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Is This Time Different for Monetary Policy?

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Abstract

With the stage set for a rapid economic rebound, analysts are wondering if this time is different for monetary policy. Specifically, is this the end of the declining cycle peaks in the Fed Funds Rate (FFR)? Will the FOMC deviate from the trend of offering larger incentives for a longer duration? This study develops a new framework to shed light on the near-term path of monetary policy.

The first step estimates the magnitude of the monetary stimulus offered during different business cycles, and suggests that the FOMC has offered larger incentives for a longer duration in each recession relative to the prior cycle by exhausting its traditional tools and utilizing less conventional tools. Each recession has drained the FOMC's resources and left the Committee with fewer conventional tools to fight the next recession.

The estimated duration of monetary stimulus for the current cycle may be shorter than the past cycle, though the estimated magnitude of the current monetary stimulus has already crossed the previous cycle's bar. The second step suggests that the FFR may follow the past declining trend in the near future. That is, the near-term peak in the FFR may be lower than the past cycle's peak value. Essentially, lower rates and a larger balance sheet are here to stay.

The final step characterizes the pace of the current recovery and compares it to the past recoveries. The current recovery is likely to break the past weaker-recovery trend. A faster recovery, along with higher inflation, may break the past declining FFR. However, given the second step's prediction of a lower FFR peak value in the near future, we caution that policymakers should not be exclusively influenced by the faster recovery and higher inflation. We strongly recommend monitoring the upcoming data to analyze whether this time is different enough to start a different path for monetary policy.

Key Words: Monetary Policy; Effectiveness; Business Cycles; Different Time.

JEL Classification: E52; E32.

Is This Time Different for Monetary Policy?

Introduction

The unusual dynamics of the COVID crisis, as well as the robust response from policymakers, have precipitated the opposite problem from that which plagued prior recoveries. With the stage set for a rapid economic rebound, could this time be different for monetary policy? Specifically, is this the end of the declining cycle peaks in the Fed Funds Rate (FFR) and will the FOMC deviate from the trend of offering larger incentives for a longer duration? In each business cycle over the past 30 years, the peak in the FFR has been lower than the previous cycle. Moreover, the FOMC has offered larger incentives for a longer duration in each recession relative to the prior cycle. Consequently, each recession drained the FOMC's resources, and left the Committee with "less ammunition" to fight the next recession.

This study develops a new framework to examine whether the current cycle will be different for monetary policy. First, we propose a framework to measure the magnitude of stimulus for each recession. This allows to compare different cycles and determine whether the FOMC needs to cut the FFR by 500 bps in order to effectively combat a recession. Essentially, the first step analyzes the relative effectiveness of monetary policy tools to illustrate why a different-than-the-past FFR trend would help the FOMC to refill its ammunition bag more quickly.

The second step utilizes the historical relationship between the Fed funds rate and the 10-year Treasury yield to predict the likely path of the FFR. This helps us determine whether the FFR will follow the declining trend in the near future, leading to a smaller peak in the FFR next cycle.

In order to incorporate the pace of the economic recovery, the final step of our approach characterizes the pace of the current recovery, and compares it to the past cycles. To differentiate faster and slower recoveries, we focus on the pace of real GDP growth and the unemployment rate. Given the dual mandate of the FOMC, we also incorporate inflation to project a likely path for the FFR. Essentially, a different pace of the current recovery when compared to the past (i.e., faster recovery and higher inflation) may suggest a different monetary policy path for the current cycle compared to past cycles.

Our results suggest that the estimated duration of monetary stimulus for the current cycle may be shorter than the past cycle. However, the estimated magnitude of the current monetary stimulus has already crossed the previous cycle's level. Furthermore, we estimate that in addition to conventional tools such as the FFR, unconventional monetary policy tools such as quantitative easing (QE) are also experiencing diminishing efficiency. That is, by Q2-2021, the available pool of unconventional resources to jump-start the economy from a recession dropped to 58.3% the lowest level in our sample period (compared to 94.4% for the pre-Great Recession and 78.3% for the pre-2020 recession).

Iqbal-Bullard-Silvia (2019) presented a new framework utilizing a threshold between the fed funds rate and the 10-year Treasury yield, and that threshold has predicted all recessions and changes in the monetary policy stance since 1954. We utilize this approach to predict the likely peak of the FFR. The 10-year yield dropped to its lowest value in the current cycle of 52 bps on August 4, 2020. Thus, *only one rate hike* (two rate hikes, if we don't round the 10-year Treasury yield's lowest level from 52 bps to 50 bps) would breach the threshold. Assuming the threshold proposed by Iqbal-Bullard-Silvia repeats its historical accuracy, the FOMC would reverse its monetary policy stance in roughly 18 months after only one or two rate hikes.

This also indicates that chances of a sizable reduction in the balance sheet are very low in the current cycle. Given the historical accuracy of the Iqbal-Bullard-Silvia approach, especially the real-time accuracy of the threshold during 2018-2019, we caution decision makers to be mindful of possible lower rates and a larger balance sheet for a longer period of time when designing policies. For example, the December 2017 rate hike breached the threshold. However, because of the 2017 tax-cut and extended expansion, there were doubts that the FOMC would change their monetary policy stance. In retrospect, the FOMC did change the monetary policy stance in 2019, after first adopting a "patient" stance and then bringing the FFR to 1.75% by its October 2019 meeting.

Using Blue Chip economic forecast, real GDP would cross the level of potential GDP, as estimated by the Congressional Budget Office (CBO), in Q3-2021, marking the fastest recovery since the late 1950s. In the post-Great Recession recovery, it took 34 quarters for real GDP to reach its potential level. After the 2001 and 1990 recessions, it took 12 and 22 quarters, respectively. Likewise, based on the Blue Chip economic forecast, the unemployment rate could hit the natural

unemployment rate after only nine quarters, faster than any of the last five recoveries. The unemployment rate took 30 quarters to reach the natural unemployment rate following the Great Recession, 14 quarters after the 2000 recession and 21 quarters after the1990-1991 recession. The inflation rates are also persistently higher in the current cycle compared to the past business cycles, as the June 2021 PCE deflator hit 4% which is the highest since July 2008.

Therefore, the current economic cycle is different than the past cycles, which may suggest this time is different for monetary policy. This faster recovery and higher inflation may break both the declining FFR trend. However, given the size of the Fed's balance sheet (over $8 trillion in June 2021), the magnitude of the monetary stimulus has already surpassed the level set by the Great Recession. While the Fed utilized more monetary stimulus to combat the COVID crisis, in both breadth and depth, the faster recovery could allow them to remove this accommodation more quickly than in prior cycles.

Summing up, it seems the economic recovery is different this time. However, the question is whether this difference is sufficient to expect a different path for monetary policy. In our view, persistent above trend growth, along with relatively stable inflation over the medium-term, would potentially take the FFR to a higher peak, and could also pave the way for the FOMC to reduce its balance sheet. However, given the historical accuracy of the Iqbal-Bullard-Silvia approach, we caution to consider past FFR trend in the near future when designing policies. Essentially, policymakers should not be exclusively influenced by a fast recovery and high inflation while ignoring the possibility of lower rates and a large balance sheet for a longer duration. We strongly recommend monitoring the upcoming data to analyze whether this time is different enough to make a difference for monetary policy actions.

2. Monetary Policy and Business Cycles: Similar Trends over Different Cycles

During the spring 2020, as the world grappled with the ramifications of the impending pandemic and the rapidly deteriorating economic outlook, policymakers stepped in to restore confidence and re-open frozen credit channels. In two unscheduled meetings, first on March 3 and then on March 15, the FOMC cut the fed funds rate to 1.25% and then to 0.25%, the effective lower bound. However, even before the COVID pandemic, the fed funds rate had been on a declining trend, and many wondered what the FOMC would do to combat the next recession.

For instance, in the post-Great Recession era the fed funds rate peaked at only 2.50%, well below the prior cycle peak of 5.25% in August 2007. Furthermore, the FOMC started to lower the fed funds rate in summer 2019, and brought the rate to 1.75% at its October 2019 meeting. Typically, the FOMC cuts the fed funds rate by around 500 bps in a recession. It brought the rate from 5.25% to the zero lower bound during the Great Recession, and from 6.50% to 1.75% during the 2001 recession (between December 2000 and December 2001). Therefore, with the fed funds rate at 1.75% by the end of 2019, analysts were wondering what the FOMC would do to combat the next recession.

We believe there are some major issues with the idea that a 500 bps reduction in the FFR is needed to stimulate the economy during a recession. First, the benchmark does not accurately measure the magnitude of the monetary stimulus. For example, the 475-bps-cut in the FFR (from 6.50% to 1.75%) during the 2001 recession is slightly smaller than that of the Great Recession cut (500-bps-cut, from 5.25% to 0.25%). However, the FOMC had more room to cut rates in the 2001 cycle, and it did (the FFR was then cut to 1.0%) during the weaker recovery from the 2001 recession. On the other hand, because of the zero lower bound, the FOMC ran out of conventional tools it employed unconventional methods (started several rounds of quantitative easing [QE]) to jump-start the economy from the Great Recession.

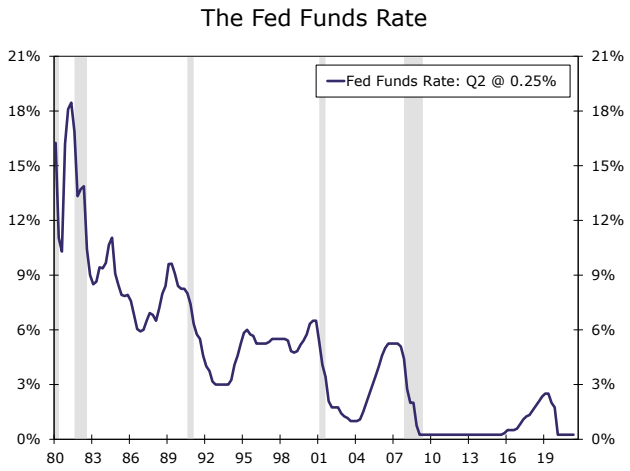
Therefore, the level of the FFR, particularly the peak and trough of the FFR, is important to determine the magnitude of the monetary stimulus, as well as "ammunition" to fight the next recession. A relatively higher peak (6.50% peak for the pre-2001 recession, compared to the 5.25% peak for the pre-Great Recession) would suggest relatively more "ammunition" to fight the upcoming recession, and vice versa. By the same token, a higher trough (1.0% for the post-2001 recession versus 0.25% for the post-Great Recession era) would help the FOMC refill the "ammunition bag" faster than a lower trough, all else equal. Therefore, we need a new tool that incorporates the peak and trough level of the FFR in order to accurately measure the magnitude of the monetary stimulus offered during a recession.

The second issue with the simple 500-bps-cut benchmark is that it ignores the duration of the monetary stimulus, which is an important factor to determine the "ammunition" to fight a future recession. That is, during the 2001 monetary cycle, there were a total of 12 rate cuts, and the total monetary easing period—the time over which the FFR was either reduced or left unchanged—

consisted of 42 months. There were only eight rate cuts during the Great Recession era, but the easing period spread to 100 months. Theoretically, a faster rate cut (along with higher magnitude of the cut) would suggest depth and severity for a recession, along with how quickly the available ammunition is utilized (at least the conventional toolkit may be exploited). The duration of the easing period sheds light on the available resources to fight a future recession. That is, a longer duration of the easing period may leave the Committee with a shorter duration to refill the ammunition bag for the next recession, all else equal. An example of such a scenario is the post-Great Recession era, which experienced the longest duration of easing in recent history (100 months), where the FFR peaked at only 2.50%. The FFR hit this low peak despite the fact that the post-Great Recession era also experienced the longest expansion in the post-World War II era, which should have provided more time for the FOMC to rebuild its toolkit to fight the next recession, at least in theory.

The final major issue with the 500-bps-cut benchmark is that it assumes, implicitly, that the effectiveness of the monetary policy remains the same for each business cycle. However, if we include the true magnitude of the stimulus, along with the duration of the easing period, then it seems that monetary policy effectiveness is diminishing overtime. Figure 1 shows that since the mid-1980s, each peak in each monetary cycle is lower than the previous peak (e.g. 9.75% peak for the 1990 recession, 6.50% for 2001, 5.25% for the Great Recession and only 2.50% for the 2020 recession). The easing period of 100 months for the Great Recession compared to just 42 months for the 2001 recession may indicate that monetary policy tools are experiencing diminishing effectiveness. Therefore, instead of using the simple benchmark of a 500-bps-cut, we need a new tool to quantify an accurate measure of the monetary stimulus offered during a recession. That framework would also shed light on the consequences of the declining FFR trend, along with lower rates and a larger balance sheet for an extended period.

Figure 1: The Fed Funds Target Rate



2.1 Quantifying Magnitude and Duration of the Monetary Stimulus during Business Cycles

The first phase of our proposed framework determines the peak and trough in the FFR for each business cycle. The second phase incorporates the pace of monetary policy changes in relation to the FFR peaks and troughs. A lower peak in the FFR compared to the previous cycle suggests the FOMC has less accommodation to offer in the current cycle, given the zero lower bound of the nominal FFR. By the same token, a lower trough relative to the prior cycle requires more time to rebuild "ammunition," all else equal. Additionally, a faster rate-cut would utilize available incentives quickly, and a longer duration of the easing period may reduce available resources needed to fight the next recession.

The results are reported in Table 1. There are some major reasons to start our analysis from the 1990-91 recession. First, the pre-1990 fed funds rate exhibited materially different behavior than in the post-1990 era. Prior to1990, the fed funds rate was much more volatile, and operated in a different range than it has over the past three decades. After touching 20% in the early 1980s, the fed funds rate has remained below 10%, averaging 5.1% in the 1990s and 3.0% in the 2000s. Therefore, the post-1990 era is more relevant for both current and near future outlook of monetary policy.

Table 1: The Federal Funds Target Rate during Business Cycles

Recession	Level Change During Recession	Percentage Change	Number of Rate Cuts	Change from Previous Peak	% Change from Previous Peak	Months of Easing*	Pre-Recession Peak	Recession Trough	Post-Recession Trough
July 1990 - Mar 1991	2.50%	30.30%	16	6.75%	69.20%	44	9.75%	6.00%	3.00%
Mar 2001 - Nov 2001	3.75%	68.20%	12	5.50%	84.60%	42	6.50%	2.00%	1.00%
Dec 2007 - Jun 2009	4.25%	94.44%	8	5.00%	95.20%	100	5.25%	0.25%	0.25%**
Feb 2020 - Apr 2020	1.50%	85.70%	2	2.25%	90.00%	N/A	2.50%	0.25%	0.25%**

* Rates cut or on hold ** The FOMC started QE

The second major reason to exclude the pre-1990 era from the analysis is the nature of recessions in this period, as the Fed's response differs from the more recent cycles. Since the 1990s, the FOMC reduced the FFR during each of the four recessions. However, during the 1970s and 1980s, the FOMC raised the FFR during recessions because of rising inflation. For example, the effective fed funds rate jumped to around 13% from around 9% during the 1973-1975 recession, and to 20% from 14% during the 1980 recession. Finally, we believe these four recessions present a sufficient range to conduct our analysis. The 2001 recession is widely considered mild, while the 1990-1991 recession is labeled moderate and the 2007-2009 recession is more severe (the Great Recession). The 2020 recession, for its part, was the shortest on record and saw the sharpest drop in output since at least 1950. Therefore, we can analyze how monetary policy behaves in different business cycles.

The severity of a downturn may seem like the primary determinant of how much monetary stimulus the Fed provides, but that is not always the case. Although the 2001 recession was less severe than the 1990-1991 recession, the FOMC offered larger incentives, including reducing the FFR by 3.75% during the 2001 recession, compared to a 2.50% reduction in the FFR during the 1990-1991 recession. With a 4.25% reduction in the FFR during the Great Recession, it appears that the FOMC offered larger incentives in each recession compared to the past recession during the post-1990 period. Therefore, stimulus offered in a recession may not be correlated with the depth of that recession.

As mentioned earlier, the magnitude of the rate cut may not depict the whole picture. Looking at the total reduction in the FFR as a percentage of the FFR level during that time sheds more light on the size of the monetary stimulus. For instance, the FOMC reduced the FFR from 8.25% to

5.75% (total reduction of 250 bps) during the 1990-91 recession, and that was a 30.30% reduction from the available resources (250 bps as a percentage of 825 bps). In other words, the FOMC utilized 30.3% of its ammunition during the 1990-91 recession, and it still had around a 69.7% arsenal if it needed to jump-start the economy from the recession. In retrospect, with so many arrows left in the quiver, the FOMC was able to cut rates further in September 1992, to further stimulate the weak recovery. The FOMC utilized 68.2% of available ammunition during the 2001 recession and 94.44% (if using 0.25%, which is the upper limit) during the Great Recession. Technically, the FOMC utilized 100% of its ammunition during the Great Recession, as the FFR hit the zero lower bound and could not be lowered further, leading them to engage several rounds of QE to stimulate the economy. Therefore, even after accounting for its available resources, this measure suggests that the cumulative effect of these post-1990s' recessions put a strain on the FOMC's ammunition and affected the magnitude of accommodation beyond the depth of a recession.

Another statistic which helps us to capture the true magnitude of the incentives is the number of rate cuts during a recession or business cycle. A rate cut can be seen as a dose of incentive that calms financial market participants during turbulent times and lowers the cost of capital. A large number of rate cuts in a recession may highlight a longer duration of incentives, as well as a longer time horizon to utilize the available ammunition, all else equal. There were 16 rate cuts during the 1990-91 cycle, with roughly eight during the recession and another eight during the recovery phase. The FOMC brought the FFR down to 3.0% in September 1992, and kept the rate at that level for the next 16 months (until January 1994). The 2001 cycle has 12 rate cuts, and only two of those cuts occurred during the recovery. Furthermore, the FOMC brought the FFR down to its lowest level in decades (at 1% on June 2003). The Great Recession experienced eight rate cuts, and all of those cuts occurred during the recession. Because the FFR peaked at 2.50% on December 2018 and then stayed there until July 2019, the 2020 recession has only two rate cuts.

Essentially, the 1990-91 cycle has more rate cuts mainly because that cycle had greater ammunition (only 30.30% used during the recession). The 2001 cycle is associated with fewer rate cuts than the 1990-91 cycle, and that is due to relatively lower resources available during that cycle. The Great Recession and the 2020 recession followed the declining rate-cut trend (as well as the lower peak values for the FFR). Therefore, the FOMC offered larger incentives (as percent

of available pool of ammunition) in each recession since 1990-91. Furthermore, each recession reduced the FOMC's future ammunition to fight the next recession.

2.2 A Longer Duration of Incentives: A Longer Period to Refill the Ammunition Bag

As shown in Table 1, the 1990-91 cycle utilized 69.2% of available resources, 84.6% for the 2001 cycle, 95.2% during the Great Recession (technically, 100% due to the zero lower bound) and 90% (again, technically 100%) during the 2020 recession. This measure is forward looking in that it sheds light on the remaining resources to fight the next recession. That is, when the FOMC started raising the FFR after the 1990-91 recession the FOMC had 30.8% ammunition remaining in the bag to fight the next recession. It also indicates that when the FOMC started to refill its ammunition bag, it did not have to start from zero. However, the 2001 cycle left only 15.4% of resources in the toolkit, and the Great Recession emptied the bag. One can argue that the Great Recession may have utilized the future resources in the sense that the Fed's balance sheet exploded to the unprecedented level of over $4 trillion. Essentially, during the post-Great Recession era, the FOMC had to move on multiple fronts, including raising rates and reducing the balance sheet to accumulate ammunition to fight the next recession.

The final piece of our framework is the duration of the offered incentives, which, when combined with potential ammunition to fight the next recession, completes the picture of the monetary stimulus offered during a cycle. For example, between December 2000 and May 2004, the FOMC reduced the FFR or held it steady, leading to monetary easing duration of 42 months during the 2001 cycle. The monetary cycle lengths for the Great Recession and the 1990-91 cycles are 100 months and 44 months, respectively.[1] In theory, a longer duration of monetary easing would suggest relatively less ammunition to combat the next recession, as there would be less time to refill the ammunition bag, all else equal. Furthermore, although the 2001 cycle's duration is almost similar to the 1990-91 cycle's (42 months vs. 44 months), given that the 2001 recession was mild and attached to a larger magnitude, the cycle put larger pressure on the available resources. Moreover, the Great Recession is deeper than the previous two recessions, and saw larger incentives for a longer duration. The 2020 recession utilized all ammunition in just two moves (a

[1] As of July 2021, the current monetary cycle is in progress.

total reduction of 150 bps), and therefore the lower-ammunition-for-next-recession trend has continued since the 1990-91 recession.

In sum, our analysis suggests that the monetary incentives were offered for longer durations for each recession. Furthermore, in each recession, the FOMC offered larger incentives compared to the previous cycle. Essentially, each recession in our analysis drained the FOMC's resources and left the Committee with "less ammunition" to combat the next recession.

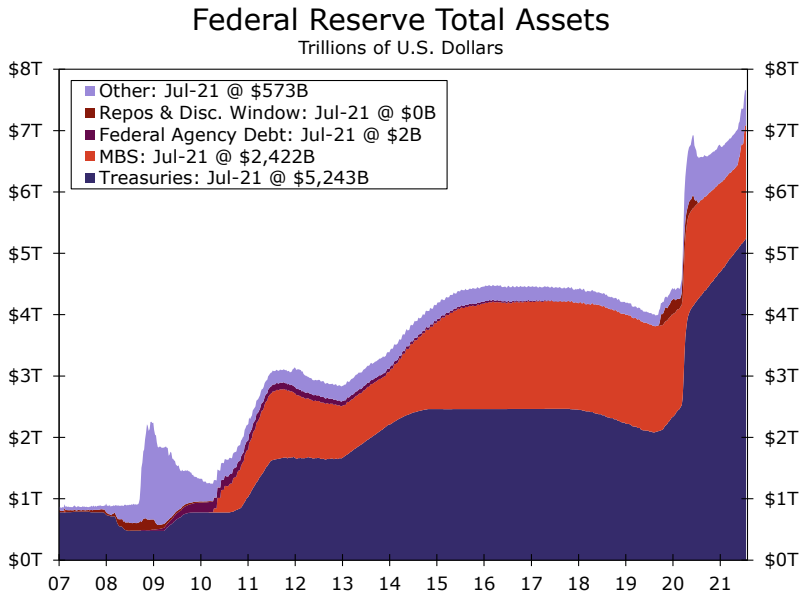
2.3 The Rise and Further Rise of the Federal Balance Sheet

Setting the fed funds target rate is an important tool to stimulate the economy from an economic slowdown. That said, the continuously declining trend of the fed funds rate, may indicate diminishing efficiency of this conventional tool. During the Great Recession, the Fed introduced unconventional tools, including quantitative easing (QE). The question, however, is whether these unconventional tools also experience diminishing efficacy.

The magnitude of QE can be seen on the Federal Reserve's balance sheet, which more than doubled by the end of 2008 (Figure 2). Due to the depth of the Great Recession and its lackluster recovery, the Fed started several rounds of QE, and the balance sheet hit an unprecedented level of $4 trillion in December 2013. Furthermore, the balance sheet stayed above $4 trillion until January 2019, before dropping slightly below $4 trillion and remaining there until September 2019. The Fed's balance sheet hit $7 trillion in the summer of 2020, as the FOMC announced several programs to mitigate the economic impact of the COVID pandemic.

When the FOMC runs out of conventional tools (i.e. as the FFR hits the zero lower bound), it has increasingly turned to unconventional tools. The opening of the unconventional toolbox affects future ammunition, in addition to the magnitude and duration of the incentives offered during easing cycles. For example, Krippner (2015) estimated that the Fed's QE equates to around 500 bps of easing, and if we add that estimated number to the 500 bps reduction in the FFR (from 5.25% to 0.25%), then the total estimated incentives are 1,000 bps. This method essentially doubles the magnitude of the incentives. The duration of those incentives would then be longer than the initial estimate of 100 months. Although the FOMC raised the FFR in December 2015 and ended monetary incentives, the Fed's balance sheet remained above $4 trillion until January 2019. Therefore, if we include conventional and unconventional monetary incentives, the duration of monetary easing is 138 months (between August 2007 and January 2019).

Figure 2: The Fed's Balance Sheet



While the use of unconventional tools provided room for further accommodation, it did not break the diminishing effectiveness of monetary policy. The FOMC kept the FFR unchanged for the longest time in modern history and then it was raised at the slowest pace in modern times. This combination produced the lowest peak value of 2.50% for the FFR. Essentially, despite unprecedented balance sheet expansion, the FOMC's ammunition to fight the next recession fell to its lowest level in our sample period.

The Great Recession boosted the Fed's balance sheet to over $4 trillion from less than $1 trillion, and the 2020 recession took the balance sheet from $4 trillion to over $8 trillion. One can argue that the FFR has a nominal zero lower bound, but that the Fed can boost its balance sheet as high as the Fed wants, at least in theory. However, in addition to finding unlimited assets to buy, the Fed would likely face strong political pushback if it chose to continuously expand its balance sheet. Finally, there would be issues with diminishing effectiveness of QE.

Furthermore, for Fed observers, a rising Fed balance sheet as percent of economic growth (real GDP, for example) trend would be unsettling, as it would be a sign of diminishing effectiveness of unconventional monetary policy tools. To quantify the size of the unconventional ammunition bag, we assume the Fed's balance can only grow up to 100% of the real GDP. As the real GDP measures the size of an economy, and thereby, the Fed's balance sheet size may not exceed the

size of the U.S. economy. This benchmark would help us to determine the effectiveness of the QE tool in the sense of whether or not the unconventional tools are also experiencing diminishing efficiency. The Fed's balance sheet was just 5.6% of real GDP by Q3-2007, more than doubled by Q4-2008 (14.6%) and then jumped to 24.1% by Q4-2013. The last expansion was the longest on record, though the Fed's balance sheet was 21.7% of real GDP by Q4-2019 (pre-2020 recession). By Q2- 2021, the size of the balance sheet is 41.7% of the real GDP.

Put differently, before the Great Recession the Fed had 94.4% (100% minus 5.6%) of unconventional ammunition to fight the recession. By Q4-2013, the Fed had utilized around one-fourth of the unconventional tool bag, and still had 75.9% of resources it needed to handle the next crisis. Moreover, the U.S. economy was in an expansion phase by Q4-2013, and thereby, the Fed may have been able to refill the resources bag by reducing the size of the balance sheet. However, by Q4-2019 (peak of the expansion), the Fed was only able to reduce the balance sheet by a few points (resources moved from 75.9% to 78.3%). Then, there was the COVID pandemic and the corresponding recession, where available resources to jump-start the economy from the recession dropped to the lowest level of 58.3% (by Q2-2021, the balance sheet is 41.7% of real GDP). Therefore, the available pool of unconventional resources is also experiencing a declining trend in our sample period (94.4% for the Pre-Great Recession vs. 78.3% for the pre-2020 recession).

Summing up, our work suggests that both conventional and unconventional tools may be experiencing diminishing effectiveness, as the FOMC continues to offer larger incentives for an extended period during each recession compared to the previous one. Furthermore, the FOMC offered the largest incentive for the longest duration to mitigate the economic impact of the Great Recession and jump-start the economy. Those large incentives and long durations may have accelerated the already declining effectiveness of the monetary policy.

3. A New Framework to Predict Changes in the Monetary Policy Stance

With the FFR already at the zero lower bound and the Fed's balance sheet at a record high, we discuss the near-term outlook of monetary policy, and whether the FOMC will be able to refill the resources bag faster or slower than in the past. It is important to keep in mind that future rate hikes depend on several factors, including economic and financial conditions as well as the containment of the COVID pandemic. However, there are some indicators which may help us paint a likely scenario of the near-term monetary policy stance.

The FOMC regularly provides its members' economic projections and outlook for the FFR over the next few years. These projections include the survey of economic projections (SEP) and the dot-plot chart of the FFR. The most recent SEP/dot-plot chart (June 2021) suggests that most members of the FOMC expect the FFR to be higher (the median projection is 0.6%) by the end of 2023. It is worth mentioning that the FOMC may choose to reduce its balance sheet without changing the level of the FFR. However, in the past cycle, the FOMC first started to raise the fed funds rate and then reduced the balance sheet. We assume the same scenario for the near future, for the sake of simplicity. Essentially, what we are suggesting is that it is unlikely that the FOMC would start refilling its ammunition bag (by either raising the FFR or reducing the balance sheet size) in the near future (before the end of 2022).[2]

What will be the likely peak level of the FFR during the next cycle? It would be very difficult to make an accurate guess of the peak value of the FFR during the next cycle. We have a framework that helps us to predict the likely monetary policy stance, and in the following section we utilize this tool to forecast a likely scenario for the monetary policy beyond the next few years.

3.1 The FFR/10-Year Threshold: A New Framework

Iqbal-Bullard-Silvia (2019) presented a new framework utilizing a threshold between the fed funds rate and the 10-year Treasury yield, and that threshold has predicted all recessions and changes in the monetary policy stance since 1954. Specifically, the Iqbal-Bullard-Silvia (2019) study claimed that, since 1954, in a simulated experiment, their framework not only predicted all recessions but

[2] A possible scenario in which unconventional tools bag may start refilling is that if the FOMC stops buying assets (stop increasing the balance sheet) along with a rising real GDP trend. In that case the balance sheet as percent of the real GDP would be rising.

also all changes in the monetary policy (from accommodative to normalized, for example).[3] Essentially, using the Iqbal-Bullard-Silvia (2019) study, we can predict whether this cycle is likely to follow the lower-FFR-peak trend. The Iqbal-Bullard-Silvia proposed threshold is, "*in a rising fed funds rate period, the fed funds rate crossing/touching the lowest level of the 10-year yield in that cycle is a prediction of an upcoming recession*."

The FOMC brought the fed funds target rate to zero lower bound in March 2020, and at one point in the future, it will raise the FFR. Once the FOMC raises the FFR that would meet the first condition of the Iqbal-Bullard-Silvia threshold, which is "in a rising fed funds rate period." The 10-year Treasury yield dropped below 1% on March 3, 2020 for first time ever (the series goes back to 1953), and the lowest value in the current cycle is 52 bps (August 4, 2020). Thus, one rate hike by the FOMC would breach the Iqbal-Bullard-Silvia threshold, and once the threshold is breached, the FOMC has changed the monetary policy stance within 18 months on average, historically.[4] That also means; (1) the FOMC may be able to raise the FFR only a few times during the current cycle and (2) chances of a sizable reduction in the balance sheet are very low in the current cycle.

Therefore, based on the Iqbal-Bullard-Silvia approach, the current monetary cycle may repeat the historical declining FFR trend. Essentially, the FOMC's ammunition bag may be at a new low when the next crisis hits.

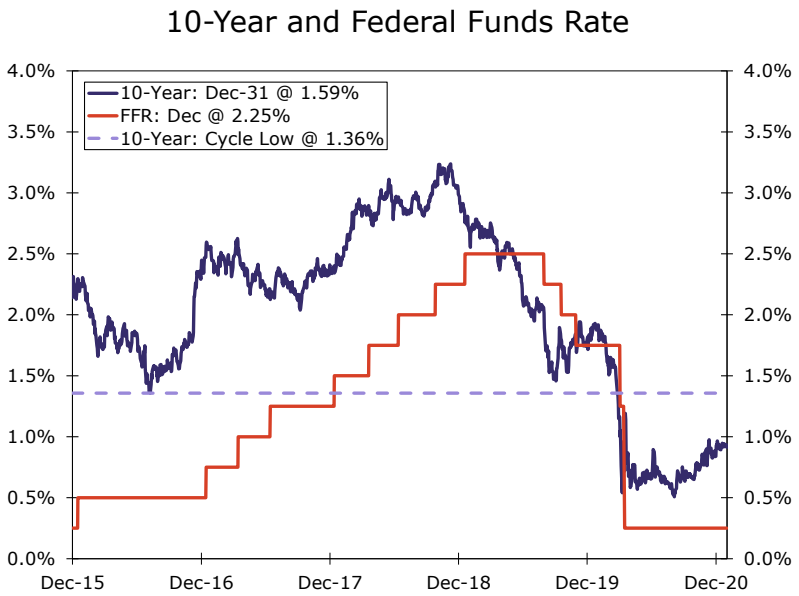
3.2 The Real-time Accuracy of the Threshold: The 2017 Tax-cut and Hope for a Different Time

In the previous cycle, the threshold was set at the 10-year Treasury yield's low of 1.36% on July 5, 2016 (Figure 3). At that time, the fed funds rate was at just 0.50%. In December 2017, the FOMC hiked rates to 1.50%, crossing the Treasury yield threshold. Historically, when the threshold is met, a recession or monetary policy shift occurs within the next 18 months. That said, with the 2017 tax-cut and the economy heading to one of the longest expansions on record, further hikes in the FFR appeared inevitable and there was an expectation that this time was different.

[3] Since the focus of our study is to predict changes in the monetary policy stance and we therefore utilized the Iqbal-Bullard-Silvia approach to predict the likely peak value in the FFR.

[4] If we round the current lowest level of 52 bps to 50 bps then the threshold would breach with one rate hike. Otherwise, two rate hikes will breach the threshold.

Figure 3: The Fed Funds Rate and 10-Year Treasury Yields



In retrospect, that time was not different for the Iqbal-Bullard-Silvia approach. The robustness of the framework held true in real time. At its March 2019 meeting, the FOMC stopped raising the fed funds rate and adopted a "patient" stance. Furthermore, instead of raising the FFR, the FOMC brought the FFR to 1.75% in its October 2019 meeting.

Therefore, given the historical accuracy of the Iqbal-Bullard-Silvia approach, decision makers, when setting policies, may incorporate possibility of the continuation in the declining FFR trend in the near future. The possibility of lower rates/larger balance sheet for a longer period should be considered.

4. Blessing of the Faster Recovery: A New Beginning for the FFR Trend?

The weaker recoveries of the past 30 years are one of the major reasons behind the declining FFR trend and the larger monetary incentives for longer durations. Particularly, the slow and unequal recovery from the Great Recession appeared to confirm for many economists and policymakers that structural forces were putting downward pressure on advanced countries' economic potential, making it difficult or even impossible to quickly recover from a severe economic downturn. Moreover, with government debt levels elevated and interest rates close to the zero lower bound, some questioned whether policymakers would be willing or able to effectively respond to the next downturn. The economic response to the pandemic and the subsequent economic rebound seem to

have allayed at least some of these fears, as the level of Q2-2021 real GDP has already crossed the pre-COVID peak, putting the current recovery on track to be the fastest in decades.

Table 2: Characterizing the Pace of the Recovery

	Quarters from Trough to Potential			
	1990-1991	2001	2007-2009	Feb2020- Apr 2020
Real GDP Crossed Potential GDP	22	12	34	4*
UR Drops Below Natural UR	21	14	30	6*

*Based on Blue Chip Economic Forecast, July 2021

We characterize the pace of recoveries to determine if this economic recovery is different from past recoveries. To compare the pace of the current recovery with the past three recoveries, we looked at how long it takes the real GDP to cross potential real GDP, using the Congressional Budget Office's (CBO) estimate of potential GDP as a benchmark. Potential GDP is an estimate of what GDP would be if inputs, such as labor and capital, were used at their maximum sustainable rates. While the economy generally operates close to its potential, recessions can push GDP lower, and severe recessions can push economic output below its potential consistently. From Table 2, based on the Blue Chip economic forecast, real GDP in the current recovery would eclipse its potential in Q3-2021, only four quarters into the recovery. By comparison, it took 34 quarters for real GDP to reach this milestone after the Great Recession. For the 2001 and 1990-1991 cycles, the same process lasted 12 and 22 quarters, respectively (Table 2). Therefore, the current economic recovery is the fastest in the post-1990 era.

Beyond the recovery in output, the pace of the labor market recovery is crucial to consider. Whether people have jobs or not is often the most relevant gauge of the economy's health, and serves as a central input in the Fed's dual mandate. Again, based on the Blue Chip economic forecast, the unemployment rate would hit the CBO's natural unemployment in Q4-2022 (nine quarters into the recovery), marking the fastest pace of the labor market recovery in our analysis. In line with the output recovery, after the Great Recession it took the longest to reach this full employment benchmark (30 quarters), followed by the 1990-1991 cycle (21 quarters) and then the 2001 cycle (14 quarters). The natural unemployment rate is another concept used to gauge

economic activity relative to its potential. The CBO defines the natural rate of unemployment as "the rate that results from all sources, except fluctuations in aggregate demand, including normal turnover of jobs, mismatches between the skills of available workers and the skills necessary to fill vacant positions." In other words, there is some percent of the labor force that is still looking for a job in even the best economic times, and this share represents the natural unemployment rate.

Both potential GDP and the natural unemployment rate are theoretical concepts, which are estimated rather than measured. There is some debate regarding how accurate these estimates are and what we can infer from them (Powell, 2018). But, it is clear that the current recovery has the potential to break the weak recovery trend that has persisted for decades. The faster economic and labor market recovery have vital implications for the FOMC, as one of the major reasons behind the declining FFR trend has been the weaker economic and labor market recoveries of the past 30 years or so. Therefore, this faster recovery would have potential to break both the declining FFR trend as well as the tradition of monetary incentives for longer durations. It is worth mentioning that given the size of the Fed's balance sheet, the magnitude of the monetary stimulus has already crossed the bar set by the Great Recession. However, a faster recovery could start to refill the ammunition bag sooner than the previous cycle. A more rapid recovery may push the FOMC to remove monetary accommodations faster than they have in prior cycles.

4.1 Will Higher Inflation End the Declining Fed Funds Rate Trend?

Perhaps unsurprisingly, faster recoveries are associated with higher inflation, as strong demand outstrips businesses' ability to supply goods and services. The latest inflation numbers are coming in higher than expected and the June 2021 PCE deflator (the FOMC's preferred inflation measure) came in as 4%, which is the highest number since July 2008. It is important to mention that most members of the FOMC are characterizing the recent jump in inflation numbers as "transitory." The recent SEP suggests that 2022 inflation measures will stay close to the long-run target of 2% (median PCE deflator forecast is 2.1%). The Blue Chip economic forecast projects the PCE deflator at 2.5% for 2022. Essentially, both the FOMC and private sector forecasters consider the recent rise in inflation numbers as temporary, as the reopening of the economy drives prices higher for some sectors.

The empirical evidence of the relationship between the pace of recoveries and inflation is mixed. The recovery following the Great Recession, the slowest in our sample, experienced the slowest

inflation, with the PCE deflator averaging just 1.6%. Similarly, the 2001 recovery was faster than both the Great Recession and 1990-1991, and that cycle's average inflation was the highest (2.3%). That said, higher inflation is far from inevitable. For instance, higher productivity can offset inflationary pressure by reducing the average cost of production. A good example of this is the 1990-1991 cycle. The late 1990s saw a resurgence in productivity, as productivity growth for the 1990-1991 cycle averaged 2.3%, yet there was a considerable jump in the back half of the decade. For the 1996-2000 period, productivity averaged 2.9%, whereas it averaged 1.7% between 1991 and 1995. The higher productivity period corresponded with lower inflation. Inflation averaged 2.1% for the cycle as a whole, but 1.7% from 1996 to 2000, and 2.5% in the lower productivity period from 1991 to 1995. Thus, in addition to the faster economic recovery, future productivity growth can also influence inflation. Of course, there are a number of factors that may influence inflation over the next few years, such as the length of time global supply-chains take to get back to "normal."

Theoretically, persistently higher inflation would push the FOMC to start rolling back monetary stimulus sooner, leading to earlier-than-expected rate hikes. A persistently higher inflation trend could also break the declining FFR trend, as the FOMC raises rates faster than expected to combat higher inflation. A possible scenario, in which the FOMC either initially tolerates higher inflation or under-forecasts inflation could produce a higher FFR peak value in the current cycle than the previous cycle's peak. In theory, the FOMC has more power to fight inflation (than deflation) by raising rates and rolling back QE.[5] A by-product of fighting inflation could be refilling the ammunition bag faster. Essentially, the curse of the persistently higher inflation could be a blessing for the FOMC's ammunition bag.

However, a persistently higher inflation could also derail the recovery process by pushing production cost higher. An economic slowdown could put downward pressure on inflation, and necessitate some sort of monetary stimulus, all else equal. Another scenario which may potentially break the declining FFR trend is if inflation stays close to the FOMC target (as at present, both the SEP and Blue Chip forecasts anticipate), while economic growth continues at a healthy rate.

[5] The FOMC can also fight deflation by reducing FFR and starting more QE. However, given the zero lower bound for FFR and already large balance sheet, such measures may not be sufficient.

Summing up, it seems the economic recovery is different this time in the sense that it is faster than the past recoveries. Inflation is also higher than the past recoveries. However, the question is whether this difference is enough to start a different path for monetary policy in the near future. In our view, a persistently above trend growth, along with relatively stable inflation over the medium term (three to five years), would potentially take the FFR to a higher peak and could give the Fed room to reduce its balance sheet. However, given the historical accuracy of the Iqbal-Bullard-Silvia approach, which indicates a smaller FFR peak in the near future, we caution decision makers to consider the past FFR trend in the near future when designing policies. Essentially, decision makers should not be exclusively influenced by the faster recovery and higher inflation, and should consider the possibility of lower rates and a larger balance sheet for a longer period. We strongly recommend monitoring the upcoming data to analyze whether this time is different enough to make a difference for monetary policy.

5. Concluding Remarks

This study develops a new framework to examine whether the current cycle will be different for monetary policy. First, we propose a framework to quantify the magnitude of monetary stimulus offered during a recession and evaluate whether or not the FOMC needs to cut the FFR by 500 bps to combat a recession. We also examine the magnitude of the stimulus across cycles. Essentially, the first step sheds light on the effectiveness of monetary policy tools and why a different-than-the-past FFR trend would help the FOMC to refill its ammunition bag faster.

The second step utilizes the historical relationship between the Fed funds rate and the 10-year Treasury yield to predict the likely path of the FFR, specifically the near future peak value of the FFR. In essence, we analyze whether or not the next peak in the FFR would be smaller than the previous cycle's peak value.

The final step of our approach characterizes the pace of the current recovery, and compares it to the past cycles to examine if this economic recovery is faster or slower than the past. We quantify the pace of the real GDP and unemployment rate during different business cycles to identify the relative speed of the recoveries. Given the dual mandate of the FOMC, we also incorporate an inflation outlook, along with the pace of recovery, to project a likely path for the FFR based on the economic cycle. Essentially, a different pace of the recovery compared to the past may suggest a different monetary policy path for the current cycle.

Our results suggest that the estimated duration of monetary stimulus for the current cycle may be shorter than past cycles. However, the estimated magnitude of the current monetary stimulus has already crossed the previous cycle's level. Furthermore, we estimate that the unconventional tools such as QE are also experiencing diminishing efficiency.

Based on the threshold approach, the FOMC may be able to raise the FFR only a few times during the current cycle. Our analysis also indicates that chances of a sizable reduction in the balance sheet are very low in the current cycle. Put differently, there is a possibility of lower rates/larger balance sheet for a longer period.

Our work concludes that the current recovery would break the past weaker-recovery trend. The inflation rates are also persistently higher in the current cycle compared to the past business cycles. In other words, the current economic cycle is different than the past cycles, which may suggest this time is different for monetary policy.

The faster economic and labor market recovery have vital implications for the FOMC, as one of the major reasons behind the declining FFR trend has been the weaker economic and labor market recoveries of the past 30 years. Therefore, this faster recovery would have potential to break both the declining FFR trend as well as the tradition of monetary incentives for longer durations, as the Fed will have more room to normalize policy.

Summing up, it seems the economic recovery is different this time in the sense that it is faster than the past recoveries. Inflation is also higher than the past recoveries. However, the question is whether this difference is enough to start a different path for the monetary policy in the near future. In our view, persistently above trend growth, along with relatively stable inflation over the medium-term, would potentially take the FFR to a higher peak and allow for a reduction of the Fed's balance sheet. However, given the historical accuracy of the Iqbal-Bullard-Silvia approach, we caution decision makers to consider the possibility of the past FFR trend in the near future when designing policies. Decision makers should not be exclusively influenced by the faster recovery and higher inflation. We strongly suggest to monitor the upcoming data to analyze whether this time is different-enough to make a difference for monetary policy.

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Table 1: The Fed Funds Rate during Recessions and Expansions

Recession	Level Change During Recession	Percentage Change	Number of Rate Cuts	Change from Previous Peak	% Change from Previous Peak	Months of Easing*	Pre-Recession Peak	Recession Trough	Post-Recession Trough
July 1990 - Mar 1991	2.50%	30.30%	16	6.75%	69.20%	44	9.75%	6.00%	3.00%
Mar 2001 - Nov 2001	3.75%	68.20%	12	5.50%	84.60%	42	6.50%	2.00%	1.00%
Dec 2007 - Jun 2009	4.25%	94.44%	8	5.00%	95.20%	100	5.25%	0.25%	0.25%**
Feb 2020 - Apr 2020	1.50%	85.70%	2	2.25%	90.00%	N/A	2.50%	0.25%	0.25%**

* Rates cut or on hold

** The FOMC started QE