

Muhammet F Isik

Prof.Hanes

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Two Systems of Monetary Policy Implementation

The Federal Reserve System implements monetary policy to promote economic objectives and stabilize the economy in the U.S. and it uses different tools and methods to reach these objectives. In the U.S, banks hold reserve balances in accounts at the Federal Reserve to fulfill reserve requirements and make interbank payments to each other. Banks lend to each other overnight through the federal funds market. The Fed aims to control the economy by influencing the behavior of interest rates in the federal funds market. The FOMC uses tools of monetary policy to make market interest rate equals to target rate. The Fed has used different types of systems to manipulate the market rate. This paper will discuss the two systems of monetary policy, which are symmetric corridor and floor system and the effect of the relationship between target overnight rate and reserve supply in both systems. Additionally, the paper will explain the frequency of open market operations engaged and the deviations of the market rate from the target under each system and how current floor system is different than the hypothetical floor system discussed in the articles, "Divorcing Money from Monetary Policy" and "Understanding Monetary Policy Implementation."

The symmetric corridor system of monetary policy includes paying a fixed interest on all reserve balances that banks hold in their accounts at the central bank. Paying a fixed interest rate on all reserve balances creates a floor on the market interest rate (*"Understanding Monetary*

Policy implementation”, p.256). The deposit facility enables banks to earn overnight interest rate on their reserve balances in accounts at the Fed. Banks earn deposit rate that is below the target rate for the reserves held in the Fed. Furthermore, banks are required to fulfill their reserve requirements and in case of over drafting they need to borrow to deal with the shortfall. One way of overnight borrowing is through a lending facility. The lending facility provides primary credits to banks when they need to cover overdrafts. Primary credits are also called discount loans. (Hanes notes). The lending facility provides discount loans by charging a discount rate above the target rate, through the discount window. “The FOMC sets the lending and deposit rate the same distance on either side of the target rate. This system is called a symmetric corridor” (p.257). Graph 1 depicts the symmetric corridor system where the overnight target rate is between discount rate and deposit rate. “In the symmetric corridor system, no bank would be willing to lend below the deposit rate since they can get deposit rate by leaving the funds in its reserve account hence, market rate never goes below the deposit rate” (p.256). Similarly, if the market rate goes above the discount rate, there would be no demand for reserves because banks could borrow from the Fed at discount rate and lend at market rate. Thus, no banks would hold reserves in the Fed. The demand for reserves for market rates between discount rate and deposit rate decreases in the interest rate. Banks should decide the amount of their reserve holdings to balance the potential cost of falling short of their reserve requirement against the opportunity cost of ending with excess reserves. Equilibrium interest rate occurs at the intersection of the reserve demand and reserve balances supplied by the central bank. “The target interest rate determines a target supply of reserves and the central bank aims to change total reserve supply to bring it as close as possible to this target. The central bank sets the quantity of reserves in order to realize the desired interest rate” (*Divorcing Money from Monetary Policy*”, p.46).

Another system that a central bank could follow is a floor system. The floor system is similar to the symmetric corridor system. In this system, the central bank sets the target rate equal to the deposit rate, the central bank targets the floor of the channel rather than target some point between deposit and discount rate as in the case of symmetric channel system. Graph 2 shows the floor system where the Fed chooses the reserve supply so that it intersects the demand curve well into the flat portion of the demand curve at deposit rate. “In this system, equilibrium no longer depends on the exact amount of reserve supply. Any quantity that is large enough to fall on the flat portion of the demand curve will implement the target rate” (p.51).

The two systems of monetary policy implementation differ in frequency of open market operations and deviation of the target rate from the market rate. “The central bank can predict most of the change in autonomous factors but there will always be unexpected changes that cause the aggregate supply of reserves to be different than what the central bank expected” (*“Understanding Monetary Policy implementation”, p.250*). In a corridor system where “aggregate reserves are limited the market interest rates are sensitive to small changes in reserve supply” (*“Minutes of the Federal Market Open Market Committee November 7-8, 2018”, p.3*). Reserve balances in the banking system are scarce since the target rate is higher than the deposit rate, which causes the opportunity cost of holding funds in the reserves. “The symmetric corridor system requires forecasting many exogenous variables that could affect the quantity of reserve balances outstanding, and then engaging open market operations daily to set the market rate equal to target rate” (*“Important choices for the Federal Reserve in the Years Ahead”, p.4*). If the FOMC could not get the right reserve supply right on a day, the market rate would deviate

from the target rate(*Hanes Notes*). On the other hand, in a floor system, aggregate reserves are sufficiently abundant where market rates are not sensitive to small changes in reserve supply. Graph 2 shows that the target rate equals the deposit rate in a floor system which eliminates the opportunity cost of holding funds in reserve balances. Therefore, banks are indifferent about holding large quantities of reserve balances in the Fed which leads to abundance of reserve supply. The floor system would not require active management of reserve supply because the flat portion of the reserve demand would decrease the size and frequency of open market operations needed to keep good control of the policy rate. “In other words, regimes with ample excess reserves enables effective control of short-term rates with no frequent need to manipulate the reserve balances” (“*Minutes of the Federal Market Open Market Committee November 7-8, 2018*”, p.3).

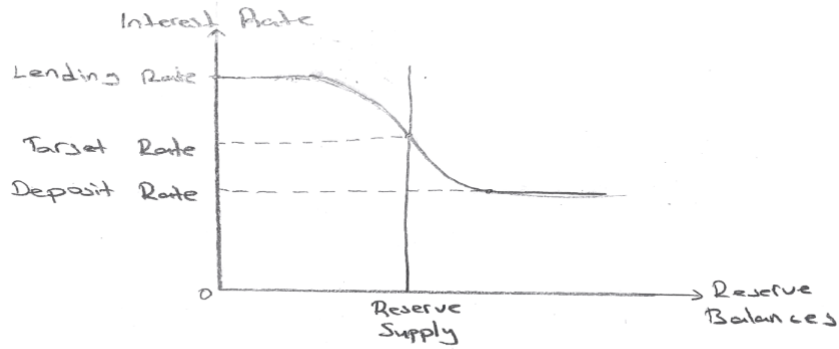
The Fed currently implements a system different than the hypothetical floor system mentioned above. “The reserve balances are currently far in excess of banks’ reserve requirements and with such a large quantity of reserves in the banking system, the Fed can no longer effectively influence the FFR by small changes in the supply of reserves”(“*A New Frontier: Monetary Policy with Ample Reserves*”, p.4). Furthermore, some entities in the U.S such as government sponsored entities (GSE) hold balances in accounts at the Fed but they don’t receive any interest payments for their holdings since the law does not allow the Fed to pay interest on their balances. Although banks would not be willing to lend below the interest rate on required reserves (IORR), these GSEs can lend below the IORR (*Hanes Notes*). This could cause the market rate to move away from target rate. “In order to solve this problem, the Fed formed a floor system with subfloor. Under this system, the FOMC is now making use of an overnight

reverse repurchase agreement (ON-RRP) facility” (“*Interest Rate Control is More Complicated Than You Thought*”, p.2). The FOMC borrows through repo loans at an interest rate below than an interest rate on required reserves (IORR). Through ON-RRP facility GSEs are able to lend to the FOMC. Graph 3 describes the floor with subfloor system that “the Fed sets along with the discount rate and interest rate on excess reserve (IOER) an ON-RRP rate. The FOMC sets the ON-RRP rate below the IOER and then it announces a target range for the federal funds rate (FFR) with the range between IOER and ON-RRP rate” (p.3). Therefore, the IOER sets the floor, and the ON-RRP sets the subfloor.

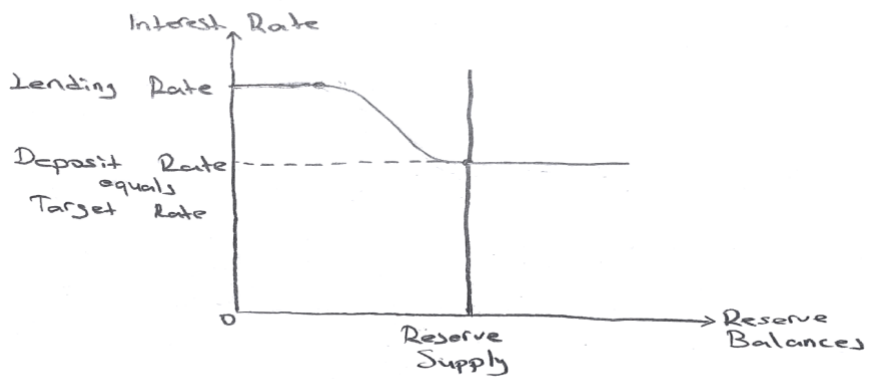
To conclude, the Fed rules the economy by manipulating the interest rate that banks charge to each other overnight which also affects other short-term and long-term interest rates. A central bank can implement different systems of monetary policy to influence the overnight market interest rate. One of the systems that a central bank can follow is a symmetric corridor system where the central bank sets the target rate equals the market rate between discount rate and deposit rate. In this system there is a tight relationship between reserve supply and market interest rate and the central bank frequently engages in open market operations. Since the opportunity cost of holding excess supply in the reserves exists, reserve balances are scarce so autonomous factors could cause more deviations of the market rate from the target. The other system is the floor system. A floor system sets the target rate equal to deposit rate which eliminates the opportunity cost of holding balances in account at the Fed. As a result, reserve balances are abundant and there is no frequent need to engage in open market operations and market rate deviation from target rate relatively less. The Fed currently uses a floor system with subfloor. This system includes a discount rate and IOER with additional ON-RRP rate and it aims to set the target rate between IOER and ON-RRP.

Graphs

Graph 1: Supply and Demand



Graph 2



Graph 3

