The Federal Reserve System and Its Tools

Introduction and Description

The focus of this lesson is the Federal Reserve System: how its actions relate to the money creation process introduced in the last lesson and how its tools affect the money supply. The Federal Reserve System is the central bank for the United States. It has regulatory authority for many financial institutions that hold checkable deposits. It has the responsibility to control the money supply to promote the economic goals of full employment, price stability and stable economic growth. The Fed has three tools it can use to control the money supply: open market operations, the discount rate and the required reserve ratio. The primary tool the Fed uses is open market operations, or the buying and selling of Treasury securities. Activity 38 provides the students with practice using T-accounts and the mechanics of implementing monetary policy.

Objectives

1. Describe the structure of the Federal Reserve System.
2. Identify each of the tools of the Fed and explain how changes in each tool affect the money supply.
3. Explain basic balance sheets.

Time Required

One class period or 45 minutes

Materials

Activity 38

Procedure

1. Describe the structure of the Federal Reserve System including the Board of Governors and the Federal Open Market Committee. Be sure to discuss the role of the chairman of the Federal Reserve.

2. Discuss each of the tools of the Fed.

3. Ask the students to explain, based on their knowledge of the money creation process, how each tool can be used to change the money supply.

4. Explain basic balance sheets of the Fed, the banking system and the bank customers. Explain how changes are evidenced in the different balance sheets. Be sure to explain that the left side of a balance sheet shows the assets, and the right side shows the liabilities. Further, the two sides of the balance sheet, including net worth, must sum to each other — that is, net worth equals assets minus liabilities.

5. Have the students complete Activity 38. Review the answers with the students.

The Federal Reserve: The Mechanics of Monetary Policy

For Questions 1 through 4, start with the baseline case in Figure 38.1. The Fed wishes to *decrease* the money supply from $353 to $303 by open market operations. The reserve requirement is 10 percent.

1. Will the Fed want to buy or sell existing Treasury securities? *Sell*

2. What is the money multiplier? *10*

3. What is the value of Treasury securities that need to be bought or sold? *$5*

4. Fill in Figure 38.3 to show the accounts after open market operations are finished and all changes have worked their way through the economy:

Figure 38.3
After Open Market Operations Are Finished

Assets			Liabilities
The Fed			
Treasury securities *(–$5)*	*$78*	*$21*	Reserve accounts of banks *(–$5)*
		$57	Federal Reserve notes
Banks			
Reserve accounts *(–$5)*	*$21*	*250*	Checkable deposits *(–$50)*
Federal Reserve notes	*$4*		
Loans *(–45)*	*$360*	$135	Net worth (to stockholders)
Bank Customers			
Checkable deposits *(- $50)*	*$250*	*$360*	Loans *(–$45)*
Federal Reserve notes	$53		
Treasury securities *(+ $5)*	*$57*		

Money supply = *$303 ($250 + $53)*

For Questions 5 through 7, suppose banks keep zero excess reserves and the reserve requirement is 15 percent.

5. What is the deposit expansion multiplier? *1 / 0.15 = 6.67*

6. A customer deposits $100,000 in his checking account.

   (A) How much of this can the bank lend to new customers? *$85,000*

   (B) How much must the bank add to its reserves? *$15,000*

   (C) In what two forms can a bank hold the new required reserves? *As vault cash or reserve accounts (deposits at the District Federal Reserve Bank)*

7. Suppose that the $100,000 had previously been held in Federal Reserve notes under the customer's mattress and that banks continue to hold no excess reserves. By how much will the customer's deposit cause the money supply to grow? *$566,950*

8. A very low discount rate may *(encourage banks to borrow / discourage banks from borrowing)* from the Federal Reserve. Underline the correct answer and explain why. *If banks are able to borrow from the Federal Reserve at a low interest rate and make loans at a higher rate, the banks will earn a profit and, hence, have an incentive to use the discount window.*

9. The federal funds rate is the interest rate at which financial institutions can borrow from other financial institutions. Suppose the federal funds rate is 5 percent and the discount rate is 4.5 percent. Why is it that a bank might choose to borrow in the federal funds market, rather than getting the lower interest rate available through the discount window? *Borrowing from another financial institution will have fewer transaction costs, plus the bank will not have the added scrutiny of its business practices that borrowing from the Federal Reserve will generate.*

10. In a foreign country, the reserve requirement is 100 percent. What will be the deposit expansion multiplier? *One*

11. If the Fed decided to implement a policy action designed to increase the money supply, in which direction would bank reserves and the federal funds rate change and why? *If the Fed wants to increase the money supply, it will institute a policy to increase reserves (giving banks an increased ability to make loans). Banks have more money to loan to other banks, businesses and consumers, so the federal funds rate is likely to decrease.*

12. Circle the correct symbol (↑ for increase, ↓ for decrease) in Figure 38.4.

Figure 38.4
Fed Actions and Their Effects

Federal Reserve Action	Bank Reserves	Money Supply	Fed Funds Rate
A. Sold Treasury securities on the open market	↑ ↓	↑ ↓	↑ ↓
B. Bought Treasury securities on the open market	↑ ↓	↑ ↓	↑ ↓
C. Raised the discount rate	↑ ↓	↑ ↓	↑ ↓
D. Lowered the discount rate	↑ ↓	↑ ↓	↑ ↓
E. Raised the reserve requirement	↑ ↓	↑ ↓	↑ ↓
F. Lowered the reserve requirement	↑ ↓	↑ ↓	↑ ↓

13. Indicate in the table in Figure 38.5 how the Federal Reserve could use each of the three monetary policy tools to pursue an expansionary policy and a contractionary policy.

Figure 38.5
Tools of Monetary Policy

Monetary Policy	Expansionary Policy	Contractionary Policy
A. Open market operations	*Buy Treasury securities*	*Sell Treasury securities*
B. Discount rate	*Lower the discount rate*	*Raise the discount rate*
C. Reserve requirements	*Lower the required reserve ratio*	*Raise the required reserve ratio*

14. Why do banks hold excess reserves, which pay no interest? *Banks are required by law to hold required reserves; they hold some excess reserves as a precaution in case of sudden withdrawals or changes in economic conditions.*

15. Why does the Fed rarely use the reserve requirement as an instrument of monetary policy?
Changes in the required reserve ratio cause radical or strong changes in the monetary system. It is difficult for financial institutions to adjust to changes in the required reserve ratio. In general, the Fed uses the tools of monetary policy to adjust the economy in smaller increments.

16. What does it mean to say that the Fed changes the discount rate mostly as a *signal* to markets?
The discount rate has no impact if banks do not borrow from the Federal Reserve; banks do not have to borrow because if they need funds, they can always go to the federal funds market. It signals to the banks and others how the Fed would like the money supply to change.

17. Why does the Fed currently target the federal funds rate rather than the money supply?
The Fed uses changes in reserves to affect the federal funds rate. It targets the federal funds rate because the Fed believes that this rate is closely tied to economic activity.