Review of Monetary Policy Frameworks

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Good morning, ladies and gentlemen. It's a pleasure to join you here today, for this workshop sponsored by Central Banking.

My presentation today will focus on the implications of the monetary policy framework reviews that are being conducted by a number of central banks in Advanced Economies. The U.S. Federal Reserve concluded its review in August, while the European Central Bank and the Bank of Canada are engaged in reviews this year. The Bank of Japan is undertaking a more limited assessment of its monetary policy framework.

The primary focus of the reviews is on how central banks should react to the challenges posed by persistently low equilibrium interest rates. The key questions addressed include: Is the current strategy — essentially, flexible inflation targeting — likely to be effective in achieving its goals, or should it be modified? Is the current set of tools adequate? And: How can communication be improved?

My presentation will begin by considering the main economic concerns that are driving central banks to focus on these questions. I will then offer a brief overview

of the framework reviews of the Fed and the ECB. Then I'll take a somewhat deeper dive into makeup strategies — a key innovation in the Fed's review — and consider some of the potential risks, including the risk of significantly higher inflation in the wake of the large U.S. fiscal expansion, as well as risks to financial stability.

Key Motivations for Framework Reviews

A key rationale for considering alternative frameworks has been the decline in the equilibrium real interest rate – the interest rate needed to keep output at potential and inflation at target. As seen in this figure, equilibrium real interest rates in the US and euro area were very low — close to zero — even before the COVID shock.

Equilibrium Real Interest Rate

(In percent)
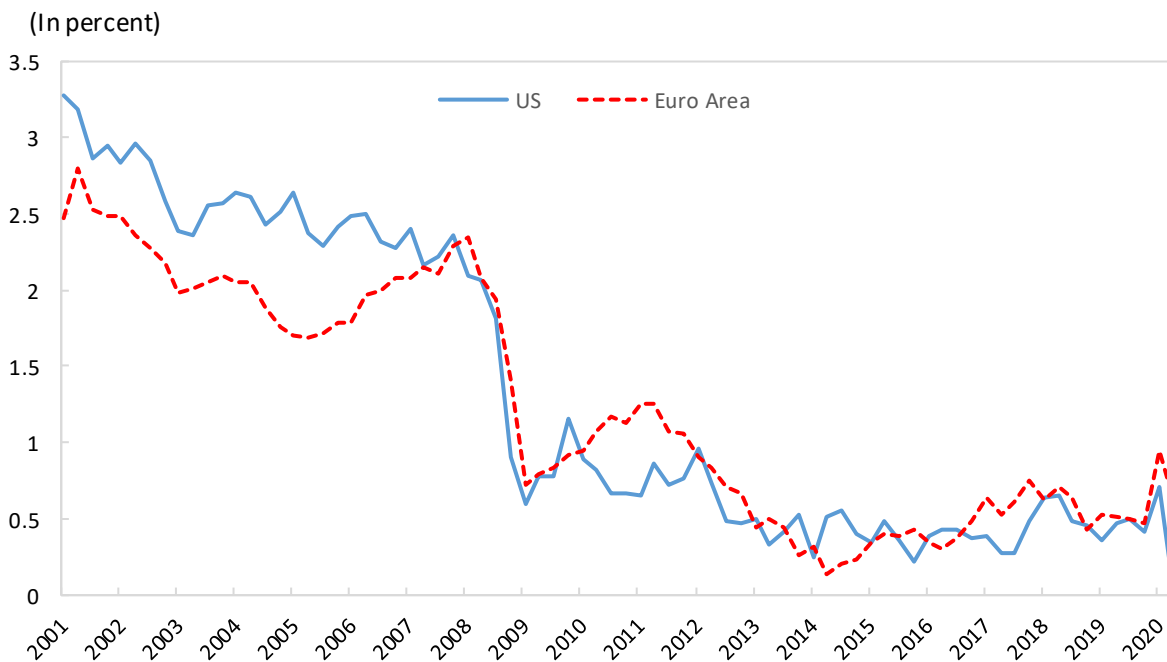
Source: IMF staff calculations based on Kathryn Holston, Thomas Laubach, and John C. Williams, Journal of International Economics, 2017

The low r* means a higher risk of hitting the effective lower bound, and it implies an important asymmetry for policymakers. In particular, while monetary policy can raise interest rates to cool a strong economy, the lower r* means less room to cut interest rates in a recession. The limited scope to ease interest rates has raised

concerns that recessions could be longer, and that inflation could average well below target.

The reviews were also motivated by the concern that the low inflation of the past decade was dragging down long-term inflation expectations. While market-based measures shown here – such as the 5-by-5 forwards – may exaggerate the decline in inflation expectations, given that they are heavily influenced by risk premia, even survey measures drifted down somewhat in recent years.
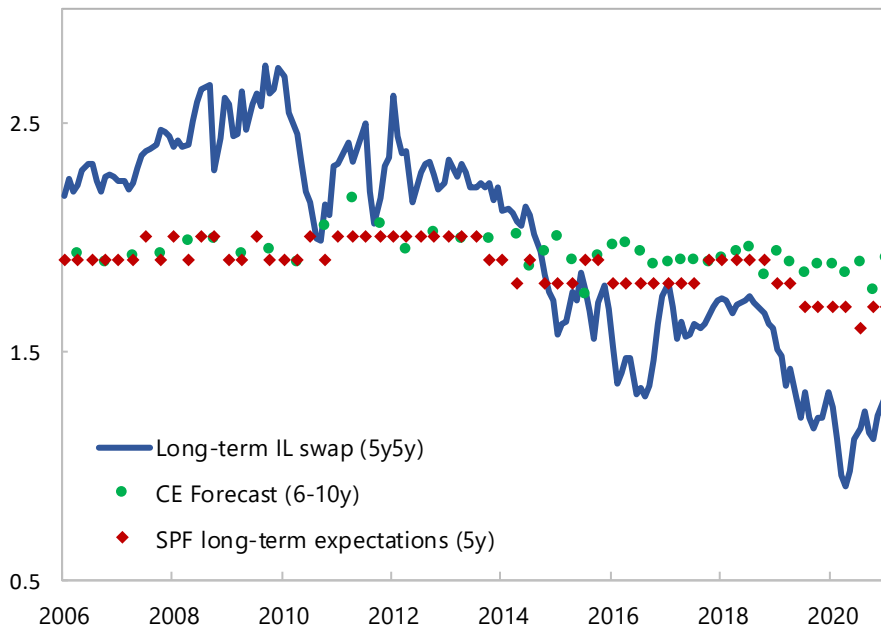
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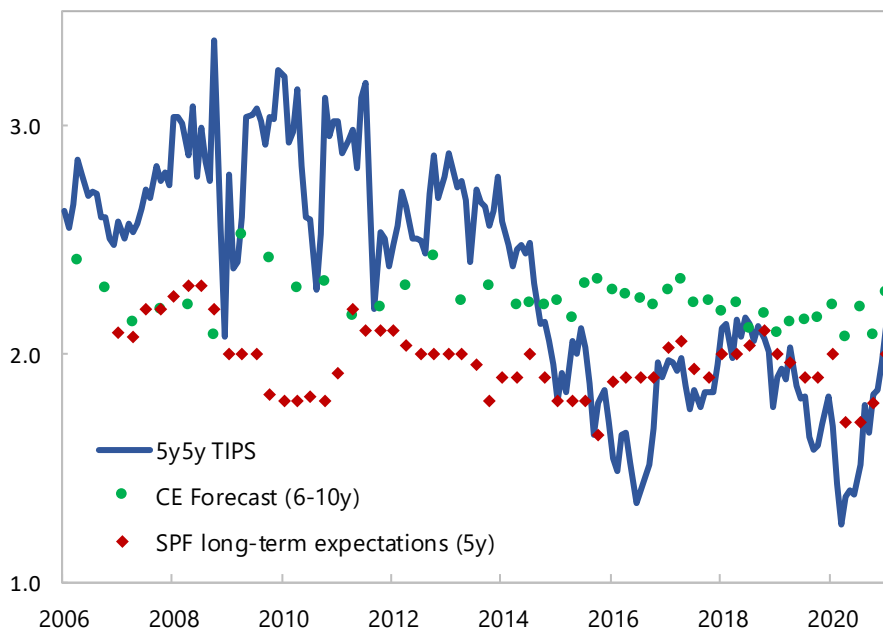
Sources: Bloomberg Finance L.P; Federal Reserve Bank of Philadelphia; and Consensus Economics.
Notes: The figure shows the 5-year forward breakeven inflation rate (blue line); 6-10 years Consensus Forecasts (green dots); and 5 year ahead expectations from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters (red dots).

Euro area

Sources: Bloomberg Finance L.P.; ECB; and Consensus Economics.
Notes: The figure shows the 5-year forward inflation-linked swap rate in 5 years (blue line); 6-10 years Consensus Forecasts (green dots); and 5 year ahead expectations from the ECB's Survey of Professional Forecasters (red dots).

Given the low equilibrium real interest rate, a fall in inflation expectations is a concern, because it depresses nominal interest rates and further limits policy space. Of course, we have recently seen market-based measures move up substantially in light of large U.S. fiscal packages.

A third key motivation for changing frameworks is the flattening of the Phillips Curve. The post-Global Financial Crisis experience, in both the United States and many other countries, suggests that the labor market can run quite hot without much inflation. As seen in the accompanying chart, U.S. inflation barely reached 2 percent even as U.S. unemployment fell to a 50-year low. The upshot is that an employment recovery could potentially be given more "room to run" – with broad-based benefits, including to disadvantaged segments of the population.

US: Core Inflation and Unemployment Rate
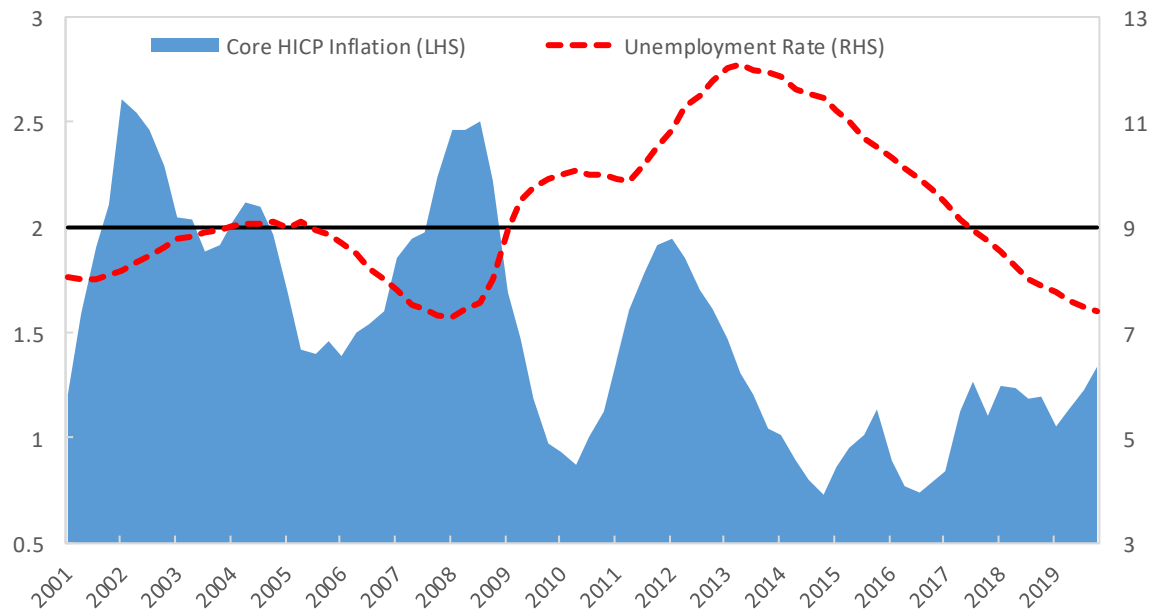
(In percent)

Core PCE Inflation (LHS) — Unemployment Rate (RHS)
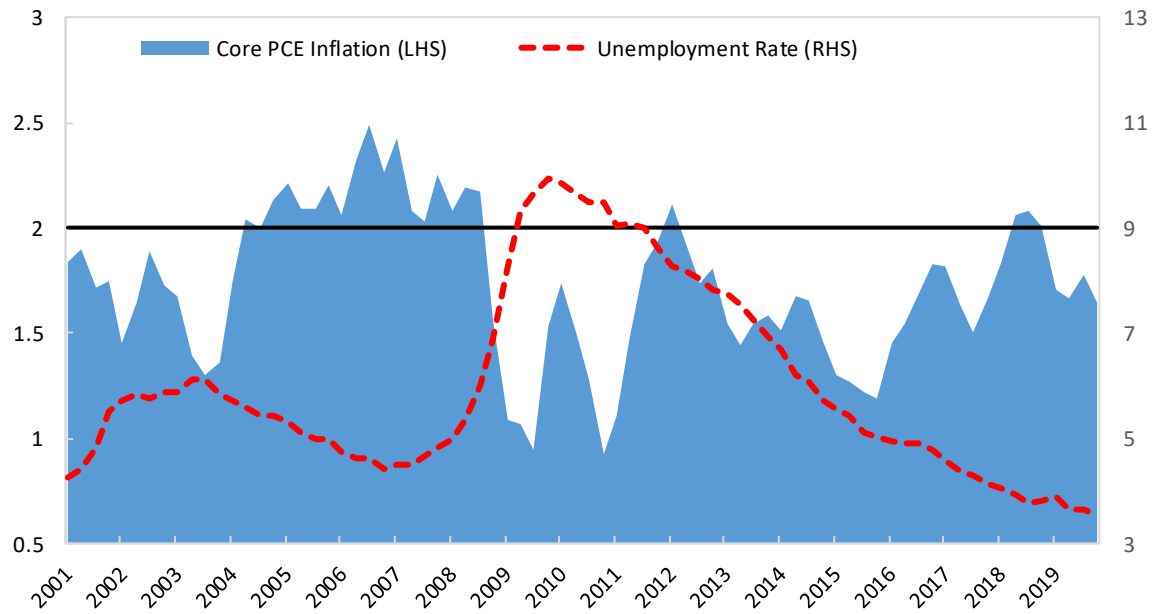
Source: Haver Analytics

Euro Area: Core Inflation and Unemployment Rate

(In percent)

Core HICP Inflation (LHS) — Unemployment Rate (RHS)

Source: Haver Analytics

Framework Reviews of the Fed and ECB

The considerations I have just outlined played an important role in the Fed's decision to adopt a new framework of flexible average inflation targeting.[1] The new makeup strategy commits the Fed to allow inflation to run moderately above 2 percent following a period in which inflation runs persistently below 2 percent.

This strategy is attractive in an environment of limited policy space. Notably, if policy rates are pinned at zero, the promise of higher inflation in the future should lower real interest rates, boosting output and inflation today. Thus, the Fed expects that this strategy will keep inflation closer to 2 percent on average, and it will help better anchor long-run inflation expectations at around that level.

The Fed also changed how it will respond to employment. In essence, it will take advantage of a flat Phillips Curve to allow the labor market to run hot until there are tangible signs of inflation. That should help achieve broad-based improvements in the labor market.

The Fed is engaged in ongoing communications efforts to clarify how flexible average inflation targeting will work in practice.[2] Recent communication suggests that it is likely to be an asymmetric strategy suited to deal with Effective Lower Bound (ELB) risks. Thus, the Fed will make up for persistent low inflation that caused policy rates to hit zero. But in normal times — when inflation is around target — the Fed will continue to practice flexible inflation targeting, and it will not aim to make up for periods of high inflation by pushing inflation below target.

A key implementation issue is: How much of past inflation misses should policymakers aim to make up? A temporary price-level target would aim to make up fully for past inflation shortfalls. To illustrate — as shown by the red bar in the accompanying figure — it might allow inflation to run at 3 percent if inflation ran at only 1 percent in the previous year, rather than simply return to 2 percent, as

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[1] Federal Reserve Chair Jerome Powell's Jackson Hole speech (2020) provides an encompassing overview both of the key motivations for considering change to the Fed's monetary policy framework, as well as of the changes that the Fed implemented to its framework in the context of its review.

[2] See Clarida (2020).

would occur under flexible inflation targeting. But there could clearly be some tension between the objectives of making up for past misses and only allowing inflation to overshoot moderately. Fully making up for inflation misses in the more distant past could require aiming for inflation rates that the Fed would not regard as moderate — say, 3 percent or more for several years. Accordingly, makeup will probably only be partial — consistent with flexible average inflation targeting.

Inflation

(In percent)

Price Level

(In percent)

Legend: Target in Year 0 — FIT — PLT
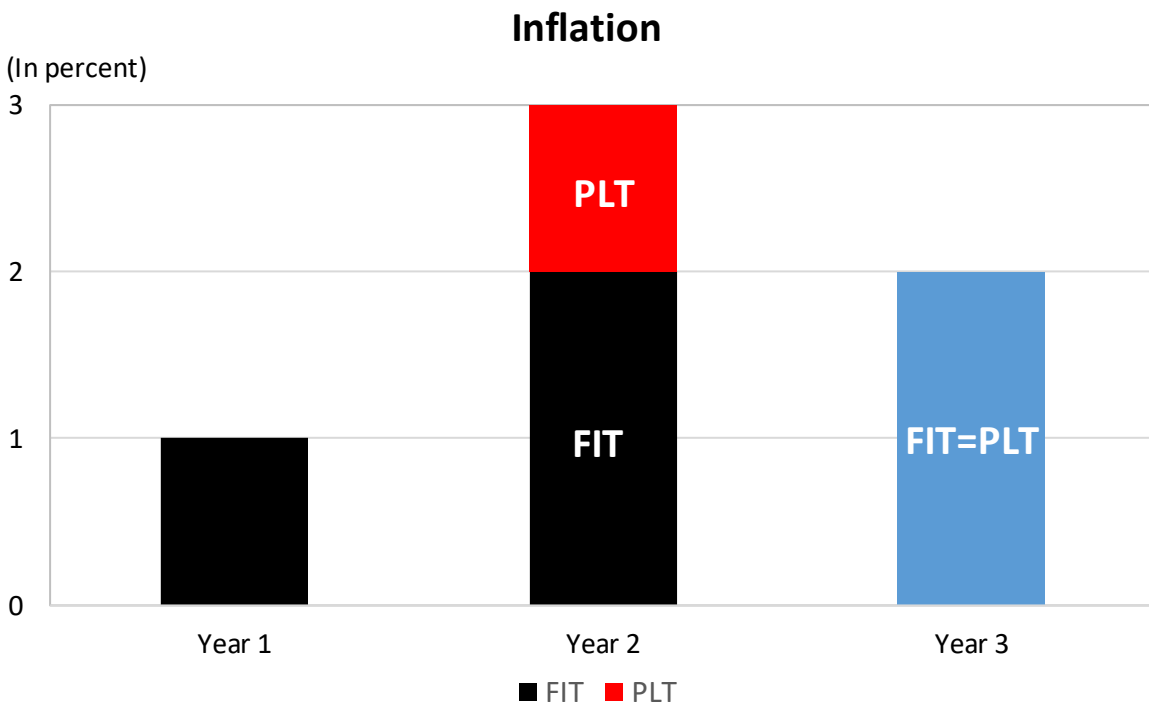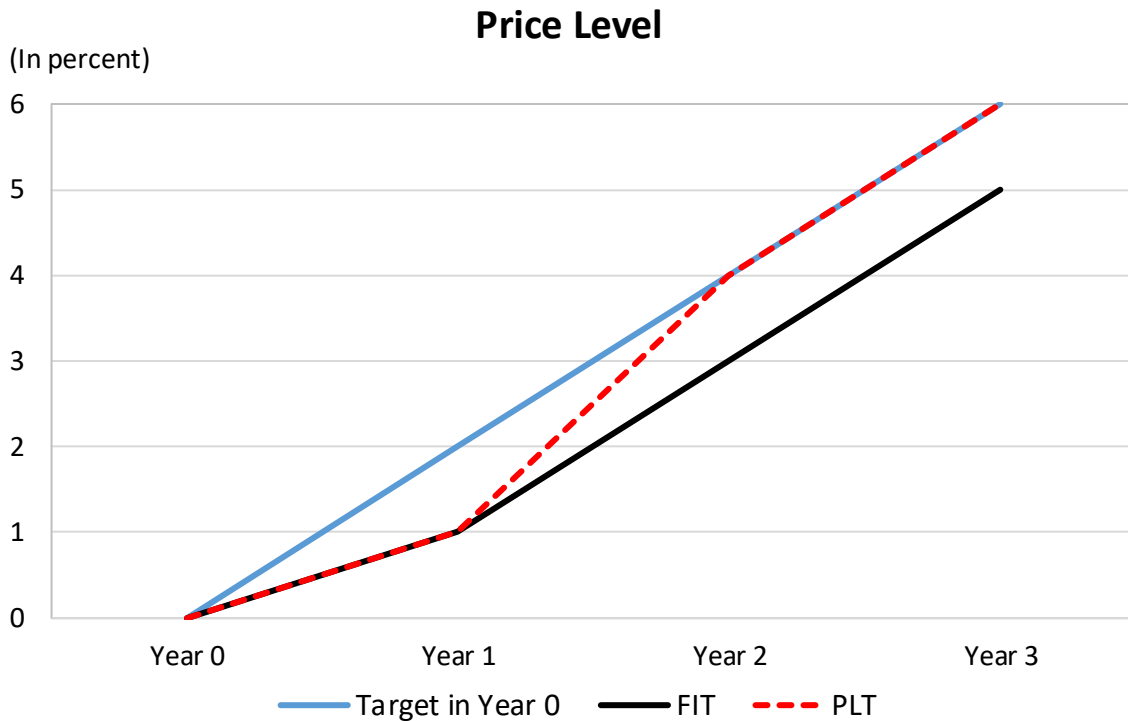
I'll now turn to the European Central Bank. The ECB may consider adopting a clear symmetric point target of around 2 percent as part of its framework review.[3] For much of its early history, the ECB was concerned mainly about inflation running too high, and characterized its inflation aim as "below, but close to, 2 percent" to emphasize the asymmetry in its preferences. But the ECB has become more worried about falling inflation expectations and low r*. The ECB has stressed in recent years that its commitment to symmetry around a point target may help better anchor inflation expectations.

The ECB is also studying make-up rules, including flexible average targeting and other variants such as nominal income targeting. However, there may be some concern about the credibility of committing to push inflation persistently above 2 percent given that inflation has run well below 2 for so long.

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[3] See the speech by ECB President Christine Lagarde (2020) for a detailed overview of key facets of the ECB's ongoing review.

Central banks are also exploring how they may expand their range of tools to provide stimulus. With yields on safe assets very low, this is likely to entail moving more heavily into purchasing private assets — including riskier corporate bonds and equities — as well as providing direct support to non-financial corporates. They may also choose to follow the Bank of Japan in adopting yield-curve control, which can help cap sovereign bond yields through the promise of unlimited sovereign bond purchases. As seen in the figure, such a policy may reduce the need to purchase assets, as has been the case since Japan implemented the policy in the fall of 2016.

These policies can provide considerable stimulus through depressing term and risk premia, although they may expose central banks to more balance-sheet risk, especially as central banks eventually move toward policy normalization.

Central banks may also consider pushing interest rates negative or more deeply negative, although some central banks, such as the Fed, have been wary to do so given potentially adverse effects on market functioning and bank profitability.
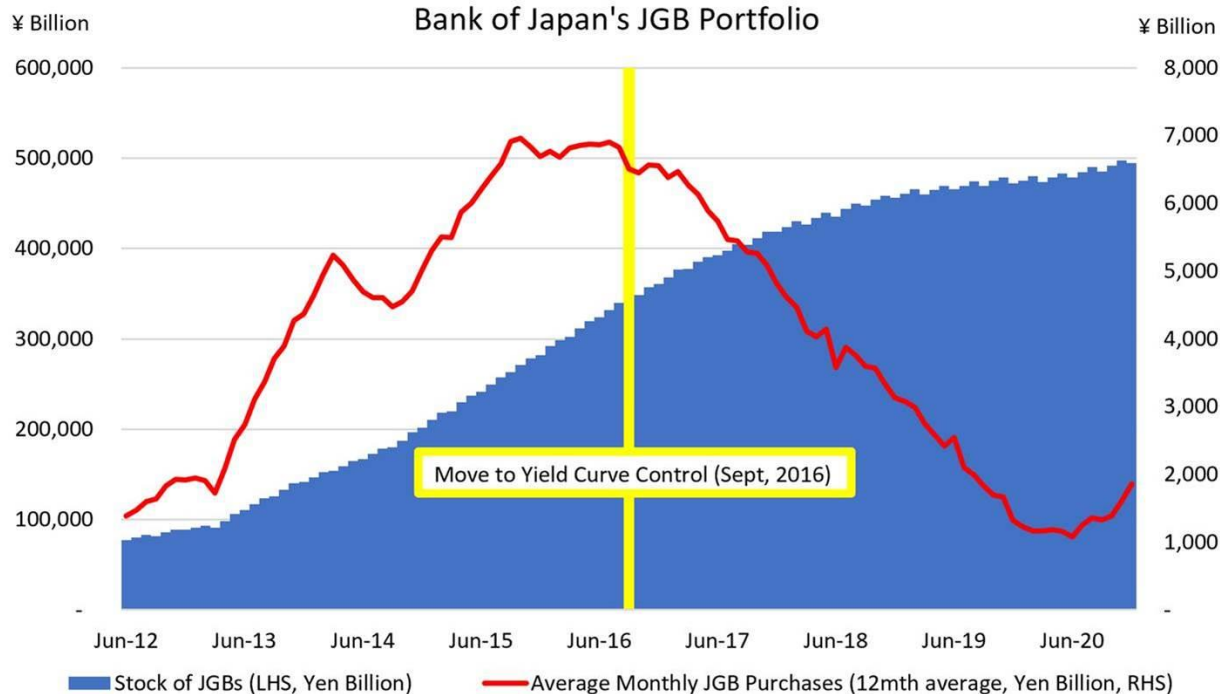
A Deeper Dive into Makeup Strategies

We'll now take a somewhat deeper dive into makeup strategies, including temporary price-level targeting and average inflation targeting — and we'll consider their ability to mitigate some of the challenges posed by the ELB.[4] While these strategies clearly call for more accommodation in a recession, the boost to inflation and output depends critically on influencing inflation expectations — creating the upfront expectation that inflation will eventually overshoot its target. Under "idealized conditions," in which the new policy is understood and regarded as credible, the promise of higher future inflation would quickly boost inflation expectations — and would strengthen activity by lowering real interest rates, even if the ELB were binding. Inflation would rise today due to the stronger recovery and higher inflation expected down the road.

In reality, it is likely to be difficult to boost inflation expectations simply through changes in the policy regime. The Fed's policy shift, in itself, appeared to have little effect on survey measures of expected inflation — as seen in the accompanying panel showing US inflation expectations five to 10 years ahead, as found in the Federal Reserve Bank of New York's survey of market participants.

Expected 5Y CPI Inflation 5Y Ahead (Median)

(In percent)
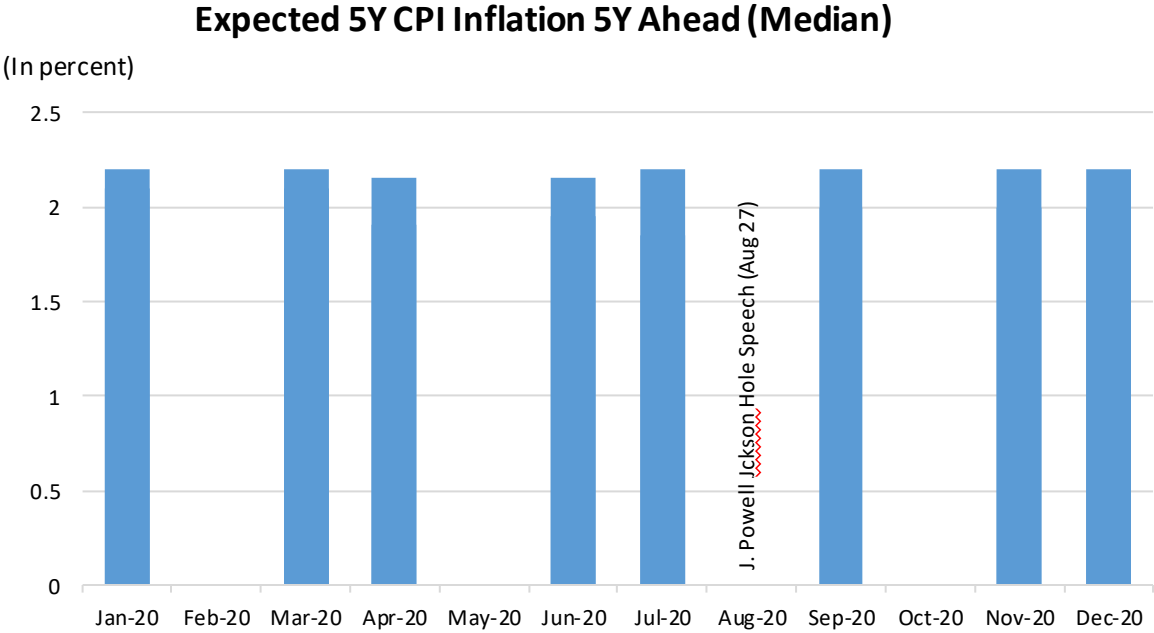
Sources: Federal Reserve Bank of New York Survey of Primary Dealers

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[4] An extensive literature has examined price level targeting, with early seminal work by Eggertsson and Woodford (2003). Svensson (2020) provides an insightful treatment of average inflation targeting.

While market-based measures of inflation "breakevens" have risen recently — especially on the heels of a large expected stimulus package — these measures are heavily influenced by changing risk premia. And Japan has faced a long struggle in trying to boost inflation expectations for more than two decades.

A growing empirical literature has highlighted the difficulties of influencing inflation expectations. Studies using behavioral methods find that households and firms don't have a good understanding of central bank inflation objectives, and they are particularly hard to influence in a low-inflation environment in which they don't pay much attention to inflation (Coibion, Gorodnichenko, Kumar, and Pedemonte, 2020). Price-setters may need to see actual inflation rise noticeably before adjusting inflation expectations, but it's hard to move inflation when the Phillips Curve is flat.

My colleagues and I have been engaged in using cutting-edge models — similar to those used at major central banks — to assess the effects of a shift in strategy toward various types of makeup rules. In particular, we have developed a dynamic stochastic general equilibrium (DSGE) model that builds on the workhorse Smets-Wouters (2007) model, but that allows for behavioral discounting as in Gabaix (2020) to allow us to capture the possibility that expectations react much less than what is implied by standard models embedding fully rational expectations.

The accompanying panels show the effects of a shift in strategy under alternative assumptions about how expectations are formed. Under "Large Anticipation Effects," the model embeds rational expectations, so the public rapidly adjusts its beliefs when a new regime is announced. Under "Small Anticipation Effects," by contrast, the model embeds behavioral discounting, implying that it is harder to influence expectations at distant horizons.

Price level targeting under the large anticipation effects case – the red lines in the upper left panel -- spurs a rapid rise in inflation relative to the flexible inflation targeting benchmark - -the black lines -- and overshooting of the 2 percent target. Average inflation targeting, the blue lines, in which policy rates respond to inflation developments over the past few years, also causes inflation to rebound more quickly. Even so, inflation never actually overshoots: a more aggressive easing of policy in response to average inflation would be required, as well as additional tools to ease the ELB constraint. Turning to the case with smaller anticipation effects in the upper right panel, it is clear that the boost to inflation

under either PLT or AIT is considerably smaller – just a couple of tenths of a percentage point on inflation. While it is clear from the lower panels that the output rise is much smaller under small anticipation effects, output does rise about 1 percent relative to baseline under AIT after about 3 years, a noticeable impact, and even more under PLT.
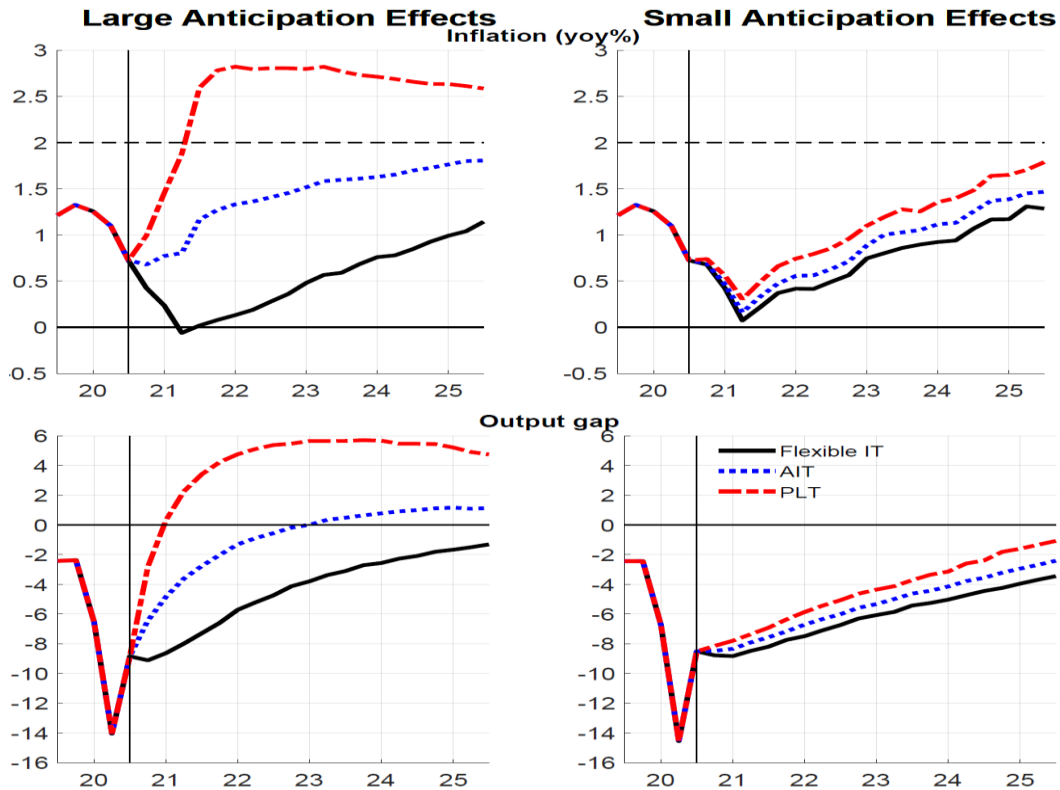
Price-level targeting (PLT) under the "Large Anticipation Effects" case — the red lines in the upper-left-hand panel — spurs a rapid rise in inflation relative to the flexible inflation targeting benchmark — the black lines — and an overshooting of the 2-percent target. Average inflation targeting — the blue lines, (AIT) — in which policy rates respond to inflation developments over the past few years, also causes inflation to rebound more quickly. Even so, inflation never actually overshoots: A more aggressive easing of policy in response to average inflation would be required, as well as additional tools to ease the ELB constraint.

Turning to the case with smaller anticipation effects, in the upper-right-hand panel: It is clear that the boost to inflation under either PLT or AIT is considerably smaller — just a couple of tenths of a percentage point on inflation. While it is clear from the lower panels that the output rise is much smaller under "Small Anticipation Effects," output does rise about 1 percent relative to baseline under AIT after about three years, a noticeable impact, and even more under PLT.

Model simulations — both our own and related work by central-bank staff — suggest that makeup strategies can modestly boost output and inflation. But harnessing these benefits will require overcoming substantial communication challenges.

Because the strategies are unfamiliar and untested, central banks must clarify how they work and differ from flexible inflation targeting. This will involve clarifying key features of the policy reaction function —including the need to provide a better idea of the time period over which average inflation is defined, and how much inflation will be allowed to overshoot. More willingness to allow a substantial overshoot — say, to 3 percent — should provide more stimulus. Central banks must also build credibility for the promise to allow inflation to overshoot, and they must convince the public that they will set policy to deliver on this commitment.

The new strategies will clearly require more monetary accommodation, but this does entail implementation challenges. With policy rates already expected to be low for a long time, forward guidance must be about more distant horizons, likely limiting its effectiveness. While central banks can deploy Unconventional Monetary Policies more aggressively and purchase more private assets, the ability to derive more stimulus through balance-sheet policies is probably limited, given the fact that long-term yields are already very low. Thus, the success of a framework change will probably depend substantially on the fiscal stance, with fiscal expansion helpful in giving the framework change more traction to boost the economy.

## U.S. Fiscal Expansion and Possible Overheating Risks

The large-scale U.S. fiscal expansion, initially approved by Congress in December and enacted into law in March, should facilitate an overshoot of inflation, consistent with the Fed's new framework. In particular, it should help support the economy's recovery by lowering real interest rates. And the stronger economy should help boost inflation and inflation expectations, and should move policy rates up from the ELB more quickly.

However, some observers have raised concerns that the large size of the U.S. fiscal packages will lead to economic overheating and a big inflation overshoot, with the new framework potentially increasing these risks. In my view, it isn't likely that inflation will overshoot substantially, for several reasons. In particular, the Phillips Curve is very flat; there is substantial labor-market slack, especially on the participation margin; inflation expectations appear well-anchored; and the Fed can tighten in response to high inflation (notwithstanding some costs).

Even so, while our modal view is that inflation will remain contained, there are upside inflation risks. First, the underlying pace of recovery (even absent fiscal stimulus) may be stronger than expected, reflecting pent-up demand and high savings during the pandemic. Second, fiscal multipliers may be higher than expected. Third, there may be non-linearities in the Phillips Curve. Fourth, inflation expectations may shift upward, especially if realized inflation runs high for some time against the backdrop of a hot labor market. And, fifth, the new strategy of average inflation targeting may increase the risk that the Fed gets behind the curve. Clearly, policymakers must be attentive, especially since markets may not be well-poised to deal with a substantial rise in inflation after many years of very low inflation.

Financial Stability Risks from Highly Accommodative Strategies

Even if upside inflation risks fail to materialize — as we expect — the new strategies will require more prolonged monetary-policy accommodation. Thus they may amplify the global "search for yield," cause leverage to rise, and eventually raise financial-stability risks, including in Emerging Market and Developing Economies.
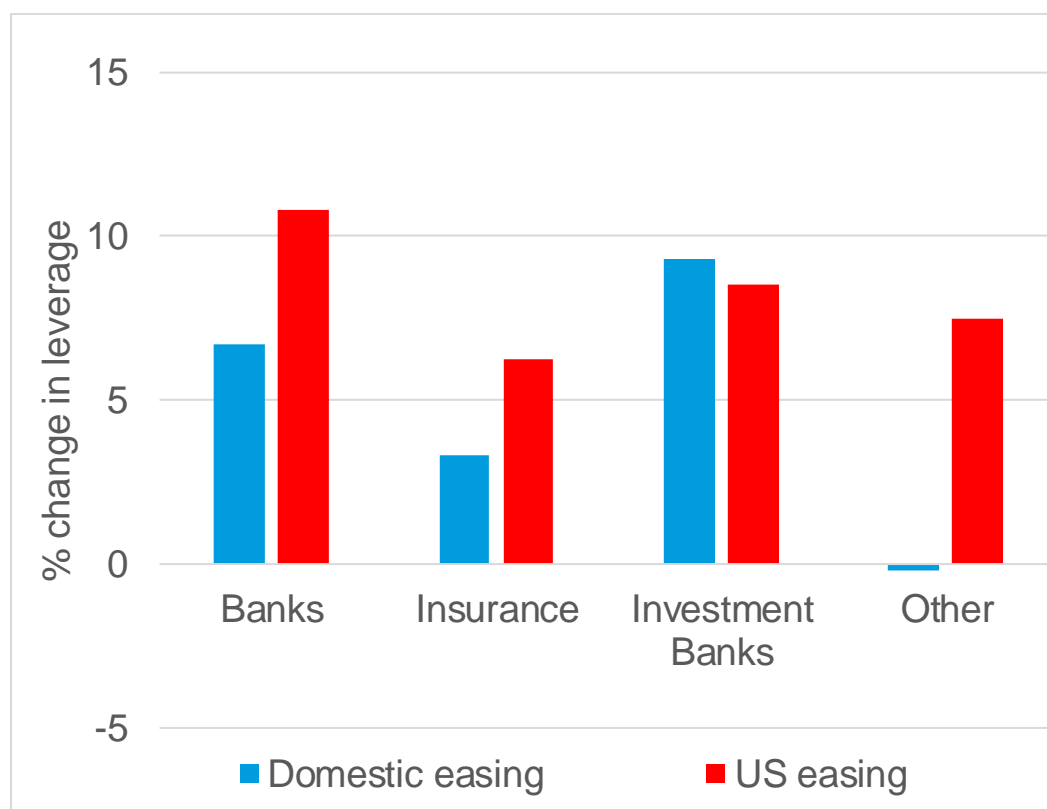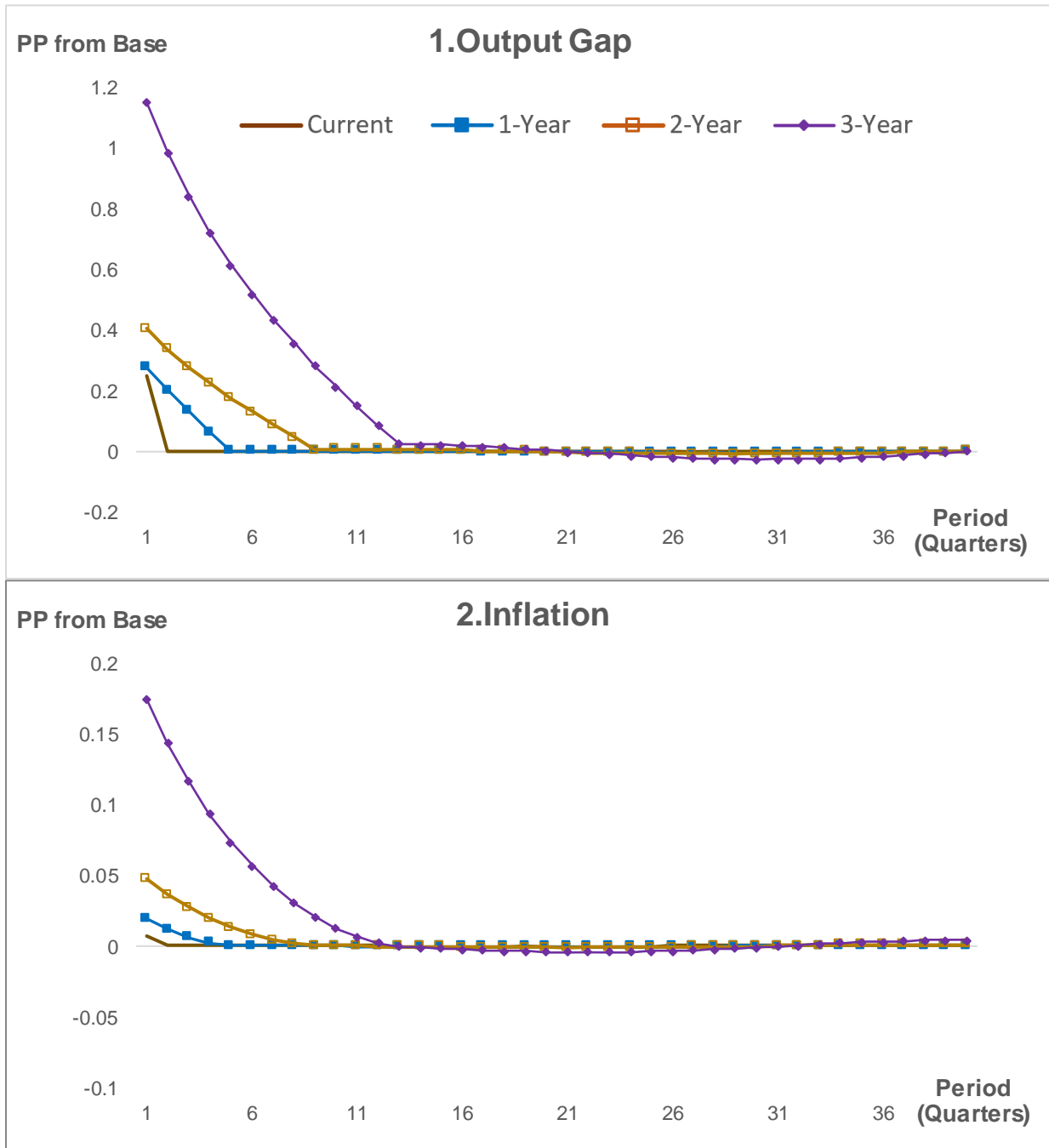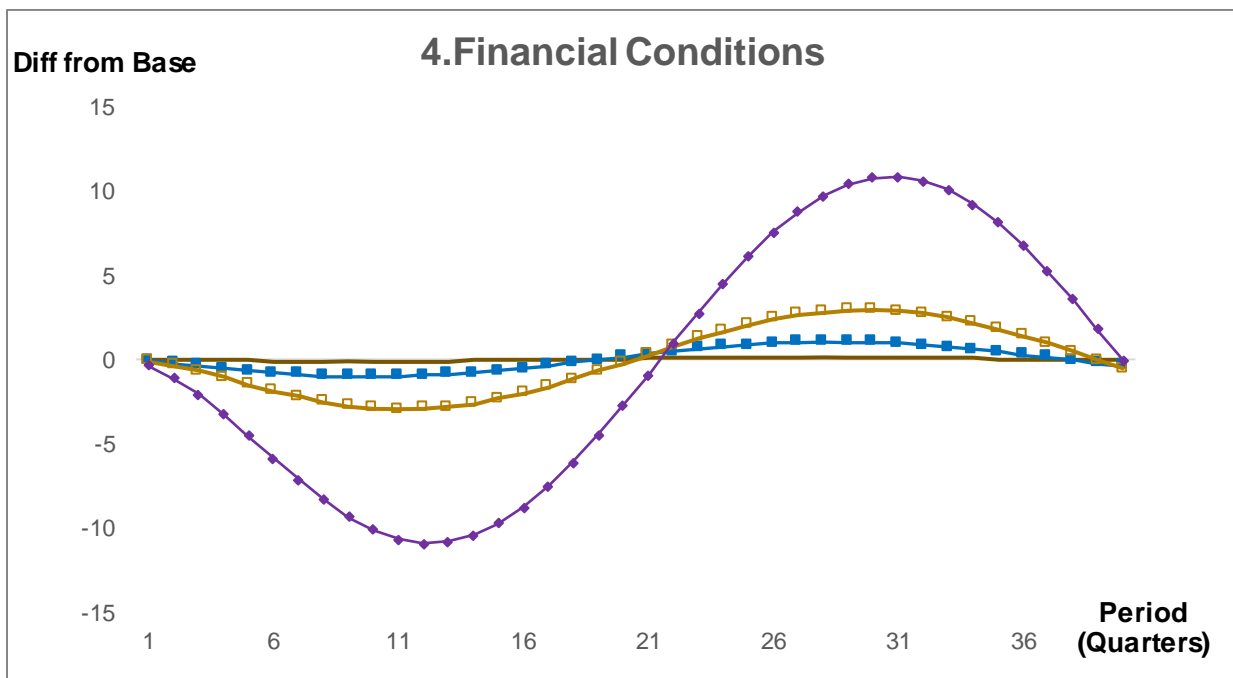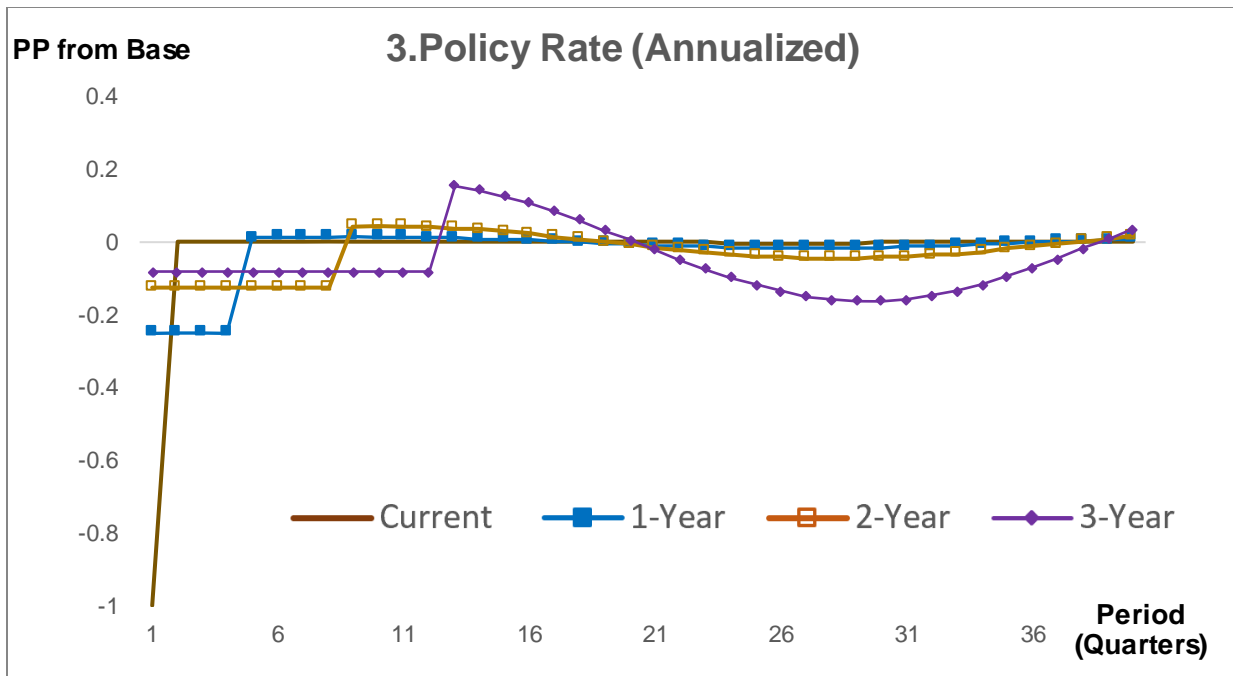
Policymakers thus face tradeoffs between supporting the economy today and fueling greater financial-stability risks down the road. In an IMF Departmental Paper https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2020/11/23/Low-for-Long-and-Risk-Taking-49733 issued last year, I showed that the optimal degree of accommodation depends on the ability to deploy macroprudential policies to contain these risks.

My colleagues and I have developed a New Keynesian model with endogenous risk that is well-suited to evaluating intertemporal tradeoffs. We call it the "NKV" model because it is New Keynesian in flavor, but it also accounts for financial vulnerabilities. More specifically, the NKV model has been designed to account for the interplay of financial conditions with real economic variables.

In the accompanying chart, I use the NKV model to analyze "lower for longer"-type policies, in which the central bank credibly commits to providing monetary stimulus for extended periods of time, with different lines corresponding to different durations of the corresponding cut.

"Low for Long" and Risk-Taking

1. Output Gap

PP from Base

Legend: Current — 1-Year — 2-Year — 3-Year

Period (Quarters)

2. Inflation

PP from Base

Period (Quarters)

PP from Base

3.Policy Rate (Annualized)

Current — 1-Year — 2-Year — 3-Year

Period (Quarters)

Diff from Base

4.Financial Conditions

Period (Quarters)

The figures help underscore two points:

First, they confirm that "lower for longer"-type policies are effective at providing short-run stimulus. Arguably, this is one of the reasons why central-bank interventions played such a large role in mitigating the adverse impact of the pandemic.

Second, and as seen in the final panel, policies can have a marked impact on the evolution of financial conditions. Notably, financial conditions significantly tighten in the medium- to long-run, with adverse implications for activity, highlighting the intertemporal trade-off that policymakers are faced with.

It turns out that macroprudential policies can favorably influence these intertemporal tradeoffs, allowing monetary policy to be more accommodative.

You can find further details on the material that I have covered in these remarks today in my IMF blogs https://blogs.imf.org/bloggers/tobias-adrian/ as well as in a non-technical Departmental Paper https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2020/11/23/Low-for-Long-and-Risk-Taking-49733 that was published recently.

Conclusions

To conclude: We see the new makeup strategies that central banks are considering as an innovative way to confront the complex challenges posed by a low-equilibrium interest-rate environment. With appropriate support, these new strategies may provide a somewhat faster recovery from recessions, including from the COVID-induced downturn, and may better anchor inflation expectations near target. Of course, given the fact that these frameworks are new and untested, they will require continuing refinement and clarification to enhance their effectiveness.

However, policymakers will need to address potentially heightened financial-stability risks, and to incorporate models that factor these risks more fully into their decision-making.

Thank you very much. Now, it would be a pleasure to consider any questions you may have.

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