

Interest on Reserves

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Chair Huizenga, Ranking Member Moore, and members of the Subcommittee on Monetary Policy and Trade, thank you for inviting me to testify at this hearing on “Interest on Reserves and the Fed’s Balance Sheet.”

The ability to pay interest on the reserve balances that banks hold on deposit at the Federal Reserve is an important policy tool, and Congress’ authorization of these payments in the Financial Services Regulatory Relief Act of 2006 was a welcome development. In the aftermath of the financial crisis of 2008 and the subsequent recession, the Fed has come to rely more heavily on this tool than was previously anticipated. At the same time, because paying interest on reserves is still relatively new in the U.S., there is naturally some uncertainty in the minds of both the public and policy makers about the implications of this policy. The issue is particularly pressing given the unprecedented level of bank reserves that have been created by the Fed’s quantitative easing policies.

In my comments today, I will focus on several points that I believe are crucial for informing policy decisions related to interest on reserves. I have chosen these points, in part, because I believe they are often either misunderstood or not fully appreciated in the discussion of these issues. I will argue that continuing to allow the Fed to pay interest on bank reserves is not only essential for the implementation of monetary policy, but also sound economic policy with no significant cost to the taxpayer.

Most of my comments will focus on the payment of interest in excess reserves, since that issue has received the most attention in previous hearings. I will also comment briefly on the payment of interest on required reserves toward the end of my testimony.

I have organized my comments around eight key points.

1) The Federal Reserve’s paying of interest on excess reserves to banks has no cost to the taxpayer.

To understand this statement, it is helpful to walk through the mechanics of how bank reserves are created. I will describe these mechanics in terms of a simple – and admittedly simplistic – example, but the main message from this example applies much more generally.

Imagine we start with a situation in which I personally own a U.S. Treasury bond. Then the U.S. government regularly pays interest on this bond to me. Now suppose that I decide to sell this bond and that the Federal Reserve, as part of its monetary policy operations, purchases my bond.¹ When this transaction takes place, the Federal Reserve credits my bank (which is USAA) with reserves equal to the value of the bond, and USAA credits my bank account with the same amount. In this new situation, the Treasury pays interest on the bond to the Fed, the Fed pays interest on the reserves to USAA, and USAA pays interest on my bank account to me.

In a broad sense, things have not changed much: the U.S. government is still paying interest on its debt and at least some of that interest is making its way to me. Instead of coming directly to me, however, the interest now passes through a chain of payments that includes the Fed and my bank. This point is important and bears repeating: The Federal Reserve paying interest on reserves is a link in a chain of payments that *replaces* interest payments the Treasury would otherwise be making directly to its bondholders.²

The situation is not exactly the same as before, of course. (If it were, there would be no point to the Fed's asset purchase programs.) In particular, the interest rates are different in each step of this new chain. For concreteness, let me use some rough numbers. If I was holding a 10-year bond, I was earning something like 1.75% from the Treasury. Now the Treasury pays that 1.75% in interest to the Fed, and the Fed pays 50 basis points to USAA. The difference between those two interest rates represents the Fed's earnings on the purchase of my bond. Since the Fed's earnings (net of expenses) are remitted back to the Treasury, this step represents a *decrease* in the Treasury's net financing costs.

After the initial transaction, I may not want to keep my money in a bank account and may choose instead to buy some other type of security. When I do this, the reserves that were created when I sold my bond may be transferred from my bank to some other bank. In fact, they may be transferred many times as various transactions (including interbank borrowing and lending) occur. However, those same reserves will still exist somewhere in the banking system, and the key points I made above are unchanged. In particular, the Fed paying interest on those reserves – wherever they are held – is a link in a chain of payments that replaces interest payments the Treasury would otherwise be making to bondholders, and hence there is no cost to the government or to the taxpayer associated with those reserves.

2) *Removing the Fed's ability to pay interest on excess reserves would **raise**, not lower, the government's financing costs.*

There has been a fair amount of discussion about how the ability to pay interest on excess reserves is a critical policy tool for allowing the Federal Reserve to raise interest rates to the level that the FOMC deems appropriate. Without the ability to pay interest on reserves, the only

¹ In practice, the Federal Reserve does not buy securities directly from individuals. Instead, the Fed purchases securities from the primary dealers, and I would sell my bond to a primary dealer either directly or indirectly through another intermediary. These intermediate steps make the accounting more complex but in no way change the message of my simple example.

² For an analysis of the fiscal implications of paying interest on reserves in a formal economic model, see Todd Keister, Antoine Martin, and James McAndrews "Floor Systems and the Friedman Rule: The Fiscal Arithmetic of Open Market Operations," Federal Reserve Bank of New York Staff Report No. 754, December 2015.

way the Fed could raise interest rates would be to quickly sell the majority of the securities in its portfolio and return its balance sheet to a much-smaller size. Chair Yellen and others have stated that they believe doing so could potentially destabilize markets and I largely agree with this assessment.

I want to make a different point, however. Even if the Fed were to stop paying interest on excess reserves and dramatically shrink its portfolio of assets, doing so would not save the government or the taxpayer any money. This policy would eliminate the Fed's interest payments to banks. At the same time, however, it forces the Fed to sell a large quantity of government bonds from its portfolio. The interest payments made by the Treasury now go directly to the bond holders rather than to the Fed, and none of that interest is remitted to the Treasury.

Thinking again about my simplistic example: suppose the Fed decides to sell the bond it purchased from me, and I decide to buy it back using the money that is still sitting in my bank account. These transactions extinguish the reserves that were created by the original purchase, so the Fed no longer pays any interest on these reserves to my bank. But to focus on the money saved at this one link in the chain is to miss the larger picture. The Treasury is now paying the 1.75% of interest to me rather than to the Fed. As a result, the net interest expense to the Treasury (and hence to the taxpayer) is now higher, not lower.

3) Paying interest on excess reserves is not a subsidy to banks.

Many people have expressed concern that the Fed's interest payments represent an unfair subsidy to banks. It is important to keep in mind, however, that while banks earn interest on their reserves, they also pay interest to their depositors. Returning again to my simple example, suppose I keep the money I received from the sale of the bond on deposit in my savings account. Then my bank would be earning 50 basis points on the newly-created reserves, but it would be paying me approximately 30 basis points on the new deposit. My deposit also increases the bank's costs indirectly, by raising the deposit insurance fees my bank must pay to the FDIC and by increasing my bank's leverage, which may require it to raise more capital. Taking all of these costs into account, my bank may make a small profit on the funds I have deposited with them, but to a first approximation they will roughly break even.

This point becomes particularly important as we look to the future. As the economy continues to recover and interest rates rise further, the Fed will make even larger interest payments on the reserves held by banks. However, focusing exclusively on the size of the interest payments the Fed makes to banks again misses the broader picture. While banks will be earning a higher interest rate on their reserve holdings, they will also be paying a higher interest rate to their depositors and other creditors. In addition, the Fed's payment of a higher interest rate on reserves is replacing the higher interest payments the Treasury would otherwise be making directly to bondholders.³

³ Asset purchases by the Fed do influence the size of the Treasury's net financing costs by changing the maturity structure of the public sector's combined liabilities (that is, Treasury securities plus reserves). But higher interest rates will raise the Treasury's cost of financing the U.S. government debt regardless of whether interest is paid directly by the Treasury to bondholders or indirectly to savers through the chain involving the Fed and interest on reserves.

4) *This is true even when market interest rates are lower than the interest rate on excess reserves.*

The interest rate paid on excess reserves establishes the benchmark interest rate for the entire economy: it is the rate associated with a safe, perfectly liquid asset that can be used by a bank to make payments and settle financial transactions at a moment's notice. All other interest rates in money markets effectively are priced off of this rate.⁴

Prior to 2008, when the interest rate on excess reserves in the U.S. was zero, the Fed needed to create a scarcity of reserves to keep market interest rates positive. The Fed did this by supplying just enough reserves for banks to meet their minimum reserve requirements. Because reserves were scarce and individual banks constantly faced the possibility of falling below their reserve requirement, banks were willing to pay a positive interest rate to borrow reserves from one another. By controlling precisely how scarce reserves were, the Fed could effectively control the interest rate in this federal funds market.

Currently, the Fed has created what I will call a “super-abundance” of reserves. The quantity of reserves is large enough that banks are no longer willing to pay a premium to borrow reserves from one another or from other participants in money markets.⁵ In fact, because of costs associated with increased deposit insurance fees and increased leverage, banks are currently willing to pay less than 50 basis points to borrow reserves.

This super-abundance of reserves helps explain why many money market interest rates currently lie below the interest rate paid on excess reserves. Whereas in the pre-crisis environment banks were willing to pay to hold reserves because these reserves were scarce, in the current environment banks must be compensated because holding reserves is costly at the margin. Once the FOMC decides to start shrinking the Fed's balance sheet and the level of reserve balances declines, I expect the gap between the interest rate on excess reserves and money market interest rates to narrow and eventually disappear as these costs of holding reserves decline.

I believe this logic also helps explain why the FOMC has decided to set the interest rate at its overnight reverse repurchase agreement (ONRRP) facility lower than the interest rate on excess reserves. Participants in the ONRRP facility are largely non-bank financial institutions, including money market mutual funds. These institutions do not pay deposit insurance premiums and do not face the same balance sheet costs as banks. If the Fed were to set the interest rate at the ONRRP facility equal to the interest rate on excess reserves, it would likely encourage a large flow of deposits out of banks and into money market mutual funds and other non-bank institutions that have access to the ONRRP facility.

⁴ This fact implies that it would be undesirable for the Fed to announce that it will pay the “market interest rate” on excess reserves. Market interest rates are set in reference to the Fed's policy rate. If the Fed tried to set that policy rate equal to a market rate, it would create a circular or self-referencing process that could easily prove unstable. This type of problem has long been recognized in the economics literature; see, for example, Thomas Sargent and Neil Wallace, “Interest on Reserves,” *Journal of Monetary Economics* Vol. 15, No.3, May 1985.

⁵ The primary lenders in the federal funds market in recent years have been non-depository institutions that are not eligible to earn interest from the Fed, including government-sponsored enterprises (GSEs). See Gara Afonso, Alex Entz, and Eric LeSueur, “Who's Lending in the Fed Funds Market?” *Liberty Street Economics*, December 2, 2013.

In principle, this flow is not necessarily bad. It may, for example, lead to savers earning a slightly higher interest rate. However, there are also risks associated with encouraging a large flow of funds out of the regulated banking system. Such a development could, for example, leave the financial system more susceptible to future panic-like events. In addition, this plan would result in much higher usage of the Fed's ONRRP facility. Given that this facility is still relatively new and is operationally more complex than paying interest on bank reserves, the Fed might prefer to keep the size of the facility more modest.

For these reasons, my reading is that the Fed has chosen to set the interest rate at the ONRRP facility in a way that creates a "level playing field" for banks and non-bank financial institutions (including money market mutual funds) in competing for deposits. That is, the gap between the two interest rates is calibrated to roughly reflect the extra costs that banks face in taking additional deposits and holding reserves. The data on the usage of the ONRRP facility is consistent with the playing field being roughly level. If the gap between the two rates were small enough to give money market funds a clear advantage over banks in attracting deposits, we should see large flows of deposits out of banks and heavy usage of the ONRRP facility. If the gap were wide enough to give banks a decisive advantage in attracting deposits, we should see no usage of the facility. So far, there has been a positive-but-modest usage of the facility, which is consistent with the playing field being level.

5) *Reserves do not represent money that that banking system is "not lending out."*

There is a tendency at times to view the large quantity of reserves held by banks as an indication that these banks are not lending as much to businesses and consumers as they otherwise could. This view, however, is based on a fallacy of composition. While an individual bank can choose to lend out its reserves, the same is not true of the banking system as a whole. The total quantity of reserves in the banking system is determined almost entirely by the Fed's actions – how many securities it holds in its portfolio.⁶ Actions taken by individual banks change the distribution of reserves across banks, but do not change the total quantity of reserves in the banking system.

Moreover, as illustrated in my simple example above, when the Fed creates reserves by purchasing securities from the public, this action also automatically creates bank deposits for the individuals or institutions selling the securities. As a result, both the assets and the liabilities of the banking system increase. The reserves that banks hold are not displacing other assets on their balance sheets, like loans to businesses or consumers; these reserves are, in general, held *in addition to* banks' other assets. In other words, the Fed's creation of a large supply of reserves does not restrict banks' ability or incentive to lend funds to businesses and consumers.

6) *Policy makers should encourage banks to hold excess reserves, not discourage them.*

Bank reserves are the lifeblood of our nation's payments system. Every business day, more than \$3 *trillion* of payments are made over the Fedwire Funds Service, the large-value wholesale

⁶ There are exceptions to this point, such as when a bank requests to withdraw currency from the Fed and thereby decreases the total quantity of reserves, but these so-called "autonomous factors" are relatively small. For a detailed discussion of this issue, see Todd Keister and James J. McAndrews "Why Are Banks Holding So Many Excess Reserves," *Current Issues in Economics and Finance* Vol. 15, No. 8, Dec. 2009.

payments system operated by the Federal Reserve. These payments represent a wide variety of activity in the economy, including large financial transactions but also down payments on home purchases, mortgage payments, business' payments to suppliers, etc. Banks make these payments on behalf of their customers using the reserves they hold on deposit at the Fed. Given the enormous volume of payments that need to be made, the potential arises for bottlenecks, delays, and increased risks in the payments system when there are insufficient reserves available.

When the Fed did not pay interest on reserves, implementing monetary policy required the Fed to supply a relatively small quantity of reserves. In this setting, reserves were sufficiently scarce that our payments system could not adequately function using those reserves alone. Instead, the Federal Reserve provided intraday credit to banks, permitting banks to run overdrafts in their reserve accounts for a few hours each day solely for the purpose of allowing the payment system to function effectively. These overdrafts were at times large, with an average daily peak of more than \$180 billion in 2007.

One byproduct of the large expansion of bank reserves that has occurred over the past few years has been a dramatic decrease in these daylight overdrafts together with a smoother functioning of the payments system. Peak intraday overdrafts have fallen by more than 90% – to less than \$10 billion – and research shows that payments are, on average, being sent significantly earlier in the day, reducing delays and enhancing the resilience of the payments system.⁷

Paying interest on excess reserves allows the Federal Reserve to raise interest rates without creating a scarcity of bank reserves. The ability to pay this interest is thus not only critical for the conduct of monetary policy, it also enables the Fed to simultaneously promote safety and efficiency in the payment network that underlies our financial system.⁸

7) The Fed's balance sheet should remain larger than its pre-crisis level.

The Fed's pre-crisis framework for implementing monetary policy required creating a scarcity of bank reserves and precisely controlling the level of this scarcity to achieve the desired interest rate. As the economy continues to recover, the FOMC has stated that the size of the Fed's balance sheet will shrink substantially from its current level. It would be a mistake, however, for the Fed to try to return the balance sheet to its pre-crisis size or to the pre-crisis composition of its liabilities.

There have been substantial changes in the financial system since 2008, including the new regulations that aim to promote the stability of the banking sector. These regulations, including the new Liquidity Coverage Ratio, are increasing banks' demand for safe, liquid assets, including excess reserves. A framework for implementing monetary policy that relies on a scarcity of bank reserves not only runs counter to the goals of the new regulations, but will also likely have more difficulty achieving the desired level of market interest rates than in the past.⁹

⁷ See Morten L. Bech, Antoine Martin, and James McAndrews, "Settlement Liquidity and Monetary Policy Implementation—Lessons from the Financial Crisis," FRBNY *Economic Policy Review*, Vol. 18, No. 1, March 2012.

⁸ For further discussion of this issue, see Todd Keister, Antoine Martin, and James McAndrews, "Divorcing Money from Monetary Policy," FRBNY *Economic Policy Review*, Vol. 14, No. 2, September 2008.

⁹ For a detailed analysis of this issue, see Morten Bech and Todd Keister, "Liquidity Regulation and the Implementation of Monetary Policy," Bank for International Settlements Working Paper 432, October 2013.

A more effective approach to implementing monetary policy in the future would be for the Fed to rely primarily on the interest rate on excess reserves to steer market rates while maintaining a balance sheet large enough to eliminate the scarcity value of reserves.¹⁰ This size would be substantially smaller than the Fed's current balance sheet; a super-abundance of reserves is not necessary for this purpose. But guiding the level of excess reserves down to, say, \$100-\$200 billion, while continuing to pay interest on those excess reserves, would be a more reliable and efficient way of implementing monetary policy than trying to reinstate the Fed's pre-crisis operating regime.

8) *While paying interest on **required** reserves does result in a net cost to the Treasury, it is nevertheless sound economic policy.*

When Congress first authorized the Federal Reserve to pay interest on reserves in 2006, there was extensive discussion of the fiscal implications of paying interest on **required** reserves, that is, reserve balances held by banks to meet their statutory reserve requirement. The interest rate paid on required reserves does not directly influence money market interest rates because each bank must hold these reserves regardless of the cost. For this reason, the policy discussion at that time was focused not on implementing monetary policy, but rather on removing distortions in the banking sector.

When no interest was paid on required reserves, reserve requirements effectively acted as a tax on the activity of banking. To mitigate the impact of this tax, banks had an incentive to minimize their deposits that are subject to the reserve requirement. They did this by, for example, using sweep arrangements to move funds from deposits that are subject to these requirements to ones that are not. As testified by Governor Donald Kohn at the time, these arrangements "absorb real resources and therefore diminish the efficiency of our banking institutions."¹¹ They also decreased the level of reserves in the banking system needed for monetary policy purposes, exacerbating the shortage of reserves in the payments system.

By paying interest on required reserves, the Fed removes the reserve tax and eliminates the incentive for banks to engage in these reserve avoidance activities. The resulting increase in efficiency encourages the banks to extend more credit to businesses and consumers and thereby improves economic performance. In contrast with excess reserves, however, paying interest on banks' required reserves does reduce the Federal Reserve's remittances to the Treasury. As with any tax reduction, there is a cost to the government in lost revenue. However, this reduction in revenue is proportional to banks' holdings of required reserve balances, which are relatively small. In passing the Financial Services Regulatory Relief Act of 2006, Congress decided that eliminating this tax on banking activity was desirable. In my view, that decision continues to be appropriate.

¹⁰ This approach has been advocated, for example, in Marvin Goodfriend, "Interest on Reserves and Monetary Policy," FRBNY *Economic Policy Review* Vol. 8, No. 1, May 2002.

¹¹ Testimony of Governor Donald L. Kohn before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, June 22, 2004.

Conclusion:

The ability to pay interest on reserves is a valuable policy tool for the Federal Reserve. Understanding the importance of this tool for monetary policy, as well as the fiscal implications of using it, requires looking at these interest payments in a broad context. As I have outlined above, it is particularly important to realize that when the Federal Reserve creates excess reserves and pays interest on those reserves, this action creates no cost to the government or to the taxpayer. Instead, the interest on reserves paid to banks is a part of a chain of payments that replace interest payments the U.S. Treasury would otherwise be making directly to its bondholders. Moreover, by allowing the Fed to implement monetary policy more efficiently and with a larger supply of reserves, paying interest on excess reserves helps promote a safer and more resilient payments system.

Thank you again for this opportunity to testify before you today. I would be happy to answer any questions.