

Money

It would be almost impossible for an individual to supply of his own needs, i.e. be self sufficient. Exchange and trade is an important concept in economics. People specialise by providing a factor of production in return for payment (income). This payment is almost always money. They can then swap this money in return for the goods and services that they require. The existence of money is crucial to allow for workers to specialise in producing what they are good at and then exchange money that they get from their work in return for other things that they wish to have. Remember, specialisation makes workers more productive, i.e. it allows workers to produce more. It is the quantity of goods and services produced that defines the wealth of a nation. The existence of money allows for workers to specialise which, in theory, makes society richer.

Money, in the short run at least, can effect the level of production and as such the level of output in the economy. Therefore, if the amount of money available in an economy can cause more to be produced, it can also effect the standard of living in a country. Money can effect many things of Macroeconomic interest. E.g.

- 1) Production and Growth
- 2) Interest Rates
- 3) Inflation
- 4) Exchange Rates

We will see later in this chapter and later ones, how money effects these variables, but before that we will look at what money is.

Money: is anything that is generally accepted by the majority of people in exchange for goods and services

The Functions of Money

- 1) **Medium of Exchange:** Money allows people to buy goods and services or allows exchange between buyers and sellers. Also money allows the buying and selling of goods and services to be broken into two distinct activities. This means that no barter is required.
- 2) **Measure of Value:** Money enables a price to be put on goods & services.
- 3) **Store of Wealth:** Money allows people to save for the future in order to make purchases in the future.

- 4) **Standard for Deferred Payment:** Money is capable of measuring value for a future date. Money makes credit trading (i.e. buying & selling) possible.

The Characteristics of Good Money

- 1) **Recognisable:** Money should be easily recognisable as genuine and be difficult to counterfeit. If some people have doubts about the authenticity of the item being used as money, they will not accept it. Once it is not generally accepted, it is no longer money.
- 2) **Portable:** Whatever is being used as money must easily be carried in large quantities.
- 3) **Durable:** Euro notes and coins can survive wear and tear. E.g. being washed in the washing machine. This is a practical aspect of modern money in order to cut down on the cost of replacing it.
- 4) **Divisible:** A euro coin can be broken down into 50c, 20c, 10c, 5c, 2c 1c pieces. This is to facilitate giving change.
- 5) **Scarce:** Money must be scarce in relation to the demand for it. This is to ensure that money maintains its value. An increase in the money supply causes inflation which is a reduction in the value of money.

Barter

Before money was invented, people exchanged the goods and services that they had for goods and services that they wanted. This system of exchanging goods and services without the use of money is known as barter.

Barter: The direct trade of goods or services for other goods or services

E.g. Swapping a bottle of water for a packet of tic-tacs.

Disadvantages of Barter

- 1) **Double Coincidence of Wants:** The person who wants the tic - tacs must find another person who not only has tic - tacs for exchange but also wants a bottle of water.
- 2) **The Problem of Divisibility:** Lets say that a farmer has a cow to trade and he wants some toothpaste. He finds a dentist that wants the cow who is willing to swap toothpaste for it. How do they both decide how much beef a tube of toothpaste is worth. What does the farmer do? Kill the cow and give the agreed amount to the dentist? If yes, then he

quickly has to find people looking for beef that have things that he wants before the beef rots.

- 3) **Specialisation is Discouraged:** As a result of the above issues, people attempt to supply all of their own needs in order to avoid barter. The benefits of specialisation are then lost to the economy.

A Brief History of Money

Originally, coins were cut out of gold and other precious metals which had intrinsic value. This means that the value of the coin was equal to the amount of gold used to make that coin.

Money that has intrinsic value is called commodity money.

Commodity Money: is money that is made from materials with their own value.

Counterfeiters soon got wise to the practice of clipping (clipping small amounts of metal from around the sides of the coin) and sweating (putting coins into a heavy bag and shaking them to knock small particles of metal off the coins and collecting them at the end).

This led to the existence of good money (money with the correct amount of precious metal in them) and bad money (coins that were clipped or sweated)

This led to Gresham's Law which states that bad money drives good money out of circulation.

Eventually, standard coins containing no precious metals were introduced which were accepted purely for their exchange value like the ones today. These coins were an example of token money.

Token Money: is money that its face value (exchange value) is greater than its intrinsic value.

E.g. The Euro

The modern banking system as we now know it started in the 17th and 18th century when rich members of British society who had accumulated large amounts of gold and other precious metals, placed them in the vaults of goldsmiths, who would in turn write them a receipt.

If the depositor (the person who put the gold in the goldsmith's vault) needed to pay a debt, he would bring the receipt back to the goldsmith, get some or all of his gold and use these newly made gold coins to pay his debtors.

Gradually, people realised that they could give the goldsmith's receipt as payment of a debt instead of constantly going to the goldsmith.

Goldsmiths made this job easier by issuing more receipts with smaller value. E.g. 100 £1 receipts in return for £100 of gold.

As the goldsmiths were trusted, their receipts were gradually passed from one person to another and very few were actually presented for payment of gold. These receipts were the beginning of our modern bank notes and were fully redeemable for gold. This was the beginning of what is called the gold standard.

The Gold Standard: is when all notes and coins of a currency are fully redeemable for gold.

This practice of a country's currency being fully redeemable for gold continued into the 20th century.

The United States came completely off the gold standard in 1971 under President Richard Nixon. Even though these pieces of paper were intrinsically worthless and now not redeemable for gold, people were still prepared to accept these dollars in return for goods and services as they were legal tender.

Legal Tender: is money that must be accepted if offered as payment for purchase of goods and services or in settlement of a debt.

Goldsmiths soon realised that few of the receipts that they issued were ever actually redeemed for gold. Once they realised this, goldsmiths began to issue receipts far in excess of the value of gold that they had in their vaults. Once they did this they started acting like modern banks. This began the modern system of credit creation which we will look at later.

Some Goldsmiths got greedy and issued too many receipts in excess of the gold that they had in their vaults. They did not have enough gold to satisfy the amount of people that were redeeming their receipts for gold. Once word spread that the goldsmith was running out of gold, people ran to the goldsmith to try to take out the gold they had placed in the vaults before the goldsmith had given all the gold away in order to try to satisfy its customers. This brought about a bank run

A Bank Run: is where depositors believe that their bank is going to go bankrupt and therefore "run" to the bank to withdraw their deposits

The Economic Effects of the Euro on Ireland

The Euro came into physical existence on 1st of January 2002. It has had a massive effect on Ireland and we will now take a look at the different sections of the Irish society that has been effected.

The Effect of the Euro on Irish Consumers

- 1) **Foreign Travel:** No foreign exchange costs / no conversion charges apply to those travelling within eurozone countries.
- 2) **Inflation:** The introduction of the euro led to inflation within this country in the immediate aftermath of its introduction.
- 3) **Price Comparisons:** Can now be made within all eurozone countries, allowing for greater transparency.
- 4) **Greater Choice of Financial Products:** Irish consumers can now choose where to save, borrow, invest and seek insurance thereby facilitating increased competition.
- 5) **Greater Awareness / Competition:** The euro has resulted in greater awareness as regards prices and Irish consumers can now seek better value for their euro.
- 6) **Prudent Management of the Economy:** Membership of the euro constrains the government in relation to economic policy and ensures prudent management occurs.
- 7) **Low Interest Rates:** The lower interest rates since the introduction of the euro have benefited consumers, resulting in increased borrowings.

The Effect of the Euro on Irish Exporters and Importers

- 1) **Exchange Risk Eliminated:** No devaluation or revaluation has taken place resulting in increased certainty in international trade.
- 2) **Easier Payment for Trading:** As no conversion charges apply to trade within the eurozone this facilitates speedier payment.
- 3) **Lower Interest Rates:** One of the major benefits of the euro has been access to lower competitive interest rates for firms.
- 4) **Cost of Imported Raw Materials / Capital Goods:** These should now be more competitive due to open competition, the absence of currency fluctuations and more transparency in international pricing.
- 5) **Pressure for Domestic Competitiveness:** Employees are becoming increasingly aware that success as an economy depends on being competitive and this has ensured moderation in wage increases.
- 6) **Increased Trade Opportunities:** Access to EU markets is easier and leads to greater opportunities.
- 7) **Fluctuating Value of the Euro:** Companies whose main market is UK/US, have been affected by the fluctuating value of the euro resulting in a loss of competitiveness.

As was said above, the euro is legal tender in Ireland. However, there are many other items that can be used as money even though they are not money. Cheques, credit cards etc. These items are known as near money.

Near Money: is the term used to describe those assets which fulfill some but not all of the functions of money.

Measuring the Money Supply

Measuring the money supply can start off as quite a simple question. How much money is there in an economy at a given time? But what do we include as money? Obviously the notes and coins in your pocket would be included and a car would not. But having looked at the idea of near money, there are plenty of things that might be included and how do we know whether we should include them or not.

In order to get around this issue of deciding what should be included and what should not be included in the money supply, economists use three different measures of the money supply.

- 1) M1: The Narrow Money Supply
- 2) M2: The Intermediate Money Supply
- 3) M3: The Broad Money Supply

Measure of Money Supply	Contents
Narrow Money Supply (M1)	Includes currency and overnight deposits
Intermediate Money Supply (M2)	Includes everything in M1 + <ul style="list-style-type: none"> • Deposits with an agreed maturity of up to 2 years • Deposits redeemable at notice up to 3 months
Broad Money Supply (M3)	Includes everything in M2 + <ul style="list-style-type: none"> • Repurchase Agreements • Debt securities up to 2 years • Money market fund (MMF) shares/units

Narrow Money Supply(M1): includes currency, i.e. banknotes and coins, as well as balances which can immediately be converted into currency or used for cashless payments, i.e. overnight deposits.

Overnight Deposits are amounts of money that are lent for a day.

The **overnight rate** is generally the rate that large banks use to borrow and lend from one another on the overnight market.

The **overnight market** is the component of the money market involving the shortest term loan. Lenders agree to lend borrowers funds only "overnight" i.e. the borrower must repay the borrowed funds plus interest at the start of business the next day. Given the short period of the loan, the interest rate charged in the overnight market, known as the overnight rate is, generally speaking, the lowest rate at which banks lend money.

The Intermediate Money Supply (M2): comprises the narrow money supply (M1) and, in addition, deposits with a maturity of up to two years and deposits redeemable at a period of notice of up to three months.

Deposits with an Agreed Maturity of up to 2 Years: are money that people are saving in a financial institution, that they can't withdraw their money from, until 2 years have passed.

Deposits Redeemable at Notice up to 3 Months: are money that people have in a financial institution, that they have to give three months notice before they can take their money out.

The Broad Money Supply (M3): comprises the intermediate money supply (M2) and, in addition, repurchase agreements, money market fund shares/units and debt securities

Securities are simply a method of finance. Finance means getting money for the firm. There are three different types of securities

1) Debt Securities: This is exactly the same as a loan. The borrower "sells debt securities" to the lender. This just means they get a loan of money that they have to pay back with interest at an agreed future date.

2) Equity Securities: This is just selling a part of the firm like buying shares in a firm.

3) Derivative Securities: This is where the firm gets the money for something now and delivers the good later. Forwards, futures options and swaps.

In finance, a forward or forward contract is a contract between two businesses to buy or sell an asset at a specified future time at a price agreed today. E.g. I will buy that specific car off you in two months for €1,000.

In finance, a forward or forward contract is a contract between two businesses to buy or sell an asset at a specified future time at a price agreed today. E.g. I will buy that specific car off you in two months for €1,000.

In finance, a futures contract is a contract between two businesses to exchange a specified asset of standardized quantity and quality for a price agreed today. I will buy 1,000 bananas off you in 6 months for €500.

In finance, an option is a something that specifies a contract between two parties for a future transaction on an asset at a reference price. The buyer of the option gains the right, but not the obligation, to engage in that transaction, while the seller incurs the corresponding obligation to fulfill the transaction.

A Bond is a certificate of indebtedness. It is an I.O.U. It means that I give money to someone, they give me a bond which says that they will pay me back the money at an agreed date usually with interest.

A Share, is part ownership of the company. If you buy shares you become part owner of a company.

Swaps is where two people both own a financial instrument like a bond or a share, and they agree to swap the benefits from those shares. So, if one guy owns a risky share that yields good dividends, he might be willing to swap the dividends for the dividends of another share, owned by someone else, that is less risky and vice versa.

A repurchase agreement, also known as a repo, RP, or sale and repurchase agreement, is the sale of securities together with an agreement for the seller to buy back the securities at a later date.

To put the above in English, all that happens in a Sale and Repurchase Agreement is that a firm sells something and agrees to buy it back at a future date.

The repurchase price should be greater than the original sale price, the difference effectively representing interest, sometimes called the repo rate.

A money market fund (also known as money market mutual fund) is an open-ended mutual fund that invests in short-term debt securities.

How is it Possible for Banks to Create Credit

Before you start to read this explanation, it is very important to realise that this is just an explanation to help you understand how banks can create credit which, in effect, is the same as printing money. You do not need to learn this off in any way shape or form, but I would advise you to read it at least once so that you can gain a greater understanding. How to answer this question when it comes up in the exam follows this very lengthy explanation.

Remember that the amount of money you have includes currency (the notes and coins in your wallet) and demand deposits (the money you have in your current account). As demand deposits are held in banks, the behaviour of banks can influence the quantity of demand deposits in the economy and therefore, the money supply.

We will now look at how banks effect the money supply and how they complicate the ECB's role of trying to control the money supply.

The Case of 100% Reserve Banking

To see how banks influence the money supply, it is useful to first imagine a world without any banks at all. Currency is the only form of money and the total quantity of currency in the economy is €100. Therefore, the money supply is €100.

Now suppose that someone opens a bank called "First National Bank". First National Bank is only a depository institution, it accepts deposits but does not make loans. The purpose of the bank is to give depositors a safe place for their money.

Whenever a person deposits some money, the bank keeps the money in its vault until the depositor comes to withdraw it or the depositor writes a cheque against their balance. Deposits that banks have received but have not loaned out are called reserves.

Reserves: are deposits that the bank has received but has not loaned out.

In this imaginary economy, all deposits are held as reserves, so this system is called 100% Reserve Banking.

We can write this information in a T - Account format which is a simplified accounting statement that shows changes in a banks assets and liabilities. Here is the T - Account for First National Bank if the economy's entire €100 is deposited in the bank.

First National Bank

Assets	Liabilities
Reserves	Deposits
€100	€100

On the left hand side of the T - Account are the bank's assets of €100 (the reserves that the bank holds in its vault). On the right hand side are the banks liabilities of €100 (the amount it owes its depositors). Notice that the assets and liabilities of First National Bank exactly balance.

Now consider the money supply in this imaginary economy. Before First National Bank opened, the money supply is the €100 of currency that the people are holding. After the bank opens and people deposit their currency, the money supply is the €100 of demand deposits. (There is no longer any currency as it is all in the bank). Each deposit in the bank reduces currency and rises demand deposits by exactly the same amount, leaving the money supply unchanged.

Therefore, if banks hold all their deposits in reserve, banks do not influence the money supply.

Money Creation with Fractional Reserve Banking

However, in the real world, we know that 100% reserve banking does not occur. We know that banks do not hold all their money in their vaults but lend some of that money out in loans. We will now return to our imaginary economy to see how this occurs.

Eventually, the bankers at First National Bank may start to reconsider their policy of 100% reserve banking. Leaving all that money in their vaults sitting idle seems to be unnecessary. Why not use some of it to make loans. Families buying houses, firms building factories and students trying to pay for college would happy to pay a little interest to borrow some of this money for a while. Of course, First National Bank has to keep some money in reserve in order to make sure that it has enough cash to give to consumers when they use their ATM's and so on, but if the flow of new deposits is roughly the same as the flow of withdrawals, First National Bank needs only to keep a fraction of its deposits in reserve. From this logic, First National Bank adopts a system called ***fractional reserve banking***.

Fractional Reserve Banking: is a banking system in which banks hold only a fraction of deposits as reserves

The fraction of total deposits that the bank holds in reserves is called the ***reserve deposit ratio***.

The Reserve Deposit Ratio: the fraction of deposits that banks hold as reserves

This ratio is determined by a combination of government regulation and bank policy. As we will discuss later, the European Central Bank (ECB) places a minimum on the amount of reserves that a bank can hold. This is called the ***reserve deposit ratio***.

In addition, banks may hold reserves in excess of the legal minimum, called ***excess reserves***, so they can be more confident that they won't run short of cash. For our purposes, we will take the reserve ratio as a given and examine what fractional reserve banking means for the money supply.

Let's suppose that First National Bank has a reserve ratio of 10%. This means that it keeps 10% of its deposits in reserve, and loans out the rest. We will now take a look at the new T - Account.

First National Bank			
	Assets		Liabilities
Reserves	€10	Deposits	€100
Loans	€90		

First National Bank still has €100 in liabilities, because making loans did not alter the amount of money that the bank owes to its depositors. But now the bank has 2 kinds of assets.

1) It has the €10 of reserves in the vault

2) It has the loans of €90.

These loans are liabilities of the people taking out the money but they are assets of the bank making them, because the borrowers will repay the bank later.

In total, we can see that the total assets of First National Bank are still equal to their liabilities.

Once again, we take a look at the money supply in the economy. Before First National Bank makes any loans, the money supply is €100 of deposits in the bank. Yet, after First National Bank makes these loans, the money supply increases. The depositors still have demand deposits

totaling €100, but now, the borrowers hold another €90 in currency. The money supply, which equals currency plus demand deposits, equals €190.

Therefore, when banks hold only a fraction of deposits in reserve, banks create money.

At first glance, this creation of money by fractional reserve banking may seem too good to be true because it seems that the bank has created money out of thin air. To make this creation of money seem less miraculous, note that when First National Bank loans out some of its reserves and creates money, it does not create any wealth. Loans from First National Bank give the borrowers some currency and thus the ability to buy some goods and services. Yet the borrowers are also taking on debts, so the loans do not make them any richer. In other words, as a bank creates the asset of money, it also creates a corresponding liability for its borrowers. At the end of this process of money creation, the economy is more liquid as there is more medium of exchange, but the economy is no richer as there has been nothing else produced.

The Money Multiplier

The creation of money, does not stop with the First national Bank. Suppose the borrower from the First National Bank uses the money to buy something off someone who then lodges the money in the Second National Bank. Here is the T - Account for the Second National Bank.

Assets		Liabilities	
Reserves	€9	Deposits	€90
Loans	€81		

After the deposit, the bank has liabilities of €90. If the Second National Bank has a reserve ratio of 10%, it keeps assets of €9 in reserve and makes €81 in loans. In this way, Second National Bank creates an additional €81 of money (credit). If this €81 is eventually deposited in Third National Bank, which also has a reserve ratio of 10%, this bank keeps €8.10 in reserve and loans out €72.90. Here is the T - Account for Third National Bank.

Assets		Liabilities	
Reserves	€8.10	Deposits	€81
Loans	€72.90		

This process goes on and on. Each time that money is deposited and a bank loan is made, more money is created. How much money is eventually created in the economy? Lets add it up.

Original Deposit	= €	100
First National Lending	= €	90
Second National Lending	= €	81
Third National Lending	= €	72.90



Total Money Created = € 1,000

It turns out that even though this process of money creation can continue it does not create an infinite amount of money. If you were to continue to add the infinite sequence of numbers in the previously, you would find that reserves of €100 generate €1,000 of money. The amount of money that the banking system generates with each €1 of reserves is known as the **money multiplier**.

The Money Multiplier: is the amount of money that the banking system generates with each euro of reserves

In this imaginary economy, where where the €100 of reserves generates €1,000 of money, the money multiplier is 10.

What determines the size of the money multiplier? It turns out that the answer is simple.

The money multiplier is the reciprocal of the reserve ratio.

If R is the reserve ratio for all banks in the economy and then each dollar of reserves generates $1 \div R$ euros of money. In our example R was 10% or 0.1, therefore the money multiplier is

$$\frac{1}{R} = \frac{1}{0.1} = 10$$

The money multiplier is 10

This formula shows how that the amount of money banks create depends on the reserve ratio. If the reserve ratio were only 5% (0.05) then the money multiplier would be

$$\frac{1}{R} = \frac{1}{0.05} = 20$$

That means that each euro of reserves would generate €20 of money. Similarly, if the reserve ratio was 20% (0.2), the money multiplier would be

$$\frac{1}{R} = \frac{1}{0.2} = 5$$

A money multiplier of 5 means that each €1 of reserves would generate €5 of money.

Therefore, the higher the reserve ratio, the less of each deposit banks loan out, and the smaller the money multiplier.

In the special case of 100% reserve banking, the reserve ratio is 1, and banks do not make loans or create any money.

How is it Possible for Banks to Create Credit

- 1) Commercial Banks accept cash deposits from their consumers for safe keeping, e.g. €100.
- 2) These banks know from experience that their customers will only demand a small amount of these deposits in cash, say 10%, because because of their use of cheques, credit or debit cards as an acceptable method of payment.
- 3) So they now have a surplus of cash to give loans, €90.
- 4) The amount of a loan that the bank give is related to, but in excess of their cash deposits and is based on their reserve ratio.

The amount of credit that a bank can create is as follows

$$\text{Increase in Credit} = \frac{\text{Increase in Cash Deposits}}{1} \times \frac{1}{\text{Banks Reserve Ratio}}$$

Explain how an Increase in the Use of “Plastic Money” (credit cards, etc) by Customers affects the Ability of the Banks to Create Credit

- 1) Banks will be able to *increase the amount of credit* they can create.
- 2) Therefore, *banks now have the use of an increased amount of their depositors* cash with which to extend the amount of credit created.

Or

If consumers use more plastic money, the banks can now decrease their banks reserve ratio and hence *increase the amount of credit created*.

$$\text{Increase in Credit} = \frac{\text{Increase in Cash Deposits}}{1} \times \frac{1}{\text{Banks Reserve Ratio}}$$

Limitations of Banks Ability to Create Credit

- 1) **Desire to Reduce Bad Debts:** Reducing bad debts would reduce the banks' ability to create credit as they would become more cautious about lending and would therefore be holding more cash. If banks are not issuing loans this means less credit is being created.
- 2) **Availability of Creditworthy Customers:** Loans can only be given to those people who are in a position to repay them.
- 3) **Availability of Cash Deposits:** A bank can only give loans provided it can attract cash depositors.
- 4) **Customers Demand for Cash:** The bank must keep sufficient cash to be able to meet the demands of its customers for cash.
- 5) **European Central Bank Guidelines:** Commercial banks must note the guidelines of the Central Bank.
- 6) **Demand for Loans by Customers:** A bank is limited in the amount of loans it creates by the demand for loans. In a recessionary period, the demand for loans will fall.

How does a Bank Reconcile its Twin Objectives of Liquidity and Profitability (Intro)

Banks are private enterprises and like all private enterprises they wish to make as much money as possible. Banks make their money by making loans to people and getting the loan and the interest paid back. The more loans that a bank makes, the more profit that they earn.

However, banks need to make sure that they have enough cash to give out to their depositors when they want some of their money, e.g. going to the ATM. The more money a bank holds in cash, the more liquid the bank is.

But, the more liquid a bank is, the more cash it has available to satisfy its customers need for cash, the less money that they can lend out and as such, the less profitable they become.

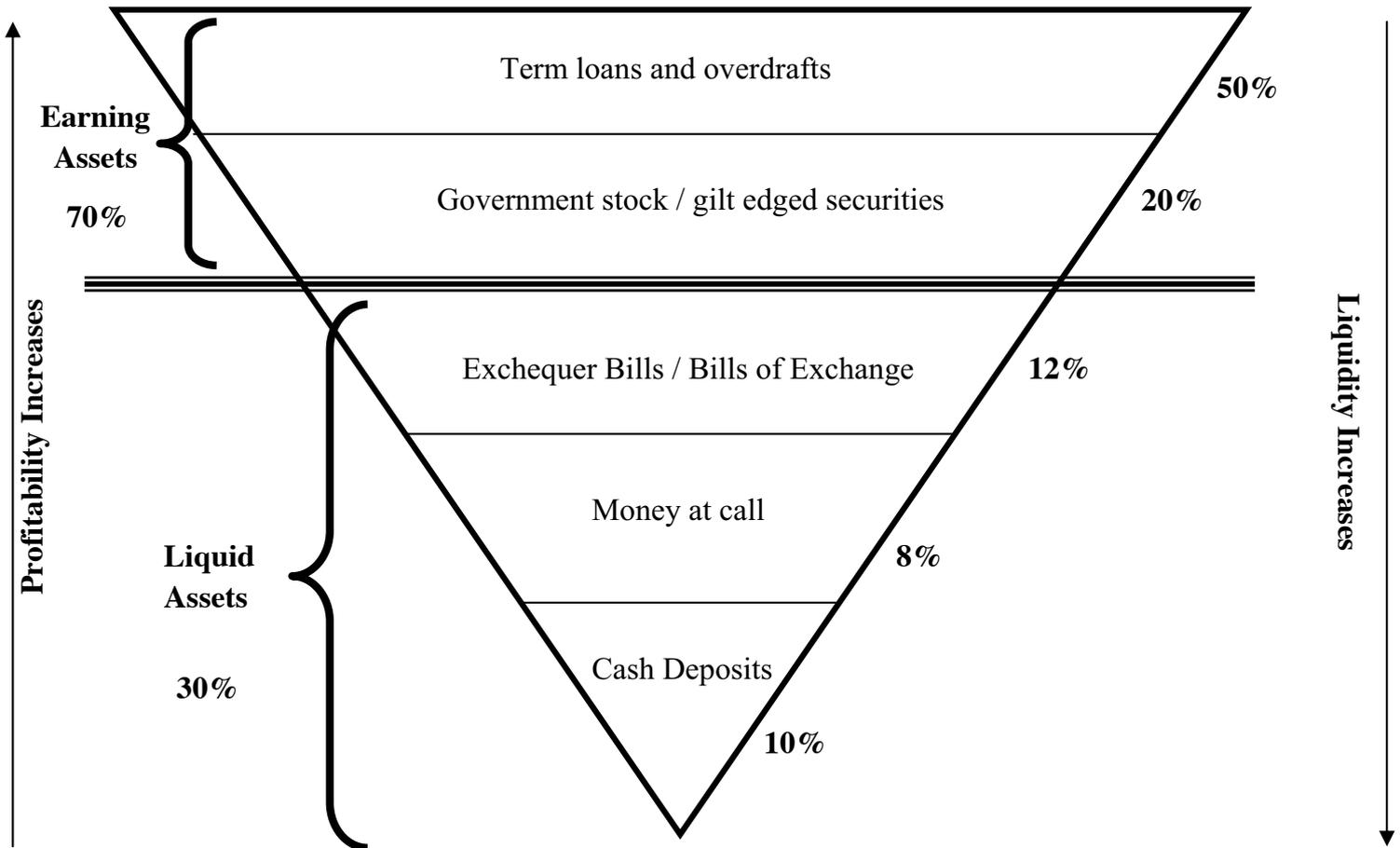
Liquidity: refers to the need by a bank to have liquid assets in order to meet the demand for cash by its customers. The more liquid the asset is the less profitable it is.

Profitability: refers to the need for a bank to make as much profits as possible from its assets to satisfy its shareholders. The more profitable the asset is the less liquid it is.

How does a Bank Reconcile its Twin Objectives of Liquidity and Profitability (Answer)

- 1) Banks must satisfy their customers need for cash i.e. they must have enough liquidity, they could do this by holding all, their assets in cash.
- 2) But cash doesn't earn interest and banks also wish to be profitable.
- 3) Banks have learned from experience that the compromise in having sufficient liquidity and yet earning profits is to hold their assets along the following portfolio:
 - It will keep the majority of its assets in the form of Loans and Overdrafts. These assets earn profits but are not very liquid.
 - It will require sufficient assets in cash and liquid form to meet the cash requirements of their customers. These assets are liquid but earn little profit.

See diagram on next page.



The above is sufficient for an answer but the items that follow are just to help you understand what each of these terms mean. You don't need to learn or even read any of the definitions below.

Term Loan: A loan from a bank for a specific amount that has a specified repayment schedule and a floating interest rate. Term loans almost always mature between one and 10 years.

For example many banks have term-loan programs that can offer small businesses the cash they need to operate from month to month. Often a small business will use the cash from a term loan to purchase fixed assets such as equipment used in its production process.

Overdraft: An overdraft occurs when money is withdrawn from a bank account and the available balance goes below zero.

This is where a depositor takes more money out of their account than they had in it. Interest is charged on this overdraft which is usually very high. It is a form of a bank loan.

Government Stock: One of the bonds sold by a government to finance its budget deficit (the difference between what it gets in taxes and what it spends). Government bonds are usually considered to be a very safe form of investment.

Very simply, this is the money that the bank lent to the government, and the government to pay this back with interest, usually it will be paid back in a lump sum with the interest included.

Gilt Edged Securities: Gilts are bonds issued by certain national governments.

They are pretty much exactly the same as government stock

Exchequer Bills: Interest-bearing Exchequer Bills were introduced in England in 1696 as a form of public borrowing: they were issued in return for money lent to the government.

Again, its just another way of the bank lending the government money.

Money At Call: A short-term loan that does not have a set repayment schedule, but is payable immediately and in full upon demand.

This is just when one bank loans money to another bank

Money-at-call loans give banks a way to earn interest while retaining liquidity. The interest rate on such loans is called the call-loan rate.

Cash Deposits: This is the cash that the bank receives from depositors and it holds in order to satisfy its reserve requirements.

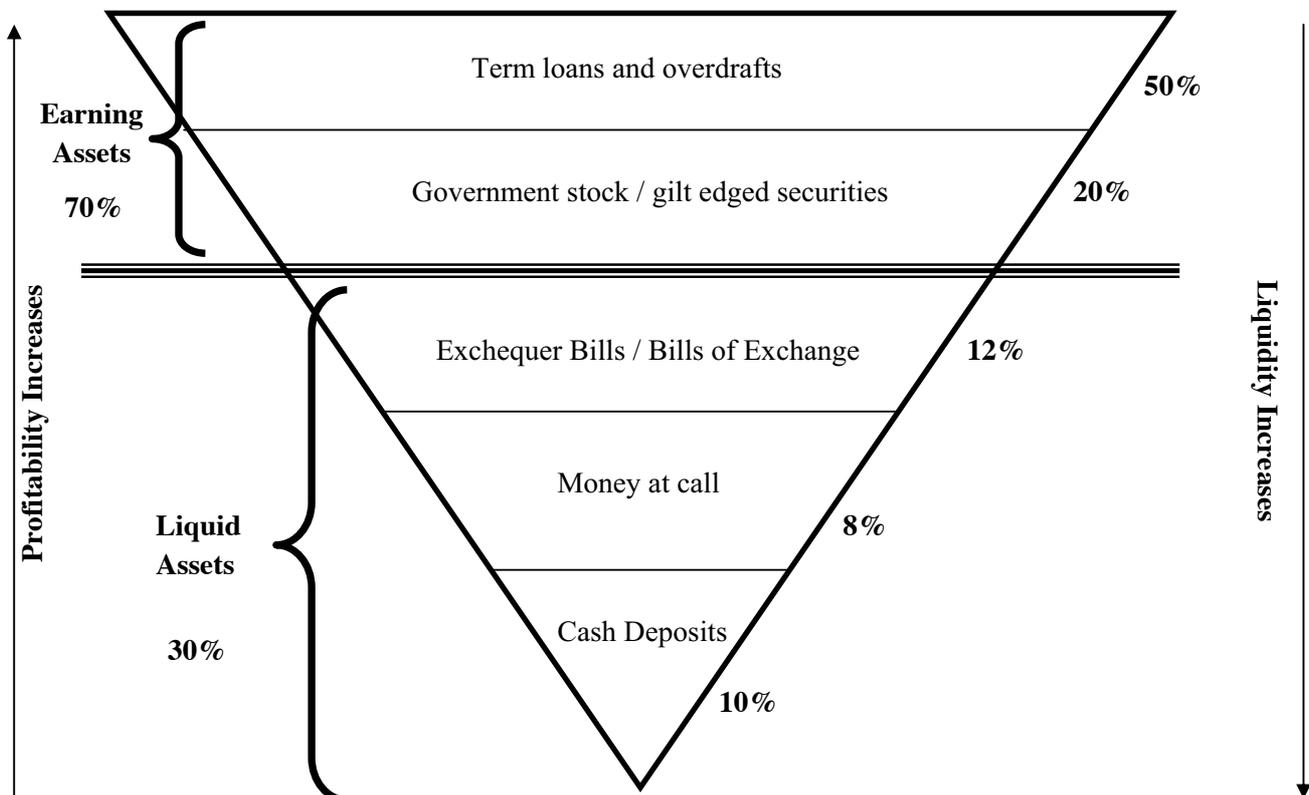
Banks may fail by overextending their loan book'. Explain this statement within the context of a bank's twin requirements of liquidity and profitability

A bank has twin requirements, Profitability and Liquidity

Profitability: refers to the need for a bank to make as much profits as possible from its assets to satisfy its shareholders. The more profitable the asset is the less liquid it is.

Liquidity: refers to the need by a bank to have liquid assets in order to meet the demand for cash by its customers. The more liquid the asset is the less profitable it is.

Banks must strike a balance between the twin requirements of profitability and liquidity. As a result banks structure their holding of assets along the following lines:



By focusing on profitability (extending credit) at the expense of liquidity a bank may give loans to high risk ventures e.g. commercial property development loans.

Property loans are highly illiquid but can be very profitable. A bank may run the risk of increasing bad debts, falling share prices, a lack of capital and possible bank failure.

By ignoring liquidity requirements, banks may not have enough cash to meet the demand of their depositors and this could result in a 'run' on the banks and result in bank failure.

Bank Regulation

Since the recent financial crisis, many people believe that if banks were properly regulated (if there were rules about what reserve ratio banks had to keep and the number of bonds they could issue in order to fund their lending practices), then this crises would not occur.

However, others believe that bank regulation would remove the banks ability to fund investment projects and as such mean a lower standard of living for everyone in the economy.

Below are the arguments for regulation.

- 1) **Protect Consumers:** Regulation will ensure that the interests of the banks' consumers are protected and that savers' deposits are secure.
- 2) **Proper Lending Policies:** Regulation will ensure that the banks follow correct lending procedures and that excessive / reckless lending is avoided.
- 3) **Banking System Stability:** Regulation will ensure that the banking system should remain stable.
- 4) **Economic Stability or Confidence:** Proper regulation may ensure that the banks operate efficiently resulting in public confidence in the banking system/ allow for the flow of credit and for economic growth of the economy.
- 5) **Less Need for Government Intervention:** If the banks are properly regulated then there will be less need for the government to become involved as it has had to do with the guarantees for savers deposits; nationalisation of Anglo Irish Bank; and the setting up of NAMA.
- 6) **Less Need for EU / IMF funds:** If banks are properly regulated it should result in the government not having to resort to funds from the EU/IMF to capitalise the banks.

Bank Nationalisation

After all the economic hardship following the financial crisis and the bank guarantee scheme, many people believe that banks are far too important to be in private hands and that the government should take ownership of the banks. When the government takes ownership of what was formerly a private enterprise, this is known as nationalisation.

Nationalisation: Taking an industry or assets into public ownership by a government.

Below are the arguments in favour of and against the nationalisation of Commercial Banks.

Commercial Banks: Institutions which provide deposit / lending services to personal consumers / business.

Arguments in Favour of Nationalisation of Banks

- 1) **Stability to Economy / Investor Confidence:** It may signal to domestic and international investors that the state seeks to protect an important resource and so attract investment.
- 2) **Availability of Credit:** It may ensure that credit would flow to those individuals and businesses which require it, unlike at present where credit restrictions apply.
- 3) **Rationalisation of Banking Services:** It may lead to a rationalisation of banking services within the state, the elimination of wasteful practices / cost efficiencies.
- 4) **Employment / Consumer Protection:** Jobs currently under threat may be protected by state intervention. Consumers may be offered better protection by state banks.
- 5) **Development of Ethical Banking Practices:** With nationalisation banking practices may be less motivated by the generation of profit and more towards the provision of those services required by consumers.
- 6) **Continued Provision of Banking Services to the Community/ Prevent Foreign Ownership:** The nationalised bank may continue to provide retail services to those communities which in the past were only provided if the branch was profitable/social objective

Arguments Against Nationalisation of Banks

- 1) **Unnecessary State Interference:** Too much state involvement in commercial businesses may discourage domestic / international investors.
- 2) **Shareholders Penalised:** They may be forced to sell their shares at a price deemed unfair.
- 3) **Increased Taxation:** Taxes may have to be increased to fund the purchase and running of the nationalised banks.
- 4) **Opportunity Costs:** The money used for the nationalisation could have been put to alternative uses by the state e.g. provision of improved health services etc.
- 5) **Profit Motive Diminished:** Should this occur then the pressure to improve services; achieve efficiencies and maximise profits maybe be diminished.
- 6) **Financial Cost:** Large amount of funds needed to ensure their future and they could continue to be loss-making into the foreseeable future.

An Introduction to The European Central Bank (ECB)

On the 1st of January 1999 eleven member states of the European Union adopted a common currency called the euro. These countries were Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. Greece joined in January 2001 but the United Kingdom, Sweden and Denmark decided to opt out of the euro and retain their national currencies.

Together, the countries using the euro as their currency are form the Eurosystem or the euro area. In effect, the participating countries agreed to eliminate their currencies (francs, punts, lira etc) and replace them with the new common currency (the Euro). At the same time control of Monetary Policy in each country passed from their national Central Banks to the newly established European Central Bank (ECB) based in Frankfurt.

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

The ECB is at the centre of a new banking system known as the European System of Central Banks (ESCB), which consists of the ECB and the national Central Banks (NCBs) of all EU member states including those of non-participating countries. However, while non-participating Central Banks, such as the Bank of England, are part of the ESCB, they play no role in its decision making process. To distinguish between those member

states which use the euro as their common currency and those who have retained their national currencies, the ECB uses the term Eurosystem to refer to those countries that use the euro.

Eurosystem: those EU member states which use the euro as their currency and for whom the ECB is their Central Bank.

European System of Central Banks (ESCB): the ECB and the national Central Banks of all member states including those who do not use the euro as their currency.

European Central Bank (ECB): the Central Bank of the Eurosystem which comprises all countries using the euro as their currency.

Functions of the European Central Bank (ECB)

- 1) **Prints Legal Tender:** The Central Bank has the sole authority to print and mint euro currency in Ireland. It distributes the euro through the financial institutions within Ireland. Its mint is located in Sandyford in Dublin.
- 2) **Governments Bank:** All monies received by government are paid into the Government's account in the Central Bank and all monies paid out by Government are drawn from its account with the Central Bank.
- 3) **Bankers' Bank / Regulator of Financial sector / Issues licences to Financial Institutions:** It acts as a Clearing House for the commercial banks who maintain accounts here. It regulates the financial sector in Ireland including credit unions, building societies, the IFSC operations, etc. The Central Bank acts as lender of last resort.
- 4) **Official External Reserves:** These are this country's official holdings of gold, foreign currencies and other reserves held as security against the issue of the euro. The Central Bank manages these reserves on behalf of the country.
- 5) **Maintains Price Stability:** The key role the Central Bank plays is to maintain price stability through its monetary policy operations so as to ensure competitiveness within the EU. This it does through various measures: Main refinancing operations, Standing Facilities and Minimum Reserve Requirements.
- 6) **Provides Consumer Information / Economic Research – Central Bank Reports:** The Central Bank regularly provides information on all aspects of the economy through its Central Bank reports and provision

of statistics relating to the Irish economy. It also conducts research on various matters concerning the economy.

Role of the ECB as Lender of Last Resort

The central bank offers credit to financial institutions experiencing financial difficulties / liquidity problems and are unable to obtain necessary funds elsewhere.

Instruments of Monetary Policy

As we have said previously, the ECB is responsible for controlling the money supply in the euroarea. We are aware that printing money can cause inflation, and the main goal or job of the ECB is Price Stability (keeping the price level where it is and not allow it to go up or down). All Central Banks are responsible for formulating Monetary policy.

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

Broadly speaking, the ECB has three main tools that it can use to influence the money supply and (as we will see later), the interest rate.

- 1) Open Market Operations
- 2) Main Refinancing Operations
- 3) Reserve Requirements

Open Market Operations

This where the ECB will either buy or sell government bonds to or from the public. If the ECB wants to increase the money supply, it will buy government bonds from the public. This is known as an Open Market Purchase. Assuming that the public is holding all the money it wants in currency, they will lodge this extra money in the bank. The bank will lend out this initial deposit times the money multiplier to the public causing the money supply to increase.

Open Market Purchase: The purchase of government bonds from the public by the ECB for the purpose of increasing the supply of bank reserves and the money supply

In order to reduce bank reserves and hence the money supply, the bank reverses the procedure. The government sells bonds to the public which pays for these bonds with cash (in the post office) or with a cheque. This reduces the amount of money in circulation and as such the money supply. This is known as an Open Market Sale.

Open Market Sale: The sale by the ECB of government bonds to the public for the purpose of reducing bank reserves and the money supply

The selling and buying of government bonds by the ECB is an indirect way of effecting the money supply.

Main Refinancing Operations

Main refinancing operations are a type of open market operation that effects the money supply directly. Each week, the ECB announces a tender. A tender is an amount of money that the ECB is willing to lend to commercial banks each week. Not only does the amount of money that the ECB lend out change, but so does the cost of borrowing the money (the interest rate).

The interest rate that commercial banks have to pay when borrowing from the ECB is called the “main refinancing rate”.

Main Refinancing Rate: the interest rate which commercial banks borrow reserves from the European Central Bank (ECB).

Commercial banks bid against each other to gain access to the tender every week and as such can bid up the main refinancing rate. The greater the size of the tender, the lower the main refinancing rate, the greater the quantity of cash borrowed, causing the money supply to increase.

The smaller the size of the tender, the higher the main refinancing rate, the smaller the quantity of cash borrowed, however still causing the money supply to increase but at a slower rate.

Reserve Requirements

If the ECB insists that commercial banks hold a greater quantity of cash (a higher Reserve - Deposit Ratio), then this reduces the amount of credit that commercial banks can create. This reduces the money supply in the future. The ECB can check that commercial banks are complying with this increase in the reserve - deposit ratio by making commercial banks lodge greater quantities of cash with their National Central Banks, which is part of the European System of Central Banks.

If the ECB allows commercial banks to hold a smaller quantity of cash (reducing the reserve - deposit ratio) then this increases the amount of credit that commercial banks can create. This increases the money supply in the future.

Explain the likely economic effects if the supply of money grows at a faster rate than a country's production of goods and services

- 1) **Inflation:** prices may rise because of insufficient supply/excess demand.
- 2) **Imports:** demand may be met by increased imports.
- 3) **Savings:** the insufficient supply of goods may force people to save.
- 4) **Currency:** the value of currency in a non-euro zone country may fall because of excess supply.
- 5) **Rate of Interest:** under Keynes' Liquidity Preference if the supply of money grows then interest rates will fall.

Explain the likely economic effects if the supply of money grows at a slower rate than a country's production of goods and services

- 1) **Deflation / Moderation in Price Levels:** prices may fall because of excess supply.
- 2) **Falling Demand:** declining economic growth means producers may rationalize, leading to rising unemployment.

Interest Rate Determination

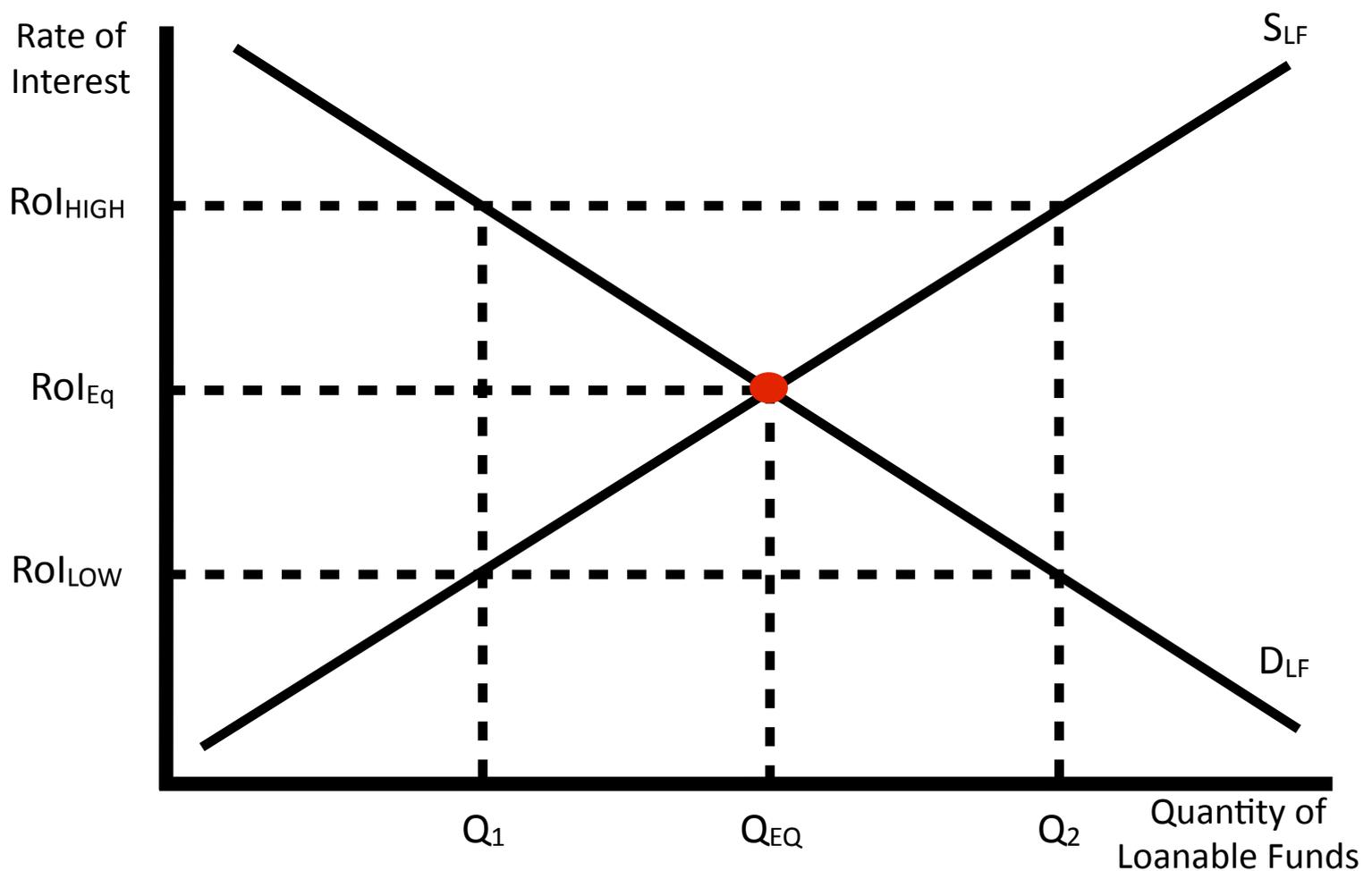
There are two theories on how interest rates are determined on the L.C. Economics course. Both must be known and understood as they can be asked separately.

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.

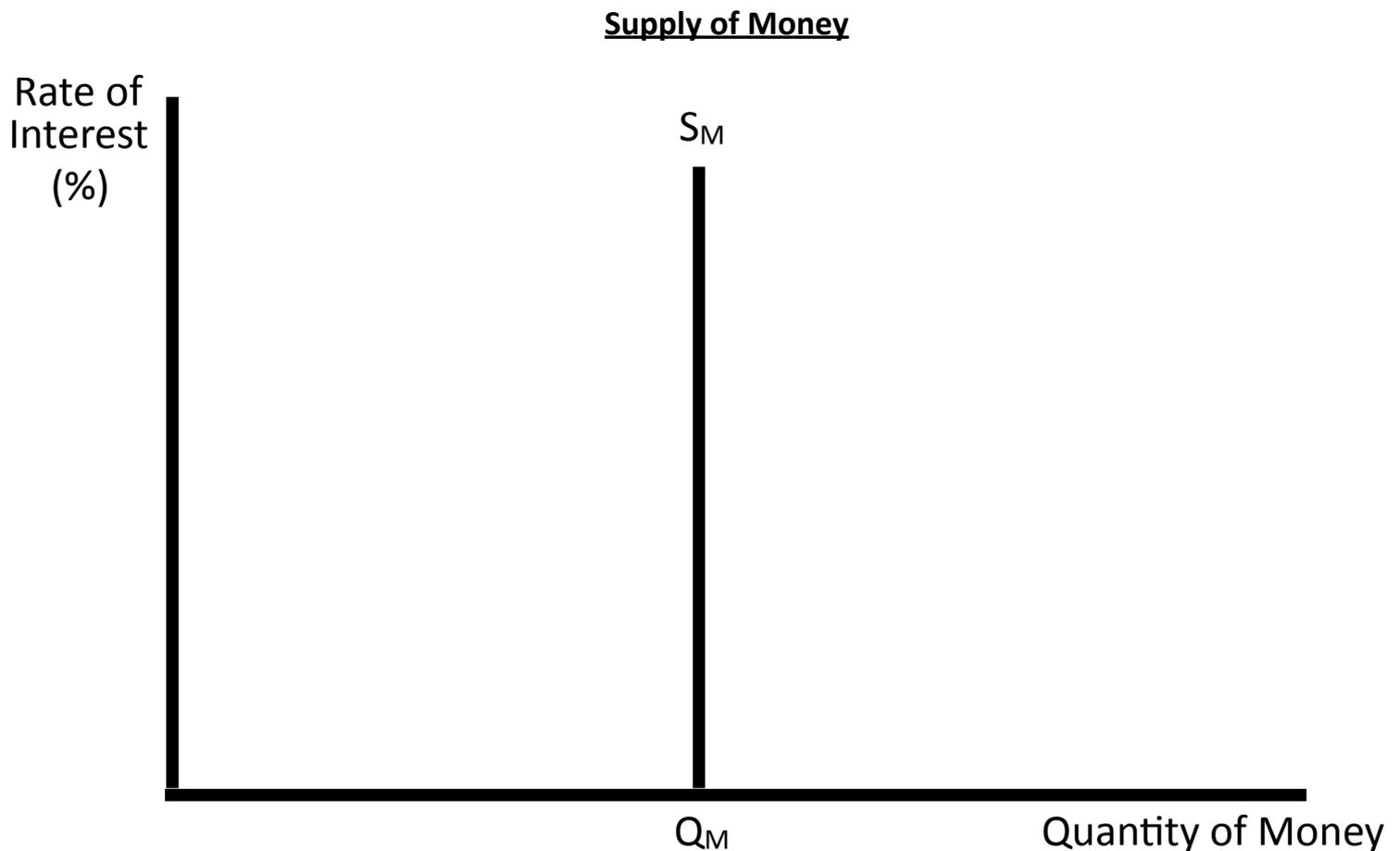
It is important to be specific here. Cash is the physical notes and coins that people can use to pay for things.

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.



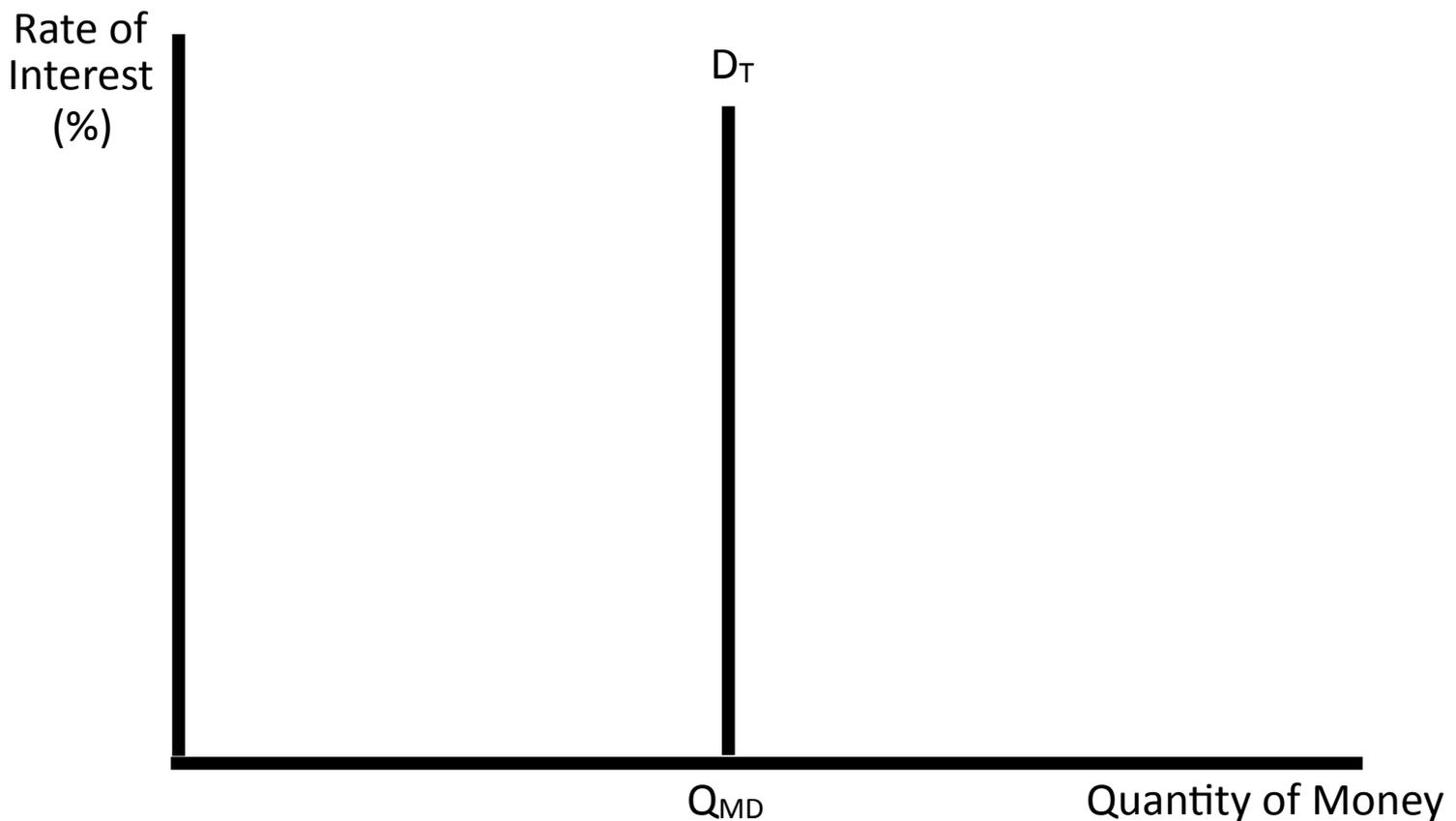
The Demand for Money in Liquidity Preference

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.



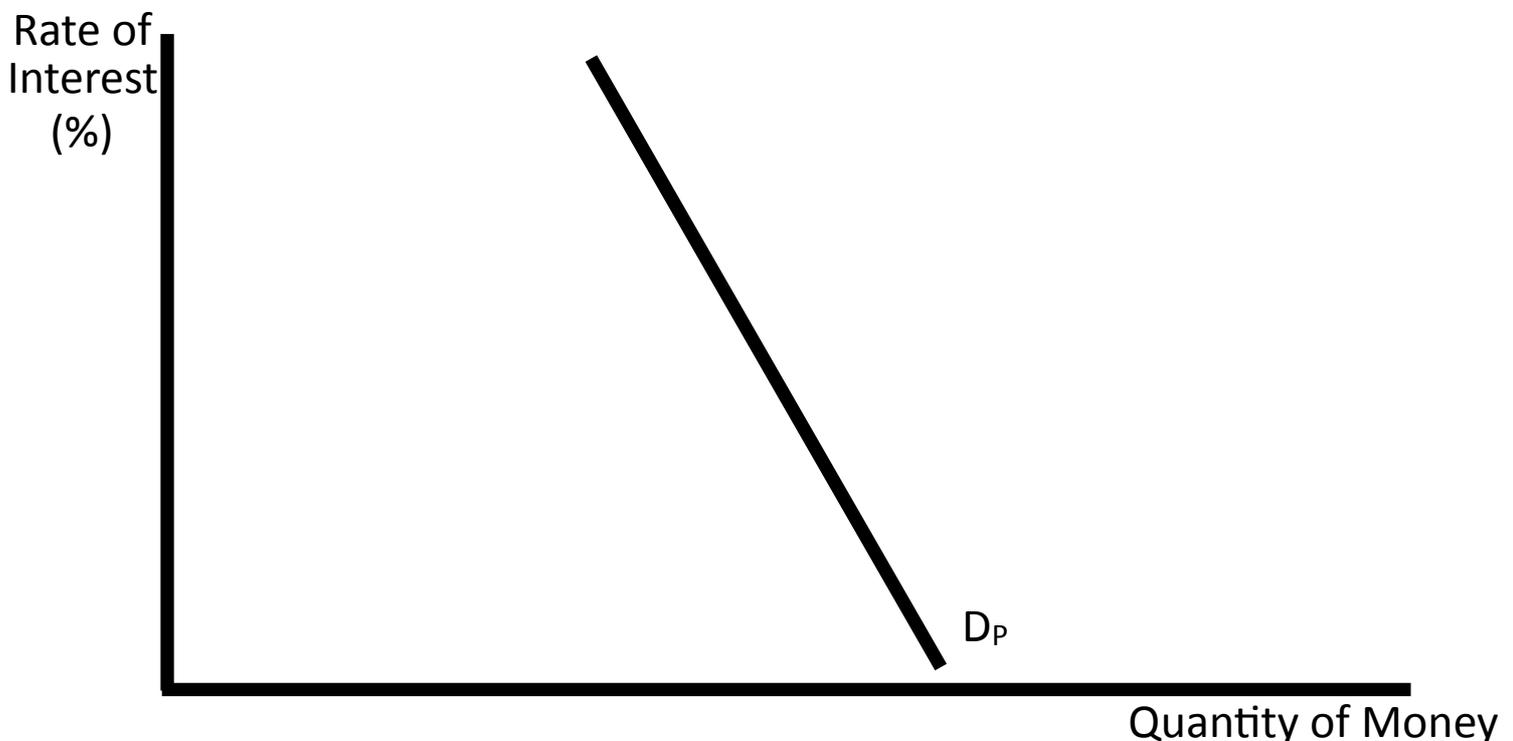
Remember, the transaction demand for money depends on the level of income only. **It does not depend on the interest rate.** If income rises, D_T rises. If income falls, D_T falls.

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.

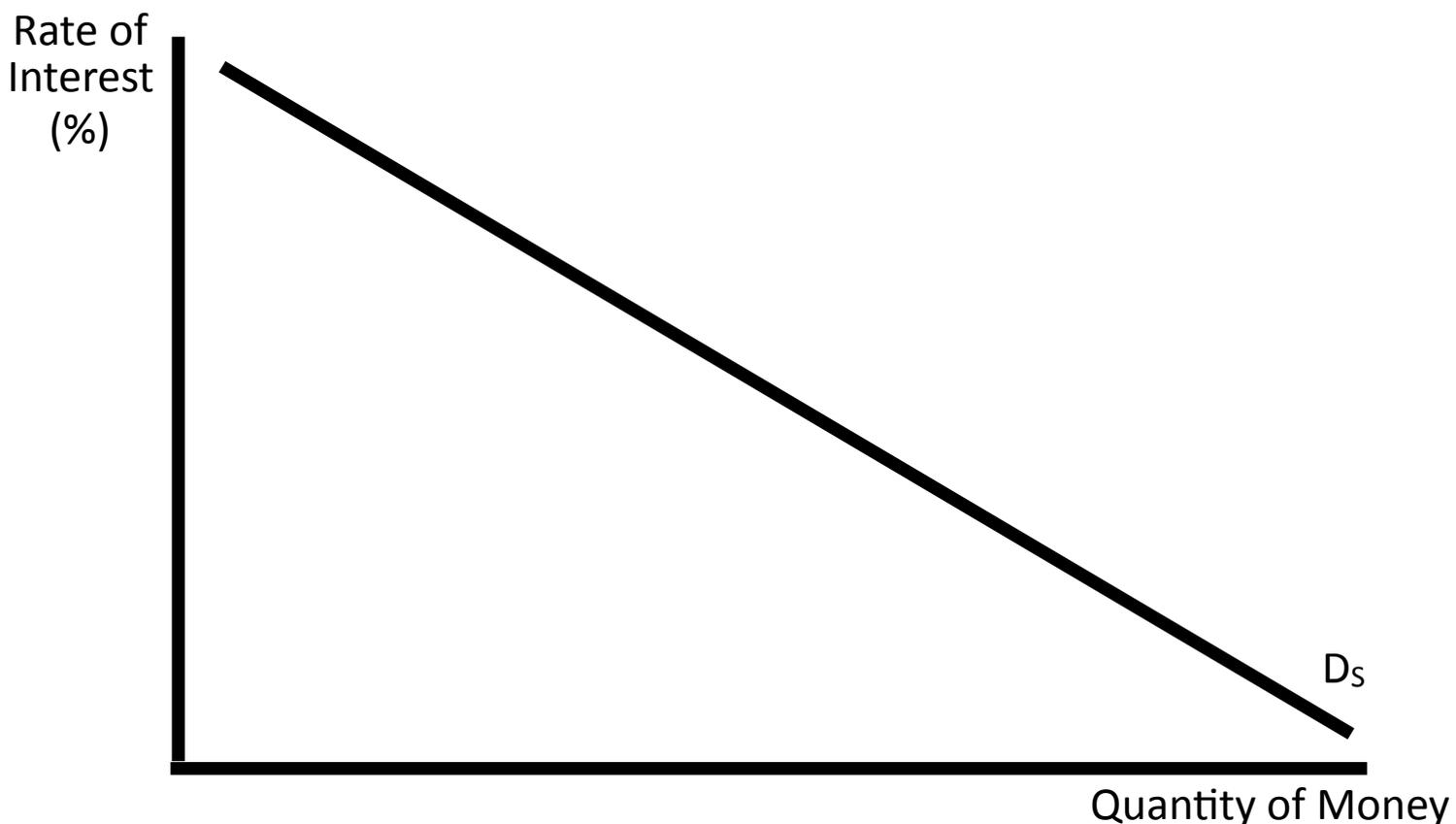


Remember, the precautionary demand for money depends mainly on the level of income, but is slightly affected by the interest rate. That is why we see this very inelastic demand curve for money. If income rises D_P rises, if income falls, D_P falls. Also, if the rate of interest rises, D_P falls and if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

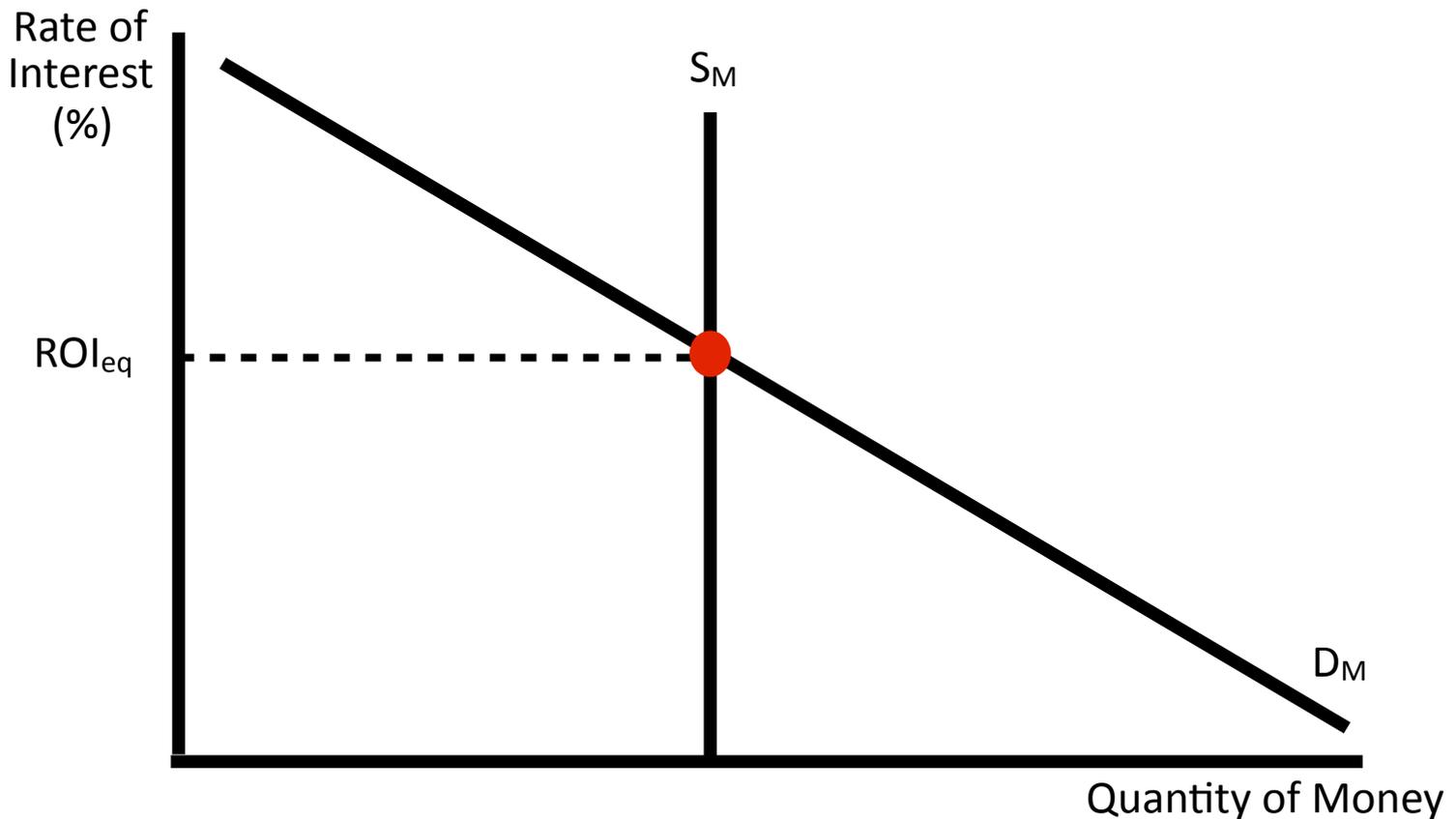
There is an inverse relationship between the rate of interest and the speculative demand for money. When the rate of interest rises, the speculative demand for money falls. When the rate of interest falls the speculative demand for money rises.



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.



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.

Role of the International Monetary Fund (IMF)

- 1) **Expansion of World Trade:** The IMF encourages expansion in trade by encouraging member countries to adopt sound economic policies. It monitors economic and financial developments in member countries and gives advice to its members.
- 2) **Promote Exchange Rate Stability:** The IMF promotes international monetary co-operation. It provides a forum for consultation on international monetary problems. It tries to maintain orderly exchange arrangements among countries and aims to avoid competitive devaluations.
- 3) **Orderly Correction of Balance of Payments Problems:** The IMF lends to member countries with Balance of Payments problems to provide temporary financing and to support reform policies aimed at correcting the underlying problems.
- 4) **Operation of a Multilateral System of Payments:** The IMF operates this system in respect of current transactions between members and aims to eliminate foreign exchange restrictions which may hamper the growth of world trade.
- 5) **Provision of Technical Assistance and Training:** Where a member needs help the IMF will provide this assistance and training. When the Soviet Union collapsed the IMF stepped in and set up treasury systems for their central banks to help the transition from centrally planned to market based economic systems.

Role of The World Bank

- 1) **Encourage investment funds to LDCs:** Obtains funds from the world's advanced countries and uses these resources to make loans available to LDCs so they can invest in roads, schools etc.
- 2) **Finance capital projects in member countries:** The World Bank gives loans to member states and to private businesses in these countries so as to assist with capital projects. Examples in Ireland included in the past the building of the original community schools by the DES.
- 3) **Debt relief for LDCs:** The World Bank helps LDCs reduce their debt burden by extending the term of loans and /or re-negotiating interest rates.