Macroeconomics: BSc Year One
The Market for Financial Assets

A financial asset is a claim to be paid a certain amount (of money) at a specific date. To enable us to carry out a simple analysis, we assume there are two different types of financial assets, known as bonds and money. Money is generally acceptable as a payment of payment for goods and services, such as cash, cheques, and similar – we will generally assume money has a fixed 'face' value. Bonds, however, are characterised by paying a rate of interest and fluctuating in monetary value.

Money

Money comes in many forms:

- M_0 Cash only
- M_1 M_0 plus bank deposits

and so on; the definition of each stage varies by country. In the UK, for example, only the terms M_0, M_1 and M_4 are regularly used.

Money can also be seen to be subject to demand and supply, within the money market. We aim to find under which conditions this market is in equilibrium.

The Demand for Money

The actual demand for money would, of course, be infinite. We thus wish to look at the quantity of notes and coins people want to hold; that is, the amount of financial assets they wish to be in the form of money, rather than anything else.

It must be noted that demand for money will be in real, rather than monetary, terms (that is, adjusted for inflationary effects); we can therefore say that demand for money (the aggregate real quantity of money demanded) is given by $\dfrac{m^d}{P}$, where m^d is the aggregate nominal quantity of money demanded, measured in terms of currency, and P is the general level of prices, or a price index.

Influences on the Demand for Money

There are two main influences on the demand for money:

- Aggregate real income, y. If y rises, so will the demand for money
- The rate of interest on bonds, r^m. If r^m rises, the demand for money will fall

Thus we may define $\dfrac{m^d}{P} = ky - lr^m$, where k and l are positive, and therefore, $m^d = P[ky - lr^m]$. There do, however, seem to be other influences, but these have a relatively minor effect.

The Supply of Money

We can safely assume that the nominal money supply, m^s, is fixed by the government, and thus define $m^s = \overline{M}$. As mentioned when looking at the IS curve, we do not know how governments do behave, and one of the main points of macroeconomics is to find how governments *should* behave.
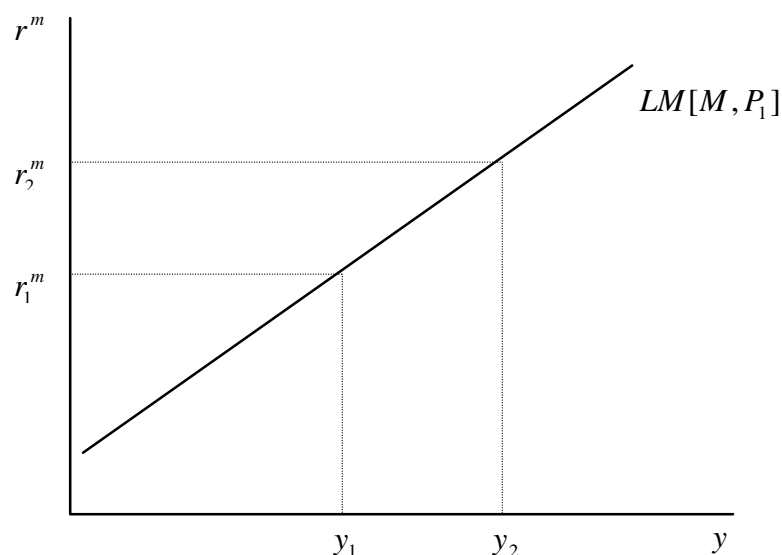
Equilibrium

Obviously, equilibrium will occur where money demand equals money supply. This gives us the equation(s) for the LM curve (LM stands for 'Liquidity preference / Money supply'):

$$y = \frac{\overline{M}}{kP} + \frac{lr^m}{k}, \text{ or}$$

$$r^m = \frac{ky}{l} + \frac{\overline{M}}{lP} \text{ (both equations give the same result)}$$

If we assume that $\overline{M}$ is fixed, and P_1 is given, we can find the initial LM curve:

If r^m increases, $\overline{M}$ is constant (by definition), and so initially $m_2^d < \overline{M}$; from the first equation above, income must increase to balance this out.

A Change in the Supply of Money

If we assume the money supply rises, the first LM curve equation differentiates to give us:

$$\frac{dy}{dM} = \frac{1}{kP} > 0 \; ;$$

so an increase in money supply must lead to a shift in the LM curve to the right (that is, income increases):
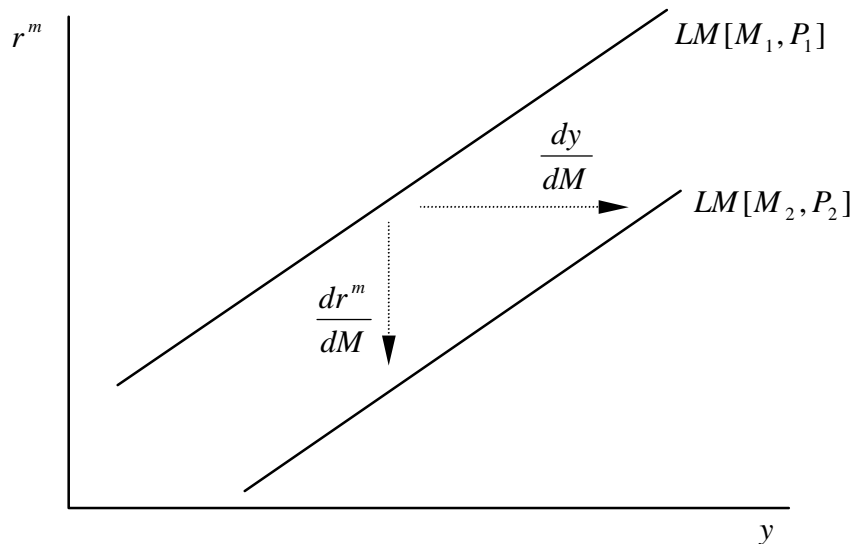
A similar process can be performed with r^m (see the graph above), which shows a fall in r^m resulting from a rise in money supply. This result can be gained intuitively; if M increases, m^d must also increase to maintain equilibrium; for this to happen the interest rate must decrease, eliminating excess supply.

A Change in Prices

For a rise in prices, differentiating the LM equations give:

$$\frac{dy}{dP} = -\frac{M}{kP^2} < 0 \text{ , or}$$

$$\frac{dr^m}{dP} = \frac{M}{lP^2} > 0$$

From these we can see that an increase in prices will lead to a fall in income or a rise in interest rates. This can be explained by understanding that an increase in prices will lead to an increase in the nominal demand for money (m^d), and for this to decrease income must be lowered.

From these two results, therefore, we can see that if money supply and prices rise by the same proportion, the LM curve will stay in the same position.