

Exchange Rates

GCE A-LEVEL & IB ECONOMICS



Lets watch this video to have a general idea of exchange rates:

https://www.youtube.com/watch?v=uWIm4-iF7W4



Lesson Structure

Exchange Rate

- Fixed, floating and managed float exchange rate systems
- Currency devaluation, appreciation, revaluation and depreciation
- Factors influencing floating exchange rates
- Government intervention in currency markets



Types of Exchange Rates







Types of Exchange Rates





Types of Exchange Rates

Floating Exchange Rate

 When the exchange rate is determined only by market forces – demand and supply of the currency

Fixed Exchange Rate

 When the exchange rate is tied to the price of another currency by the government, usually within a narrow price range

Managed Exchange Rate

• When the exchange rate is primarily determined by demand and supply, but the government sometimes intervene to influence the exchange rate



Would anyone like to suggest a situation where you will want to buy or sell a currency? Think of one reason on your own.

Buy Currency	Sell Currency



When you are willing and able to buy more of a currency (e.g. \$), you are simply demanding/buying more USD from the currency market. On the other hand, when you exchange your \$ for another currency, you are selling/supplying USD into the currency market.

As a result, when you exchange £ for \$, you are demanding more \$ in the market for USD, and supplying more £ in the market for GBP at the same time.



Examples of when people may want/need to buy (and sell) a currency.

Demand (Buy Currency)	Supply (Sell Currency)
Exports of goods and services	Imports of goods and services
Inflows of FDI (investment into the country from abroad)	Outflows of FDI (investing abroad)
Inflows of 'hot money' (Speculators buying currency)	Outflows of 'hot money' (Speculators selling currency)



Currencies are the same as any other goods and services in the market.

When there is a an increase in demand for f, the price of f and quantity of f in the market will increase, vice versa.





Similarly, if there are increased amounts of £ being sold or provided to the market, it will become less valuable, and the price of £ in terms of \$ will decrease, vice versa.





Whenever £ is exchanged for \$, this means there is higher demand for \$ in the USD market, and higher supply of £ in the GBP market at the same time. This depreciates the £ and appreciates the \$.





Fixed Exchange Rates

The Hong Kong Dollar (HKD) is fixed to the US Dollar (USD) at HKD \$7.8 to USD \$1.

i.e. HKD \$1 can be exchanged into USD \$1 / HKD\$7.8 = USD \$0.128

This means when the exchange rate changes due to supply and demand of the currency, the Hong Kong government will buy or sell HKD to maintain that rate.

As a result, although a fixed exchange rate provides stability, the government will have to hold large amounts of financial (currency) reserves.



Fixed Exchange Rates – HKD Example Education

For example, if there are large amounts of US investment flowing into Hong Kong, this means US companies will buy HKD with USD for FDI purposes.

As a result, the demand for HKD will increase, and it will now cost USD \$0.138 for HKD \$1, instead of USD \$0.128.





Fixed Exchange Rates – HKD Example Education

As a result, the Hong Kong government will have to supply Q1Q2 more HKD to maintain the fixed exchange rate (this means buying USD with HKD financial reserves owned by the HK government).

The quantity is bought is determined by where the fixed exchange rate meets the new demand curve. The bigger the demand for HKD, the more USD they need to buy using HKD.





Class Activity – GBP Example

Let's say to ensure the competitiveness of UK exports to US, the government decided to set a fixed exchange rate of £1 GBP to \$1.2 USD. However, the current floating exchange rate is £1 GBP to \$1.28 USD.

How can you illustrate this using the demand and supply diagram for pounds? Work with your neighborino.





Fixed Exchange Rates – GBP Example Education

Price of GBP in USD

To ensure the competitiveness of UK exports to US, the government decided to set a fixed exchange rate of £1 GBP to \$1.2 USD. However, the current floating exchange rate is £1 GBP to \$1.28 USD.

Quantity of GBP



Education Fixed Exchange Rates – GBP Example

GBP in USD

To ensure the competitiveness of UK exports to US, the government decided to set a fixed exchange rate of £1 GBP to \$1.2 USD. However, the current floating exchange rate is £1 GBP to \$1.28 USD.

The government will have to use Q1Q2 amount of GBP to buy USD. This will increase supply of GBP and make GBP cheaper.





Fixed Exchange Rate Currencies



Some currencies pegged to the USD out of 66 countries... including the Hong Kong dollar!

Country	Region	Currency Name	Code	Rate Since
Bahrain	Middle East	Dinar	BHD	2001
Cuba	Central America	Convertible Peso	CUC	2011
Djibouti	Africa	Franc	DJF	1973
Eritrea	Africa	Nakfa	ERN	2005
Hong Kong	Asia	Dollar	HKD	1998
Jordan	Middle East	Dinar	JOD	1995
Lebanon	Middle East	Pound	LBP	1997
Oman	Middle East	Riel	OMR	1986
Panama	Central America	Balboa	PAB	1904
Qatar	Middle East	Riyal	QAR	2001
Saudi Arabia	Middle East	Riyal	SAR	2003
United Arab Emirates	Middle East	Dirham	AED	1997
Venezuela	South America	Bolivar	VEB	2013



Economist.com



Fixed or Floating?

Split into two big groups. One group think of why a country should adopt a fixed exchange rate, and the other think of why the country should adopt a floating exchange rate.

Some points to consider:

What are the requirements of maintaining your exchange rate system? Is it efficient?

How will it affect other parts of the economy, or government economic policy?

Which one is more suited to developing or developed countries?





Advantages	Disadvantages
Automatic adjustment of BoP Countries with a large BoP deficit will find their currency weakens as they sell currency to buy imports. The weaker currency, then makes exports more price competitive, which helps to improve BoP deficit.	Uncertainty There is no certainty as to the exact price of a currency on a daily basis.
Flexibility The government isn't tied into trying to maintain a particular exchange rate, which can be expensive and constrictive.	Speculation With no upper or lower limit on the price of a currency, floating exchange rates might still be subject to speculation by investors.
Low requirement to hold large foreign exchange reserves A fixed rate system requires a country to hold large reserves in the event of having to try to maintain value. A floating system negates this requirement.	Inflation When an exchange rate weakens, it increases the price of imports, and potentially inflation. This is especially true for countries who rely on the import of primary raw materials.
Freedom to pursue other macroeconomic objectives If the government is not using its resources to meet an exchange rate target, it can use it resources to pursue other objectives without constraint.	Damage to investment Due to the above factors, investment might be discouraged, particularly from abroad.



Fixed Exchange Rates

Advantages	Disadvantages
Reduces uncertainty If economic agents know how much a particular currency is worth, this can raise confidence and enhance trade creation.	Maintenance A number of fixed exchange rate systems have been difficult to sustain in the long-term, as they are expensive in terms of the requirement to hold large foreign currency reserves.
Economic growth With greater certainty comes greater investment, which may boost supply side capacity and improve competitiveness.	Speculation If investors know for example that a government might intervene to buy back currency to maintain its level, they might sell extra currency in order to make a short-term profit.
Low inflation If the exchange rate is set relatively high, this means exports may become less price competitive and imports will become relatively cheaper which helps to reduce demand-pull and cost-push inflationary pressures.	Conflict with other objectives If a currency is depreciating, the central bank may have to raise interest rates to attract hot money flows to increase the exchange rate. This may damage consumption and other components of aggregate demand. As a result, there is loss of control over monetary policy.
Discipline of economic management It can be argued that a fixed exchange rate requires sound financial management and a long-term view, rather than have to deal with the problems of exchange rate fluctuations.	No automatic adjustment of BoP Under a floating system, there can be an automatic stabiliser effect on the BoP, but if there is a severe deficit, then this can only be rectified by stifling demand or devaluing the currency, which in turn, might invite further speculative pressures.



Managed Exchange Rates

A managed exchange rate system (managed float) is when the government/central bank set an ideal upper and lower limit for the currency's exchange rate.

They will only intervene when the limit is surpassed, and may not advertise these limits to avoid speculation.

This gives economies a balance of the advantages from both fixed and floating exchange rate systems.

When done deliberately to gain an advantage over trade partners, it is called a dirty float.



Managed Exchange Rates

For example, the UK government may set a managed float of GBP to UKD of \$1 to \$2.

They will then supply more GBP if GBP is worth over \$2 (i.e. buy USD with GBP reserves); and supply less GBP if GBP is worth less than \$1 (i.e. buy GBP with USD) reserves.





Describing Rate Changes

Revaluation occurs under a fixed exchange rate system when a government decides to officially adjust the value of its currency upwards

Appreciation occurs under a floating exchange rate system when the value of a currency is adjusted upwards due to demand and supply

Devaluation occurs under a fixed exchange rate system when a government decides to officially adjust the value of its currency downwards

Depreciation occurs under a floating exchange rate system when the value of a currency is adjusted downwards due to demand and supply



Relationship Status: It's Complicated Education

How do you think <u>Exchange Rates</u>, <u>Interest Rates</u> and <u>Inflation Rates</u> affect each other? Discuss in your groups as to how an increase/decrease in interest/inflation rates will affect exchange rates.





Education Factors Affecting D&S of Floating Exchange Rates

• Interest Rates

- A higher interest rate for the UK will incentivize speculators/investors to buy GBP. This is because holding money in that currency in a local bank will provide a higher rate of return.

• Inflation Rates

- If there is high inflation in the UK, the value of each pound is worth less as it has lower purchasing power. This will lower the value of the GBP in currency markets, vice versa.

• Current account (imports/exports)

- UK exports create a demand for sterling whereas imports into the UK create a supply of sterling on the foreign exchange market; therefore, an increasing trade surplus would cause an increase in the value of sterling, vice versa.



Education Factors Affecting D&S of Floating Exchange Rates

• Net investment (FDI)

- FDI into the UK creates a demand for sterling whereas UK investment abroad creates a supply of sterling; therefore, an increase in FDI from abroad would cause the value of sterling to rise, vice versa.

• Speculation

- If speculators/traders expect GBP to go up in value in the near future (e.g. due to interest rate hikes) then there will be a higher demand for GBP, vice versa.

• Quantitative Easing

- Since QE has the effect of increasing money supply by providing financial capital to banks through the purchase of government bonds, it is likely that this will cause inflation, and a depreciation in the country's exchange rate.



History of the British Pound

How key world events affected the British Pound:

https://www.fxcm.com/insights/how-world-events-impact-the-british-pound-gbp/



There are two key ways where governments can influence the exchange rate:

- 1. Changing the Interest Rate
- 2. Foreign currency transactions





If the UK Government raises interest rates higher than the US, then investors will move their money to the UK in order to get the best return. To deposit money in the UK, investors have to sell their dollars and buy pounds. This increased demand for UK pounds increases the exchange rate.

This then feeds through to **exports**, making them **relatively less price competitive**, and making **imports more attractive**. This will have the effect of **worsening the balance of payments on current account**. This process is sometimes referred to as **Hot Money**, as international funds move around the world chasing the best interest rates



Her Majesty's Treasury is in charge of the UK's **official reserves**, which includes gold and **foreign currency assets** that are owned by the Government

These are held in the Exchange Equalisation Account (EEA) which is used to counter any undue volatility in the price of sterling. The Bank of England run the account on a day-to-day basis.

The Bank of England forecast that Brexit would see a collapse in the value of the £ so built up its foreign currency reserves in order to reduce the size of the fall in sterling's value. This can be done by buying sterling in the foreign exchange market.



Recall the government's macroeconomic objectives:

- Economic Growth
- Stable Inflation
- Full Employment
- Balance of Payments Equilibrium



A government may build an exchange rate policy and intervene based on these objectives.

Separate these topics into different groups and discuss how the government should impact the exchange rate to achieve these objectives.



Recall the government's macroeconomic objectives:

- Economic Growth

- A fall in exchange rate makes exports cheaper and imports pricier. This usually increases export volumes and leads to an improvement in the current account. As a result, AD will increase and export-led economic growth will occur; vice versa.
- When an exchange rate depreciates, it is also likely to attract higher levels of inward FDI. This is because if the local currency is cheaper, buying goods and services in that country (exports) becomes cheaper. Hence, this encourages inward investment which will boost AD and promote economic growth.



Recall the government's macroeconomic objectives:

- Stable Inflation
- Having a current account surplus tends to cause demand pull inflation as the large amount of exports increase household incomes. The effect will be even more severe if the economy is near full capacity. Hence, the government may want to ensure currency appreciation to increase price of exports to keep the current account surplus and inflation under control.
- On the other hand, cost push inflation can result if imported raw materials / primary goods from foreign countries are too expensive. This is because cost of production in a country will increase if the input factors imported increase in price. To relief inflationary pressure, the government can appreciate the currency and make imports cheaper.



Recall the government's macroeconomic objectives:

- Full Employment (Low unemployment)
- Depreciating the exchange rate can keep domestic industries internationally competitive. The lower prices of exports increase export demand, and creates derived demand for employment to produce those goods and services to be sold to overseas markets. Hence, this allow the economy to produce close to full capacity.
- Balance of Payments Equilibrium
- A current account surplus or deficit can be corrected by adjusting the exchange rate. Depreciation will reduce export prices, increase export quantity and increase total value of exports, vice versa (SPICED). However, this will depend on the price elasticity of imports and exports as you will learn later.



- The condition states that a devaluation or depreciation of the exchange rate will only improve a current account (or balance of trade) deficit if the sum of the price elasticities of demand for exports and imports i.e. net exports is greater than 1

- If the elasticity of demand for net exports is less than one the current account balance will worsen

- A depreciation will lead to a positive **quantity effect** as imports will fall and exports will increase

- However, there will be a negative **cost effect** as we prices of imports increase and prices of exports decrease (gain less \$ per unit)

 If the quantity effect is greater than the cost effect then the MLC > 1, and SPICED as we know it will work, vice versa



Try to work out the next example in your small groups. Remember that the equation for the price elasticity of demand is:

Price Elasticity of $_$ % \triangle in Qd Demand (PED) %∆in P

% Increase =
$$\frac{\text{New Value} - \text{Initial Value}}{\text{Initial Value}} \times 100$$



Example 1: If sum of import + export elasticity <1, depreciation will worsen the current account.

The volume and value of UK imports is 1000 units of goods at £1 per unit. Imports are £1000.

The volume and value of UK exports is 1000 units of goods at £1 per unit. Exports are £1000.

We have a balanced trade.

The £ depreciates in value by 10%.

Imports have a price elasticity of demand of **0.5**. An increase in price of 10%, caused by the depreciation, leads to a fall in demand of 5%. Exports have a price elasticity of **0.3**. A decrease in price of 10% leads to an increase in demand of 3%. The sum of the price elasticities for X and M equals **0.8**.

The UK imports 950 units of goods at £1.10 per unit. Imports are £1045.

The UK exports 1030 units of goods at £1 per unit (The export price remains at £1). Exports are £1030.

Therefore, the depreciation of the currency has led to a deterioration of the balance of trade: of **£15** because the sum of the price elasticities of X and M is less than one.



Example 2: If sum of import + export elasticity >1, depreciation will improve the current account.

The volume and value of UK imports is 1000 units of goods at £1 per unit. Imports are £1000.

The volume and value of UK exports is 1000 units of goods at £1 per unit. Exports are £1000.

We have a balanced trade. The £ depreciates in value by 10%.

Assume imports have a price elasticity of demand of **0.7.** When **£ depreciates**, imports will ______ in value by 10%, leading to a decrease in demand of _____%. Assume exports have a price elasticity of **0.8**. When **£ depreciates**, exports will ______ in value by 10%, leading to an increase in demand of _____%. The sum of the price elasticities for X and M equals _____.

The UK will now import _____ units of goods at £1.10 per unit. Imports are £_____.

The UK will now export _____ units of goods at £1.00 per unit. Exports are £_____.

Therefore, the depreciation of the currency has led to an improvement of the balance of trade of **f**_____ because the sum of the price elasticities of X and M is greater than one.



Example 2: If sum of import + export elasticity >1, depreciation will improve the current account.

The volume and value of UK imports is 1000 units of goods at £1 per unit. Imports are £1000.

The volume and value of UK exports is 1000 units of goods at £1 per unit. Exports are £1000.

We have a balanced trade.

The £ depreciates in value by 10%.

Imports have a price elasticity of demand of **0.7**. An increase in price of 10%, caused by the depreciation, leads to a decrease in demand of 7%. Exports have a price elasticity of **0.8**. A decrease in price of 10% leads to an increase in demand of 8%. The sum of the price elasticities for X and M equals **1.5**.

The UK imports 930 units of goods at £1.10 per unit. Imports are £1023.

The UK exports 1080 units of goods at £1.00 per unit. Exports are £1080.

Therefore, the depreciation of the currency has led to an improvement of the balance of trade of £57 because the sum of the price elasticities of X and M is greater than one.



J-Curve Effect

- The J curve states that a depreciation can lead to a short term deterioration of a trade deficit before improving in the longer term

- This gives an explanation as to why the Marshal Lerner Condition often tends to less than one in the short term but greater than one longer term

- In the short run there will be a worsening of the trade deficit, but over time the deficit will start to improve



J-Curve Effect





Would anyone like to tell me what an exchange rate is?

How has the exchange rate from British Pound to USD changed in after Brexit is announced?

How may this affect imports or exports?





Pound climbs to highest level against dollar since Brexit





An exchange rate is the price of a currency compared to another.

When the exchange rate decreases, our exports will become cheaper, and imports will be more expensive. Hence, will we export larger quantities and import lower quantities.

This will affect the trade patterns of imports/exports.



As imports/exports are generally considered price elastic, when export prices fall, there is a bigger % increase in quantity sold. Hence, this will increase total volume of exports sold.

Hence, some countries tend to depreciate their exchange rate to increase their international competitiveness, and improve their current account.

Note that this is not true for some developing countries that mainly exports inelastic goods (e.g. commodities like agricultural goods / iron / steel).

Bloomberg

Trump Accuses China, EU of Currency rious Manipulation (Depreciation) Education

By Saleha Mohsin

20 August 2018, 22:08 BST Updated on 20 August 2018, 22:55 BST

President's accusation conflicts with Treasury report

► U.S. doesn't officially consider any nation to be manipulator





Quartz – Currency Manipulators

Government purchases of foreign assets/capital by foreign currency as a % of that economy's GDP

Who are the biggest currency manipulators? Here's one measure





Education

Quartz – Current Account Surpluses

Potential currency manipulators, by current account surplus Average current account (2015–17) Singapore 19% of GDP Taiwan 14 Switzerland 10 Thailand 10 Korea Norway 6 Israel Sweden Russia 3 Japan 3 Malaysia 3