Monetary Policy

ECO 120: Global Macroeconomics

1

1.1 Goals

Goals

- Specific Goals
  - Understand the Federal Reserve System and the tools they use to conduct monetary policy.
  - Understand the money market and what determines money demand.
  - Understand how monetary policy affects interest rates, inflation, and real GDP in the short run and long run.
  - Ultimate goal: Be able to evaluate an economy's performance and suggest appropriate monetary policy.
- Learning Objectives
  - LO1: Apply the supply and demand model to predict quantity and price outcomes of a number of different markets.
  - LO5: Use the model of aggregate demand and supply to evaluate the short-run and long-run impacts of fiscal and monetary policy on production, employment, and the price level.

1.2 Reading

Reading

- What is money: Module 23
- Federal Reserve System: Module 27
- Market for Money: Module 28
- Monetary Policy and AS/AD: Module 31

2 Money and the Federal Reserve System

2.1 Money

What is money?

- Money is a commodity or token that is generally acceptable as a means of payment.
- It may or may not have an inherent value.
  - Today the U.S. dollar has no inherent value.
  - In prisons cigarettes are sometimes used as money. Cigarettes have an inherent value.
  - From 1889-1932 and from 1946-1971 the U.S. would redeem dollars for gold. (Gold Standard).
  - Since the late 1970s no country in the world redeems their currency for anything of value.
- Money has three important functions:
  - Medium of exchange
  - Unit of account
  - Store of value.

Functions of money

- Medium of exchange: eliminate the need for a double coincidence of wants.
- Unit of account: an agreed measure for stating the relative prices of goods and services.
- Store of value:
  - Money can be held and used for later consumption.
  - Money is not unique in this aspect. Stamps, baseball cards, houses, even computers and TV's can be stores of value.
  - With inflation, the value of money falls. Therefore currencies that undergo hyper-inflation cannot meet this function.

Official Measures of money

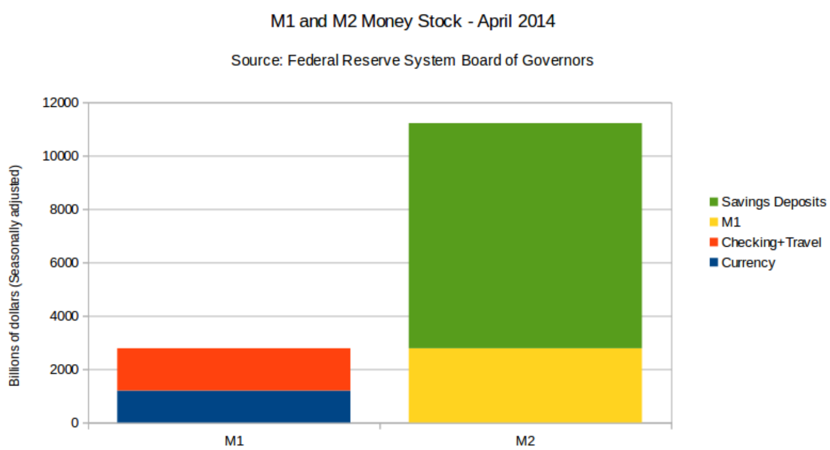
- Two primary forms of money: Currency and Deposits.
- Two measures of money called **M1** and **M2**
- M1: currency + checking deposits and traveler's checks.

  - These types of assets can be used as immediate means of payment.

- M2: M1 + time deposits, savings deposits, and money market mutual funds.
  - The additional items in M2 can *quickly* be converted into a means of payment.

- **Liquidity**: the property of an asset being quickly converted to a means of payment.

Official Measures of Money



What is not included in money

- Checks are not money. The balances in the checking accounts are money.
- Credit cards are not money.
  - When you pay with a credit card to don't give the merchant money, the credit card company does.
  - Then after some time, you give the credit card company money to pay back the loan.

2.2 The Federal Reserve System

What is the Federal Reserve?

- The Federal Reserve, aka the **Fed**, is the United States Central Bank.
- A country's central bank is a bank for the banks.

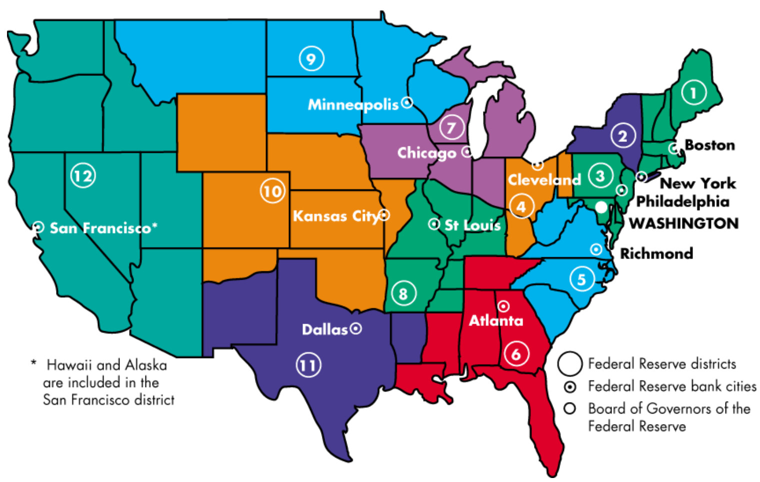
  - Hold reserve accounts, provide check clearing services.
  - Lend to banks at the **Discount rate**.
  - Influence the **Federal funds rate**.

- Regulate a country's depository institutions
- Control the money supply
  - Used to control the inflation rate, real GDP, exchange rate, maybe other things?

Structure of the Federal Reserve

- Board of governors.
  - Seven members appointed by the president and confirmed by the senate.
  - Each has a 14 year term. A new seat comes up every 14 years.
  - One chairman with a 4 year renewable term.
- Federal Reserve Districts
  - Twelve Federal Reserve Districts, each with a federal reserve bank.
  - New York Fed implements monetary policy.

Federal Reserve Districts



Federal Reserve Districts

2.3 Monetary Policy

Monetary Policy

- Primary policy tool: Open market operations
  - Fed owns U.S. government securities.
  - What would happen if the Fed sold some of these securities.
  - This exchange takes money out of the economy, and more bonds into the economy.
- Federal Open Market Committee (FOMC)
  - Meet about every six weeks.
  - Board of governors
  - President of the New York Fed
  - Four presidents of the other regional feds.

Federal Reserve Chairs

- Current chair: Janet Yellen (Appointed by Obama in February 2014)
- Ben Bernanke (Office: 2006 - 2014)
  - Appointed by G.W. Bush in 2006 and reappointed by Obama in 2010.
- Alan Greenspan (Office: 1987-2006)
  - Appointed by Reagan in 1987. Reappointed by Bush in 1992, Clinton in 1996 and 2000, and by G. W. Bush in 2004.
- Paul Volker (Office: 1997-1983).
  - Appointed in 1979 by Carter, reappointed in 1983 by Reagan.
  - Charged with eliminating a high period of inflation in the U.S.
- George William Miller (Office: 1978-1979)

- Very short term. Appointed by Carter in 1978, Resigned August 6th, 1979.

- Arthur Burns (Office: 1970-1978)
  - Appointed and reappointed in 1970, 1974 by Richard Nixon.
  - Very high inflation. The CPI rose by 74% during his tenure.

3 Market for Money

3.1 Money Demand

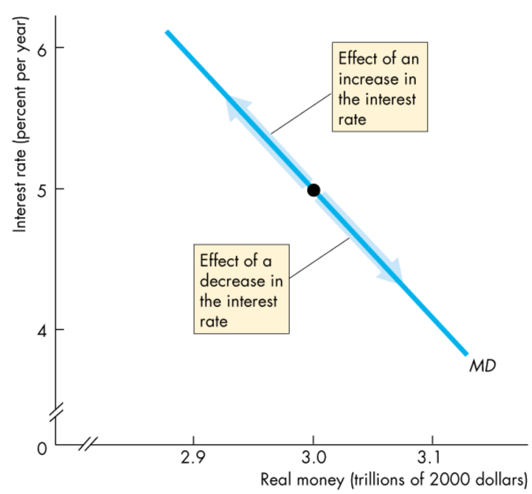
Real vs. nominal money

- **Nominal money**: quantity of money measured in dollars.
- **Real money**: real purchasing power of money.

$$\text{Real money} = \frac{\text{Nominal money}}{\text{Price level}}$$

- What should we use as a price for real money?
  What is the opportunity cost of holding money?
  Interest rate.
- What will be the shape of the money demand curve?

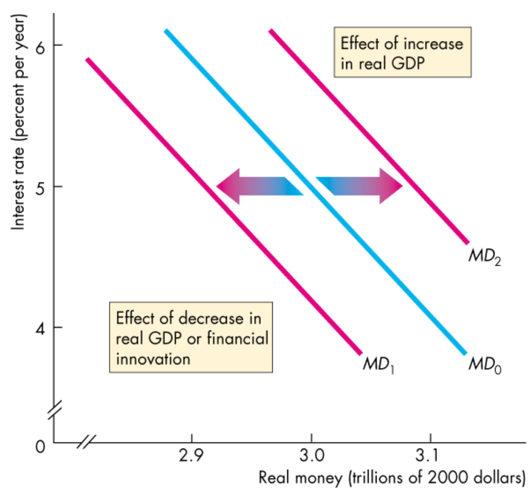
Real money demand



Influences of money holding

- The price level: only influences nominal money demand.
- The interest rate. Shift or movement?
- Real GDP.
  - How will an increase in real GDP affect the money demand curve?
- Financial innovation.
  - Examples: ATM's, online banking, automatic transfers between checking and savings accounts, credit and debit cards.
  - How do these affect the money demand curve?

Shifts in money demand



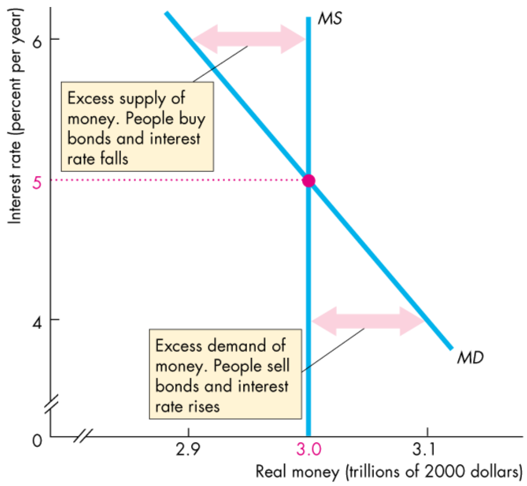
3.2 Money Supply

Money Supply

- Federal Reserve determines nominal money supply.
- What about real money supply?
- In the short run the price level is fixed.
- What is the shape of the money supply curve?

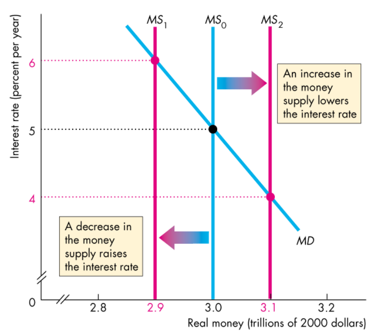
3.3 Money market equilibrium

Money market equilibrium



Monetary policy

- **Contractionary monetary policy**: decrease in the money supply.
  - Fed conducts an open market ________ of bonds.
  - Shifts money supply from $MS_0 \to MS_1$.
- **Expansionary monetary policy**: increase in the money supply.
  - Fed conducts an open market ________ of bonds.
  - Shifts money supply from $MS_0 \to MS_2$.



4 Monetary Policy

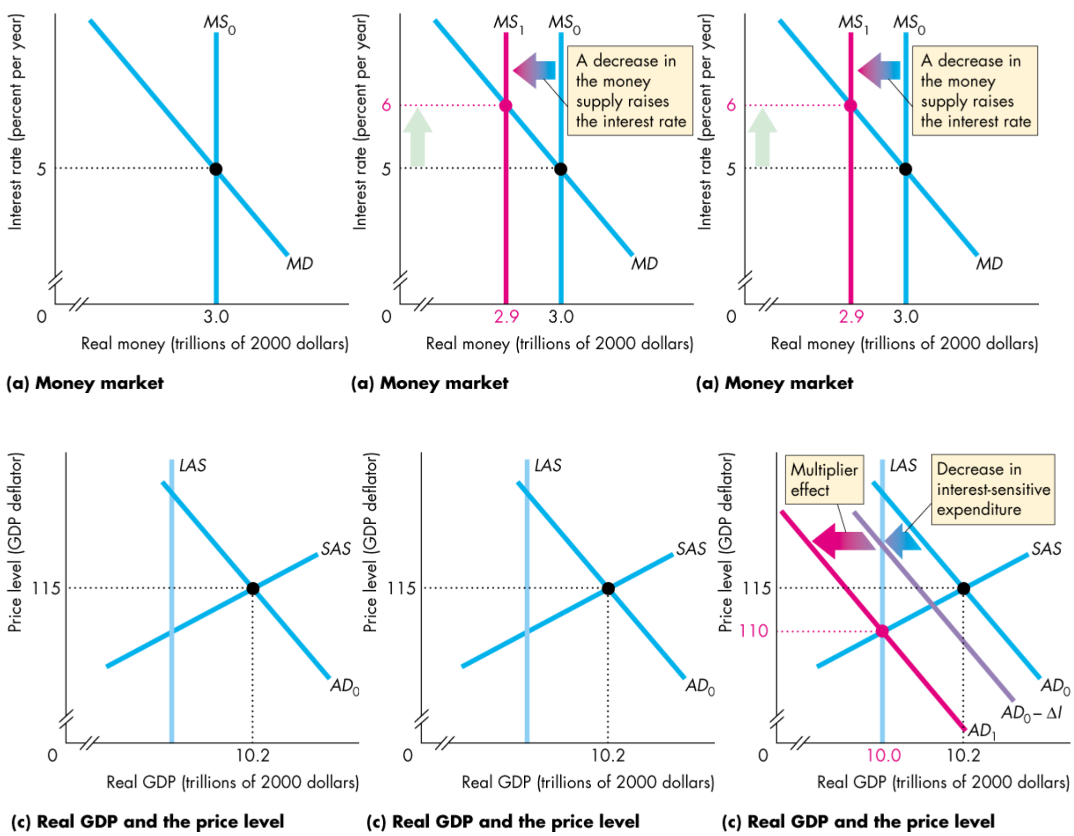
4.1 Short-run effects of monetary policy

Ripple effects of the interest rate

The Fed has recently lowered the Federal Funds rate to between 0% and 0.25%.

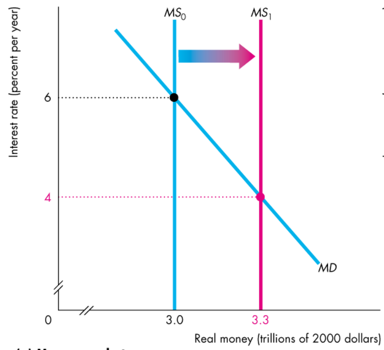
1. Investment increases.
2. Consumption increases.
3. Net exports increase.
    - What happens to demand for dollars vs. other currencies?
    - Lower return in the U.S., lower demand for dollars.
    - Value of the dollar falls.
        - U.S. residents buy fewer foreign goods → decrease in imports.
        - U.S. goods become relatively less expensive → increase in exports.
4. Multiplier effect What happens in the goods market?

Controlling the inflation rate

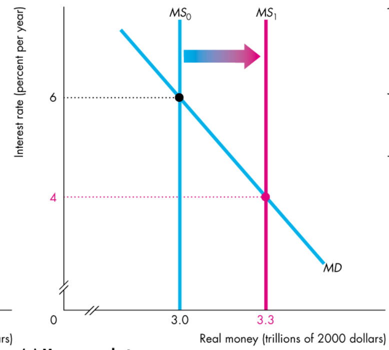


4.2 Long run effects of monetary policy

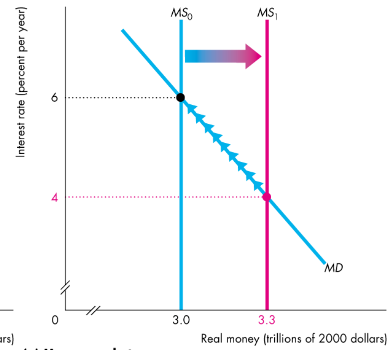
Increase in money supply



(a) Money market



(a) Money market



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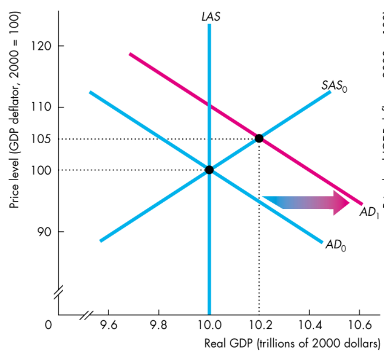
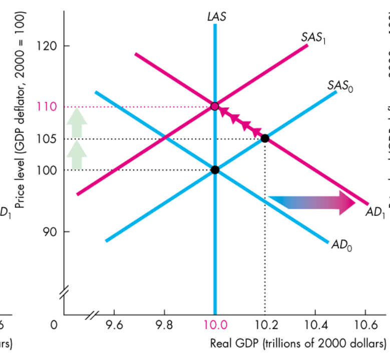


(b) AS–AD



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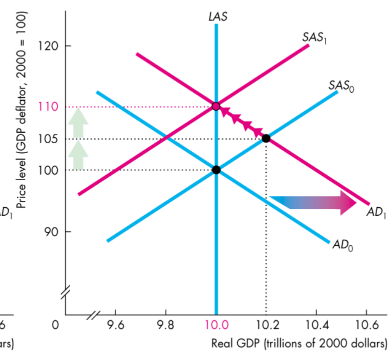
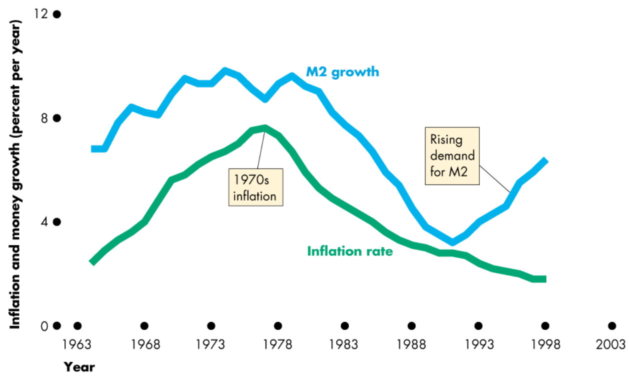


(b) AS–AD

Quantity theory of money

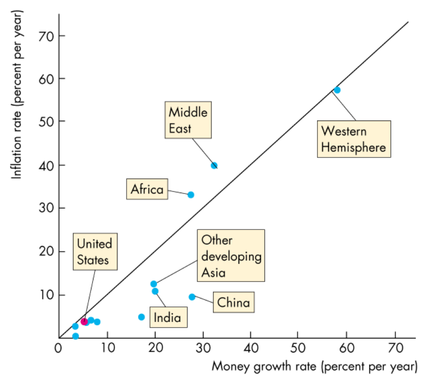
- **Velocity of money**: average number of times the same dollar gets spent in a given year.
- Total amount spent on goods in the economy $= P\ Y$
- Total dollars spent $= M_b\ V$
- $P\ Y = M_b\ V$
- Suppose V is constant, what is the effect of an increase in M_b?
  In the long run, changes in money supply only lead to changes in the price level.
- **Moral of the story**: monetary policy should be used only for short run fixes when the economy is away from potential GDP.

U.S. inflation and money growth



(b) Decade average change in M2 and the price level

International inflation and money growth



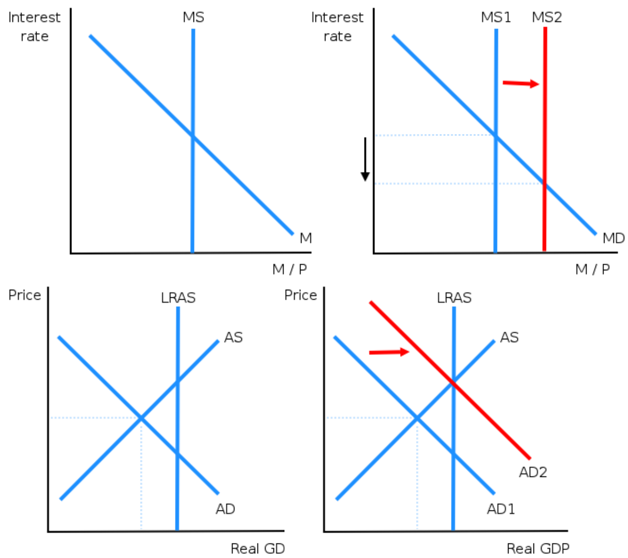
(b) 13 regions and countries during the 1990s

5 Problems

5.1 Recession

Problems: Recession

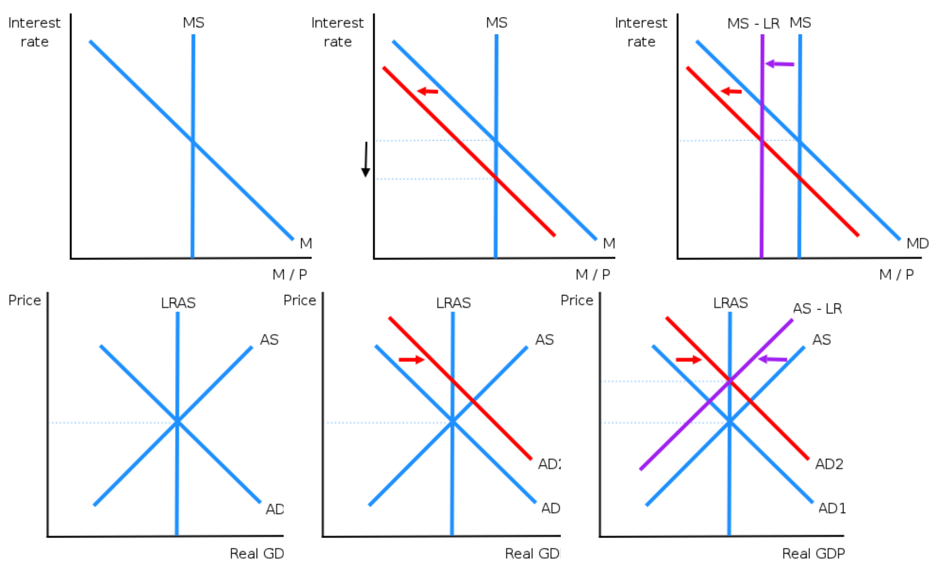
- Suppose the economy is in a recession with low inflation.
- What monetary policy would you recommend?
- *Increase* money supply by making an open market *purchase* of bonds.



5.2 Financial innovation

Problems: Financial innovation

- Banks improve online banking process.
- What effect does this type of financial innovation have on the money market and goods market?
- Decrease money demand.



5.3 Technology improvement

Problems: Technology improvement

- Suppose there is an improvement in technology (not a financial improvement).
- What effect does this have on the money market and goods market?
- Increase long run and short run aggregate supply.