC meeting, the Committee issued a statement indicating that it plans to conclude the reduction of the Federal Reserve's securities holdings at the end of September.[17] (The box "Framework for Monetary Policy Implementation and Normalization of the Federal Reserve's Balance Sheet" details the recent decision about policy implementation and balance sheet normalization.)

The Committee is prepared to adjust the details for completing balance sheet normalization in light of economic and financial developments, consistent with its congressionally mandated objectives of maximum employment and price stability.

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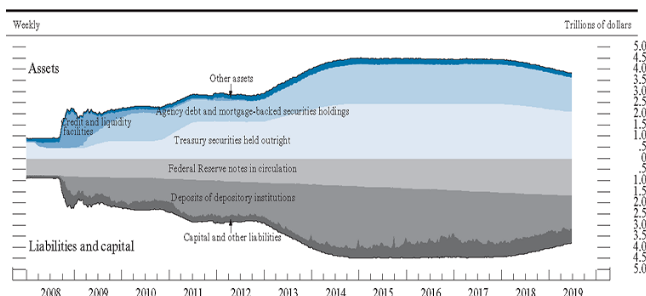
16. See the Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization, which is available on the Board's website at https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm.

17. See the Balance Sheet Normalization Principles and Plans, which can be found on the Board's website at https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm.

46. 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 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 June 26, 2019.

SOURCE: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

The Federal Reserve's total assets have continued to decline from about $4.1 trillion last December to about $3.8 trillion at present, with holdings of Treasury securities at approximately $2.1 trillion and holdings of agency debt and agency mortgage-backed securities at approximately $1.5 trillion (figure 46).

As the Federal Reserve has continued to gradually reduce its securities holdings, the level of reserve balances in the banking system has declined. In particular, the level of reserve balances has decreased by about $150 billion since the end of last year and by about $1.3 trillion since its peak in 2014.[18]

Meanwhile, interest income on the Federal Reserve's securities holdings has continued to result in sizable remittances to the U.S. Treasury. Preliminary data indicate that the Federal Reserve remitted about $27 billion in the first half of 2019.

18. Since the start of the normalization program, reserve balances have dropped by approximately $700 billion.

The Federal Reserve's implementation of monetary policy has continued smoothly

Since the middle of March, the effective federal funds rate has traded slightly above the interest rate paid on reserve balances. At the May meeting, the Committee made a third small technical adjustment to lower the setting of the interest rate on excess reserves by 5 basis points to a level 15 basis points below the top of the target range for the federal funds rate; this adjustment successfully fostered trading in the federal funds market at rates well within the FOMC's target range. Overall, rates across money markets were broadly stable since the beginning of 2019, and the usage of the overnight reverse repurchase agreement facility has remained low.

The Federal Reserve has started the review of its strategic framework for monetary policy

With labor market conditions close to maximum employment and inflation near the Committee's 2 percent objective, the FOMC judged it an appropriate time for the Federal Reserve to conduct a public review

of its strategic framework for monetary policy—including the 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 review includes outreach to and consultation with a broad range of people and groups interested in the U.S. economy. The Federal Reserve System is currently conducting a series of Fed Listens events around the country, typically with a town hall format, to hear perspectives from representatives of business and industry, labor leaders, community and economic development officials, academics, nonprofit organization executives, and others. Policymakers plan to report their findings to the public during the first half of 2020.

Monetary Policy Rules and Their Interactions with the Economy

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). This discussion presents five policy rules—illustrative of the many rules that have received attention in the research literature—and provides examples of two ways to compute historical prescriptions of policy rules. The two ways differ in terms of whether the implications of the rule prescriptions feed through to the macroeconomy and potentially back to the policy rule prescriptions themselves. The presentation highlights the uses and limitations of each way for informing the FOMC's systematic conduct of monetary policy.

Historical Prescriptions of Policy Rules

The effectiveness of monetary policy is enhanced when it is well understood by the public.[1] In simple 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. Other rules include 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. Four of the five rules include the difference between the rate of unemployment that is sustainable in the longer run and the current unemployment rate (the unemployment rate gap); the first-difference rule includes the change in the unemployment gap rather than its level.[4] In

(continued on next page)

1. 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 at Berkeley, Berkeley, Calif., November 13, https://www.federalreserve.gov/newsevents/speech/yellen20121113a.htm.

2. 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," Board of Governors, 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. Finally, 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.

4. The 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.

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	$R_t^{BA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2(u_t^{LR} - u_t)$
Taylor (1993) rule, adjusted	$R_t^{T93adj} = maximum\ \{R_t^{T93} - Z_t, 0\}$
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 actual nominal federal funds rate for quarter t, π_t is 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, on average, 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 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 actual 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) in order to represent the rules in terms of the FOMC's statutory goals. Historically, movements in the output and unemployment gaps have been highly correlated. Box note 3 provides references for the policy rules.

addition, four of the five rules include the difference between recent inflation and the FOMC's longer-run objective (2 percent as measured by the annual change in the price index for personal consumption expenditures (PCE)), while 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.[5] The price-level rule thereby takes account of the deviation of inflation from the long-run objective in earlier periods as well as the current period, whereas the other rules do not make up past misses of the inflation objective.

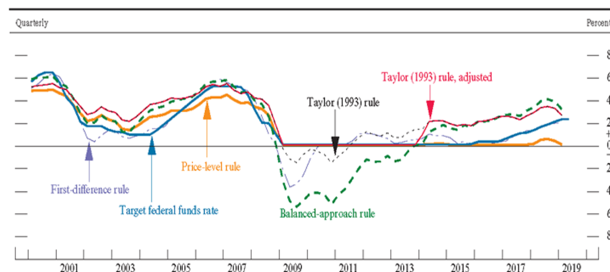
The adjusted Taylor (1993) rule recognizes that the federal funds rate cannot be reduced materially below zero, and that following the prescriptions of the standard Taylor (1993) rule after a recession during which the federal funds rate has fallen to its lower bound may therefore not provide enough policy accommodation. To make up for the cumulative shortfall in accommodation, the adjusted 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 price-level rule prescribes setting the federal funds rate well below zero, the rule will, over time, call for more accommodation to make up for the past inflation shortfall.

Policymakers regularly examine the historical prescriptions of different policy rules to help understand the past stance of monetary policy and to inform their current policy decisions. The most straightforward way to compute such prescriptions is to use historical values for the unemployment rate and inflation, as well

(continued)

5. 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 a level consistent with PCE price inflation being close to 2 percent.

B. Historical federal funds rate prescriptions from simple policy rules



NOTE: The rules use historical values of inflation, the federal funds rate, and the unemployment rate. Inflation is measured as the 4-quarter percent change in the price index for personal consumption expenditures (PCE) excluding food and energy. Quarterly projections of long-run values for the federal funds rate and the unemployment rate are derived through interpolations of biannual projections from Blue Chip Economic Indicators. The long-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 per year. The target federal funds rate data extend through 2019:Q2.

SOURCE: Federal Reserve Bank of Philadelphia; Wolters Kluwer, Blue Chip Economic Indicators; Federal Reserve Board staff estimates.

as estimates of the longer-run value of the interest rate and the longer-run value of the unemployment rate, in each policy rule.[6] The policy prescriptions from the various rules based on this approach provide different prescriptions for the federal funds rate, as shown in figure B. Presented in this way, each point on the lines in the figure is a snapshot of what the policy rules would have prescribed, given the economic conditions of that time. 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. Although almost all of the simple policy rules would have called for values for the federal funds rate that were increasing in recent years, the prescribed values vary widely across rules.

6. The Taylor (1993), balanced-approach, adjusted Taylor (1993), and price-level rules all require an estimate of the neutral interest rate in the longer run. In addition, all of the rules use an estimate of the rate of unemployment in the longer run. Both of these objects are determined by structural features in the economy and are not directly observable. The box "Complexities of Monetary Policy Rules" in the July 2018 Monetary Policy Report describes the complications in assessing simple policy rules that arise from uncertainty about the neutral interest rate in the longer run. See Board of Governors of the Federal Reserve System (2018), Monetary Policy Report (Washington: Board of Governors, July), pp. 37–41, https://www.federalreserve.gov/monetarypolicy/files/20180713_mprfullreport.pdf. The current discussion uses estimates of these objects from survey data.

Historical Prescription of the Taylor (1993) Rule with Feedback

One key consideration in evaluating monetary policy rules based solely on historical data is that the policy prescriptions from the rules do not take into account the fact that the economy would have evolved differently if the federal funds rate had followed the alternative paths prescribed by the rules. For example, if the FOMC had followed a policy rule in the past that prescribed higher values for the federal funds rate than actually occurred, the unemployment rate would likely have been higher and inflation lower than they actually turned out to be. In turn, these different outcomes for unemployment and inflation would have fed back into the policy rule, resulting in policy prescriptions that differ from those based on the historical data and shown in figure B. Proper consideration of these feedback effects requires using an economic model, which is a mathematical representation of how economic activity, inflation, the policy interest rate, and other variables interact over time. With such a model, one can assess how inflation and the unemployment rate might have evolved if a particular policy rule had been followed over some historical period in a way that incorporates these feedback effects. Federal Reserve staff regularly use models of the U.S. economy to study how economic outcomes could have differed if monetary policy had followed various rules.

(continued on next page)

Monetary Policy Rules *(continued)*

Figure C provides one illustrative example of how accounting for feedback effects can alter the prescriptions from a particular rule over a given period. The figure compares the historical prescriptions of the Taylor (1993) rule calculated without feedback—as in the earlier section—with the prescriptions from the same rule incorporating feedback effects. The rule prescriptions with feedback effects result from an empirical simulation of the FRB/US model.[7] The simulation begins in the first quarter of 2001, a period when the prescription of the Taylor (1993) rule without feedback roughly coincides with the historical value of the federal funds rate. The three panels in the figure display the paths for the federal funds rate (top panel), the unemployment rate (middle panel), and four-quarter PCE inflation (bottom panel). The historical data are shown by the black lines. The gray dashed line in the top panel shows the historical prescription of the Taylor (1993) rule without any feedback, the same as the gray dashed line shown in figure B, and the blue dashed-and-dotted line shows the prescriptions with feedback effects. Because monetary policy affects the economy only with a delay, the paths of the unemployment rate and the inflation rate are not much different from their historical values over the first year of the simulation, despite the fact that the Taylor (1993) rule calls for much higher interest rates than actually observed over that period. By 2002, however, the higher rate path under the Taylor (1993) rule causes the economy to slow, resulting in a higher unemployment rate and lower inflation—the blue dashed-and-dotted lines in the middle and bottom panels of figure C, respectively—compared with the historical values. Consequently, the policy rate path in the simulation diverges from the rate path prescribed when feedback effects are not included. Indeed, by the middle of 2003, the value of the federal funds rate is substantially higher in the calculation without feedback effects than it is in the FRB/US model simulation that incorporates feedback from the economy. This difference highlights the limitations in assessing policy rules over history if the prescriptions from the rules are notably different from the historical policy rate path and the effects of the prescriptions of such rules for the economy are not taken into account.

While model simulations can capture the effects of policy rules on the economy and what those economic effects imply for the settings of the policy rate, there are important limitations to such exercises. Each simulation is tied to a particular economic model, and changes in the model can change the prescriptions from the given policy rule. Models are necessarily simplifications of reality, and there is no agreed-upon "best" model representation of the U.S. economy. Indeed, there is substantial diversity among the models favored by economists for this kind of analysis. Finally, in the real world, the structure of the economy changes over time, so an economic model used for studying a historical episode such as the one featured here may not be relevant for future policy considerations.

Model-based simulations with feedback add an important dimension to our understanding of the effects of policy rules. However, it is important to stress that the usefulness of such rules for obtaining and communicating current and future policy rate prescriptions is still limited by a range of practical considerations, even beyond the concerns about which specific model to use. Monetary policy rules feature only a small number of variables and thus exclude many important indicators that are consulted by policymakers. The policy rules here, for example, do not include measures of financial and credit market conditions, indicators of consumer and business sentiment, and data on expectations; these factors are often very informative for the future course of the economy. Moreover, simple policy rules do not take into account possible risks to the economic outlook, which may justify a policy response over and above what would be implied by the most likely outcomes for the economy.[8]

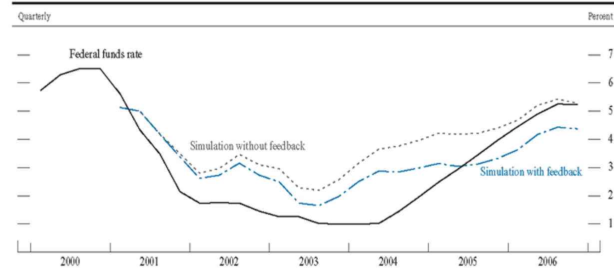
(continued)

7. FRB/US is a large-scale macroeconomic model developed by the Board's staff for forecasting, constructing alternative scenarios, and evaluating monetary policy strategies. The model and related information are available on the Board's website at https://www.federalreserve.gov/econres/us-models-about.htm. An example of the use of FRB/US for monetary policy analysis can be found in Janet L. Yellen (2012), "Perspectives on Monetary Policy," speech delivered at the Boston Economic Club Dinner, Boston, June 6, https://www.federalreserve.gov/newsevents/speech/yellen20120606a.htm.

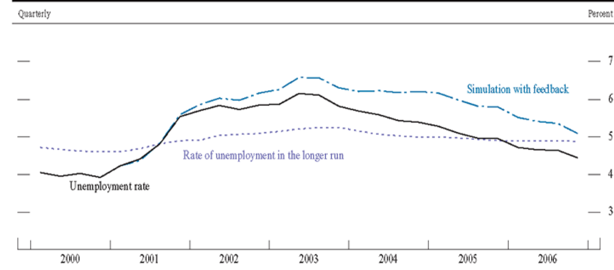
8. The box "Monetary Policy Rules and Their Role in the Federal Reserve's Policy Process" in the February 2018 *Monetary Policy Report* details the limitations of monetary policy rules in accounting for a broad set of risk considerations. See Board of Governors of the Federal Reserve System (2018), *Monetary Policy Report* (Washington: Board of Governors, February), pp. 35–38, https://www.federalreserve.gov/monetarypolicy/files/20180223_mprfullreport.pdf.

C. Simple policy rule simulations—Taylor (1993)

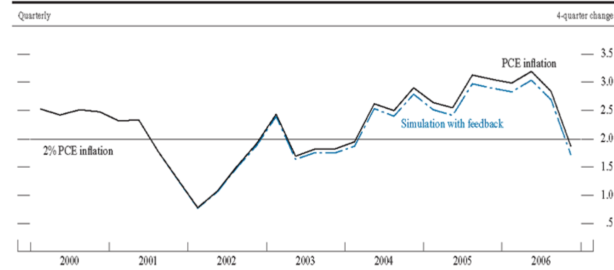
Federal funds rate



Unemployment rate



PCE inflation



NOTE: Data start in 2000:Q1 and extend through 2006:Q4.
SOURCE: Federal Reserve Bank of Philadelphia; Wolters Kluwer, Blue Chip Economic Indicators; Federal Reserve Board staff estimates.

Framework for Monetary Policy Implementation and Normalization of the Federal Reserve's Balance Sheet

At its meetings in January and March of this year, the Federal Open Market Committee (FOMC) made important decisions regarding its framework for monetary policy implementation and the process of normalizing the size of its balance sheet. The issues associated with these decisions have been discussed over several FOMC meetings and have been part of an ongoing process of the Committee's deliberations.[1]

After indicating in previous communications that, in the longer run, the Committee intends to operate in a regime in which it holds no more securities than necessary to implement monetary policy efficiently and effectively, the FOMC decided at its January meeting to continue to implement monetary policy in a regime with an ample supply of reserves.[2] Such a system, which has been in place since late 2008, does not require active management of reserves through frequent open market operations. Instead, with ample reserves in the banking system, the federal funds rate is expected to settle near the rate of interest paid on excess reserves. This system has proven to be an efficient means of controlling the policy rate and effectively transmitting the stance of policy to a wide array of other money market rates and to broader financial conditions. In the statement released after its January meeting, the FOMC also indicated that it continues to view the target range for the federal funds rate as its primary tool to adjust the stance of monetary policy. Nonetheless, the Committee is prepared to adjust the details of its plans for balance sheet normalization in light of economic and financial developments. Moreover, the Committee would be prepared to use its full range of tools, including altering the size and composition of its balance sheet, if future economic conditions were to warrant a more accommodative monetary policy than can be achieved solely by reducing the federal funds rate.

Following the March FOMC meeting, the Committee announced that it intends to conclude the reduction of its aggregate securities holdings in the System Open Market Account at the end of September 2019.[3] Consistent with its decision at the March FOMC meeting, the Committee slowed balance sheet runoff in May by reducing the cap for monthly redemptions of Treasury securities from $30 billion to $15 billion (left panel of figure A). In connection with its intention to cease balance sheet runoff entirely at the end of September 2019 and consistent with its aim of holding primarily Treasury securities in the longer run, the Committee also stated that it intends to continue to allow its holdings of agency securities to decline. Therefore, beginning in October 2019, principal payments received from holdings of agency debt and agency mortgage-backed securities (MBS) will be reinvested in Treasury securities through secondary-market purchases subject to a maximum amount of $20 billion per month. Purchases of Treasury securities will initially be conducted across a range of maturities to roughly match the maturity composition of Treasury securities outstanding.[4] Any principal payments from

(continued)

1. For summaries of these discussions, see the minutes from the FOMC meetings in November and December of last year as well as the minutes of this year's January and March meetings, which are available on the Board's website at https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm.

2. See the Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization, which is available on the Board's website at https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm.

3. See the Balance Sheet Normalization Principles and Plans, which can be found on the Board's website at https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm.

4. Details on the reinvestment of principal payments from the Federal Reserve's holdings of agency securities, including information on the distribution of Treasury purchases, are available on the Federal Reserve Bank of New York's website at

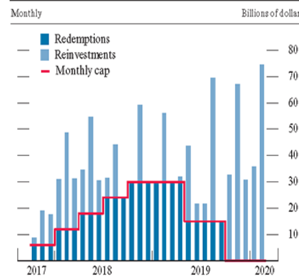
agency securities holdings in excess of the monthly $20 billion maximum will continue to be reinvested into agency MBS (right panel of figure A).

When the process of normalizing the size of the Federal Reserve's balance sheet concludes at the end of September, reserves will likely be somewhat above the level necessary for an efficient and effective implementation of monetary policy. If so, the Committee plans after September to keep the size of the Federal Reserve's securities holdings roughly constant for a while. During this period, reserve balances will continue to decline gradually as currency and other nonreserve liabilities increase. Once the Committee judges that reserve balances have declined to the level consistent with the efficient and effective implementation of monetary policy, the FOMC plans to resume periodic open market operations to accommodate the normal trend growth in the demand for the Federal Reserve's liabilities.[5]

https://www.newyorkfed.org/markets/treasury-reinvestments-purchases-faq.html. The FOMC will revisit the reinvestment plan in connection with its deliberations regarding the longer-run composition of the System Open Market Account portfolio.

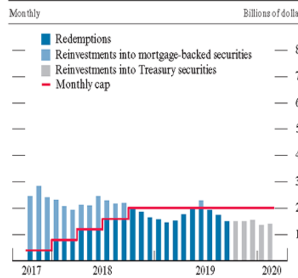
5. In contrast to the Federal Reserve's large-scale asset purchases conducted over recent years, these periodic technical open market operations would not have any implication for the stance of monetary policy; rather, such operations would be aimed at maintaining a level of reserve balances in the banking system consistent with efficient and effective policy implementation.

A. Principal payments on SOMA securities



Note: Reinvestment and redemption amounts of Treasury securities are projections starting in June 2019. The data extend through February 2020.

Source: Federal Reserve Bank of New York; Federal Reserve Board staff calculations.



Note: Reinvestment and redemption amounts of agency debt and mortgage-backed securities are projections starting in June 2019. Starting in October 2019, principal payments from holdings of agency securities below $20 billion per month are reinvested into Treasury securities, while those above are reinvested into agency mortgage-backed securities. The data extend through February 2020.

Source: Federal Reserve Bank of New York; Federal Reserve Board staff calculations.

Part 3
Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on June 18–19, 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 2021 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.[19] 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.[20] "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.

Participants who submitted longer-run projections generally expected that, under appropriate monetary policy, growth of real GDP in 2019 would run at or somewhat above their individual estimates of its longer-run rate. Thereafter, almost all participants expected real GDP growth to edge down, with the vast majority of participants projecting growth in 2021 to be at or below their estimates of its longer-run rate. All participants who submitted longer-run projections continued to expect that the unemployment rate would run at or below their estimates of its longer-run level through 2021. Compared with the Summary of Economic Projections (SEP) from March 2019, most participants revised down slightly their projections for the unemployment rate from 2019 through 2021. All participants marked down somewhat their projections for 2019 for total inflation, as measured by the four-quarter percent change in the price index for personal consumption expenditures (PCE), and almost all did so for their projections for core inflation. All participants projected that inflation would increase in 2020 from 2019, and a majority expected another slight increase in 2021. The vast majority of participants expected that inflation would be at or slightly above the Committee's 2 percent objective in 2021. Core PCE price inflation was also projected to increase over the projection period, rising to 2.0 percent in 2021. Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, about half of participants expected that the evolution of the economy, relative to their objectives of maximum employment and 2 percent inflation, would likely warrant keeping the federal funds rate at its current level through the end of 2019; the same number projected that a lower level for the federal funds rate would be appropriate by year-end. The medians of participants' assessments of the appropriate level of the federal funds rate in

19. Five members of the Board of Governors were in office at the time of the June FOMC meeting.

20. 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 assessments of projected appropriate monetary policy, June 2019

Percent

Variable	Median[1]				Central tendency[2]				Range[3]			
	2019	2020	2021	Longer run	2019	2020	2021	Longer run	2019	2020	2021	Longer run
Change in real GDP	2.1	2.0	1.8	1.9	2.0–2.2	1.8–2.2	1.8–2.0	1.8–2.0	2.0–2.4	1.5–2.3	1.5–2.1	1.7–2.1
March projection	2.1	1.9	1.8	1.9	1.9–2.2	1.8–2.0	1.7–2.0	1.8–2.0	1.6–2.4	1.7–2.2	1.5–2.2	1.7–2.2
Unemployment rate	3.6	3.7	3.8	4.2	3.6–3.7	3.5–3.9	3.6–4.0	4.0–4.4	3.5–3.8	3.3–4.0	3.3–4.2	3.6–4.5
March projection	3.7	3.8	3.9	4.3	3.6–3.8	3.6–3.9	3.7–4.1	4.1–4.5	3.5–4.0	3.4–4.1	3.4–4.2	4.0–4.6
PCE inflation	1.5	1.9	2.0	2.0	1.5–1.6	1.9–2.0	2.0–2.1	2.0	1.4–1.7	1.8–2.1	1.9–2.2	2.0
March projection	1.8	2.0	2.0	2.0	1.8–1.9	2.0–2.1	2.0–2.1	2.0	1.6–2.1	1.9–2.2	2.0–2.2	2.0
Core PCE inflation[4]	1.8	1.9	2.0		1.7–1.8	1.9–2.0	2.0–2.1		1.4–1.8	1.8–2.1	1.8–2.2	
March projection	2.0	2.0	2.0		1.9–2.0	2.0–2.1	2.0–2.1		1.8–2.2	1.8–2.2	1.9–2.2	
Memo: Projected appropriate policy path												
Federal funds rate	2.4	2.1	2.4	2.5	1.9–2.4	1.9–2.4	1.9–2.6	2.5–3.0	1.9–2.6	1.9–3.1	1.9–3.1	2.4–3.3
March projection	2.4	2.6	2.6	2.8	2.4–2.6	2.4–2.9	2.4–2.9	2.5–3.0	2.4–2.9	2.4–3.4	2.4–3.6	2.5–3.5

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The March projections were made in conjunction with the meeting of the Federal Open Market Committee on March 19–20, 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 March 19–20, 2019, meeting, and one participant did not submit such projections in conjunction with the June 18–19, 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.

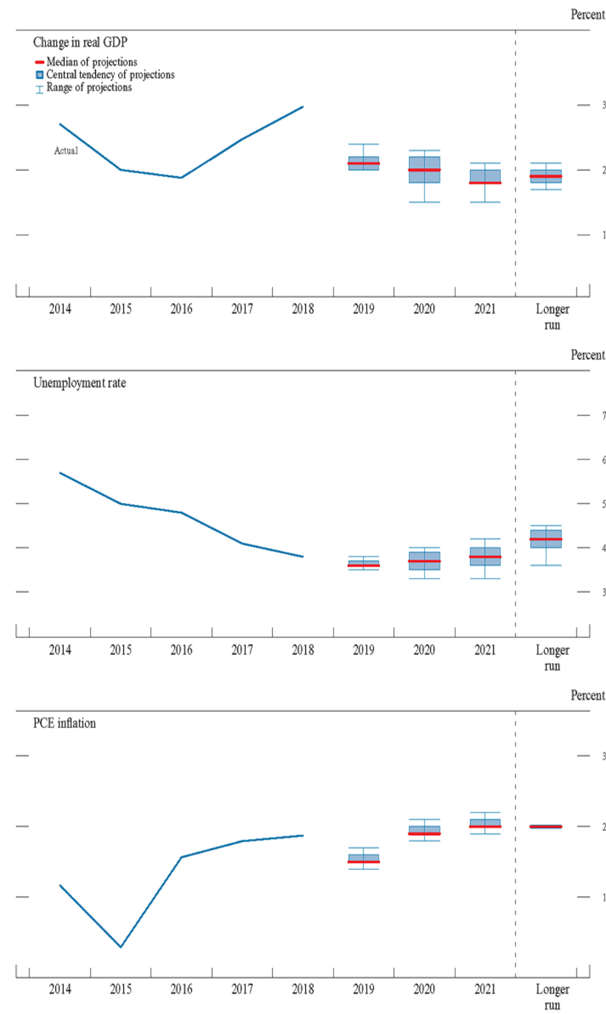
4. Longer-run projections for core PCE inflation are not collected.

2020 and 2021 were close to the median of their assessments of the longer-run federal funds rate level. Nearly all participants lowered their projections for the appropriate level of the federal funds rate, relative to March, at some point in the forecast period. Although nearly half of the participants revised their projections for 2019 to levels 25 basis points or 50 basis points below the current level, the median projection for the federal funds rate for the end of 2019 was unchanged. The medians for the federal funds rate for 2020 and 2021 were 50 basis points and 25 basis points lower than in March, respectively.

Most participants regarded the uncertainties around their forecasts for GDP growth, total inflation, and core inflation as broadly similar to the average of the past 20 years. About half of the participants viewed the level of uncertainty around their unemployment rate projections as being similar to the average of the past 20 years, and about the same number viewed uncertainty as higher. Participants' assessments of risks to their outlooks for output growth and the unemployment rate shifted notably relative to their assessments in March. As a result, most participants viewed the risks for GDP growth as weighted to the downside and the risks for the unemployment rate as weighted to the upside. About half of participants viewed the risks to inflation as being broadly balanced, with a similar number viewing inflation risks as being weighted to the downside.

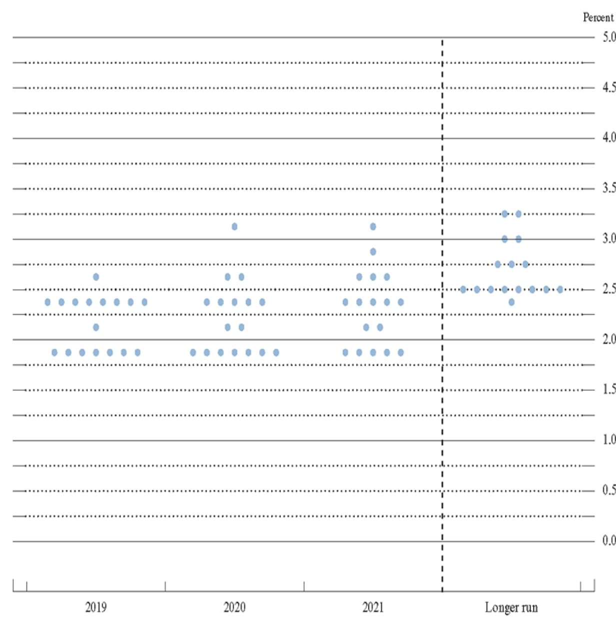
A more complete description of the SEP will be released with the minutes of the June 18–19, 2019, FOMC meeting on July 10.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2019–21 and over the longer run



NOTE: Definitions of variables and other explanations are in the notes to the projections table. 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.

Abbreviations

AFE	advanced foreign economy
CCyB	countercyclical capital buffer
DPI	disposable personal income
ECB	European Central Bank
EME	emerging market economy
EPOP	employment-to-population ratio
FOMC	Federal Open Market Committee; also, the Committee
FRB/US	a large-scale macroeconometric model of the U.S. economy
GDP	gross domestic product
IP	industrial production
JOLTS	Job Openings and Labor Turnover Survey
LFPR	labor force participation rate
MBS	mortgage-backed securities
OPEC	Organization of the Petroleum Exporting Countries
PCE	personal consumption expenditures
SEC	U.S. Securities and Exchange Commission
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
TIPS	Treasury Inflation-Protected Securities
VIX	implied volatility for the S&P 500 index