ECON 202 - MACROECONOMIC PRINCIPLES

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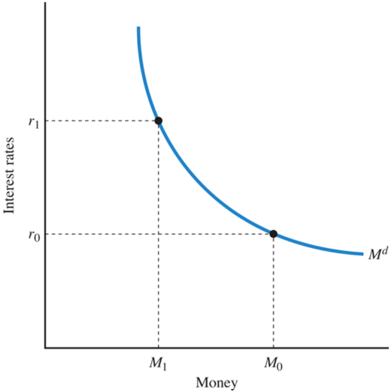
Chapter 14 - The Federal Reserve and Monetary Policy

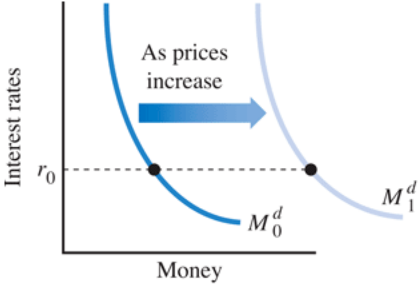
The Federal Reserve and Monetary Policy - Topics

1. Explain the role of demand and supply in the money market
2. List the tools that the Fed can use to change short term interest rates
3. Demonstrate using supply and demand curves how the Fed can determine short term interest rates
4. Describe both the domestic and international channels through which monetary policy can affect real GDP
5. Assess the challenges the FED faces in implementing monetary policy

The Demand for Money



The Price Level and GDP Affect Money Demand



(A) As prices increase, the demand for money shifts to the right.

(B) As real GDP increases, the demand for money shifts to the right.

How the FED Can Change the Money Supply

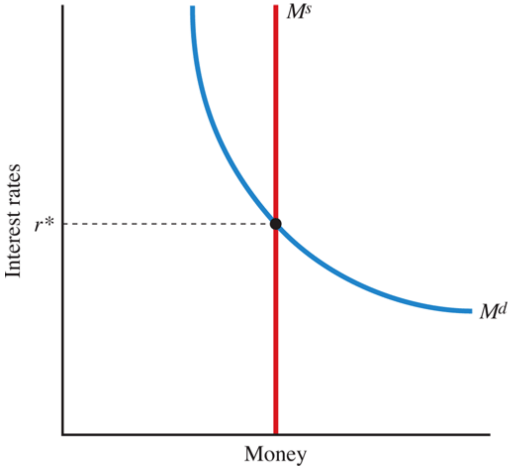
- The Fed can increase or decrease the total amount of reserves in the banking system through either of the following operations:

  1. **open market purchase** (of bonds), the Federal Reserve buys bonds from the private sector
  2. **open market sale** (of bonds), the Fed sells government bonds to the private sector

Other Tools of Monetary Policy

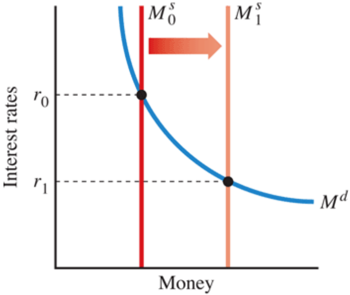
- Changing **reserve requirements**:
  - E.g., banks are asked to hold a smaller or larger fraction of their deposits as reserves
- **Changing the discount rate**, or the rate at which banks can borrow from the Fed
- **Quantitative Easing**
  - Purchasing long term securities is commonly called quantitative easing

Interest Rate Determination

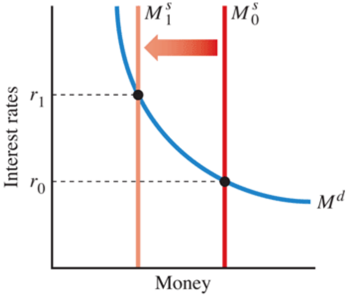


- Supply of money is determined by Fed, independently of interest rate

Fed Federal Reserve and Interest Rates Actions



(A) An open market purchase shifts the supply of money to the right and leads to lower interest rates.



(B) An open market sale shifts the supply of money to the left and leads to higher interest rates.

Goals of the Fed

1. Determine interest rates to influence level of GDP and inflation
2. Stabilize the economy (e.g., unemployment)

Interest Rates and Bond Prices

- Bonds are promises to pay money in the future.
- The price of a bond one year from now is the promised payment divided by 1 plus the interest rate
- For example, a bond that promises to pay \$106 a year, with an interest rate is 6% per year, would cost today:

$$\text{price of bond} = \frac{\$106}{1+0.06} = \$100$$

- In other words, if you can invest at 6% per year, you would be willing to pay \$100 today for a promised payment of \$106 next year

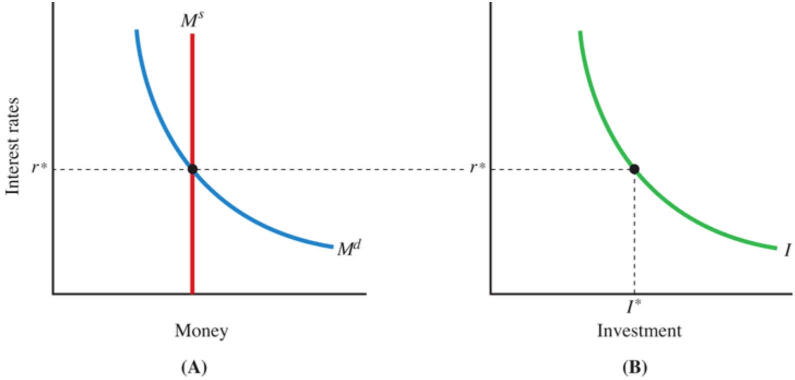
Interest Rates and Bond Prices (cont.)

- When interest rates rise, bond prices fall

$$Price_{Bond} = facevalue * (1 + i_{bond})/(1 + r_{market})$$

  - If the market interest rate rises, the bond price falls
  - If the market interest rate falls, bond prices rise
- Bond prices change in the opposite direction from changes in interest rates

Interest Rates and How They Change Investment and Output (GDP)

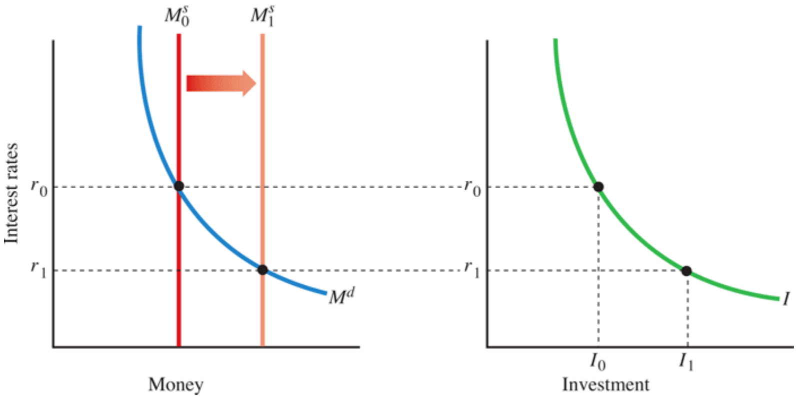


Monetary Policy

Monetary Policy

- Actions that the Fed undertakes to influence the level of GDP are called monetary policy
- The instruments are:
  - Open market operations
  - Setting the discount rate
  - Setting the reserve requirements of banks

Interest Rates, Investment, and Output

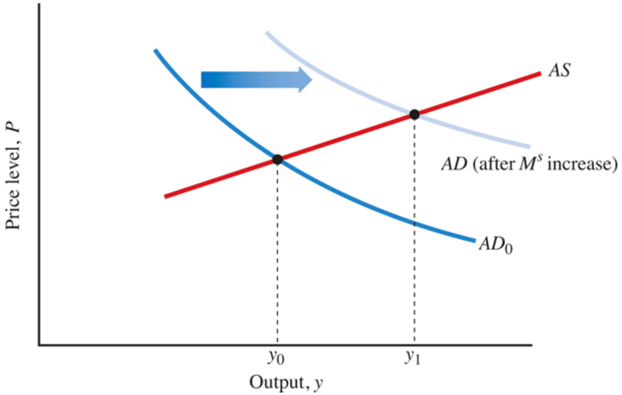


- Open Market Purchase $\Rightarrow$ M_s increases $\Rightarrow$ Interest rates fall $\Rightarrow$ I increases $\Rightarrow$ GDP increases

Interest Rates, Investment, and Output

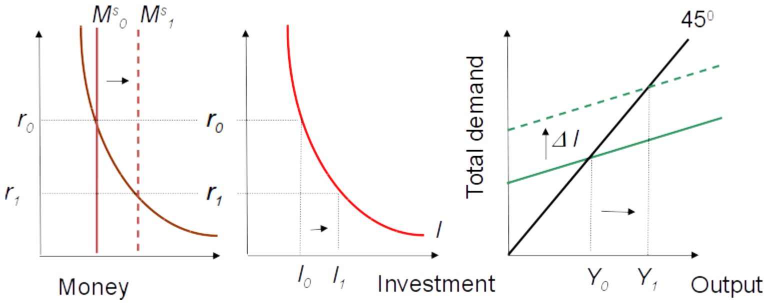
- We combine now the following
  - Supply and demand for money, which determines interest rates
  - Investment function, which is decreasing in and determined by interest rates
  - Demand-side model C+I+G+NX intersecting 45 to determine the level of output

Demand-Side Model of Money



- When the money supply is increased, investment spending increases, shifting the AD curve to the right
- Output increases and prices increase in the short run

Details of Demand-Side Model of Money



Monetary Policy

- Fed can change the level of output in the short run
- Consider an open market purchase
  1. Fed buys gov't bonds from public
  2. Supply of money increases
  3. Interest falls
  4. Investment increases
  5. GDP or output increases by the investment multiplier

Open Market Sale

1. Decrease in money supply
2. Interest rates rise
3. Investment falls
4. GDP falls

Chain of Events in an Open Economy

- Open market purchase $\rightarrow$
  1. Increase in money supply
  2. Fall in interest rates
  3. Fall in exchange rates
  4. Increase in net exports
  5. Increase in GDP

- This happens in the short-run!!

And the Reverse

- Fed raises interest rates via open market sales $\rightarrow$
  1. More foreign investors want to invest in the U.S.
  2. As they buy dollars, the exchange rate increases ($ appreciates)
  3. Imports rise, exports fall
  4. Hence, GDP falls

Stabilization Policy

Stabilization Policy and Its Limits

- Government can use
  - Fiscal policy or
  - Monetary policy to
- Change GDP in the short-run

Expansionary Policies

- If current level of GDP is below potential the government can use
  - Fiscal policy (tax cuts, increase G)
  - Monetary policy (increase in money supply)
- to to increase GDP and reduce unemployment

Contractionary Policy

- If current level of GDP is above potential GDP, the economy will "overheat" and inflation will rise
- To prevent this gov't can use contractionary policy.
  - Increase interest rate
  - Reduce government spending
  - Increase taxes