



BIG PICTURE IDEAS

- #1. The financial sector focuses on financial **assets** , like money and bonds, and the role of institutions that bring together borrowers and lenders , like **banks** .
- #2. A bank balance sheet reports the **assets** and **liabilities** of an individual bank.
- #3. Central banks use **monetary** policy to adjust the money supply and **interest** rates to achieve full employment and price stability.
- #4. There are three traditional tools of monetary policy: the **reserve** requirement, **discount** rate, and open **market** operations.
- #5. The effectiveness of traditional monetary policy depends on the amount of **reserves** in the banking system.

■ **Topic 4.1- Financial Assets**

1. Identify the vocab term given each definition:
 - Liquidity** The ease in which an asset can be converted into a medium of exchange.
 - Bonds (aka securities)** Interest-bearing assets often issued by businesses or the government.
 - Demand deposits** Funds deposited in a bank account that can be withdrawn without any penalty.
 - Interest rate** The amount charged by a lender to a borrower for the use of money.
2. Why are interest rates and bond prices inversely related? **People prefer higher interest rates because they give a greater rate of return. If rates for new bonds go up, people would prefer them to previously issued bonds. This causes the price of previously issued bonds to decrease.**

■ **Topic 4.2- Nominal v. Real Interest Rates**

3. Equation for the real interest rate.
Nominal interest rate - expected inflation
4. Fill in the chart:

Nominal Interest Rate	Real Interest rate	Actual Inflation
7%	4%	3%
4%	-1%	5%
6%	8%	-2%
2%	-3%	5%
3. When actual inflation is greater than expected inflation, the real interest rate will **decrease** .

■ **Topic 4.3- Definition, Measurement, and Functions of Money**

5. There are three functions of money: medium of **exchange** , store of **value** , unit of account.
6. Why are assets like cash and checkable deposits considered money but bonds and real estate are not? **Money only includes assets that can be used as a medium of exchange. You can't buy things with bonds or real estate.**
7. What is the M1 money supply and M2 money supply?
M1 money supply includes cash, currency, checkable deposits, and savings deposits. M2 money supply includes M1 and "near monies" like time deposits (certificates of deposits)

■ **Topic 4.4- Banking and the Expansion of the Money Supply**

8. **Fractional** reserve banking is the idea that banks hold a fraction of customers' deposits and lend the remaining funds out.
9. Explain the difference between required reserves and excess reserves. **Required reserves are deposits that banks must legally hold and cannot loan out. Excess reserves are the funds that the bank can loan out.**
10. What is the equation for the money multiplier?
1/Reserve Requirement
11. Will the money multiplier increase or decrease if banks hold more excess reserves than expected? **Decrease.**



■ **Topic 4.4- Banking and the Expansion of the Money Supply (continued)** ▶

12. **Assets** are something of value that are owned and **liabilities** are something that are owed that must be paid back.

Use the bank balance sheet for Bank X to complete the following. Show your work.

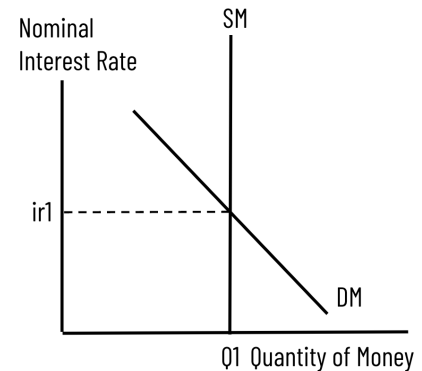
Assets		Liabilities	
Total reserves	\$5,000	Demand Deposits	\$20,000
Loans	\$15,000	Owner's Equity	\$10,000
Treasury bonds	\$10,000		

13. If the required reserve ratio is 10%, what are the current required reserves and excess reserves for Bank X? **Required reserves = \$2,000**
Excess reserves = \$3,000. 10% of \$20,000 is the required reserves of \$2,000. The amount left over is the excess reserves of \$3,000.
14. What is the maximum possible increase in the money supply if Bank X loans out all their excess reserves? **\$30,000 (\$3,000 x 10). The multiplier is 1/.10 or 10 and the excess reserves is \$3,000. The excess reserves times the multiplier is \$30,000.**
15. Assume a customer deposits \$5,000 into Bank X. Would the money supply initially increase, decrease, or stay the same? Explain. **The initial money supply stays the same because the money deposited is already part of the money supply.**
16. After the \$5,000 deposit, calculate the new total demand deposits and excess reserves. **Demand deposits=\$25,000 Excess reserves = \$7,500. The total demand deposits is \$20,000 + \$5,000. The excess reserves increase by \$4500 to a total of \$7500.**
17. What is the maximum possible increase in the money supply from only the \$5000 deposit? **\$45,000. The initial loan of \$4,500 times the money multiplier of 10. It is NOT \$50,000 since the initial money deposited was already part of the money supply.**

■ **Topic 4.5- The Money Market** ▶

18. The money market graph shows the supply and demand for money and how it sets the equilibrium **nominal** interest rate.
19. What is the difference between transaction demand for money and asset demand for money? **Transaction demand is the money that people want to make everyday purchases. This is not affected by the interest rate. Asset demand is when people want money as a liquid asset because they prefer it to other non-liquid assets like bonds.**
20. Explain why the supply for money is vertical. **The money supply is set by the central bank and is unrelated to the nominal interest rate.**

21. Draw the demand and supply of money and label the equilibrium nominal interest rate i_{r1} .



■ **Topic 4.6- Monetary Policy** ▶

22. What is the difference between monetary policy and fiscal policy? **Monetary policy is conducted by the central bank and involves adjusting the money supply. Fiscal policy is conducted by the government and includes changing government spending and taxation.**
23. What is the difference between the discount rate and the federal funds rate? **The discount rate is the interest rate the Fed charges banks. The federal funds rate is the interest rate that banks charge each other. The Fed has direct control of the DR but not the FFR.**

24. Identify if each of the following will increase or decrease (↑ or ↓).

Central Bank Action	Money Supply	Interest Rates	Investment
Increase the reserve requirement	↓	↑	↓
Central bank buys bonds	↑	↓	↑
Decrease the reserve requirement	↑	↓	↑
Increase the discount rate	↓	↑	↓
Central bank sells bonds	↓	↑	↓
Decrease the discount rate	↑	↓	↑



MACROECONOMICS UNIT 4

Financial Sector

■ Topic 4.6- Monetary Policy (continued)

25. What is the difference between the money supply and the monetary base? **The money supply includes money in circulation and demand deposits. The monetary base includes money in circulation and bank reserves**

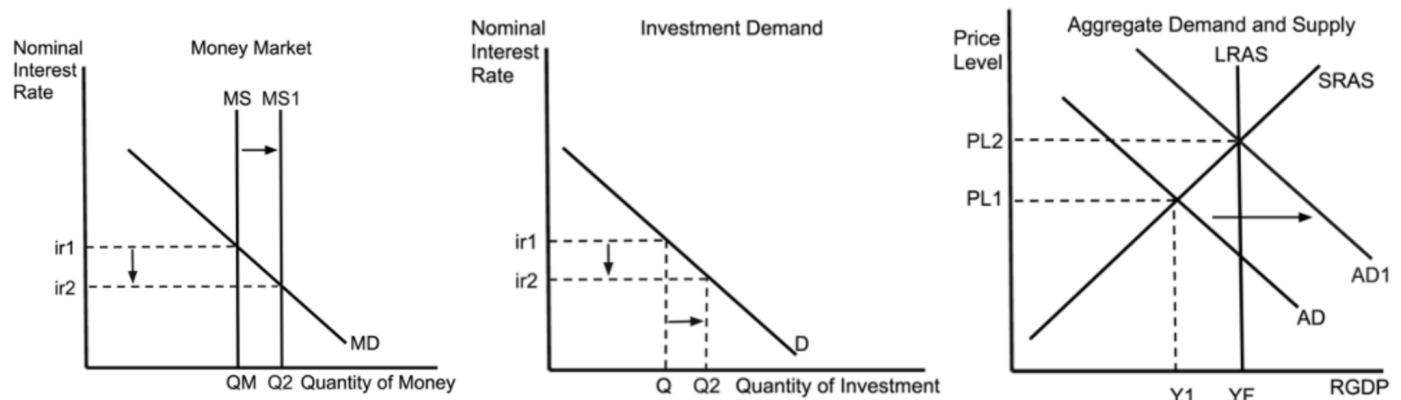
26. Do open market operations initially change the money supply, the monetary base, or both? Explain. **Only the monetary base. Buying/selling bonds initially change excess reserves which are part of the monetary base**

27. Of the three traditional tools of monetary policy, the one most often used by central banks is **open market operations (OMO)**.

28. Use the money multiplier to complete the chart:

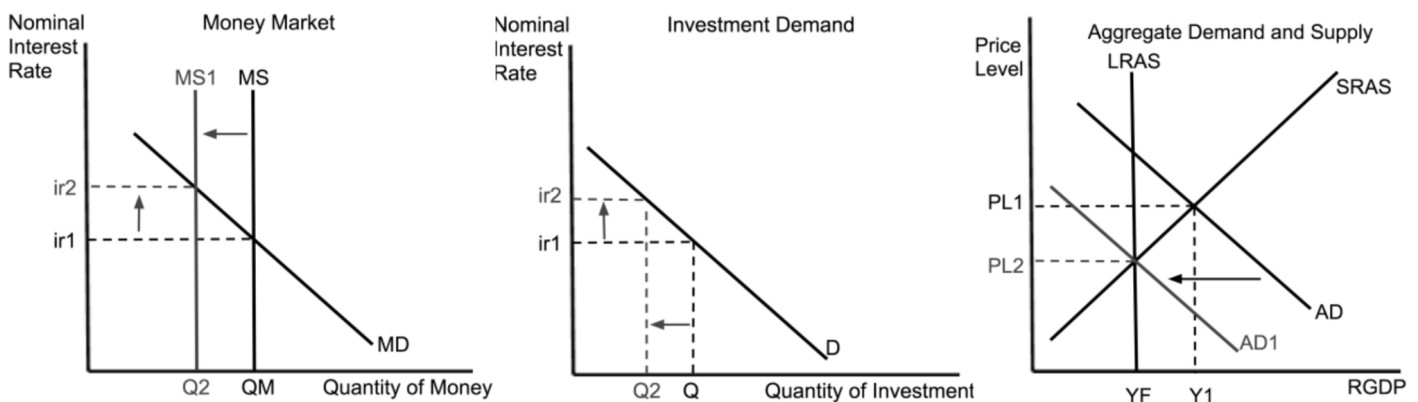
Monetary Policy	Initial Change	Reserve Req.	Maximum Change
Fed Buys Bonds	\$10 billion	.2	↑\$50 billion
Fed Sells Bonds	\$30 billion	.5	↓\$60 billion
↓ Res. Req.	\$10 billion	.1	↑\$100 billion
↑ Res. Req.	\$6 billion	.2	↓\$30 billion
↑ Dis. Rate	\$20 billion	.25	↓\$80 billion
↓ Dis. Rate	\$4 billion	.1	↑\$40 billion

29. Show what happens on each graph below when the central bank uses monetary policy to close the output gap.



30. Use arrows (↑or↓) to describe the process above: Money Supply ↑ → ir ↓ → I and C ↑ → AD ↑ → Full Employment

31. Show what happens on each graph when the central bank uses monetary policy to close the output gap.



32. Use arrows (↑or↓) to describe the process above: Money Supply ↓ → ir ↑ → I and C ↓ → AD ↓ → Full Employment

True or False

33. An increase in the money supply will cause aggregate demand to decrease in the short-run. **False**

34. The federal funds rate is the interest rate that commercial banks charge each other. **True**

35. Monetary policy can be implemented faster than discretionary fiscal policy. **True**

36. When commercial banks buy bonds from the central bank the money supply increases. **False (the central bank is selling the bonds)**

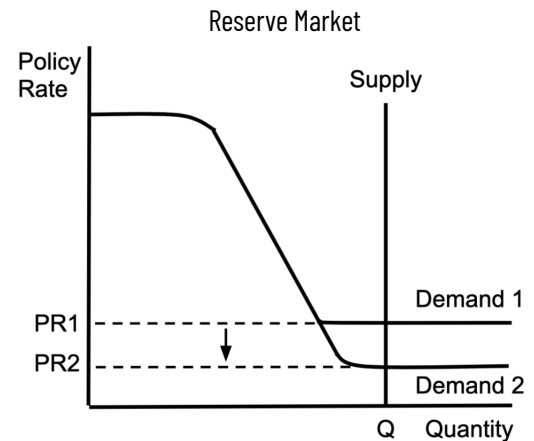


■ **Topic 4.6- Monetary Policy (continued)**

37. The most effective method of monetary policy depends on if the banking system has **limited** reserves or **ample** reserves.
38. Explain why open market operations are less effective when there are ample reserves. **When commercial banks hold large amounts of reserves, a change in the money supply from open market operations has little or no effect on the equilibrium interest rate.**

39. Draw the reserve market currently showing ample reserves. Label the equilibrium policy rate PR_1 and the equilibrium quantity Q_1 . **See graph**
40. What is Interest on Reserves (IOR)? **The interest rate that the Federal Reserve pays commercial banks to hold reserves.**

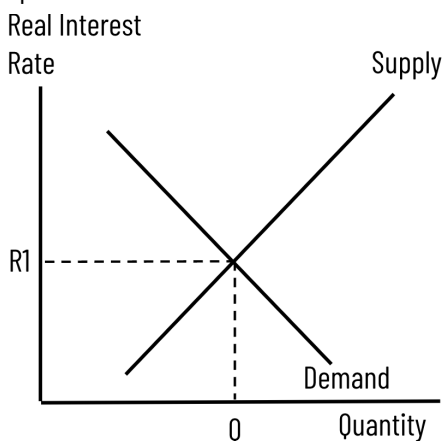
41. Show what happens on the graph to the left when the central bank decreases the interest on reserves. **See graph**
42. How will the change on the graph affect aggregate demand in the short run? Explain. **Aggregate demand will increase since interest rates decreased causing an increase in consumer spending and investment.**



■ **Topic 4.7- The Loanable Funds Market**

43. The loanable funds market brings together **borrowers** and **lenders**, which are also called savers.
44. Identify the shifters of the demand for loanable funds. **Anything that changes the amount of borrowing and investment (e.g. changes in perceived business opportunities and government borrowing)**
45. Identify the shifters of the supply for loanable funds. **Anything that changes lending or savings (eg. changes in private or public savings, changes in the profitability of loans, changes in lending by foreigners)**
46. Explain why the loanable funds market involves real interest rates rather than nominal interest rates. **Lenders and borrowers account for inflation when they make decisions. Lenders ignore nominal rates of return and focus on real rates of return adjusted for inflation.**

47. Draw the loanable funds market and label the equilibrium real interest rate R_1 .



48. Will an increase in government borrowing cause the real interest rate to increase or decrease? Explain. **Real interest rate will increase. More government borrowing will increase the demand for loanable funds and shift the demand curve to the right. This is called crowding out. (Note- It is also correct to say the supply of loanable funds decreases.)**
49. What will a decrease in business investment do to the real interest rate and the quantity of loans? Explain. **Real interest rate will decrease. Less business spending will decrease the demand for loanable funds and shift the demand curve to the left.**
50. What will an increase in private savings do to the real interest rate and the quantity of physical capital? Explain. **Real interest rate will decrease. More private saving will increase the supply of loanable funds and shift the supply curve to the right.**

True or False:

51. Of all the economics teachers on YouTube that are 6'5" and live in San Diego, Jacob Clifford is the best. **True?**
52. Macroeconomics is super interesting and I'm excited to learn the concepts in the last two units. **True!**