

Capital

Capital: is anything man-made which is used in the production of goods and services.

The reward to Capital as a factor of production is the rate of interest.

Capital covers a wide variety of items. E.g. Factory buildings, machines, computers, stocks of finished and partly finished goods are all examples of Capital.

Due to the fact that the definition of Capital is so extensive, economists have divided Capital into sub categories in order to help distinguish between the different types of Capital.

Fixed Capital: is the name given to the stock of fixed assets.

E.g. Factory buildings, machinery etc.

Working Capital: includes stocks of man-made raw materials, partly finished goods and finished goods.

E.g. Processed iron ore and goods that have not yet been completed.

Social Capital: refers to assets which are owned by society in general.

E.g. Roads, Hospitals, Parks etc.

The name given to Capital Formation (building more commercial buildings, making machines etc), is investment.

Investment (Capital Formation): refers to the production of Capital goods.

Capital goods (e.g. machines) are used to make consumer goods (like Nike runners), and the more Capital you have the more consumer goods you can make.

But you must use Capital to make Capital. If electroloom engineering is hired by Nike to make a new runner producing machine, electroloom use their machines to make Nike's runner machine.

These engineering machines could be used to make consumer goods but instead were used to make capital.

Therefore we say that the production of Capital involves an opportunity cost in terms of current consumption, which must be done without, in order for an investment to take place.

We said that investment is the production of Capital goods. If we add up all the money that was spent on producing Capital goods in Ireland in one year we get what is called Ireland's Gross Investment.

Gross Investment: is defined as the total amount of Capital created in an economy in one year.

However, every year, money is spent on replacing or repairing Capital that has been damaged during the normal course of the production process. This is known as depreciation.

Depreciation: is the amount of Capital which is used up or worn out in a given year.

Gross Investment is the total amount of Capital created in a year and depreciation is the total amount of Capital which is used up in a year. The difference between these two is the net amount of Capital that has been added to the economy in a given year.

Net Investment: is the amount of extra Capital that is created in an economy in a given year.

$$\text{Net Investment} = \text{Gross Investment} - \text{Depreciation}$$

- 1) If Gross Investment > Depreciation, Net Investment is Positive
- 2) If Gross Investment < Depreciation, Net Investment is Negative
- 3) If Gross Investment = Depreciation, Net Investment is Zero

Essential Features of Capital

- 1) **Capital makes Labour more Productive:** The greater the quantity and quality of Capital available, the higher the level of this worker's MRP. E.g. A worker who has to dig a whole with his hands (no capital), vs. a worker who has to dig a whole with a shovel (increased the quantity of Capital), vs. a worker who has to dig a whole with a JCB (increased quality of Capital).
- 2) **The Creation of Capital involves an Opportunity Cost:** As the resources of a country are limited, the more Capital goods that are created in any period of time, the less resources that can be devoted to producing consumer goods. Investment involves a reduction in current consumption so that future consumption can be higher.
- 3) **Savers Provide the Funds for Investors:** Those who save provide the funds for those wishing to invest. The money that savers put into the bank, this money is lent out by the bank to investors/borrows to fund their Capital projects. Banks are an exceptionally important economic institution as they bring together savers and investors.

Saving: refers to that part of Income which is not spent.

E.g. Income €100 less Spending of €80 means Savings = €20

$$S = Y - C$$

Reasons for Saving

The main reasons for saving are

- 1) To purchase goods and services at a future date.
- 2) As a precaution against unplanned expenditure. E.g. paying unexpected repair bills for your car.
- 3) To provide an income in retirement or in the event of redundancy.
- 4) To be in a position to purchase an asset if it is expected to increase in value or generate a future stream of income.
- 5) To build up a credit rating with a financial institution so as to make it easier to obtain a loan in the future.

Factors Effecting the Level of Saving

- 1) **Level of Income:** Savings is positively related to income. The higher the level of income the higher the level of savings. The lower the level of income the lower the level of savings.
- 2) **The Rate of Interest:** The rate of interest is the return on savings. Therefore, the higher the rate of interest, the greater the return on savings, the more money people will save. The lower the interest rate means that the return on savings is low and as such people will save less.
- 3) **Level of Social Security Benefits:** Countries like Norway have wonderful universal healthcare and pension schemes for the elderly provided by the state. This reduces the need for saving. However, in Ireland, people engage in personal saving in order to supplement their meager state pension for when they retire.
- 4) **Taxes:** If the government increases the tax payable on income earned (Deposit Interest Retention Tax, DIRT), this acts as a disincentive to saving. Also the granting of tax relief on personal pension plans encourages saving in such schemes.
- 5) **Government Policy:** If the government enacts policies making it more attractive to save, this will encourage people to save more.
- 6) **The Rate of Inflation:**

Inflation: is a rise in the general level of prices. It results in a fall in the purchasing power of money.

Inflation affects what is called the real interest rate. The interest rate that is quoted by banks is called the nominal interest rate and it does not take inflation into account.

Nominal Interest Rate: this is the interest rate that is quoted by financial institutions which does not take the rate of inflation into account.

If the interest rate as quoted by banks (Nominal Interest Rate) is 10%, this is the nominal amount by which your savings are increasing every year. However, if inflation is 5%, this is how much your purchasing power is being eroded per year. So your savings have risen by 10% but prices have risen by 5%. How much richer have you become in Real Terms? (Real Terms mean how much extra stuff you can buy with your money. Whenever you see Real Terms in economics it means “having taken inflation into account”).

In order to calculate the increase in the value of savings in terms of Purchasing Power, economists came up with the Real Interest Rate.

The Real Interest Rate: is the interest rate charged by financial institutions adjusted for inflation.

This is the amount by which your savings have increased in real terms.

The rate of Inflation affects the real interest rate, reducing the reward to saving, and as such reducing the level of saving. The higher the rate of inflation, the lower the level of savings. The lower the rate of inflation the higher the rate of savings. When inflation is high, prospective savers will put their money into business ventures or buy shares instead of putting their money in the bank.

Factors that Effect the Level of Investment

- 1) **Expectations of Entrepreneurs:** If an entrepreneur has a business idea and believes it will work, irrespective of the economic climate, he will invest in that idea. If enough entrepreneurs believe in themselves, the level of investment will rise.
- 2) **The Rate of Interest:** The funds for investment are often borrowed. The rate of interest is the cost of borrowing. The higher the rate of interest, the more expensive borrowing is, the less profit available from a capital venture, the lower the level of investment. Conversely, the lower the rate of interest the higher the level of investment.
- 3) **Government Policies:** If government policy is favourable towards investment then investment will tend to rise. Examples of favourable policies include: attractive state grants, issuing tax credits for capital formation, development of infrastructure etc.
- 4) **International Economic Climate:** Ireland's economy depends greatly on the value of its exports. During a global economic recession (like now), foreign demand is low and as a result our exports have fallen. An international recession may reduce the number of foreign and indigenous firms setting up here which reduces the level of investment
- 5) **Marginal Efficiency Capital (MEC):** The higher the level of MEC the higher the level of investment. The lower the level of MEC the lower the level of investment.
- 6) **Stability in the Banking Sector:** The policy of the state to stabilise the banking sector should help the flow of credit, and so encourage risk taking.

- 7) **Cost of Capital:** The more expensive Capital is, the greater the amount that must be borrowed from the bank. The greater the amount borrowed the more interest that must be repaid and as such higher costs mean lower profits. The higher the cost of Capital the lower the level of investment. The lower the cost of Capital the higher the level of investment.
- 8) **Availability of a Skilled English Speaking Workforce:** The workforce is English speaking which may attract investment. People have time to re-train during the current period of unemployment. Ireland currently has a pool of highly skilled workers.

Why is Investment Important to an Economy

- 1) **Increased Productive Capacity:** Greater investment allows the country to produce more output / it replaces worn-out capital resources.
- 2) **Increased Labour Productivity:** More investment allows labour to become more efficient. Investment allows workers to use more up-to-date capital goods, making them more efficient.
- 3) **Increased Employment:** Extra investment increases aggregate demand resulting in the demand for more employees to meet this additional demand for goods & services.
- 4) **Increased GNP:** Increased investment leads to higher GNP, greater demand, increased spending and a higher standard of living.
- 5) **Investment Generates Future Wealth for the Economy:** Investment into the economy means that we are safeguarding the future wealth creating capacity of the country, by ensuring that we have capital goods in the future.
- 6) **Increased Government Revenues:** An increase in investment will increase economic activity. This will generate additional revenues for the government for use within society.

Marginal Efficiency of Capital

Remember that any Factor of Production will be demanded up to the point where that factor's MRP = MC.

For Capital, it's slightly different. We don't use MRP we use a concept called Marginal Efficiency of Capital.

Marginal Efficiency of Capital (MEC): refers to the extra profit generated by employing one extra unit of Capital.

See from the above definition that it says "profit" not "revenue" like it says in the definition of MRP. Therefore, when calculating MEC, the cost of employing an extra unit of Capital has already been taken away.

For all intents and purposes, the MEC is the MRP of Capital minus its cost. Instead of MRP = MC being the point where the firm stops hiring extra units of Capital, we have MEC = 0 being the cessation point.

Therefore the firm will continue to hire extra units of Capital up to and including the point where the profit gained by hiring an extra unit of Capital is zero.

EXAMPLE 1: A new factory costs €500,000 to build but generates €1m in revenue.

- 1) Find this factory's MEC.
- 2) Will the firm build the factory?

ANSWER 1: MEC = Extra Revenue - Cost of Capital

$$\text{MEC} = \text{€}1,000,000 - \text{€}500,000$$

$$\text{MEC} = \text{€}500,000$$

Yes this firm would build this factory as its addition would generate €500,000 in extra profits.

EXAMPLE 2: A new machine costs €50,000 to buy but would generate €50,000 in extra revenue.

- 1) Find this Machine's MEC.
- 2) Would the firm buy this machine?

ANSWER 2: MEC = Extra Revenue - Cost of Capital
 MEC = €50,000 - €50,000
 MEC = €0

Yes this firm would buy this machine and no more as any increase in Capital would cost more than it would generate in revenue.

EXAMPLE 3: The government is considering building a brand new road network in Donegal which would cost €2Bn to build and would generate €1.5Bn in revenue.

- 1) What is this road system's MEC?
- 2) Should the government build the road?

ANSWER 3: MEC = Extra Revenue - Cost of Capital
 MEC = €1.5Bn - €2Bn
 MEC = - €0.5 Bn

No the government should not build the road as its MEC is negative.

Marginal Efficiency of Capital (MEC) may Fall. Why?

- 1) **The Rate of Interest:** The higher the interest rate, the more expensive it is to acquire Capital and as such the MEC of each unit of Capital will fall.
- 2) **The Capital Stock of the Economy:** The greater the Capital stock of an economy, the lower the MEC, as investment may be subject to the Law of Diminishing Marginal Returns.
- 3) **The Cost of Capital Goods:** If the cost of Capital increases, the MEC falls. This is because MEC is the MRP of Capital minus its costs.
- 4) **Government Policies:** If the government offers grants to entrepreneurs, this effectively reduces the cost of Capital goods which ultimately increases the MEC.
- 5) **The Slope of the Demand Curve:** If a firm faces a very elastic Demand Curve, then it must lower its selling price significantly to increase demand. Therefore the MRP of an additional unit of Capital will be falling. A falling MRP means a falling MEC.

NOTE: The opposite of these points above would answer the question, why does MEC rise.

Foreign Direct Investment (FDI)

Foreign Direct Investment (FDI): is a capital investment that is owned and operated by a foreign entity

IDA (Industrial Development Authority) Ireland is the state agency responsible for attracting foreign firms to Ireland. These firms have located here for the following reasons.

Reasons for the Location of Foreign Firms in Ireland

- 1) **Grants/Subsidies:** The Irish government was very generous to foreign firms by providing them with grants and subsidies in order to attract them to set up and operate here.
- 2) **Tax Rates:** In Ireland we have an exceptionally low Corporate Tax Rate, one of the lowest in the EU. (Currently it stands at 12.5% but this could change soon depending on the government's upcoming decisions). This means that the cost of running a business in Ireland is much lower than the majority of EU countries.
- 3) **Well Educated and Flexible Workforce:** Many advanced companies set up in Ireland to take advantage of an exceptionally well educated workforce. E.g. Pfizer set up in Ireland to take advantage of the fruits of our free third level education policy.
- 4) **Access to the EU Market:** As Ireland is a member of the EU, any items produced in Ireland are not subject to import taxes when being sold in the EU.
- 5) **Geographical Location:** Ireland is the closest EU nation to America. That combined with the fact that we speak English, which is the international language of business.

Relocation of Multinationals

In spite of all the reasons above for why multinationals would locate in Ireland, many of them have left in recent months. E.g. Dell. Why?

- 1) **Lower Wage Costs Outside Ireland:** Businesses have stated that labour costs in Ireland are prohibitive and cite the introduction of the minimum wage rate, the existence of social partnership etc. as factors that have led to these higher wage costs. Labour costs in Eastern Europe and Asia are more competitive.
- 2) **Rising costs of Production:** Many firms have voiced concerns about increasing costs such as insurance, refuse charges, energy costs, the

high costs of available land for expansion and development etc. These costs increases make exports less competitive.

- 3) **Infrastructural problems:** Ireland faces many problems with its infrastructure. E.g. Transport difficulties.
- 4) **Addition of new EU member states:** Since May 2004 many new countries joined the EU and these countries now offer companies access to the EU market/availability of cheaper labour/access to new markets/room to expand etc. (Romania and Bulgaria joined on 1st January 2007). Hence they have become an attractive location for mobile industry.
- 5) **Regulatory Framework:** Actions by the central government, local government or the EU have placed further requirements on industry. These actions impose a stricter regulatory framework for firms to operate. By moving to Eastern Europe and Asia regulations may be less strict making it easier for companies to operate e.g. protection of the environment may face less protection.
- 6) **Advances in International Communication:** Advances in global communications have made it possible for firms to locate offices in other places and still carry out their business. They can now do so at lower unit costs and thereby increase their profits. An example of businesses which have re-located are international call centres e.g. credit card companies/insurance companies.

Interest Rate Determination

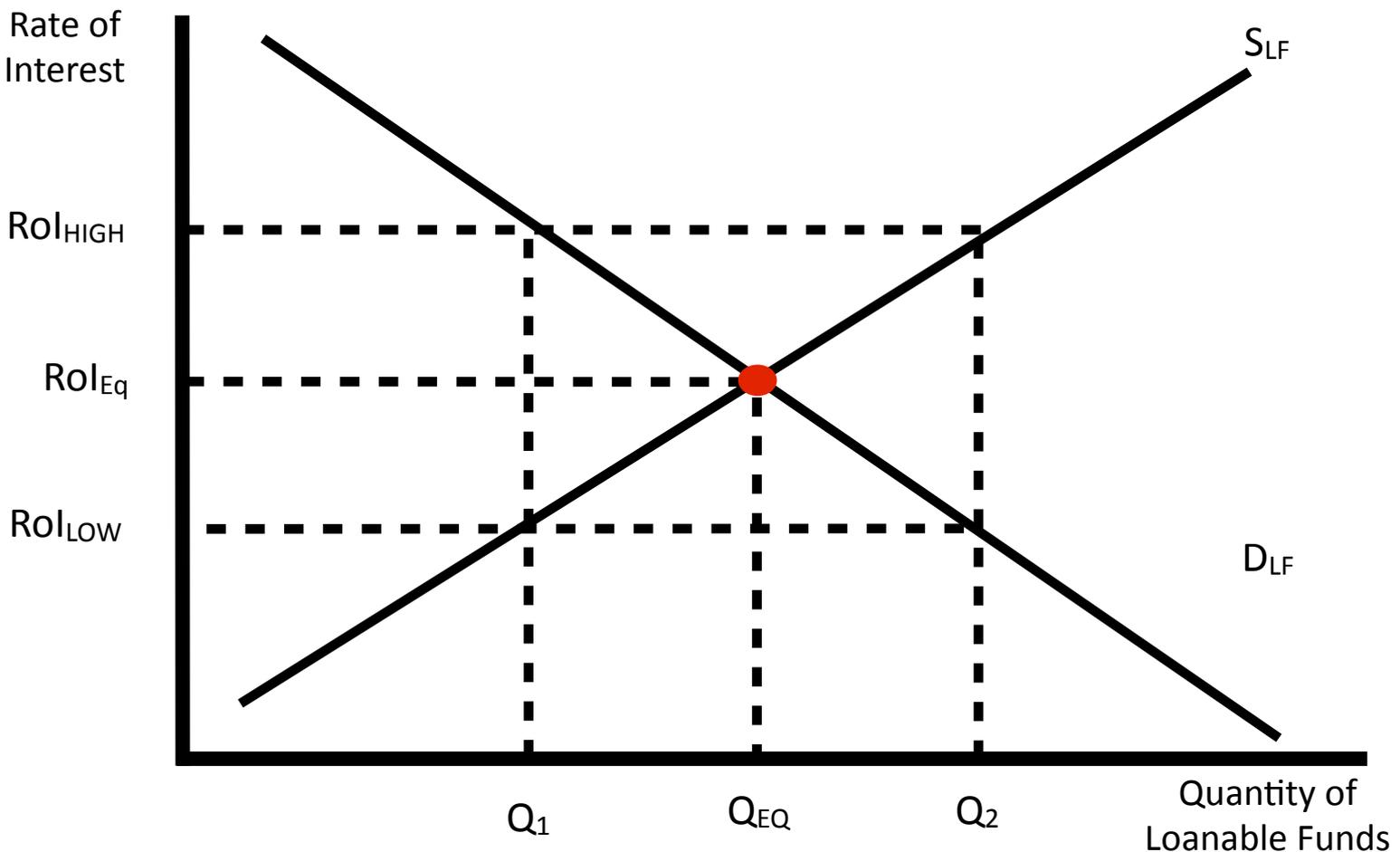
There are two theories on how interest rates are determined on the L.C. Economics course. Both must be known and understood as they can be asked separately.

The Loanable Funds Theory (Interest Rates in the Long Run)

This is the name given to the theory of interest rates put forward by the 19th century Classical Economists. Loanable Funds referred to the money that was available for lending on financial markets.

The Supply Curve of such funds was seen as being upward sloping, indicating that the higher the rate of interest (i.e. the higher the return to savers), the greater the supply of such funds. The Demand Curve for loanable funds was seen as downward sloping, indicating that the higher the rate of interest (i.e. the higher the price investors must pay), the lower the amount of such funds that would be demanded.

The rate of interest would adjust until the demand for loanable funds equaled the supply of loanable funds. See the graph below.



The Demand for Loanable Funds comes from investors, while the Supply for Loanable Funds comes from savers. If the rate of interest was RoI_{LOW} , then the demand for funds exceeds supply. There is upward pressure on the interest rate causing it to rise. If the rate of interest was RoI_{HIGH} , the supply of loanable funds exceeds the demand. There is downward pressure on the interest rate causing it to fall. At RoI_{Eq} , the demand for Loanable equals the supply of Loanable funds. This is how the market for Loanable Funds reaches the equilibrium interest rate.

Unfortunately, this theory is seen as being too simple an explanation on how interest rates are determined *in the short run*. In the short run, the interest rate is not the most important thing affecting the demand for funds by investors. The rate of return expected by the investor is more important than the interest rate. Also, the rate of interest is not the most important thing that affects the level of saving in the economy (i.e. the Supply of Loanable Funds), the level of income is more important.

The theory of Loanable Funds is seen as the correct model for interest rate determination in the long run, but not in the short run.

The Theory of Liquidity Preference (Interest Rates in the Short Run)

It was the great economist John Maynard Keynes that came up with the idea of the theory of Liquidity Preference. He said that interest rates were not determined by the supply and demand of loanable funds, but interest rates are determined by people's demand for cash and the amount of cash that the central bank decides to print.

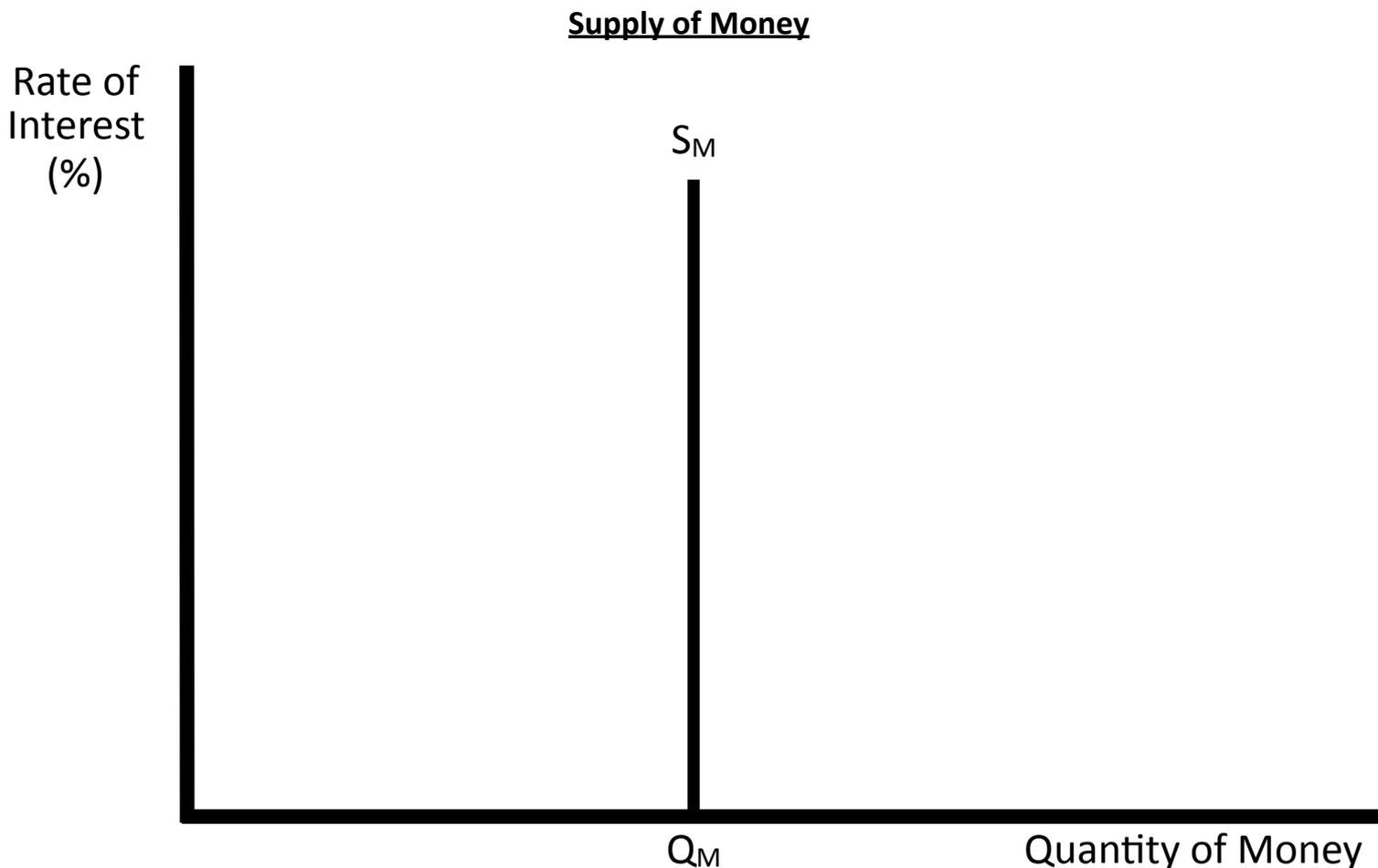
It is important to be specific here. Cash is the physical notes and coins that people can use to pay for things.

Again, this is just another lengthy explanation to help you understand the idea of the theory of liquidity preference. Read this section once and then learn off the Leaving Cert answer that follows.

The Supply of Money in Liquidity Preference

Remember, in the theory of Loanable funds the supply of loanable funds was provided by savers. However, now we are talking about liquid money not just loanable funds. Well, money is printed in the mint, at any one time there is a fixed supply of it available. This fixed amount is decided upon by the European Central bank and as members of the Eurosystem; it is the Central Bank of Ireland that is responsible for controlling and sticking to the Money Supply set out by the European Central Bank.

As we have already said, the supply of money is fixed at any one time and as such the supply curve for money is a vertical straight line, indicating that the supply of money does not depend on the rate of interest.



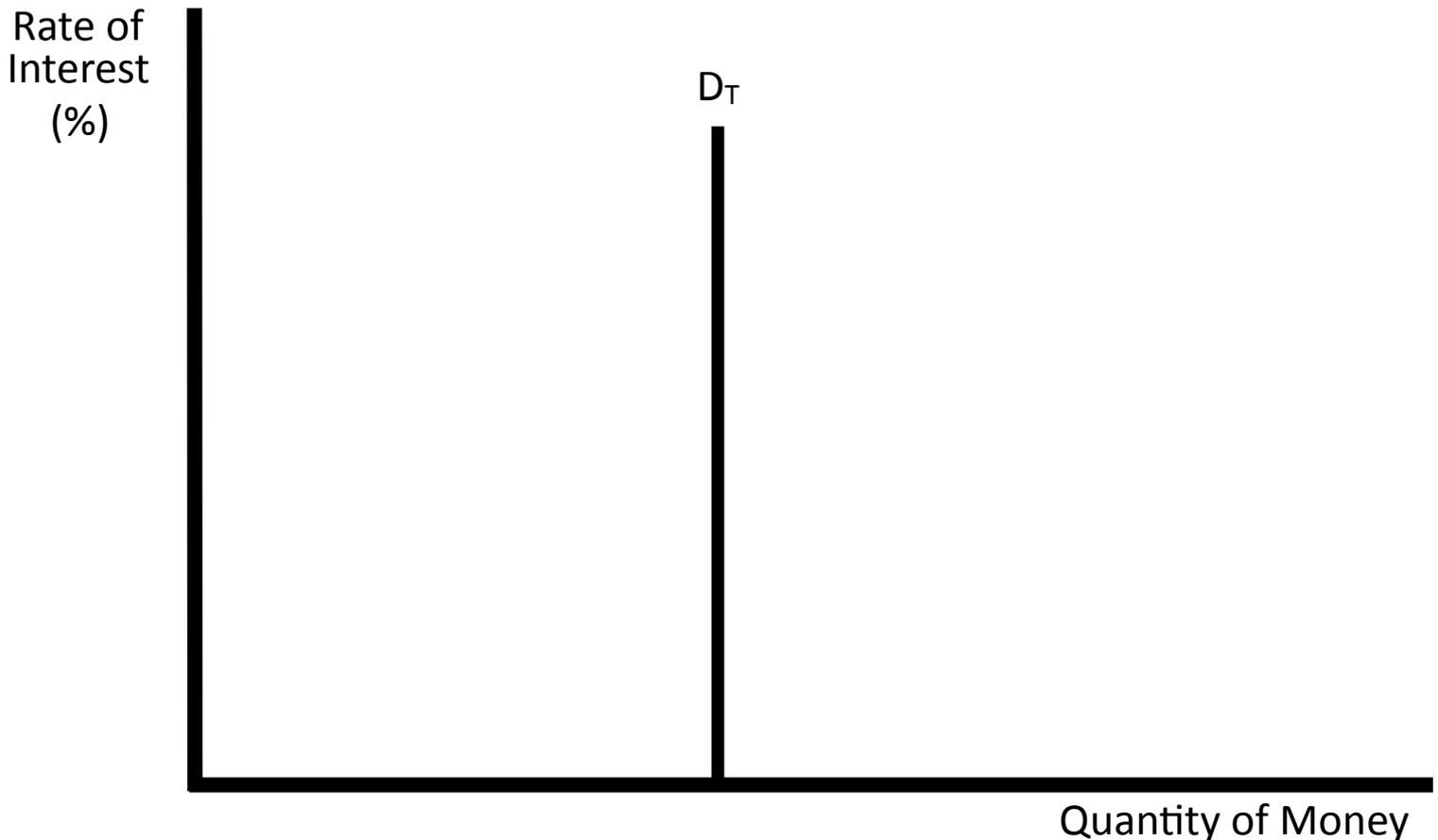
The Demand for Money in Liquidity Preference

When we talk about the demand and supply of money what do we mean? Everybody demands more of it and nobody gives it away so demand is high and supply is low. ABSOLUTELY NOT!!!!!!!!!!!!!!!!!!!!!! When we talk about the demand for money we mean the desire by a person to hold their wealth in liquid or cash form (notes, coins etc) and not leave it in the bank. When we talk about the supply of money we mean the total amount of notes and coins in the economy.

As we have said earlier, the demand for money refers to the desire for people to keep their wealth in liquid form. That is notes, coins or current account balances. Keynes said that there were three reasons why people would wish to hold their money in liquid form. He called these reasons motives.

FIRST MOTIVE: The Transactions Motive (D_T)

All is implied in this motive is that people need cash for day to day expenses. The amount people need for this purpose depends on how much they spend which in turn depends on their income. The higher the level of income, the greater the transactions demand for money. The lower the level of income, the lower the transactions demand for money. The rate of interest has no effect on the transactions demand for money so the transactions demand curve for money is a vertical straight line.



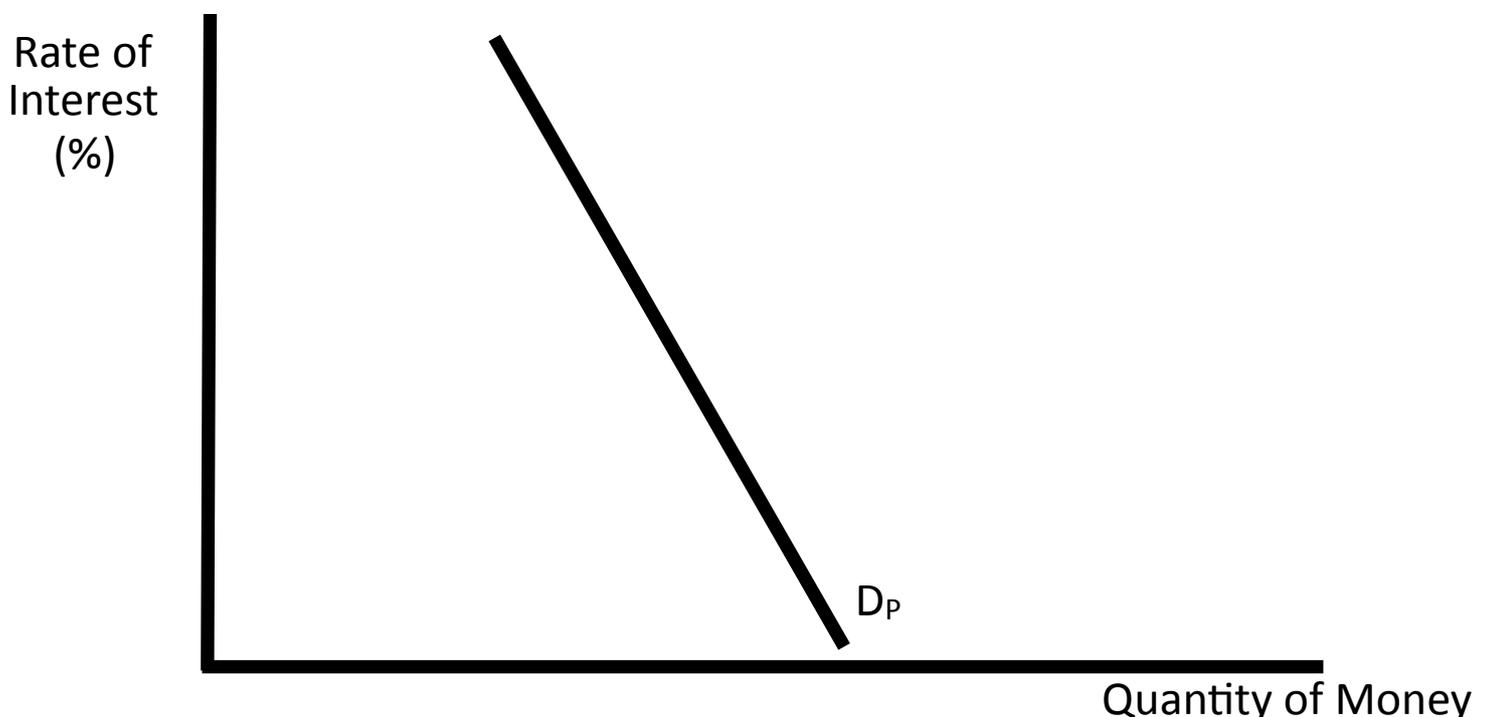
Remember, the transaction demand for money depends on the level of income only. **It does not depend on the interest rate.** If income rises, D_T rises. If income falls, D_T falls.

SECOND MOTIVE: The Precautionary Motive (D_P)

The precautionary demand for money refers to the money held by people in order to pay for unforeseen expenses like doctor bills when people get sick or household repairs etc. Such expenses inevitably arise but people do not know how or when they will arise.

Again the precautionary demand for money depends on the level of income. The higher the level of income, the greater the precautionary demand for money, (the more money people put away for a rainy day). However, it also depends on the interest rate to a lesser extent. The higher the rate of interest, the lower the precautionary demand for money will be. This is because there is an opportunity cost of holding money in cash form. The opportunity cost of holding money in cash form is the interest that it could be earning if it were to be placed in a savings account.

I might be willing to keep €5,000 in cash in case of emergencies if the rate of interest was 3%, but I would not keep the same amount in cash if the interest rate was 50% as I would be giving up €2,500 in interest if I were to do so. The opportunity cost of keeping €5,000 in cash when the interest rate is 50% is the €2,500 in forgone interest. The graph below shows the precautionary demand curve for money.

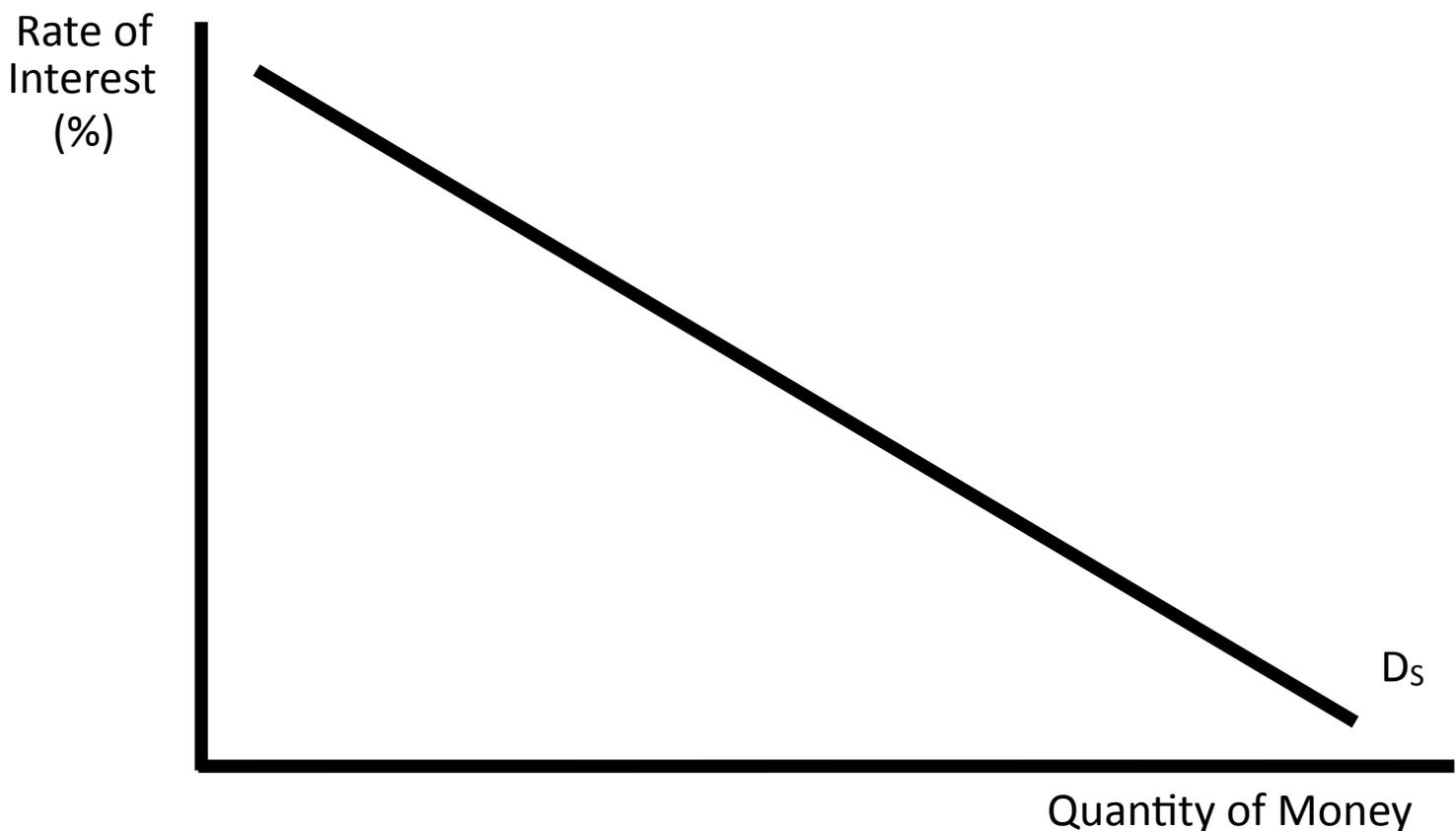


Remember, the precautionary demand for money depends mainly on the level of income, but is slightly affected by the interest rate. That is why we see this very inelastic demand curve for money. If income rises D_P rises, if income falls, D_P falls. Also, if the rate of interest rises, D_P falls and if the rate of interest falls, D_P rises.

THIRD MOTIVE: The Speculative Motive (D_s)

The speculative motive refers to money held by individuals in order to take advantage of profit making opportunities that may arise. People will want to have access to cash in order to have the opportunity to purchase an asset that is expected to rise in value. This asset may be stocks, shares, a piece of capital, a government bond etc.

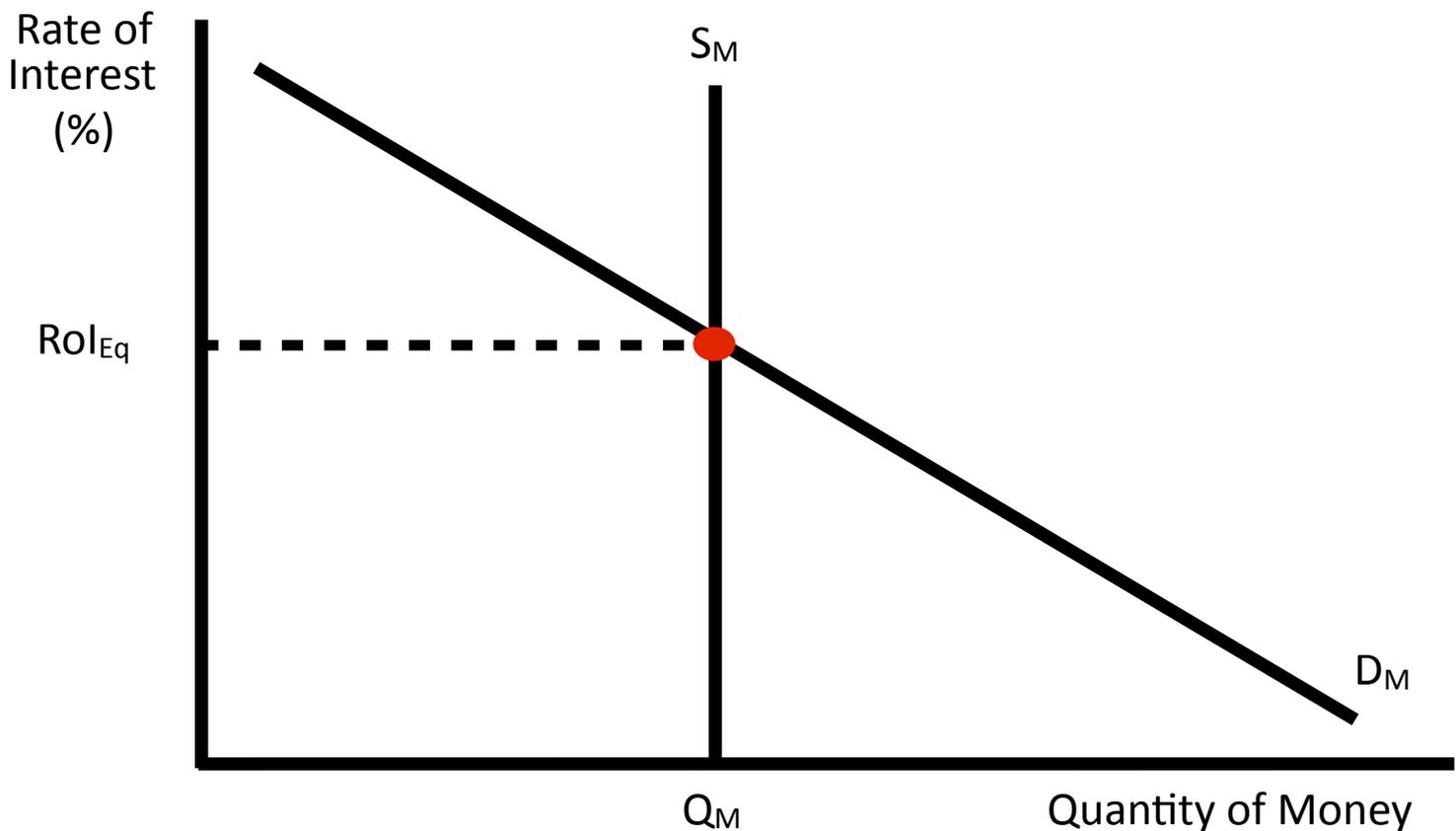
There is an inverse relationship between the rate of interest and the speculative demand for money. When the rate of interest rises, the speculative demand for money falls. When the rate of interest falls the speculative demand for money rises.



When interest rates are high (e.g. 20%), the speculative demand for money will be low. People will prefer to put their money into fixed-interest earning accounts where there is no risk. As such, the money that they hold as cash for profit making opportunities will be small, as very few profit making opportunities can guarantee a return of 20%.

Conversely, when interest rates are low (e.g. 2.5%), the speculative demand for money will be high. People will prefer to hold onto their wealth in the form of cash in the hope of availing of a profit making opportunity that would yield a return greater than 2.5%.

The total or aggregate demand for money (D_M) is simply the addition of the transactions, precautionary and speculative demands for money.

Equilibrium in the Money Market

As we can see from the graph overleaf, the rate of interest, according to Keynes, was determined by the intersection of the vertical money supply curve (S_M) and the downward sloping aggregate demand for money curve (D_M). When these curves shift, a change in the interest rate is the result.

L.C.Q: Keynes' concept of 'Liquidity Preference' is based on three reasons why people desire to hold wealth in money form. State and explain each of these reasons

ANSWER:

- 1) **Transactional Motive:** People desire to hold money for day-to-day expenses e.g. buying goods & services
- 2) **Precautionary Motive:** People desire to hold money for emergencies/ rainy day e.g. illness, house repairs.
- 3) **Speculative Motive:** People desire to hold money for any possible profitable future investment opportunities.

L.C.Q: Discuss the effect, if any, a fall in interest rates is generally expected to have on each of these reasons.

ANSWER:

Motive	Effect of fall in interest rates
Transactionary	The demand for money for transactionary reasons is not affected by the fall in the rate of interest. Why? People need to have cash for day-to-day spending and this, allied to their level of income, not rates of interest determines the motive.
Precautionary	The demand for money for precautionary reasons is affected slightly (negatively) by the rate of interest. Why? As interest rates fall slightly more money will be held for precautionary purposes, due to the opportunity cost of lower rates of interest.
Speculative	The demand for money for speculative reasons is greatly affected (negatively) by the rate of interest. Why? As interest rates fall more money will be held for speculative purposes as people will hold more wealth in cash form to profit from future higher rates of interest.

L.C.Q: Discuss the effect, if any, a rise in interest rates is generally expected to have on each of these reasons.

ANSWER:

Motive	Effect of rise in interest rates
Transactionary	The demand for money for transactionary reasons is not affected by the rise in the rate of interest. Why? People need to have cash for day-to-day spending and this, allied to their level of income, not rates of interest determines the motive.
Precautionary	The demand for money for precautionary reasons is affected slightly (negatively) by the rate of interest. Why? As interest rates rise slightly less money will be held for precautionary purposes, due to the opportunity cost of higher rates of interest.
Speculative	The demand for money for speculative reasons is greatly affected (negatively) by the rate of interest. Why? As interest rates rise, less money will be held for speculative purposes as people will hold less wealth in cash form so as not to loose money from future lower rates of interest

Effect of a Reduction in Interest Rates on the Irish Economy

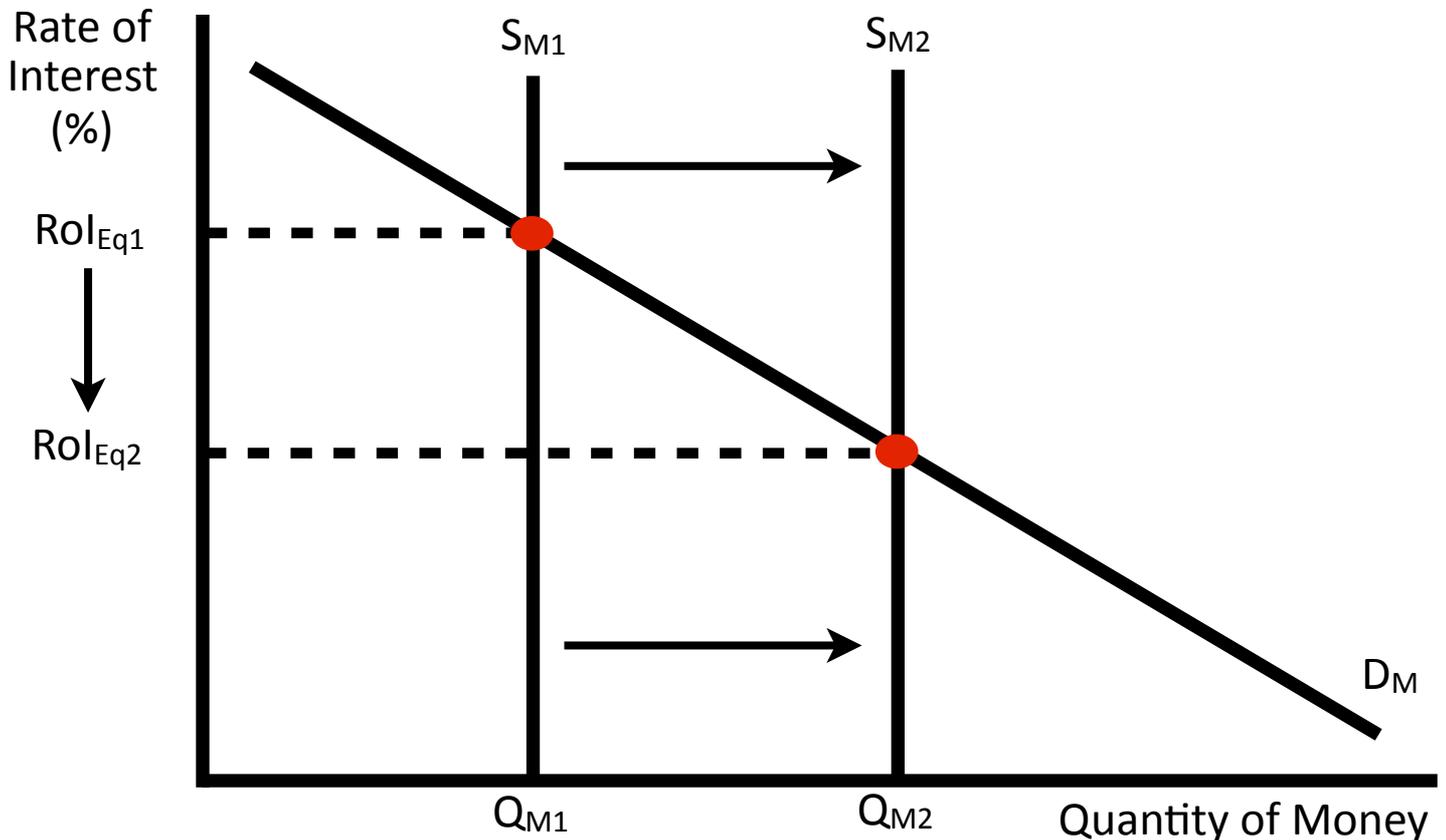
- 1) **Borrowing is Encouraged:** borrowing is now cheaper, resulting in lower loan repayments. Lower loan repayments mean increased spending power. This leads to greater spending which leads to higher inflation. Increased inflation leads to higher imports, which leads to a higher standard of living.
- 2) **Saving is Discouraged:** With lower rate of returns, people may find it less attractive to save, which again leads to higher spending.
- 3) **Reduced Mortgage Repayments:** The cost of monthly repayments decreases resulting in a higher standard of living. This can also lead to a rise in house prices.
- 4) **Cost of Servicing the National Debt:** With lower domestic interest rates, the cost of repaying the euro-zone portion of the national debt falls.
- 5) **Reduced Costs of Production:** Costs of production will fall resulting in lower prices and/or an increase in the numbers employed.
- 6) **Incentive to Invest:** The Marginal Efficiency of Capital (MEC) will rise, leading to higher profits, usually causing an increase in investment. This is because, it becomes cheaper for businesses to borrow and so businesses may invest.
- 7) **Economic Growth is Encouraged:** With possibly higher investment, future economic growth in Ireland may be increased.
- 8) **Revenue Received from DIRT:** With less savings the government may receive less revenue through DIRT
- 9) **Shift in Emphasis in Government Policy:** With lower interest rates, the government could shift its emphasis from tax revenues more towards borrowing, as it is now cheaper for the government to borrow.

Effect of an Increase in Interest Rates on the Irish Economy

- 1) **Borrowing Discouraged:** Borrowing is more expensive resulting in higher loan repayments, which will reduce spending power, resulting in a lower standard of living.
- 2) **Savings Encouraged:** With a higher rate of return people may find it more attractive to save, and so they will reduce their spending.
- 3) **Increased Mortgage Repayments:** The cost of monthly repayments increases, resulting in reduced disposable income and a lower standard of living.
- 4) **Increased Cost of Servicing the National Debt:** With higher domestic interest rates the cost of repaying the internal portion of the national debt rises.
- 5) **Increased Costs of Production / Reduced Competitiveness:** Cost of production will increase resulting in higher domestic prices. This will reduce the competitiveness of Irish exports and may lead to reduction in sales.
- 6) **Disincentive to Invest:** The MEC will fall resulting in lower profits and this may discourage investors / it becomes more expensive for businesses to borrow and so they may not invest.
- 7) **Economic Growth is Hindered:** With possible lower investment, future economic growth in Ireland may be damaged.
- 8) **Taxation Revenue Effects:** With additional savings the government may receive additional revenue through DIRT. However, with lower spending the revenue from VAT and excise duties may fall. If unemployment increases there will be a reduction in income tax revenue.
- 9) **Increases in Unemployment:** Lower consumer spending, falling demand for Irish exports, a reduction in investment and a decline in economic growth may result in an increase in the numbers unemployed.

Changes in the Supply and Demand of Money

- 1) **Increase in the Money Supply – Demand remains Unchanged:** If the European Central Bank increases the money supply, this causes an outward shift in the vertical supply curve. If this happens when the demand remains unchanged, the interest rate will fall. See the graph below.



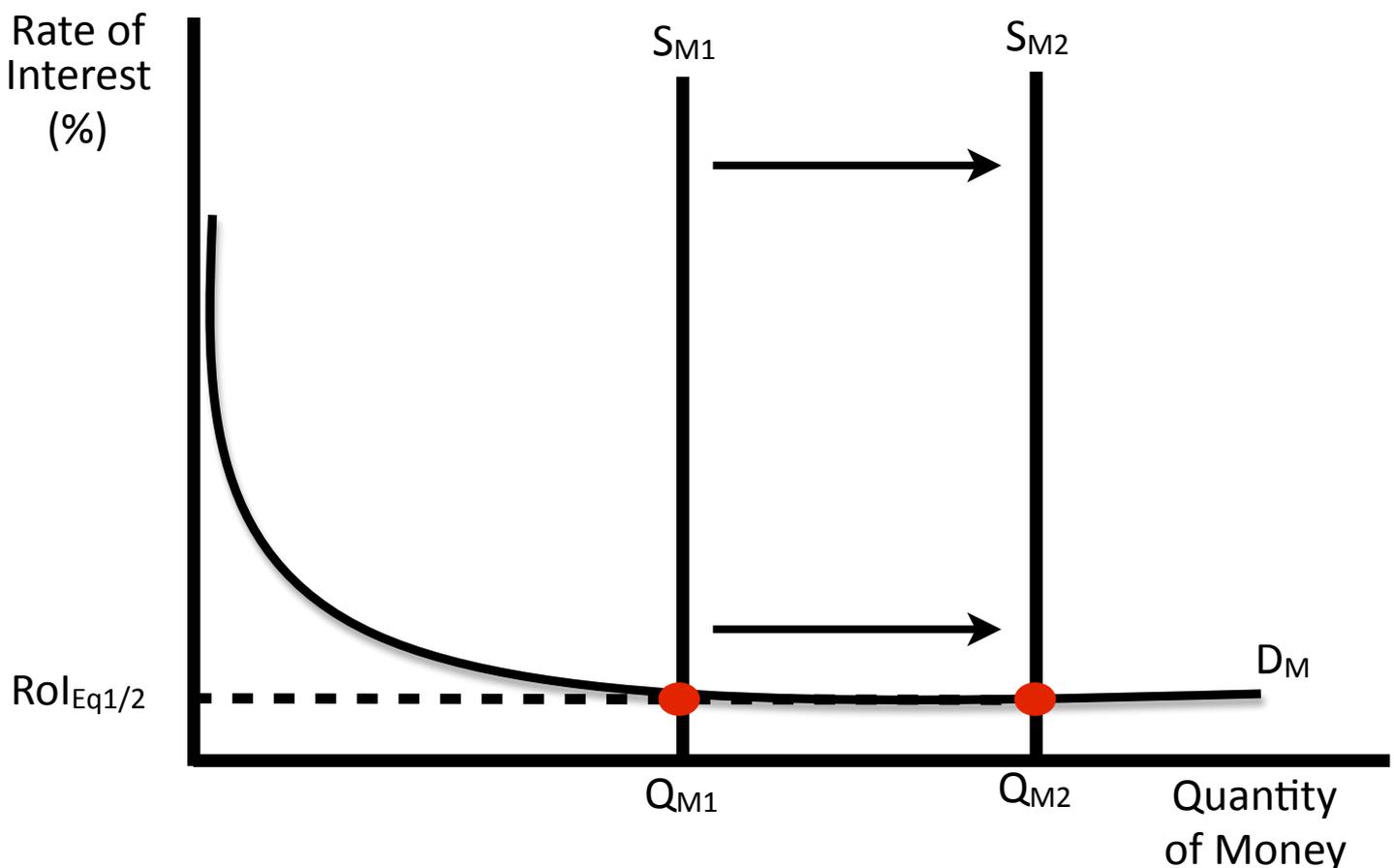
As we can see from the graph above, following an increase in the money supply from S_{M1} to S_{M2} , the interest rate falls from ROI_{Eq1} to ROI_{Eq2} . This encourages investment but discourages savings. This is due to the fact that the cost of investment, the interest rate, has fallen and the return to savers, the interest rate, has also fallen, (the cost of investment and the return to savers are the same thing, the interest rate).

By this logic, if the government wished to increase the level of investment in the economy, it could just lower interest rates (Remember, this is true in the Short Run, not in the Long Run). There are three problems with this suggestion. Firstly, the Irish government does not control our interest rates, The European Central Bank does. When we joined the Euro, we gave away our control of our monetary policy to the European Central Bank, (as did all countries in the euro zone).

Monetary Policy: Those actions by the ECB, which influences the money supply, interest rates and the availability of credit.

The second problem is the idea of the Liquidity Trap. If interest rates are so low that everyone expects them to rise, no one will buy bonds as they will suffer a fall in value following a rise in interest rates. If the government increases the money supply in this situation, the interest rates won't fall and it may result in increased inflation and increased imports. See the graph below.

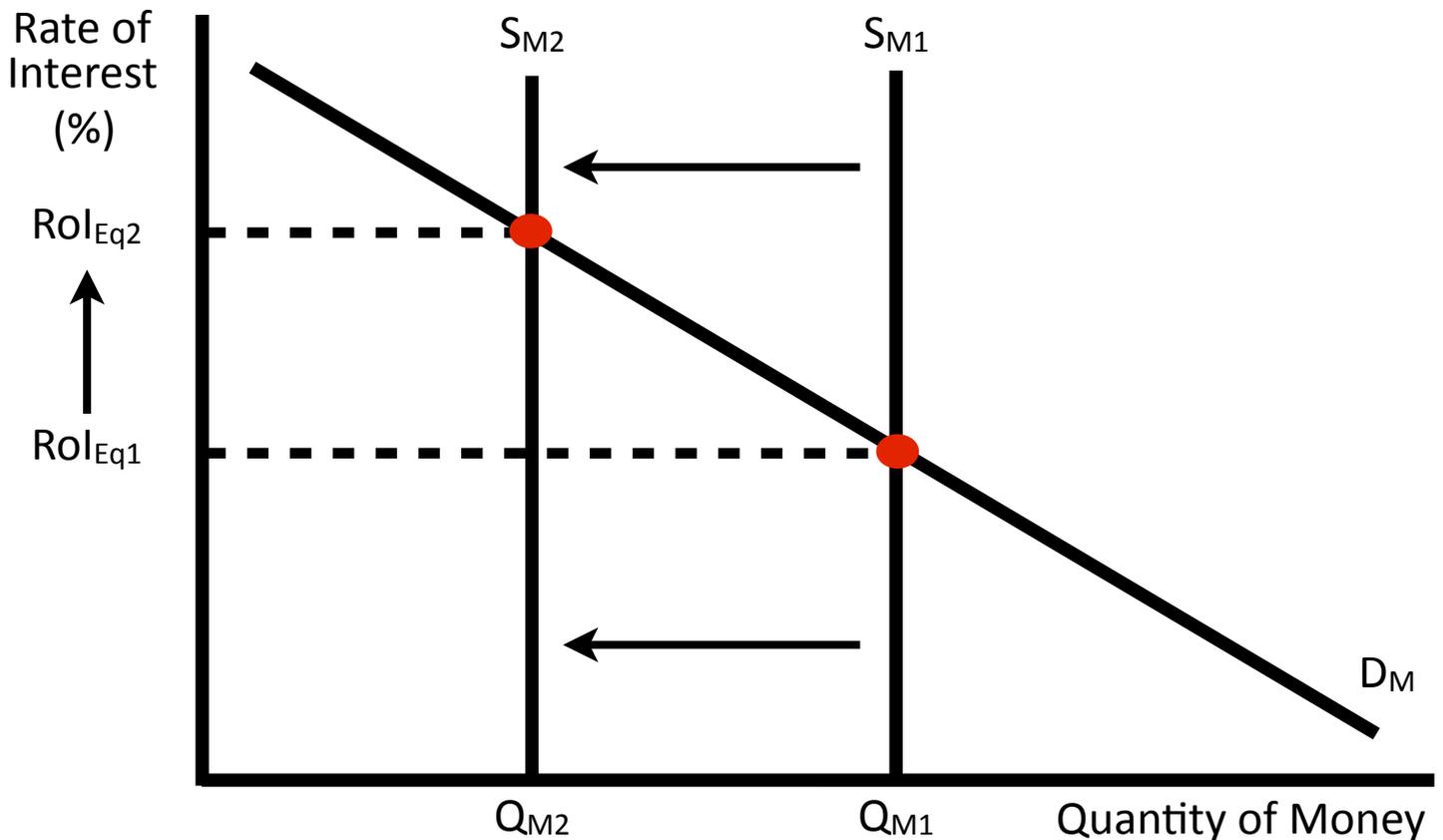
The Liquidity Trap



The third problem is that printing more money is the main cause for inflation. Inflation effects the efficient allocation of society's resources which reduces economic growth. We will return to the issues of inflation and economic growth in later handouts.

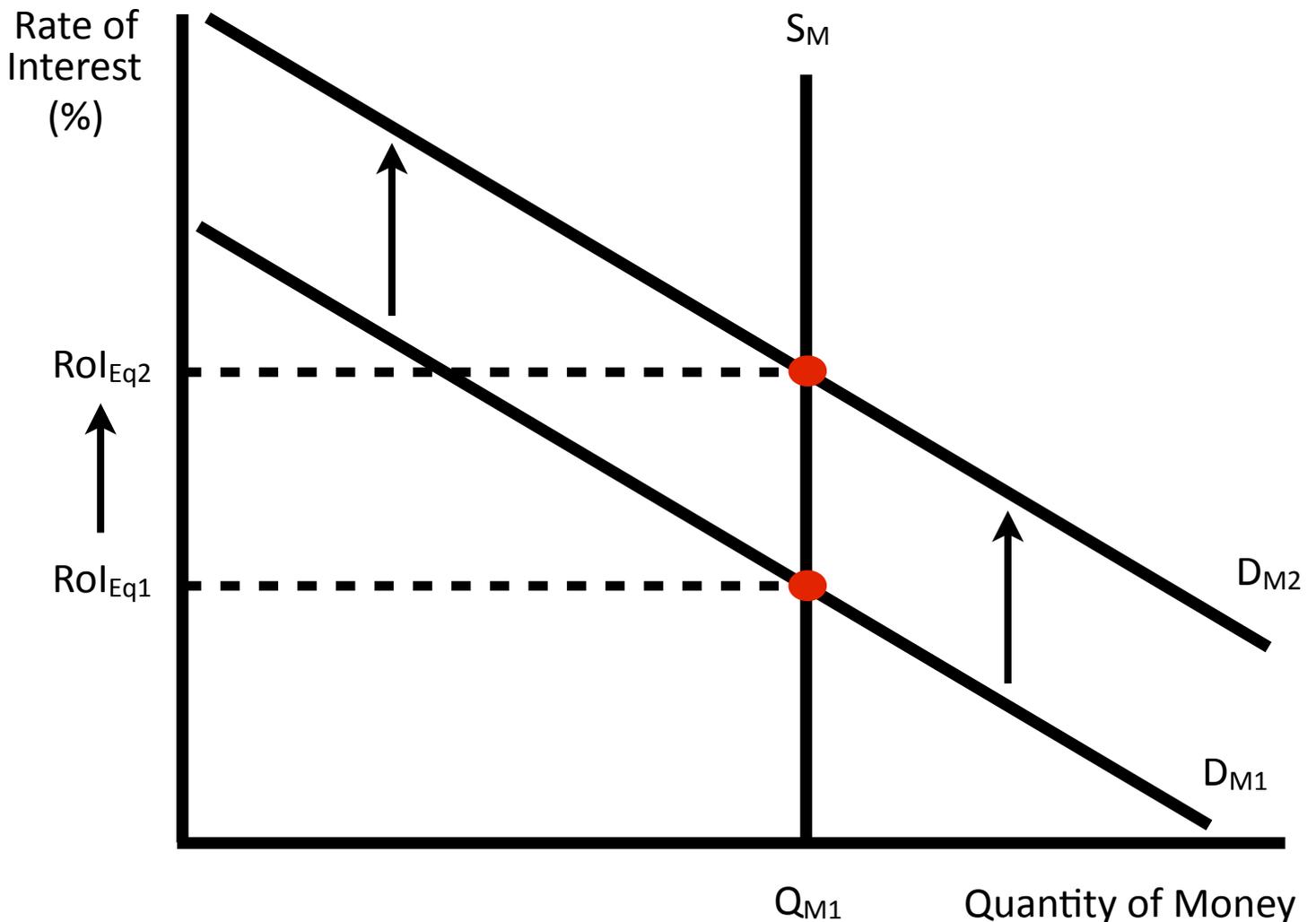
As we can see from the graph above, an increase in the money supply has no effect on the rate of interest and as such there is no extra incentive for increased investment. All the government has succeeded in doing is increase inflation without any return.

- 2) **Decrease in Money Supply – Demand remains Unchanged:** If the European Central Bank reduces the money supply, this causes an inward shift in the vertical supply curve. If this happens when the demand remains unchanged, the interest rate will rise. See the graph below.



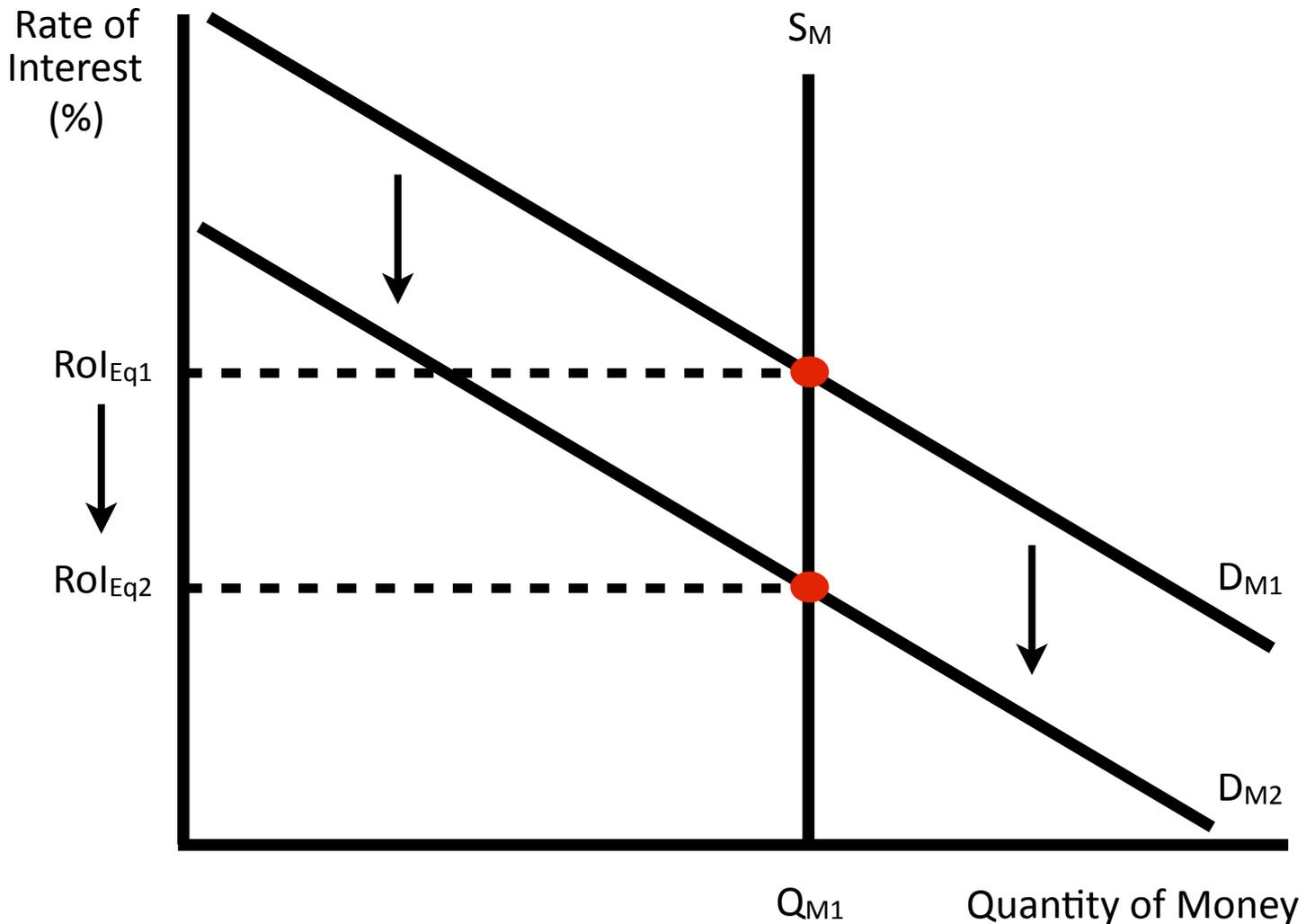
As we can see from the graph above, following a reduction in the money supply from S_{M1} to S_{M2} , the interest rate rises from ROl_{Eq1} to ROl_{Eq2} . This discourages investment but encourages saving. It discourages investment because the cost of borrowing (the rate of interest) has risen. It encourages saving because the reward to saving (the rate of interest) has risen.

- 3) **Increase in Money Demand – Money Supply Unchanged:** If people increase their desire to hold their wealth in cash form, this represents itself as an outward shift in the money demand curve. See graph below.



As we can see from the graph above, an increase in the demand for cash, the money supply unchanged, causes an increase in the interest rates. This discourages investment but encourages saving. Investment is discouraged because the cost of borrowing money (the rate of interest) has increased. It encourages saving because the reward for saving (the rate of interest) has increased.

- 4) **Decrease in Money Demand – Money Supply Unchanged:** If people reduce their desire to hold their wealth in cash form, this represents itself as an inward shift in the money demand curve. See graph overleaf.



As we can see from the graph above, a reduction in the demand for cash, the money supply unchanged, causes a decrease in the interest rates. This encourages investment but discourages saving. Investment is encouraged because the cost of borrowing money (the rate of interest) has decreased. It discourages saving because the reward for saving (the rate of interest) has decreased.

Factors Affecting the Interest Rate

- 1) **Rate Charged by the European Central Bank:** When banks are short on cash to satisfy their liquidity requirements, they borrow money off the European Central Bank. The ECB charges a rate of interest for this loan. The rate that the ECB charges these banks affect the rate that these financial institutions charge their customers.
- 2) **Degree of Risk to the Lender:** The higher the risk of default to the lender the higher the interest rate. The lower the risk to the lender the lower the interest rate. The higher interest rate on high risk investments is the lender's reward for taking the risk of making the loan in the first place.
- 3) **Degree of Liquidity of the Loan:** The longer the period allowed to repay the loan, the longer the lender is without his money and so the higher the interest rate charged. Also, as we know, savers provide the money that is made available to investors. Therefore, if a saver says to the bank that they will give an extended period of notice before they withdraw any money, the bank will give them a higher rate of interest than somebody who wants access to their money on demand.
- 4) **The Rate of Inflation:** The higher the rate of inflation, the higher the rate of interest that a lender will require. This is to ensure that the real interest rate is kept high. Otherwise, the purchasing power of the money being repaid to the lender is falling.
- 5) **Demand for Loans:** The greater the demand for loans, the higher the rate of interest. Borrowers compete against each other for available funds. Just as the price of any good is high when price is high, lenders are able to charge higher rates of interest when there are many would be borrowers.

Capital Widening and Capital Deepening

Capital Widening: refers to increasing the amount of Capital and Labour so that the ratio of Capital to Labour remains unchanged.

Example: A Factory has 5 machines and 50 workers. That is on average 1 machine per 10 workers or 1:10. A new extension is built and 2 extra machines are added and 20 extra workers are hired. There is now 7 machines and 70 workers. Notice that the ratio of Capital to Labour is still the same, 1:10. There are still 10 workers to a machine. This is Capital Widening.

Capital Deepening: refers to increasing the amount of Capital by a higher percentage than the increase in the amount of Labour, so the ratio of Capital to Labour increases.

The amount of Capital increases resulting in more Capital per Worker in the economy.

Example: A Factory has 5 machines and 50 workers. The ratio of Capital to Labour is 1:10. A new extension is built and 5 extra machines are added and 20 extra workers are hired. Now there are 10 machines and 70 workers. Notice that the ratio of Capital to Labour has increased. It was 1:10 and now is 1:7. This is Capital Deepening. The higher the wage rate is relative to the cost of Capital, the more likely a firm is to engage in Capital Deepening.

The Investment Ratio

The Investment Ratio: is defined as Gross Investment as a percentage of Gross National Product (GNP).

The Investment Ratio shows the fraction of a country's income which it devotes to investment. The higher the investment ratio, the greater the future productive capacity of the country.