

Money Market Basics

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Abstract

This material covers the very basic money market and analysis.

1 The money market

We can begin by just defining the money market as the market for the money that people want to hold in order to buy goods and services. This is the primary reason people demand the economy's most liquid asset, called "money". Economists often therefore think of this as the market for "real cash balances". The "real" part reflects that it's about real goods and services. The "cash" part is because we historically think of people holding cash to spend on stuff they want to buy (although that's quickly becoming an outdated idea). And the "balances" part is honestly an accounting term referring to how much money you have in an account. But I find that I do also think about the demand side of the market as being determined by people trying to balance the two options with their incomes and wealth - hold as cash to spend or put in savings/investment opportunities for the future.

The market brings together the supply of money with the demand for money, which is determined by people choosing between holding their wealth/income as cash for spending or saving. As a result, the opportunity cost of holding money as cash is the interest earnings foregone from holding it in savings or other investments. This means that the price that clears this market is the **nominal interest rate** since it is both the opportunity cost of holding money and the price one would need to pay to obtain extra funds by borrowing from a financial institution.

The supply side of the market is largely determined by the economy's central bank since in most economies that is the governmental agency that determines the nominal stock of money in the economy. So, the physical supply of money, here represented by the nominal stock of money, M^s , is exogenously determined by policymakers. Since we are considering real money balances, $m^s = M^s/P$, the changes in the price level can also change the supply curve in this market.

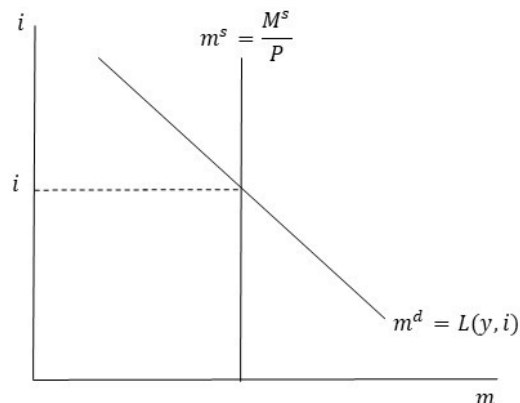
To summarize, there are three key elements to this market:

1. **Real Money Supply**, $m^s = M^s/P$, which is composed of two elements, the nominal stock of money, M^s and the price level, P .
2. **Real Money Demand**, $m^d = L(y, i)$, which is a function of real GDP (or "real income") and the nominal interest rate. More income, GDP, increases demand for real money balances while higher interest rates decreases demand for real money balances (instead encouraging people to hold less money as "cash" and move it into savings instead).
3. **Nominal Interest Rate**, i , is the clearing price determined in this market. Actually, the most common use of money market analysis is to determine what happens to the interest rate.

2 The Money Market Diagram

The supply and demand diagram for this market contains a vertical supply curve and downward sloping demand curve. The supply curve is vertical because neither factors of supply, M and P , depend on the nominal interest rate. As a result the curve is vertical.

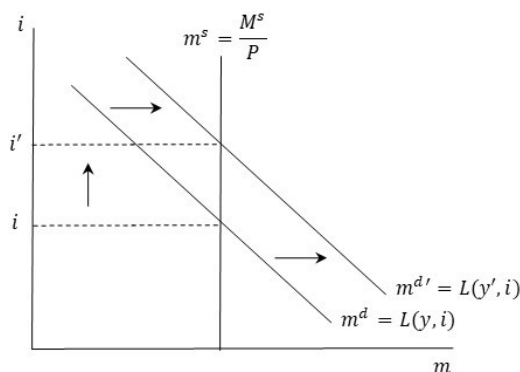
The demand curve is downward sloping because higher interest rates mean people would move money out of cash and into savings accounts, which is a decrease in the quantity of real money balances they want to hold. John Maynard Keynes famously explored this idea of interest rates acting as the opportunity cost for holding money and the idea that individuals manage their portfolio of assets, of which money is the most liquid, in terms of both the desire to earn a return and a desire to maintain a certain level of liquidity for purchasing reasons. His theory was called the “Liquidity Preference Theory” and for that reason, we still use a capital “L” for money demand, as in $m^d = L(y, i)$.



3 Shifting Curves: The simple case of money demand

When the money demand curve shifts, we have the simplest case in this market. In short, the only thing shifting money demand is a change in real GDP. If real GDP increases, money demand increases. If it decreases, then money demand decreases.

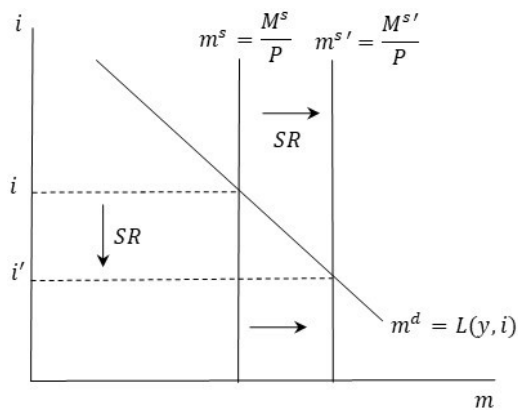
An increase in real GDP, for example, leaves everyone in the economy with more income and hence demanding more goods and services. They need to use money to buy the goods and services, so they naturally increase their demand for real money balances. In the aggregate economy, there is only a fixed supply of actual money (dollar bills in the USA) and so there is higher demand for a fixed supply. This higher demand bids up the value of each dollar bill and hence raises the cost of obtaining money. That is, it pushes up the nominal interest rate. Probably the most intuitive way to think of this is to imagine everyone going out trying to obtain extra dollar bills by taking them out of their bank accounts. The banks need that money, however, because they use people’s deposits to lend to other people. So banks have to offer a higher and higher interest rate on their accounts to convince people to leave their money in the bank. In the end, as is shown in the diagram, the higher demand for money didn’t lead to more money, it just led to higher interest rates and the same amount of real money in the economy.



4 Shifting Curves: The supply curve in the short and the long run

Demand either increases or decreases and then we’re done. But the supply side is different. Because the supply of real money is partially determined by the price level, we will need to consider the short and long run when we consider changes in the supply curve.

In macroeconomics, the short and long run are defined by changes in the price level. In particular we think of the short run as the period before the price level adjusts and the long run as the state of the world after the price level is done adjusting.

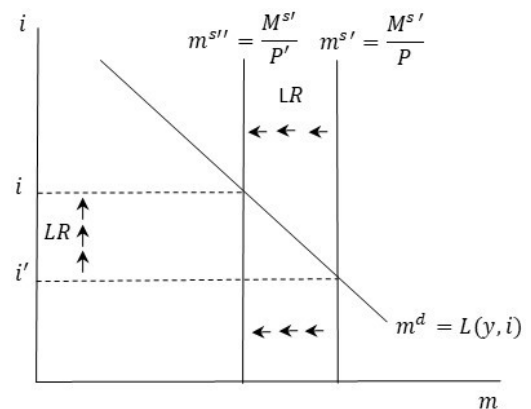


In the case of the money market, when the central bank changes either the amount of nominal money, M^s or it's growth rate, then there is an immediate change in the short run and an other change as the economy transitions to the long run.

As a concrete example consider the case where the central bank increases the stock of nominal money, M^s . The immediate, short run, effect of this is to increase the real money supply in the market. Demand for money hasn't changed but suddenly there is an extra supply of money flooding the market. This glut means banks don't have to offer as high an interest rate to encourage people to leave

their money in the banks since the extra money in the market.

This is sometimes called a “**helicopter drop**” of money meaning one can imagine a world where a helicopter just flies around dropping money across the economy during the night while everyone is asleep. In the morning, everyone wakes up to find money in their lawns. They pick it up and each individually feels richer. Some of the extra money they will deposit in banks (hence the reason banks can lower the interest they pay) and some they keep to spend.



The long-run looks quite different though. As every individual attempts to spend their extra cash, they all find that fundamentally nothing changed in the economy. So there's not been a boom in capital or technology or labor or anything leading to an actual increase in production. As a result, every consumer just has more cash but the same number of goods are on the shelves. As everyone tries to collectively spend their extra money, all they do is push prices up. Since the price level is on the denominator of M^s/P , this increase in the price level shifts the real money supply curve back to its original position, completely undoing the effect of the initial increase in nominal money.

As a final note, it's important to understand that the change in the nominal money stock had an immediate effect. That is, the real money supply “jumped” to the right in our diagram and the interest rate “jumped” downward. The change in the prices takes time to work its way through the economy, so that change is slow to be fully realized. Hence the real supply curve slowly crawls back to the left and interest rates slowly rise back to their original level.