The Federal Reserve: The Mechanics of Monetary Policy

To manage the money supply, the Federal Reserve uses the tools of monetary policy to influence the quantity of reserves in the banking system. Increasing (decreasing) reserves tends to expand (contract) a bank's ability to make loans. Thus, reserve management gives the Fed powerful influence over the money supply and, in turn, over the general price level. The primary tool for reserve management today is open market operations (OMO). Discount rate changes serve primarily as signals; reserve requirements are rarely changed. Using T-accounts, Figures 38.1 and 38.2 show how the Fed could use open market operations to increase the money supply by $100.

Example: Baseline case

Figure 38.1 shows a baseline T-account. The required reserve ratio is 10 percent of checking deposits. With $26 in reserve accounts and $4 in Federal Reserve notes (vault cash), total bank reserves equal $30, exactly 10 percent of checkable deposits (in other words, no excess reserves). Net worth = assets – liabilities.

Figure 38.1
Baseline Case

Assets			Liabilities
	The Fed		
Treasury securities	$83	$26	Reserve accounts of banks
		$57	Federal Reserve notes
	Banks		
Reserve accounts	$26	$300	Checkable deposits
Federal Reserve notes	$4		
Loans	$405	$135	Net worth (to stockholders)
	Bank Customers		
Checkable deposits	$300	$405	Loans
Federal Reserve notes	$53		
Treasury securities	$52		
Money supply = $353 ($300 + $53)			

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Example: Expansionary policy via open market purchases

Suppose the Fed believes the economy is heading into a recession and wishes to increase the money supply by $100. Using open market operations, the Fed purchases $10 worth of Treasury securities from the public.

Figure 38.2 shows the consolidated accounts after the changes of this Fed action work their way through the economy. Changes are shown in boldface. Be sure to compare Figure 38.1 with Figure 38.2 to see the changes. The Fed's $10 increase in reserve accounts yields a $100 increase in the money supply.

Figure 38.2
After $10 Open Market Purchase

Assets			Liabilities
	The Fed		
Treasury securities *(**+$10**)*	**$93**	**$36**	Reserve accounts of banks *(**+$10**)*
		$57	Federal Reserve notes
	Banks		
Reserve accounts *(**+$10**)*	**$36**	**$400**	Checkable deposits *(**+$100**)*
Federal Reserve notes	$4		
Loans (**+$90**)	**$495**	$135	Net worth (to stockholders)
	Bank Customers		
Checkable deposits *(**+$100**)*	**$400**	**$495**	Loans *(**+$90**)*
Federal Reserve notes	$53		
Treasury securities *(**– $10**)*	**$42**		
Money supply = **$453 ($400 + $53)**			

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? _____

2. What is the money multiplier? _____

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

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		Reserve accounts of banks
	$57	Federal Reserve notes
	Banks	
Reserve accounts		Checkable deposits
Federal Reserve notes		
Loans	$135	Net worth (to stockholders)
	Bank Customers	
Checkable deposits		Loans
Federal Reserve notes	$53	
Treasury securities		

Money supply = _____

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? _____

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

   (A) How much of this can the bank lend to new customers? _____

   (B) How much must the bank add to its reserves? _____

   (C) In what two forms can a bank hold the new required reserves?

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? _____

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.

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?

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

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?

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		
B. Discount rate		
C. Reserve requirements		

14. Why do banks hold excess reserves, which pay no interest?

15. Why does the Fed rarely use the reserve requirement as an instrument of monetary policy?

16. What does it mean to say that the Fed changes the discount rate mostly as a *signal* to markets?

17. Why does the Fed currently target the federal funds rate rather than the money supply?