Chapter 13

Money and Banks
The goal of this chapter is to examine the role of money in the economy. Specifically:

– What is money?
– Where does money come from?
– What role do banks play in the macro economy?
Learning Objectives

After completion of this chapter, you should know:

1. What the features of “money” are.
2. What is included in the “money supply.”
3. How banks create money.
After completion of this chapter, you should know:

4. How the money multiplier works.
5. Why the money supply is important.
The Uses of Money

• Money replaced barter and that greatly simplified market transactions.

• *Barter* is the direct exchange of one good for another, without the use of money.
• Anything that serves all of the following purposes can be thought of as money:
  – *Medium of exchange:* accepted as payment for goods and services (and debts).
  – *Store of value:* can be held for future purchases.
  – *Standard of value:* serves as a yardstick for measuring the prices of goods and services.
• The concept of money includes more than dollar bills and coins.
• Checking accounts can and do perform the same market function as cash.
Transactions Accounts

• A *transactions account* is a bank account that permits direct payments to a third party (e.g., a check or a debit card).

• The balance in your transactions account substitutes for cash and, therefore, is a form of money.
Basic Money Supply

• The basic money supply is typically referred to by the abbreviation M1.

• *M1* is currency held by the public, plus balances in transactions accounts.

• Cash is only part of the money supply; most money consists of balances in transactions accounts.
Figure 13.1

- Total money supply ($2,450 billion)
  - Currency in circulation
    - $1,100
  - Transactions account balances
    - $1,346
  - Traveler’s checks
    - $4
Credit Cards

• Credit cards are *not* a form of money.
• Credit cards are a popular medium of exchange, but are not a store of value.
• Credit cards are essentially the use of a pre-approved loan that should be paid off monthly.
Near Money

• There are additional measures of the money supply (M2, M3, etc.).
  – Savings accounts.
  – Certificates of deposit (CDs).
  – Money-market mutual funds.

• We will limit our discussion to M1, the basic money supply.
Cashless Society?

We’re keeping a smaller percentage of the money supply as cash as we:

• Rely more on credit cards for purchases.
• Receive direct deposit for paychecks.
• Use more checks instead of cash.
• Rely more on debit cards for transactions.
• Complete many transactions via direct wire transfer of money.
Creation of Money

• The Bureau of Engraving and Printing and the U.S. Mint play only a minor role in creating money.

• Most of what we call money is bank balances, not cash.
Deposit Creation

- In making a loan, a bank effectively creates money, because transactions-account balances are counted as part of the money supply.
- Banks create transactions-account balances by making loans.
- **Deposit creation**: the creation of transactions deposits by bank lending.
A Monopoly Bank

• To keep things simple, assume one bank in a town, and no one regulates bank behavior.

• You deposit $100 from your piggy bank into the monopoly bank and receive a new checking account.

• When you deposit cash or coins in a bank, you are changing the composition of the money supply, not its size.
An Initial Loan

• The monopoly bank approves a loan of $100 to Campus Radio, and deposits $100 into Campus Radio’s checking account.
• The loan is accomplished by a simple bookkeeping entry.
An Initial Loan

- Money has been created because the funds in a checking account are part of the money supply.
- Total bank reserves (assets held by a bank to fulfill its deposit obligations) have remained unchanged.
• When Campus Radio spends the $100, the ownership of the deposit changes but the size of the money supply does not change.
Fractional Reserves

• Bank reserves are only a *fraction* of total transactions deposits.

• The *reserve ratio* is the ratio of a bank’s reserves to its total transactions deposits:

\[
Reserve \ ratio = \frac{bank \ reserves}{total \ deposits}
\]
Fractional Reserves

• The ability of a monopoly bank to hold fractional reserves results from two facts:
  – People use checks for most transactions.
  – There is no other bank.

• Reserves are rarely withdrawn from this bank.
• The minimum reserve requirement directly limits deposit-creation possibilities.
  – *Required reserves* are equal to the required reserve ratio times transactions deposits:

  \[
  \text{Required} = \text{Required reserves} \times \text{Total reserve ratio} \times \text{Total deposits}
  \]
• If a bank could create money at will (by making an unlimited number of loans), it would have a lot of control over AD.
  – In reality, no private bank has that much power.
  – The power to create money in this way resides in the banking system, not in any single bank.
• The Federal Reserve System ("the Fed") requires banks to maintain a minimum reserve ratio.

• **Required reserves** are the minimum amount of reserves a bank is required to hold by government regulation.
Excess Reserves

• *Excess reserves* are bank reserves in excess of required reserves:

\[
\text{Excess reserves} = \text{Total reserves} - \text{Required reserves}
\]
The ability of banks to make loans depends on its excess reserves. So long as a bank has excess reserves, it can make additional loans. If a bank currently has $100 in reserves and is required to hold $75 as required reserves, it can only lend out the excess $25.
A Multibank World

• In reality there is more than one bank.
• The key issue is not how much excess reserves any one bank holds but how much excess reserves exist in the entire banking system.
  – Excess reserves are the source of bank lending authority.
The cumulative amount of new loans is determined by the money multiplier.

– The *money multiplier* is the number of deposit (loan) dollars that the banking system can create from $1 of excess reserves:

\[
\text{Money multiplier} = \frac{1}{\text{required reserve ratio}}
\]
The Money Multiplier Process

• An initial deposit of $100 is made at University Bank.
  – University Bank keeps $75 (75 percent of the $100 new deposit) on reserve and loans out $25, which is deposited in Bank Two.
  – Bank Two keeps 75 percent of the new deposit on reserve ($18.75) and loans out $6.25.
The Money Multiplier Process

• Bank Three keeps 75 percent of the new deposit on reserve ($4.69) and loans out $1.56.

• This process continues until all excess reserves have disappeared.
Figure 13.2

Initial deposit ($100) → University Bank → Loan $25 → Bank #2 → Loan $6.25 → Bank #3 → Loan $1.56 → Bank #4 → etc.

- Excess reserves: $25
  Required reserves: $75
- Excess reserves: $6.25
  Required reserves: $18.75
- Excess reserves: $1.56
  Required reserves: $4.69
- Excess reserves: $0.39
  Required reserves: $1.17
The potential of the money multiplier to create loans is summarized by the equation:

\[
\text{Potential deposit creation} = \text{money multiplier} \times \text{excess reserves of banking system}
\]
• If the required reserve ratio = 0.75:
  – The multiplier = \( \frac{1}{0.75} = 1.33 \).

• If the banking system has $25 in excess reserves:
  – Potential deposit creation is:
    • $25 \times 1.33 = $33.25.$
Excess Reserves as Lending Power

• Each bank may lend an amount equal to its excess reserves and no more.
• The entire banking system can increase the volume of loans by the total amount of excess reserves in the banking system multiplied by the money multiplier.
Financing Aggregate Demand

• Banks perform two essential functions:
  – Banks transfer money from savers to spenders by lending funds (reserves) held on deposit.
  – The banking system creates additional money by making loans in excess of total reserves.

• Increases in the money supply increases AD, and vice versa.
Constraints on Money Creation

• There are four major constraints on banks’ lending ability:
  – Bank deposits.
  – Willing borrowers.
  – Willing lenders.
  – Government regulation.
Bank Deposits

• Bank reserves will be lower if people prefer to hold cash rather than make deposits in their transactions accounts.
Willing Borrowers and Lenders

• If consumers, businesses, and governments don’t want to borrow, fewer deposits will be created.

• Banks may not be willing to satisfy credit demands if they consider the risk of making loans to be too high. They may choose instead to hold excess reserves.
Are Mobile Payments Replacing Money?

• The most common forms of money used in brick-and-mortar malls cannot be used as a medium of exchange in electronic malls.
• The Federal Reserve regulates bank lending practices.
• The levers of Federal Reserve policy will be examined in Chapter 14.
Are Mobile Payments Replacing Money?

• Almost all Internet purchases are completed with a credit card.
• Dependence on credit cards limits the potential of e-commerce because of:
  – Security issues (credit card theft).
  – Privacy issues (use of credit card databases for undisclosed purposes).
Are Mobile Payments Replacing Money?

• Mobile payments are software programs that permit a payment to be made directly from a smartphone or tablet.

• Mobile payments are *not* money; they are a payment service, like credit cards.
What We Learned

1. Money facilitates exchange and specialization, thus permitting increased output. It also serves as a store of value and a standard of value.
2. The money supply, M1, includes cash, balances in transaction accounts, and travelers checks.

3. Banks “create” money by making loans, which increases transaction deposits.
What We Learned

4. A bank loans out its excess reserves, which are spent and deposited, creating more reserves and enabling more loans, starting a new cycle. The money multiplier indicates the total value of deposits that can be created from excess reserves.
What We Learned

5. The money supply determines the amount of purchasing power available in the marketplace. An increase in the money supply increases AD (it shifts right), and *vice versa*. 