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MONEY

OVERVIEW

1. Money replaces the barter system where one good trades directly for another good. Money is anything that serves as a medium of exchange, a standard of value, a store of value, and a measure of debt.
2. In the United States, money includes all the coins and paper money in circulation as well as all the checkable deposits. This is the narrow definition, or M1 definition, of the money supply.
3. Banks in the United States operate on a fractional reserve system. Fractional reserves mean that the bank is required to keep in reserve a percentage of each deposit made. The percentage of a deposit that the bank must keep in reserve is called the reserve requirement. The amount of money the bank must keep in reserve is called required reserves.
4. Any money that the bank is not required to keep in reserve is the excess reserves; these the bank can lend out. The excess reserves are the basis of the money creation process.
5. When a new deposit is made in a bank, the bank keeps part of the deposit in required reserves and can loan out the remaining excess reserves. The loan is spent and deposited in another bank which keeps a part of the deposit and loans out the rest. This process continues until nothing remains for a bank to loan out. The total increase in the money supply is found by multiplying the initial deposit by the money multiplier. The money multiplier is the reciprocal of the reserve requirement.
6. Control of the money supply requires control of the amount of excess reserves. Increasing excess reserves will cause the money supply to increase.

MATCHING

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|-------|-----|---------------------------|----|--|
| _____ | 1. | barter system | a. | allows people who have money now to spend it later |
| _____ | 2. | medium of exchange | b. | a medium of exchange that also serves as a store of value, a measure of debt, and a standard of value. |
| _____ | 3. | standard of value | | |
| _____ | 4. | store of value | c. | a system where banks are required to hold a fraction of deposits in reserve |
| _____ | 5. | measure of debt | | |
| _____ | 6. | money | d. | the amount of reserves a bank must hold |
| _____ | 7. | currency | e. | a system where one good is directly traded for another |
| _____ | 8. | money supply | f. | coins and paper money |
| _____ | 9. | fractional reserve system | g. | the multiple of a change in excess reserves that produces a change in the money supply |
| _____ | 10. | reserve requirement | h. | the percentage of deposits a bank must hold in reserve |
| _____ | 11. | required reserves | i. | anything that can be used to buy goods and services |
| _____ | 12. | excess reserves | j. | currency in circulation plus checkable deposits |
| _____ | 13. | money multiplier | k. | the difference between reserves and required reserves |
| | | | l. | a function of money that records the amount we owe and have to pay back later |
| | | | m. | a function of money that allows people to measure the value of different goods |

TRUE-FALSE

- _____ 1. The money supply includes only cash in circulation.
- _____ 2. When there are excess reserves, banks can create money.
- _____ 3. The money multiplier is the same as the reserve requirement.
- _____ 4. When the reserve requirement rises, the money multiplier also rises.
- _____ 5. When someone spends money, the money supply will most likely rise.

PROBLEMS

1. a. Suppose that the reserve requirement is $1/5$. Find the money multiplier.

- b. If the initial excess reserves are \$100, by how much can the money supply change?

- c. If the reserve requirement increases to $1/4$, what happens to the money multiplier?

- d. Using the new money multiplier, by how much can the money supply change if initial excess reserves are \$100? _____
2. a. Suppose that the reserve requirement is $1/10$. Also suppose that Bank A has initial excess reserves of \$100. How much can Bank A lend? _____
- b. Suppose that Bank A lends \$100 to Fred for a tennis racket. What has happened to the money supply? Fred spends the \$100 at The Pro Shop which deposits it in Bank B. How much must Bank B hold in reserve? _____ How much can Bank B loan out?

- c. Suppose that Bank B loans out \$90 to Marge. What has happened to the money supply? _____ Marge spends the \$90 at the Lampe Shoppe, which deposits it in Bank C. How much must Bank C hold in reserve? _____ How much can Bank C loan out? _____
- d. Suppose that Bank C loans the \$81 to Allison. What has happened to the money supply? _____ Allison spends the \$81 at the lawn shop. The store deposits the \$81 in Bank D.
- e. By how much have the actions of banks A, B and C increased the money supply? _____ By how much will the money supply increase altogether when this money creation process is completed? _____

IN THE NEWS

1. With the development of copying machines that are able to accurately copy both detail and color, there is more counterfeiting going on than ever before. Various governments are concerned and are working on ways to make it more difficult to reproduce currency. Possible solutions include more colors, larger watermarks, and holographic images.
 - a. If you knew that counterfeit \$5 bills were circulating in town, what would you do?

 - b. What function of money is disrupted by the counterfeiters? _____

2. One problem with using gold or silver as money is that the metals have other uses. The prices of the precious metals are determined in a market. Suppose that there are gold dollar coins in circulation.
 - a. If the market price of gold rose so that the gold in the coin were worth more than a dollar, what would you do with your gold coins? _____

 - b. How many gold coins would you see in circulation? _____

3. During the Great Depression, some banks had excess reserves, but the money supply actually fell. Some economists claim that even if more excess reserves had been provided, the money supply would not have increased.
 - a. Why would a bank not loan out the excess reserves? _____

 - b. If we calculate the amount the money supply should change based on the excess reserves, can we be sure that that increase in the money supply will occur?

4. The government collects statistics on the amount of excess reserves in the banking system. There are variations in the volume of excess reserves from bank to bank.
 - a. Suppose that the excess reserves are all in one bank. Explain how the multiple expansion process works. _____

 - b. What if the excess reserves are in more than one bank. How does your answer to 4a change? _____

PRACTICE TEST

Circle the correct answer.

1. If you decide not to spend your money now and wait to spend it later, you are using the _____ function of money,
 - a. standard of value
 - b. store of value
 - c. measure of debt
 - d. medium of exchange

2. The banking system is a:
 - a. 100 percent reserve system.
 - b. full reserve system.
 - c. fractional reserve system.
 - d. zero reserve system.

3. Money held in reserve over and above the required reserves is known as:
 - a. the reserve requirement.
 - b. the required reserves.
 - c. the deposit-loan ratio.
 - d. the excess reserves.

4. The money multiplier is the reciprocal of:
 - a. the reserve requirement.
 - b. the excess reserves.
 - c. the marginal propensity to consume.
 - d. the marginal propensity to save.

5. If the reserve requirement is $1/4$ and excess reserves are 100, then the money supply could increase by:
 - a. \$100.
 - b. \$200.
 - c. \$300.
 - d. \$400.

ANSWERS

Matching

1. e
2. i
3. m
4. a
5. l
6. b
7. f
8. j
9. c
10. h
11. d

- 12. k
- 13. g

True-False

- 1. F
- 2. T
- 3. F
- 4. F
- 5. F

Problems

- 1.
 - a. The money multiplier is the reciprocal of the reserve requirement, $1/5$. So the money multiplier is 5.
 - b. The money supply can change by the money multiplier times the initial excess reserves, or $5 \times \$100 = \500 .
 - c. If the reserve requirement goes to $1/4$, the money multiplier becomes smaller. It is now 4, the reciprocal of $1/4$.
 - d. Excess reserves of \$100 can expand now to only \$400.
- 2.
 - a. Bank A has excess reserves of \$100 it can loan out.
 - b. The money supply increases by \$100 since the loan to Fred involves establishing a checking account for Fred for \$100. Bank B must hold \$10 in required reserves and can loan out \$90.
 - c. The money supply goes up by \$90 since the loan to Marge involves establishing a checking account for Marge for \$90. Bank C must hold \$9 in required reserves and can loan out \$81.
 - d. The money supply goes up by \$81 since the loan to Allison involves establishing a checking account for Allison for \$81.
 - e. Banks A, B, and C have increased the money supply by a total of \$271. That is because Bank A added \$100 to the money supply, Bank B added \$90, and Bank C added \$81. The final total change to the money supply will be \$1,000. To find this number multiply the money multiplier, 10, by the initial excess reserves, \$100.

In the News

- 1.
 - a. You would not accept five dollar bills, and neither would anyone else. Five dollar bills would stop circulating.
 - b. Since \$5 bills are out of circulation, they no longer serve as a medium of exchange. A medium of exchange must be acceptable to everyone, so \$5 bills, counterfeit or not, would no longer be money.
- 2.
 - a. You would sell your gold coins for their gold content since their gold content is worth more than a dollar.
 - b. Few gold coins would be in circulation since everyone would want to sell their gold coins which have become more valuable as a metal than as a coin. So gold coins would not serve as a medium of exchange and perform the functions of money.

3. a. The bank might not be able to find any borrowers or any loan opportunities it found safe enough. Thus the bank would hold the excess reserves. Also if the bank was worried about everyone coming at once to withdraw money, the bank might want to have more cash on hand than usual. Therefore large holdings of excess reserves could be expected in a depression.
- b. No, whether or not the money multiplier works will depend on whether the bank can and will loan out the excess reserves it has. And that will depend on the level of the economy, among other things.
4. a. The bank can loan out its excess reserves. In doing so, it sets up a checkable deposit for the person getting the loan and thus increases the money supply. The person getting the loan spends the money and the money ends up in another bank. That bank now has excess reserves which it can loan out. The money is spent and the process continues.
- b. If there is more than one bank with excess reserves, the process is the same except that instead of one bank making a loan, there are many banks making loans at the same time. Thus the process works the same way and the increase in the money supply is the same.

Practice Test

1.b., 2.c., 3.d., 4.a., 5.d.