

Asset Market Equilibrium - The Money Market

Chapter 7

1. What is money?
2. A brief history of money
3. Money demand
4. Money supply
5. Money market equilibrium, prices and inflation

1 What Is Money?

- One way to hold wealth
- Functions of money
 - Medium of exchange - essential
 - Unit of account - convenient
 - Store of value - necessary, but money is not the only store of value

- Modern definitions of money

- $M1 = \text{currency} + \text{checkable deposits (excluding money market funds)}$

- $M2 = M1 + \text{savings accounts and money market funds}$

2 A Brief History of Money

- Goldsmiths and early gold standards
- Governments and modern gold standards
- Pure fiat money

3 Money Demand - liquidity

- Why do households and firms choose to hold some of their wealth in the form of money?
- Why don't households and firms hold all of their wealth as money?
- Baseline money demand function

$$M^d = P \times L(Y, i)$$

– M^d = money demand

– P = price level

- $L(\cdot)$ = function relating money demand to its determinates
- Y = real income
- i = nominal interest rate

- How are the nominal and real interest rates related?

$$i = r + \pi^e$$

- Other omitted variables which might affect money demand?
 - Financial technology like ATM machines
 - Risk and liquidity of other financial assets

4 Money Supply - Federal Reserve

- Target for Fed Funds rate - overnight rate at which banks lend to each other
- When the Fed wants to raise this rate, it sells government bonds to banks. Banks pay for these bonds with reserves. This reduces the quantity of reserves in the banking system, implying that overnight borrowing rate will rise.
- The reduction in reserves directly reduces the money supply.

5 Money Market Equilibrium

- Money supply, determined by the Fed, equals money demand by households and firms.

$$M = M^d = P \times L(Y, r + \pi^e).$$

- What variable does this equation determine in long-run equilibrium?
 - Y ?
 - r ?
 - P ?
 - π^e ?

- Monetary neutrality
- Long-run equilibrium inflation in a growing economy
 - Define $\frac{dP}{P}$ as inflation, and use money market equilibrium to solve for it.
 - First take logs.

$$\ln M^d = \ln P + \ln [L(Y, i)]$$

- Totally differentiate money market equilibrium with respect to everything which changes in a growing economy. We are trying to solve for a long-run equilibrium value for inflation, so let's assume that is constant in the long run equilibrium.

$$\frac{dM}{M} = \frac{dP}{P} + \eta_Y \frac{dY}{Y}.$$

- Solving for inflation yields:

$$\frac{dP}{P} = \frac{dM}{M} - \eta_Y \frac{dY}{Y}$$

- In a long-run equilibrium, inflation is higher the higher money growth and the lower output growth.