Cooleconomics
Principles of Economics

The Money Market

Introduction

It may seem strange to discuss a market for money. After all, usually it is money itself that pays for products bought or sold. Indeed, the dollar cost of money is never changing; a dollar always costs a dollar.

But indeed, there is a price of holding money—a price of holding cash and money in your checking account. The price is *the interest that you forego*, because when you hold some of your wealth as money, you cannot put it into an asset that pays interest, such as a certificate of deposit or a government security. Example: you hold $40 in cash in your wallet, on average for a year. You could have deposited that money in a savings account that pays 5% interest. The price of holding the $40 = $40 x 5% = $2.

In the real world, some checking accounts pay interest, but usually at a lower rate than other interest-bearing assets.

So if you sacrifice interest income by holding money, then why are you willing to hold money? Mainly because it is useful; it lets you buy stuff.

Demand for money: Economists call the willingness of people and businesses to hold money (rather than put it in an interest-bearing asset such as a CD) the *demand for money*. One's willingness to hold money—one's demand for money—depends upon 3 things:

1. One's income
2. The prices of stuff
3. Interest rates

Let's take a closer look at each of these things

1. Income: People with more income tend to hold more money—more cash in their wallets and more money in their checking accounts. Why? Because they buy more stuff than poorer people, and need to hold more money to buy the extra stuff.

higher income → higher demand for money
lower income → lower demand for money

2. Prices: Higher prices mean that you need more money to buy the same amount of stuff.

higher prices → higher demand for money
lower prices → lower demand for money

3. Interest rates: If interest rates rise, then you are likely to reduce the amount of cash and checking deposits that you hold, instead transferring some of your money into interest-bearing assets such as CDs.

higher interest rates → lower demand for money
lower interest rates → higher demand for money

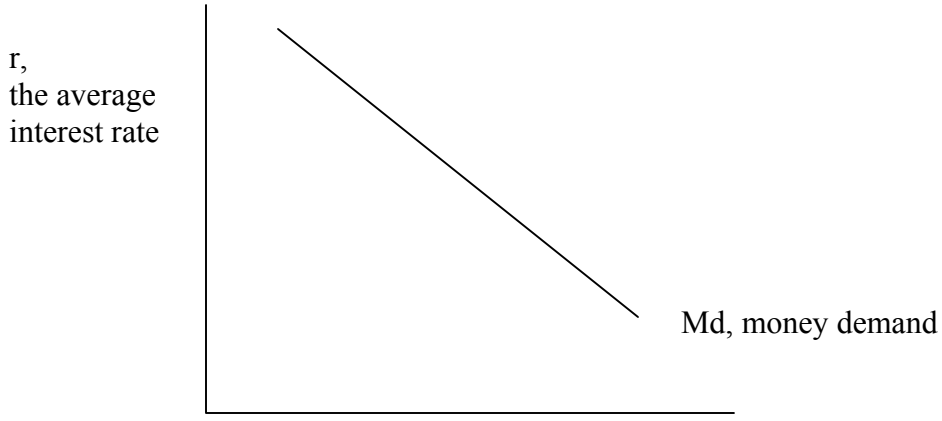
Economy-wide demand for money: We have just looked at 3 things that affect an individual's or business' demand for money. These same 3 things, in the aggregate, affect the total demand for money in an economy:

1. The national income (Y) affects the demand for money
   Higher Y → higher demand for money
   Lower Y → lower demand for money

2. The average price level (P) affects the demand for money
   Higher P → higher demand for money
   Lower P → lower demand for money

3. The average interest rate (r) affects the demand for money
   Higher r → lower demand for money
   Lower r → higher demand for money

Graphing the demand for money: We can draw a money demand curve to illustrate the demand for money, **Md**:



Note:

--the slope of Md: The money demand curve slopes downward because lower interest rates increase money demand.

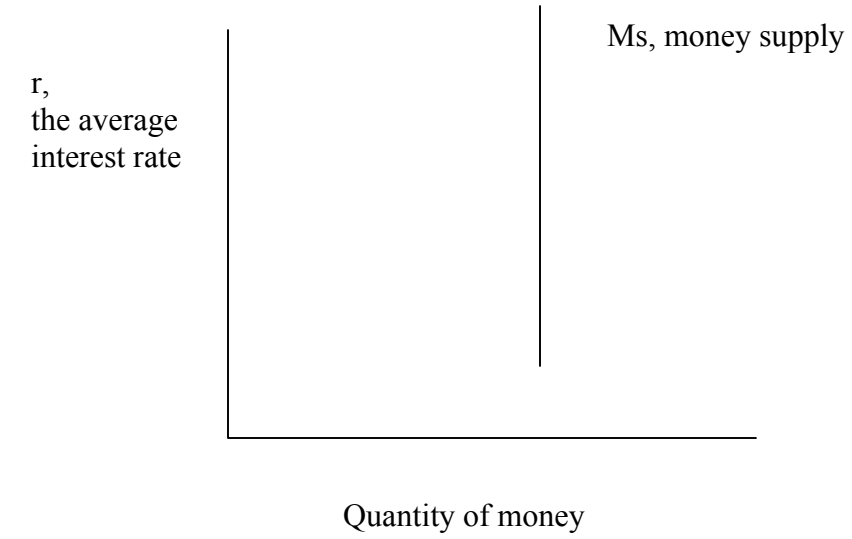
--shifts of Md: The money demand curve shifts when Y changes or when P changes. It shifts rightward due to higher Y or higher P. It shifts leftward due to lower Y or lower P.

A money demand equation: One can represent money demand with an equation similar to the following:

Md = .1Y + 10P – 3r

Supply of Money: the notes file prin-moneyone discussed the determinants of the money supply—the loan-making process of banks, combined with the three tools of monetary policy employed by the Central Bank.

Supply of money graphed: One can represent the money supply, Ms, using a graph like so:



Note the following about the above graph:

--Slope of Ms: We assume that the money supply curve is vertical, implying that the Central Bank has a great deal of control over the money supply.

--Shifting Ms: The Ms curve shifts if the Central Bank uses one of its monetary policy tools to change Ms. In addition, events that change the amount of bank lending can shift Ms. For example, if a bank panic causes people to close their bank accounts and as a result lots of banks fail, then the Ms curve would shift left (representing a smaller Ms.)

lower required reserve ratio or lower discount rate or buy used government securities → Ms shifts right

higher required reserve ratio or higher discount rate or sell used government securities → Ms shifts left

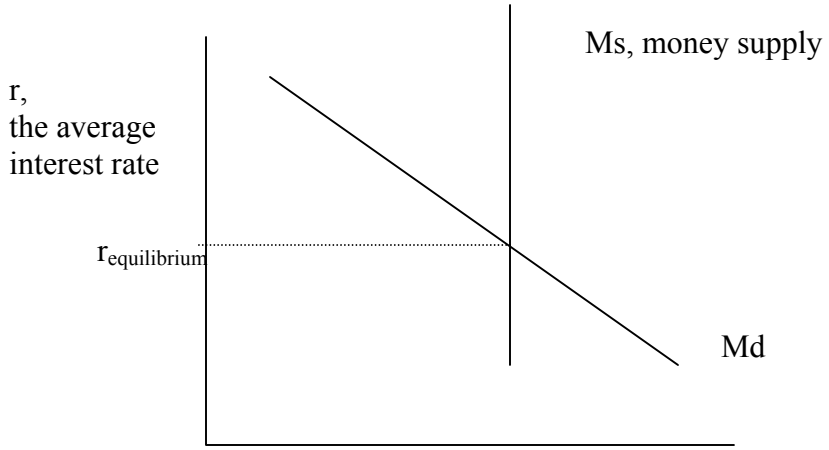
Money Supply Equation: One can represent the money supply with an equation such as the following:

Ms = 1000

Money market equilibrium

The money market is in equilibrium if money demand equals money supply—Md = Ms.

Equilibrium graphed. Notice that equilibrium in the money market determines the average interest rate that prevails in the economy:



The algebra of equilibrium:
Suppose we know this about the money market:

Md = .1Y +100P – 2r
Ms = 580
Y = 5000
P = 1

We can calculate equilibrium

Md = Ms
.1Y + 100P – 2r = 580
.1(5000) + 100(1) – 2r = 580
600 – 2r = 580
20 = 2r
10 = r

Events changing equilibrium in the money market

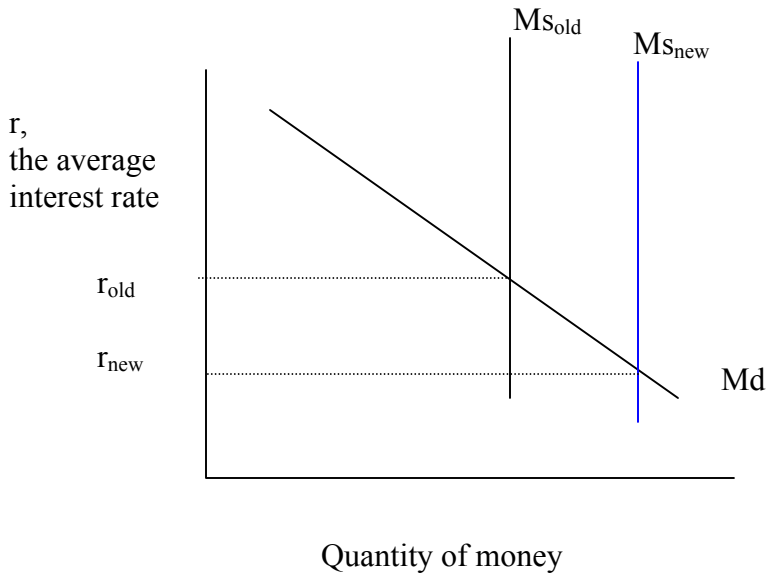
These things can change equilibrium:

1. Things which change money supply
   --change in monetary policy
   --other things that change the amount of bank loans

2. Things which shift the money demand curve
   --change in Y
   --change in P

Example: Central bank lowers the discount rate

This increases Ms and reduces average interest rates, as follows:



What a blast! We now know how interest rates change. We'll incorporate this new information into our new model of the economy—model #3—in another set of notes.