Challenges for Policymakers in a Low Interest Rate Environment

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***Asian Banker* Future of Finance Summit**
Beijing, China
May 25, 2018

Good morning. Thank you very much for inviting me to be here. As the research director at the Federal Reserve Bank of Richmond, my job is to provide policymakers (in particular, the president of my bank) with the information and analysis they need. In that advisory role, my goal today is to share with you some perspective on how I view the broader issues that currently confront monetary policymakers and financial regulators.

At this point I should note that the views I express today are my own and not necessarily those of the Federal Reserve Bank of Richmond or the Federal Reserve System.[1] I will focus on views, however, that I believe are widely shared among economists. My remarks also will focus on the United States because that's the economy I know best, but the general challenges facing the United States are relevant for, and applicable to, policymakers in many countries around the world.

So what are those challenges? As I'm sure you know all too well, since the Great Recession, economic growth rates, and hence interest rates—including both short-term policy rates and longer-term rates—have been historically low. The reason appears to be persistently slow growth in what economists call "total factor productivity," or TFP. Simply put, TFP is a measure of our society's ability to convert inputs into outputs—and it is the *only* engine of sustained economic growth over time.

TFP growth matters a great deal for monetary policy. First, as I will explain in more detail, if slow TFP growth in the United States and Europe continues, we might be in for a long period in which the appropriate or "neutral" monetary policy interest rate is also historically low. Second, persistently low real interest rates matter for the ability of monetary policymakers to deal with shocks and, equally if not more concerning, for the risks that get created in a financial system.

Of course, it's true that many countries in Asia—China and India in particular—have experienced far faster growth in recent decades. This certainly could, and I hope will, continue, even as slowing TFP growth holds down the path for the largest advanced economies. But at some point, as fast-growing countries approach the per capita income levels of the richest, economic theory and data both predict that their per capita growth rates (for TFP and income) will converge as well, likely to the range of 1 percent to 2 percent annually. As John Maynard Keynes famously did *not* say, "in the long run we're all… trend."

You might be wondering, what does this have to do with building "sandboxes for innovation," as we're supposed to discuss later in this session? Well, you don't want to build a sandbox on a

fault line or at the edge of a cliff. We want to create an economic environment in which people have the freedom and ability to innovate and take risks. In addition, economists assume that all people, even the most free-spirited innovators, respond to incentives—and in finance, these incentives can be heavily influenced by central bank or government policy. We want to make sure, therefore, that the incentive structure does not encourage innovation that is imprudent or involves excessive risk-taking.

Monetary Policy during and after the Financial Crisis

Given that we're just about 10 years on from the financial crisis, let me begin by quickly reviewing some of the actions the Fed took in response. In September of 2007, as it became clear that strains in the financial system might get transmitted to the broader economy, the Federal Open Market Committee (FOMC) started lowering the target for the federal funds rate; over the next two years or so, the committee would take the target down to zero. As the crisis intensified, we established special lending facilities to increase liquidity in the banking system. And—much more controversially—we provided support to specific institutions in an effort to prevent disorderly failures.[2] These actions almost certainly produced some unintended consequences—a point to which I will return shortly.

Post-crisis, as a slow-growth recovery dragged on, the Fed also undertook what we call "unconventional" monetary policy actions, most famously "large-scale asset purchases," or what many people referred to as "quantitative easing."[3] Another innovative tool was "forward guidance," that is, making verbal commitments to future policy accommodation. Throughout the multiple rounds of the asset-purchase programs, there was considerable debate over how effective they would be, and this debate continues a decade later.[4] We also continue to study the efficacy of forward guidance, although—as I'll elaborate on—it is likely to be an important element of central bank policy in the lower-growth future that I expect for the United States.[5]

Why were these unconventional, and controversial, actions necessary? As you know, the Fed's primary monetary policy tool is the ability to influence short-term interest rates. But "nominal" (not inflation-adjusted) interest rates can't go much below zero, because if they did, people would just hold cash.[6] Thus, as the FOMC continued to lower the target for the fed funds rate, we were approaching—and eventually reached—what's known as the "zero lower bound," and we turned to the other policy tools I just mentioned to try to effect further monetary easing.

Though the crisis has been behind us for some time, the Fed only recently began raising interest rates. The policy rate remains exceptionally low by historical standards, and the pace of increase has been slow relative to previous recoveries. This is true even though labor markets have reached, or even surpassed, what most view as full employment, and inflation has been below target until recently. Many economists connect this cautious path to a view that the so-called neutral real rate of interest, or r-star, is itself historically low. This is the rate we expect to prevail when the economy is at potential and prices are stable. If potential growth is slower, the natural rate will be lower.

The natural rate can't be observed directly, but there are a variety of methods for estimating it, including one developed by economists at the Richmond Fed.[7] While current estimates vary in

range between, say, 0 and 125 basis points, the important point is that they are all quite low by historical standards. There are several potential reasons for this. The first is the decline in TFP growth that I've stressed, which many economists have traced back to starting *before* the global financial crisis[8] and might have begun far earlier: as many as 50 years ago, according to ongoing work that our department hopes to share later this year. Other reasons include slower growth of the labor force and high demand for safe assets, especially U.S. government debt.

Why does the natural rate matter? It matters because it serves as a guidepost for monetary policymakers. If the natural rate is relatively low, then standard economics prescribes that the appropriate policy rate also be low—and at present, that means closer to zero than in previous eras.

In addition to a low natural rate, the current interest rate environment also features a relatively flat yield curve, which might be interpreted as the *market* sending us a signal about its view of long-run growth prospects. Taken together with our more direct estimates of the path of productivity, there is good reason to have a sober view of future growth, closer to 2 percent, say, than to the postwar U.S. average of around 3 percent.

Vulnerability to Shocks

Now, let's put these ideas together. If you believe that monetary policy is severely constrained at the zero lower bound, and if you think we are in a persistently low r-star environment, then you might conclude that monetary policymakers will, under appropriate policy, have less ability to respond to shocks than they have at other times in the past.

I'm aware that I just fulfilled every stereotype about economists with all that hedging: if, if, might… But it's an economist's job to inject some uncertainty into the conversation, and there are a number of reasons to be uncertain about the statement I just made. One of the biggest reasons is that we can't know for sure what the natural rate of interest is. There is also a lot of uncertainty around productivity growth—maybe the financial and payments innovations we're learning about at this conference will lead to a productivity surge. Certainly, some people, including my boss, aren't convinced productivity growth will remain slow. Finally, there is debate about just how big of a constraint the zero lower bound actually is.

For the remainder of my remarks, however, let's presume that the present low interest rate environment will indeed make it challenging for monetary policymakers to respond to shocks and especially any subsequent slow growth.[9] We also know that low interest rate environments may produce some conditions that put us at greater risk of financial shocks, such as heightened risk-taking incentives—what you've probably heard referred to as "reaching for yield." What's worse, we know from plausible economic models that low-rate environments are susceptible to asset bubble formation. And, as I'll discuss in a moment, most economists hold the view—and I am no exception—that risk-taking incentives are amplified by a belief that the government will limit financial losses in a crisis.

All these forces demand vigilance from regulators. But what if bubbles form and burst and yield reaching continues despite regulators' best efforts? In that case, it's the economy's resilience that

matters. And here, the classical tools of capital, liquidity and leverage requirements become the barriers to broader macroeconomic distress. Taken as a whole, precautionary measures and resilience in a low-r-star world require regulators to pay more attention than ever before to the preconditions for excessive leverage and interconnectedness—even when recent history appears favorable to those arguing that regulations may no longer be commensurate with risks to lenders.

An Effective Regulatory Regime

I'm not going to opine on exactly what that "more attention" should look like. But broadly speaking, when we think about financial regulation, we're trying to balance two objectives: promoting the stability of the financial system and not creating moral hazard that leads market participants to take excessive risks.

Sometimes, our efforts to promote stability might actually make things more unstable by weakening market discipline, as some believe was the case leading up to the financial crisis and as the former president of my Bank discussed at this same event almost a decade ago.[10] For example, Richmond Fed economists have estimated that more than 20 percent of the U.S. financial sector's liabilities are covered by an "implicit safety net," that is, the protection that market participants infer from past government actions and statements.[11] This safety net could encourage financial institutions to take on more risk than they otherwise would.

Thus, part of our efforts toward preserving stability should be directed at, to the extent possible, eroding the perception that some firms are too big or too interconnected to fail. One way to do so, as the Richmond Fed has long emphasized, may be resolution planning, or the creation of "living wills."[12] This process aims to make large and complex firms confront their complexity and be resolvable without government assistance and to give us early warning if firms are too complex to be unwound. This will assist policymakers in more credibly committing to avoiding future bailouts.

But can regulators ever truly credibly commit to not assist financial institutions in times of plausibly self-inflicted distress? In an ideal world, yes; but we live in the real world. That means we have to tolerate some incentive distortion, which means there is a role for regulation, such as stress testing and increased capital and liquidity requirements. The fact that there is some role for regulation, however, doesn't mean we forget about market discipline; while we might not be able to rely on it entirely, we should strive to create a regulatory environment that supports and complements it.

As you know, there is currently some talk in the United States of scaling back the regulations put in place after the financial crisis. I won't comment on those measures specifically, but I will say that in general, it is a good idea to seek the most effective and precise way to achieve a given level of safety and soundness. At the same time, we should be wary of efforts to overly fine tune regulation; assessing risk is difficult and complicated, and it isn't feasible to develop separate rules for every single risk profile. Additionally, as Fed Governor Lael Brainard noted in a recent speech, the current regulatory structure has not yet been tested through the full economic cycle, so we may want to be cautious about making substantial changes to it.[13]

Conclusion

To sum up, overall it is my view that a low-growth and low interest rate environment is likely to persist and that the implicit safety net remains large. These features will demand continued attention from financial regulators and central banks, arguably more than would be the case were natural rates higher and the safety net smaller.

That said, let me stress that there are still a lot of things we don't fully understand, and it is important for the advisers to policymakers—like me—to stay very humble. Indeed, the incompleteness of our knowledge is precisely why leading central banks house serious research departments. In this vein, let me finish by sharing two more examples of work at the Richmond Fed, in addition to the work I've already mentioned. First, our recent research has focused on the implications of over-the-counter vs. centralized trading, an important area of study given that market dysfunction was cited in the crisis as a key reason for intervention.[14] Second, the past decade of unconventional monetary policy has raised serious questions about how best to conduct policy with a large balance sheet, which we continue to study.[15] We invite you and the economists at your institutions to engage with this work and to keep in touch. Thank you.

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[1] I am grateful to Jessie Romero and John A. Weinberg for assistance in preparing these remarks.

[2] For more on these actions, visit federalreservehistory.org.

[3] For a nontechnical overview, see Renee Haltom and Alex Wolman, "A Citizen's Guide to Unconventional Monetary Policy," Federal Reserve Bank of Richmond *Economic Brief* no. 12-12, December 2012.

[4] For example, see David Greenlaw, James D. Hamilton, Ethan S. Harris, and Kenneth D. West, "A Skeptical View of the Impact of the Fed's Balance Sheet," February 2018.

[5] Janet Yellen, "The Federal Reserve's Monetary Policy Toolkit: Past, Present, and Future," Speech at *Designing Resilient Monetary Policy Frameworks for the Future*, a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyo., August 26, 2016.

[6] Some central banks did eventually set negative interest rates, including the European Central Bank in 2014 and the Bank of Japan in 2016. This was made possible by the fact that there are costs associated with holding and transacting in cash. For a variety of (largely practical) reasons, however, the Fed was reluctant to pursue a negative interest rate policy.

[7] Thomas A. Lubik and Christian Matthes, "Calculating the Natural Rate of Interest: A Comparison of Two Alternative Approaches," Federal Reserve Bank of Richmond *Economic Brief* no. 15-10, October 2015.

[8] John G. Fernald, Robert E. Hall, James H. Stock, and Mark W. Watson, "The Disappointing Recovery of Output after the 2009 Recession," *Brookings Papers on Economic Activity*, Spring 2017.

[9] John Williams, "Heeding Daedalus: Optimal Inflation and the Zero Lower Bound," *Brookings Papers on Economic Activity,* Fall 2009.

[10] Jeffrey M. Lacker, "The Role of the Safety Net in the Financial Crisis," Speech at the *Asian Banker* Summit 2009, Beijing, China, May 11, 2009.

[11] See the Richmond Fed Bailout Barometer.

[12] Arantxa Jarque and Kartik B. Athreya, "Understanding Living Wills," Federal Reserve Bank of Richmond *Economic Quarterly*, Third Quarter 2015, vol. 101, no. 3, pp. 193-223; and Arantxa Jarque and David A. Price, "Living Wills: A Tool for Curbing Too Big to Fail," Federal Reserve Bank of Richmond *Economic Quarterly*, First Quarter 2015,vol. 101, no. 1, pp. 77-94.

[13] Lael Brainard, "Safeguarding Financial Resilience through the Cycle," Speech at the Global Finance Forum, Washington, D.C., April 19, 2018.
[14] Bruno Sultanum, Zachary Bethune, and Nicholas Trachter, "Asset Issuance in Over-the-Counter Markets," Federal Reserve Bank of Richmond Working Paper no. 17-13, October 2017.
[15] Huberto Ennis, "A Simple General Equilibrium Model of Large Excess Reserves," Federal Reserve Bank of Richmond Working Paper no. 14-14, July 2014.