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St. Louis Fed's Bullard Releases Study on Optimal Monetary Policy at the Zero Lower Bound

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ST. LOUIS – In a new research working paper released today, Federal Reserve Bank of St. Louis President James Bullard examines options for optimal monetary policy when the short-term nominal interest rate targeted by monetary policymakers (the policy rate) remains effectively at zero.

The paper, titled “[Optimal Monetary Policy at the Zero Lower Bound](#),” was co-authored with Costas Azariadis of Washington University in St. Louis and the Federal Reserve Bank of St. Louis, Aarti Singh of the University of Sydney, and Jacek Suda of the Narodowy Bank Polski.

In the aftermath of the financial crisis, the Federal Reserve used forward guidance and quantitative easing to provide further accommodation once the policy rate hit zero. Bullard noted that quantitative easing, which consists of buying publicly-issued and privately-issued debt, seems to be effective in the empirical literature but not in the theoretical literature. With forward guidance, the central bank promises to stay at zero even longer than it otherwise would. According to conventional theory, forward guidance should lead to higher growth and also to higher expected and actual inflation.

Expanding further on the paper, Bullard noted that while the U.S. policy rate has been near zero for 6.5 years and forward guidance has been used, there has not been a boom in the economy. “It’s time to question the current theory and explore other models about what is going on at the zero lower bound,” he said. Our current models can miss a big part of the story, including the importance of smoothly operating credit markets.

“The financial crisis was about credit market problems,” he said. “But most of the models that have been used regarding forward guidance and quantitative easing do not include credit markets.”

In their new academic model, Bullard and his co-authors construct a credit market that plays a crucial role in how the economy operates. They examine how monetary policy can fix credit market imperfections, both in normal times and in times when the zero lower bound is encountered. In the latter case, this can be done by promising an increase in the price

level in the following period sufficient to prevent reaching the zero lower bound. Further, the authors found that forward guidance was not a good policy choice in their model, and that it was unclear how quantitative easing could be used to engineer a complete market allocation when the zero bound threatens. Since the policy implications of the model appear to be quite different from current policy, they encourage future research.

Credit Markets and the Role of Monetary Policy

Their model examines two types of households: Credit market participants (“credit users”), who borrow and save over the life cycle, and credit market non-participants (“cash users”), who work only every other period and want to consume when they are not working. Among the credit market participants, middle-aged households are in their peak earning years, while younger and older households do not have much income. Younger households borrow on net, and the middle households save for retirement and lend to the younger households.

In this credit market, debts are in the form of “non-state contingent nominal contracts.” That is, contracts are written in dollar terms and do not depend on whether the economy is experiencing high or low growth. According to economic theory, however, loans should be state-contingent. In other words, Bullard explained that a borrower would pay back more if the economy had a good year and less in a bad year. He noted that we don’t see this in reality, meaning that the credit market is inefficient and does not share risk appropriately between borrowers and lenders.

What is the role of monetary policy, according to this model? “Because the contracts are written in dollar terms, the central bank can change the price level every period by supplying currency to cash users in order to get the right amount of state contingency in this credit market,” Bullard said, adding that this policy is very close to nominal GDP targeting.

“In normal times (away from the zero lower bound), monetary policy can mitigate the friction appropriately and thus ensure a smoothly operating (complete) credit market,” Bullard and his co-authors wrote. The credit market plays a role in transforming the uneven income into perfectly equal consumption across all credit market participants. The authors noted that this policy will work well for shocks that are small enough that the nominal interest rate remains positive.

In this model, the policymaker’s primary objective is to ensure the credit market is working smoothly. The secondary objective is to keep inflation relatively low by hitting an inflation target on average so as not to harm the cash users too much. Bullard noted that, in normal times, the policymaker will be able to achieve both of these goals, but what happens during a time when the zero lower bound is encountered and threatens to bind?

Zero Lower Bound

Bullard explained that the zero lower bound would threaten to bind in the event of a major negative economic shock, such as a deep and persistent recession. “What is the policymaker to do in this circumstance, if the objective is to maintain smoothly operating credit markets?” Bullard and his co-authors asked.

In this scenario, “The monetary policymaker can still maintain a complete credit market by having a one-time, or special, increase in the price level,” Bullard said. As stated in the paper, “This keeps the nominal interest rate positive and maintains the complete market allocations for credit market participant households.” However, the authors noted that this policy does have a drawback: “The price level increase harms cash-using households relative to policy away from the zero lower bound.”

Bullard noted that forward guidance is not a good policy in this model. Instead, the policymaker would want to take action to make sure the policy rate is not zero. While quantitative easing can be implemented in the model by purchasing privately-issued debt of the younger households, Bullard said it was unclear how the central bank could use quantitative easing to try to complete the credit market.

“This is a very different set of results compared to what has dominated thinking in monetary policy in the last five years. Our results might help to inform the debate on the topic of optimal monetary policy at the zero lower bound,” Bullard said.

He cautioned against drawing strong policy implications from this theoretical model. Given that the policy conclusions are quite a bit different from those in a standard sticky price New Keynesian model, Bullard stressed the importance of more research on different types of models to see what they recommend in terms of monetary policy at the zero lower bound.