Money and Financial Markets

• Financial Institutions, Markets, and Instruments
  – Financial markets and financial intermediaries perform the function of channeling funds from savers to borrowers
  – Reasons for Saving and Borrowing
    • Businesses -- net borrowers
    • Households -- net savers
    • Government -- mixed
    • Foreign Sector -- mixed

Money and Financial Markets

• Money in a World of Many Financial Assets and Liabilities
  – Three objectives
    • The definition of the money supply
    • The determinants of the money supply
    • The determinants of money demand
  – A stable, or reliable, demand for money is required for changes in the money supply to lead to predictable changes in the AD curve

Money and Financial Markets

• Financial Institutions, Markets, and Instruments (continued)
  – Financial Institutions and Financial Markets
    • Financial markets channel funds directly
      – Size is an important consideration
    • Financial intermediaries channel funds indirectly
      – Spread risk and collect information efficiently
    • Figure 13 - 1

Money and Financial Markets

• Financial Institutions, Markets, and Instruments (continued)
  – Categories of Financial Institutions and Instruments
    • Depository Institutions
    • Contractual Savings Institutions
    • Investment Intermediaries
Money and Financial Markets

- Financial Institutions, Markets, and Instruments (continued)
  - Financial Market Instruments
    - Table 13 - 1b
    - Money Market Instruments
      - Original maturities of one year or less
    - Capital Market Instruments
      - Original maturities of more than one year

Money and Financial Markets

- Definitions of Money
  - Introduction
    - There is a spectrum of financial assets running the gamut of medium-of-exchange to store-of-value
    - Financial deregulation has blurred the distinction between different kinds of financial assets

Money and Financial Markets

- Definitions of Money (continued)
  - The M1 Definition of Money
    - Table 13 - 2
    - Currency
    - Transactions accounts
    - Travelers checks

Money and Financial Markets

- Definitions of Money (continued)
  - The M2 Definition of Money
    - Table 13 - 2
    - M1
    - Savings deposits
    - Time deposits
    - Money market mutual funds

- Excluded from M2 are mutual funds and all money and capital market instruments

Money and Financial Markets

- Definitions of Money (continued)
  - Money Supply Definitions and the Instability of Money Demand
    - The demand for M2 may shift unpredictably when these omitted assets become more attractive relative to the assets that are included in M2

Money and Financial Markets

- High-Powered Money and Determinants of the Money Supply
  - Money Creation on a Desert Island
    - An example
Money and Financial Markets

- High-Powered Money and Determinants of the Money Supply (continued)
  - Required Conditions for Money Creation
    - Equivalence of coins and deposits
    - Redeposit of proceeds from loans
    - Holding of cash reserves
    - Willing borrowers
      - If banks stop lending their excess reserves, the process of money creation would stop

Money and Financial Markets

- High-Powered Money and Determinants of the Money Supply (continued)
  - The Money-Creation Multiplier
    - Introduction
      - High-powered money is the sum of currency held outside of depository institutions and the reserves held in them
      - The demand for high-powered money to be held as reserves equals the supply of high-powered reserves
      \[ e * D = H \]
      \[ D = H / e \]

Money and Financial Markets

- High-Powered Money and Determinants of the Money Supply (continued)
  - The Money-Creation Multiplier (continued)
    - Comparison with Income-Determination Multiplier
      - The intuition behind the money-creation multiplier is the same as the income-determination multiplier
      - \( e \) reflects the leakages from the money creation process

Money and Financial Markets

- High-Powered Money and Determinants of the Money Supply (continued)
  - Cash Holdings (continued)
    - The ratio of the money supply to high-powered money \( \frac{M}{H} \) is called the money multiplier
      \[ M / H = \frac{1 + c}{e + c} \]
      - There is a separate money multiplier for each definition of the money supply

Money and Financial Markets

- High-Powered Money and Determinants of the Money Supply (continued)
  - Gold Discoveries and Bank Panics
    - Can change \( H, c, \) or \( e \)
Money and Financial Markets

• The Fed’s Three Tools for Changing the Money Supply
  – In order to control the money supply the Fed must predict the public’s desired cash-holding ratio \( (c) \), over which the Fed has no control.
  – Then the Fed can adjust \( H \) and \( e \) to make its desired \( M \) consistent with the public’s chosen \( c \)

Money and Financial Markets

• The Fed’s Three Tools for Changing the Money Supply (continued)
  – First Tool: Open-Market Operations
    • Purchases and sales of government securities made by the Federal Reserve
    • \( H \) is Created out of Thin Air
    • Effect on Interest Rates
      – Sometimes the Fed engages in open-market operations even when it has no desire to raise or lower the money supply

Money and Financial Markets

• The Fed’s Three Tools for Changing the Money Supply (continued)
  – Second Tool: Discount Rate
    • The interest rate the Federal Reserve charges depository institutions when they borrow reserves
    • Most an emergency tool

Money and Financial Markets

• The Fed’s Three Tools for Changing the Money Supply (continued)
  – Third Tool: Reserve Requirements
    • The minimum fraction of deposits that must be held as reserves
      – Required reserves
        – Held in reserve accounts at the Fed or as vault cash
    • The Fed can change the money supply by changing bank reserve requirements, \( e \)
    • Banks would hold some reserves even without reserve requirements but they would be much less

Money and Financial Markets

• Theories of the Demand for Money
  – Introduction
    • Understand why the demand for money depends on the interest rate available on assets that are alternatives to money
    • Understand why the demand for money might shift in response to financial deregulation or other events
Money and Financial Markets

- Theories of the Demand for Money (con’t)
  - Interest-Responsiveness of the Transactions Demand for Money (continued)
    - Introduction
      - Transaction demand for money depends on interest rate
      - Funds can be held either in M1 or in savings accounts
  - Figure 13 - 2

- Costs and Benefits of Holding Money

Money and Financial Markets

- Theories of the Demand for Money (con’t)
  - Interest-Responsiveness of the Transactions Demand for Money (continued)
    - How Many Trips to the Bank?
      - Cost = b * T + (r * C) / 2
        - The combined cost of broker’s fees and interest income foregone should be minimized
      - Cost = b * (Y/C) + (r * C) / 2
        - It can be shown that cash is minimized when
          \[ C = \left\{ \frac{2 * b * Y}{r} \right\} * 0.5 \]

Money and Financial Markets

- CASE STUDY: How Financial Deregulation and Innovation Steepened the IS and LM Curves
  - Deregulation of financial markets can increase the volatility of interest rates

Money and Financial Markets

- Theories of the Demand for Money (con’t)
  - The Portfolio Approach
    - Tobin’s Contribution
      - Households diversify their holdings of financial assets between risky and risk-free assets
      - Does not explain why anyone holds currency or non-interest bearing checking accounts when alternatives are available
    - Friedman’s Version
      - Portfolio needs to include a broader array of assets

Money and Financial Markets

- CASE STUDY (continued)
  - Effects of Regulation Q
    - Disintermediation, the effect on interest rates, mortgage financing, and housing activity
Money and Financial Markets

- CASE STUDY (continued)
  - Financial Deregulation and the IS Curve
    - Financial deregulation and innovations
      - Repeal of Req. Q
      - Introduction of interest-sensitive deposit accounts
      - Development of the mortgage-backed securities
      - Introduction of adjustable-rate mortgages
    - Because disintermediation no longer stymies spending, larger increases in interest rates are now required to reduce spending by the same amount

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  - Figure 13 - 3a

Money and Financial Markets

- CASE STUDY (continued)
  - Why the LM Curve Became Steeper
    - Financial deregulation and innovations
      - Introduction of interest-bearing substitutes
      - Development of mutual funds

  - Why the LM Curve Became Steeper
    - Financial deregulation and innovations
      - Introduction of interest-bearing substitutes
      - Development of mutual funds

  - Figure 13 - 3b

Money and Financial Markets

- CASE STUDY (continued)
  - Effects on Interest Rates
    - The main effect of deregulation is likely to be increased volatility of interest rates

  - Effects on Interest Rates
    - The main effect of deregulation is likely to be increased volatility of interest rates

  - Figure 13 - 4

Money and Financial Markets

- Why the Fed “Sets” Interest Rates
  - Introduction
    - Pervasive deregulation and innovation in financial markets were apparently major contributors to the frequent instability of the demand for money
    - Sometimes the IS and LM curves will shift unpredictably for reasons unrelated to financial deregulation and innovation
    - Large, frequent, and continuing instability of the demand for money has led the Fed shift its focus from the money supply to interest rates

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Money and Financial Markets

• Why the Fed “Sets” Interest Rates (con’t)
  – Introduction (continued)
    • Show why the unpredictability, or instability, of the demand for money led the Fed to shift its policies toward setting interest rates
    • Cannot set interest rates
      – Only influence rates through open market operations
    • Figure 13 - 5
      – When commodity demand is unstable the IS curve shifts back and forth
      – When the demand for money is unstable the LM curve shifts back and forth

Money and Financial Markets

• Why the Federal Reserve “Sets” Interest Rates (continued)
  – Introduction (continued)
    • Implications of Unstable Commodity Demand
      » Figure 13 - 5a
    – Targeting money supply
    – Targeting interest rates
    – Targeting real GDP

Money and Financial Markets

• Why the Federal Reserve “Sets” Interest Rates (continued)
  – Introduction (continued)
    • The Analysis with Unstable Money Demand
      » Figure 13 - 5b
    – Targeting money supply
    – Targeting interest rates
    – Targeting real GDP

Money and Financial Markets

• Why the Federal Reserve “Sets” Interest Rates (continued)
  – The Case for a GDP Target
    • Real GDP targeting is best for either:
      – Unstable commodity demand
      – Unstable demand for money
    • With supply shocks
      – Targeting nominal GDP leads to lower real GDP
      – Targeting real GDP leads to higher inflation
        » Accommodating monetary policy