Chapter 12

• The Money Market and Monetary Policy

The Demand For Money

• How much money people want to hold
  – Given their constraints
• An individual's demand for money
  – Quantity of money demanded
    • Wealth – held as money, not as other assets
    • Saving accounts, stocks, bonds
  – Opportunity cost
    • Interest

An Individual’s Demand for Money

• Divide wealth among different assets
  – Money
    • Means of payment
    • Earns no interest
  – Saving accounts, bonds
    • Earn interest
    • Not means of payment.
  – Stocks
    • Earn dividends
    • Not means of payment.
  – Assumption: only two assets
    • Money and Bonds

An Individual’s Demand for Money

• Individuals hold more money
  – Higher price level
  – Higher real income (purchasing power)
• Individuals hold less money
  – Higher interest rate
The Demand for Money by Businesses

- Businesses hold money
  - Currency in their cash registers
  - Business checking accounts
- Businesses hold more money
  - Higher real income
  - Higher price level
- Businesses hold less money
  - Higher interest rate

The Economy-Wide Demand For Money

- Quantity of money demanded
  - Households and Businesses
- Increase money demand
  - Price level increases
  - Real income (real GDP) increases
- Decrease quantity of money demanded
  - Rise in the interest rate
- Consider Figure 1

The Money Demand Curve

- Figure 1 The Money Demand Curve
  - The money demand curve is drawn for a given real GDP and a given price level.
  - At an interest rate of 3 percent, $1,000 billion of money is demanded.
  - The interest rate drops to 1 percent, the quantity of money demanded increases to $1,600 billion.
  - Movement along
    - A change in the interest rate
  - Shifts in the Money Demand Curve
    - Change in money demand caused by something other than the interest rate
      - Real income
      - Price level
Shifts vs. Movements Along the Md Curve

- Interest rate \( \uparrow \) moves us leftward along the money demand curve.

Entire money demand curve shifts rightward if the price level or income increases.

Interest rate \( \downarrow \) moves us rightward along the money demand curve.

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The Supply of Money

- Controlled by the Fed
- Doesn’t change with the interest rate
- Money supply curve
  - Total quantity of money in the economy at each interest rate
  - Vertical line
- Consider Figure 3

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The Supply of Money

- Rightward shift
  - Open market purchases
  - Inject reserves into the banking system,
- Leftward shift
  - Open market sales
  - Withdraw reserves
Equilibrium in the Money Market

- Occurs when
  - Quantity of money people are actually holding
    - Either in cash or checking account balances
    - Is equal to the quantity supplied
  - Quantity demanded
    - Is equal to the quantity of money people want to hold
    - Quantity demanded
- Consider Figure 4

Money Market Equilibrium

- Figure 4 Money Market Equilibrium

How Money Market Reaches Equilibrium

- Excess supply of money
  - Money supply > Quantity demanded
  - Excess demand for bonds
    - Amount of bonds demanded > amount supplied
- Excess demand of money
  - Money supply < Quantity demanded
  - Excess supply of bonds
    - Amount of bonds demanded < amount supplied
**Bond Prices and Interest Rates**

- **Bond**
  - Promise to pay back borrowed funds
  - At a certain date/dates in the future
- **Large corporation or government**
  - Needs to borrow money
  - Issue a new bond
  - Sells it in the marketplace
  - Negative relationship: Price of bonds and interest rate
  - Secondary market for bonds

**What Happens When Things Change?**

- The Fed wants to lower the interest rate
  - Open market purchases
  - Increase the money supply
  - Change the equilibrium interest rate

**An Increase in the Money Supply**

- **Figure 5 An Increase in the Money Supply**
  - At point E, the money market is in equilibrium at an interest rate of 6 percent.
  - To lower the interest rate, the Fed could increase the money supply to $1,600 billion.
  - The excess supply of money (and excess demand for bonds) would cause bond prices to rise, and the interest rate to fall until a new equilibrium is established at point F with an interest rate of 3 percent.

**What Happens When Things Change?**

- The Fed - increase the interest rate
  - Open market sales
  - Decrease the money supply
  - Change the equilibrium interest rate
Interest Rate Changes - Affect the Economy

- Fed increases the money supply
  - Interest rate falls
  - Spending increases
    - plant and equipment
    - new housing
    - consumer durables
- Fed decreases the money supply
  - Interest rate rises
  - Spending falls

Monetary Policy

- Control or manipulation of money supply
- By the Fed
- To achieve a macroeconomic goal

Monetary Policy in Practice

- Federal funds rate
  - Interest rate charged for loans of reserves among banks
- The Fed – targets the federal funds rate
  - Other interest rates move in the same direction
- The Fed adjusts money supply
  - Maintain interest rate target or
  - Change the interest rate target
  - To prevent recession
  - Help the economy
Maintaining an Interest Rate Target

- Start from full-employment
- Public preferences change
  - Money demand increases
  - Effect on interest rate
  - Effect on GDP
- Fed takes some action
  - Adjusts money supply

Changing the Interest Rate Target

- Start from full-employment
- Spending changes
  - Pessimism about future
  - Effect on GDP
- Fed takes some action
  - Adjusts money supply
- In practice
  - Fed uses a trial-and-error procedure
Two Theories of the Interest Rate

- How is the interest rate determined?
- Market for loanable funds
  - Long-run
  - Household saving - lent to businesses and government
- Money market
  - Short-run
  - Wealth holders: money and bonds
  - The Fed - controls the money supply

Appendix: Feedback Effects

- Feedback effects
  - From income to the money market
- A change in the money supply
  - Smaller change in the interest rate
- A increase in the money supply
  - Lower interest rate
  - Higher real GDP
  - Higher money demand

Appendix: More Complete View of Fiscal Policy

- Short run - increase in G
  - Increase in real GDP
  - Increase in money demand
  - Increases the interest rate
  - Crowds out
    - Investment spending
    - Some consumption spending
  - Smaller increase in real GDP
Appendix: More Complete View of Fiscal Policy

Figure A.2 Fiscal Policy and the Money Market

- \( M_0 \): Money
- \( Y \): Real GDP
- \( AE_r \): Real Aggregate Expenditures

- Case 1: \( AE_r = 6\% \)
  - \( M_0 = 8,000 \) billion
  - \( Y = 10,000 \) billion

- Case 2: \( AE_r = 8\% \), greater G
  - \( M_0 = 9,000 \) billion
  - \( Y = 10,500 \) billion