

Demand and supply for a currency

Two aspects relative to the BoP:

- CAB, the demand for domestic goods (= exports) brings about the demand for the domestic currency DP_a ($DP_a = E$). If the CAB is in balance where $E = H$, then in the foreign markets $Dp_a = Sp_a$.
- KAB, capital outflows being an investment in another economy bring about the demand for its currency; capital inflows the contrary.

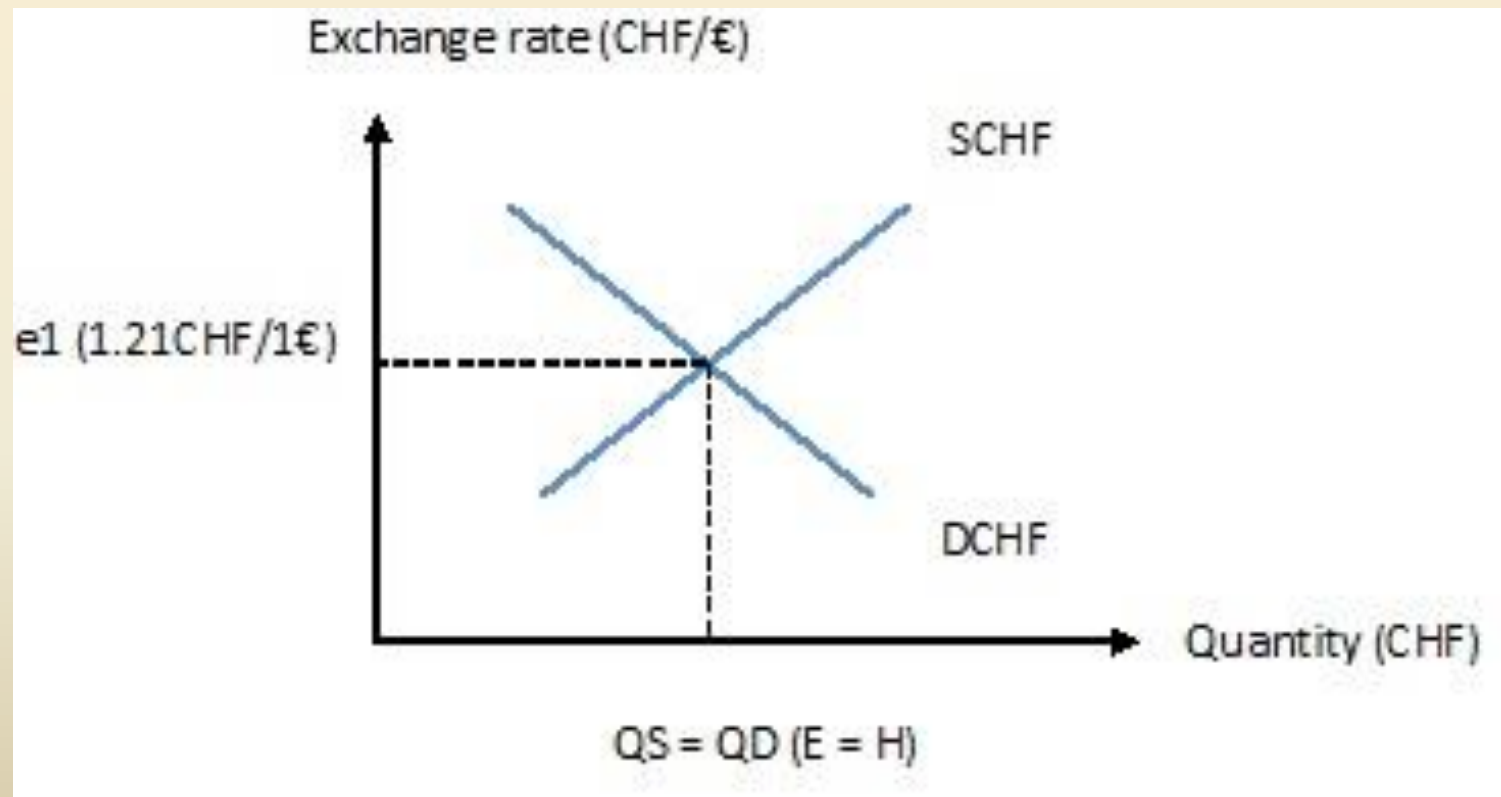
Thus, the central bank must ensure that it supplies a quantity of currency necessary to allow importers buy domestic products and investments, in addition to covering domestic needs

The demand (DP_a) and supply (SP_a) for a currency (CHF) in the foreign markets determine the exchange rate, that is, the trade of one domestic currency P_a (e.g. CHF) for another foreign P_b (e.g. Euro).

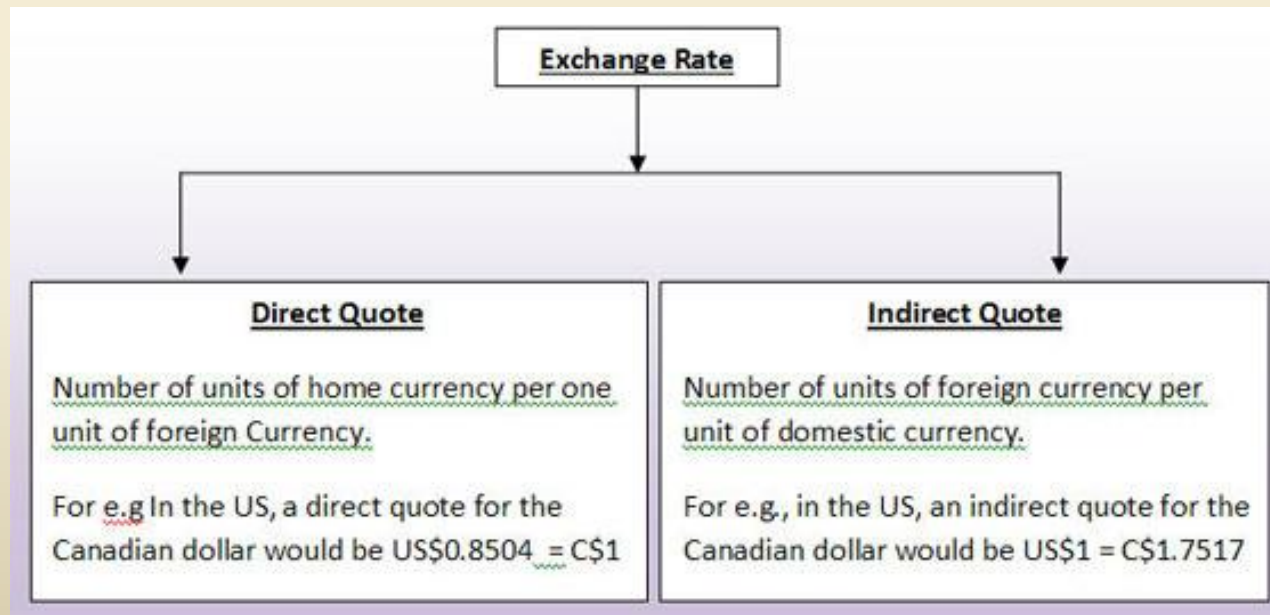
At the equilibrium where the demand and supply for CHF is equal, there is a corresponding exchange rate e_1 where a certain quantity of the domestic currency can be exchanged for (or can buy) 1 unit of the foreign currency (e.g. 1.21CHF / 1 €).

Conversely, where the demand and supply for € is equal, 1 unit of the domestic currency can be exchanged for (or can buy) a certain quantity unit of the foreign currency (e.g. 0.82 € / 1 CHF).

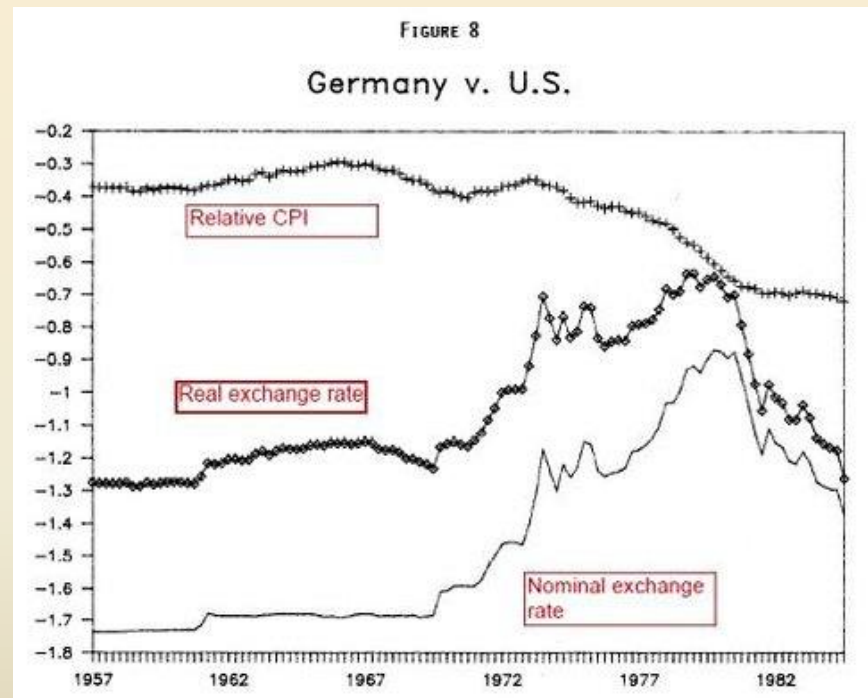
Demand (DPa) and supply (SPa) for a currency (e.g. CHF)



Depending on whether one adopts the viewpoint of the foreign or domestic currencies, exchange rates can be quoted directly, i.e. P_a/P_b (e.g. $X\$/1\pounds$) or indirectly i.e. P_b/P_a (e.g. $X\pounds/1\pounds$), the two being equivalent.

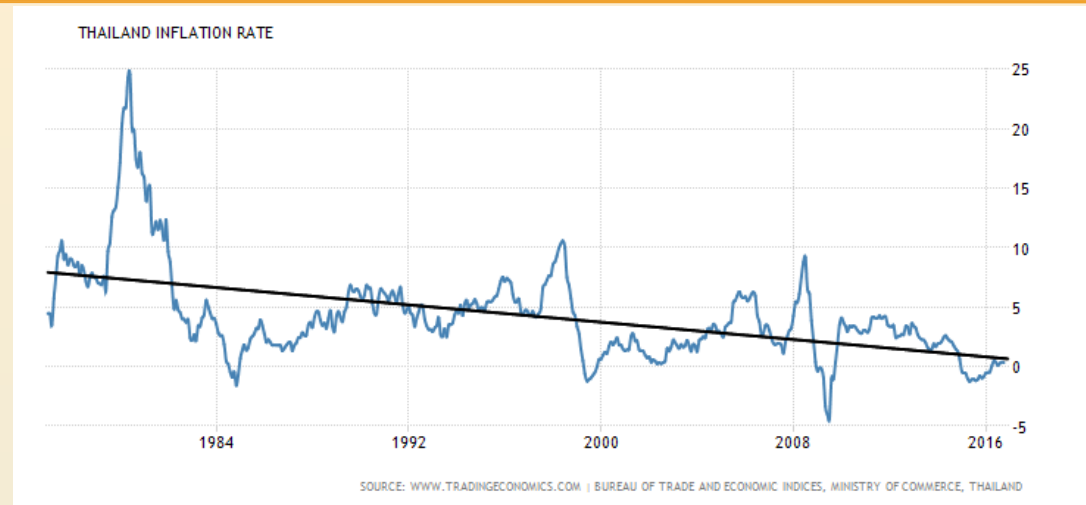


The real exchange rate is the trade of one currency for another factored by inflation, that is $re_{(Pa/Pb)} = e_{(Pa/Pb)} (Pf / Pd)$ (law of one price). Inflation affects the current account negatively as it makes exports more expensive. To keep the value of goods equal (i.e. to satisfy the law of one price, the e-rate must be adjusted accordingly.



i-rate vs e-rate

E-rate baht/\$



i-rate vs e-rate

E-rate CHF/\$

SWITZERLAND INFLATION RATE



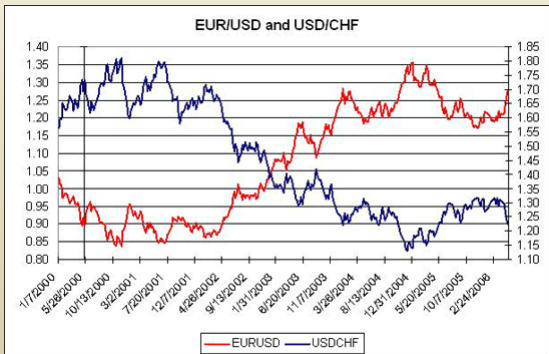
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EUR/USD and USD/CHF



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Exchange Rate Regimes

The difference between baht/\$ and CHF/\$ lies in the e-rate regime:

- With floating exchange rates, the rates are determined by the demand and supply of currencies in the foreign exchange market e.g. XCH/1\$
- With fixed exchange rates, the central bank intervenes to adjust the demand and supply of currencies e.g. CH 2011-2015 where CHF1.20 = 1 euro
- There is a third one, managed exchange rates, which retains the features of both

Changes

Considering a floating exchange rate system

- If $E \uparrow$, that is, $DP_a > SP_a$, there is appreciation \Rightarrow exports are more expensive thus lowering demand.
- If $H \uparrow$, that is, $DP_a < SP_a$, there is depreciation – opposite process

Under a fixed exchange rate system:

- A devaluation depreciates home currency ($E \uparrow \Rightarrow$ BOP surplus).
- A revaluation appreciates home currency ($E \downarrow \Rightarrow$ BOP deficit).

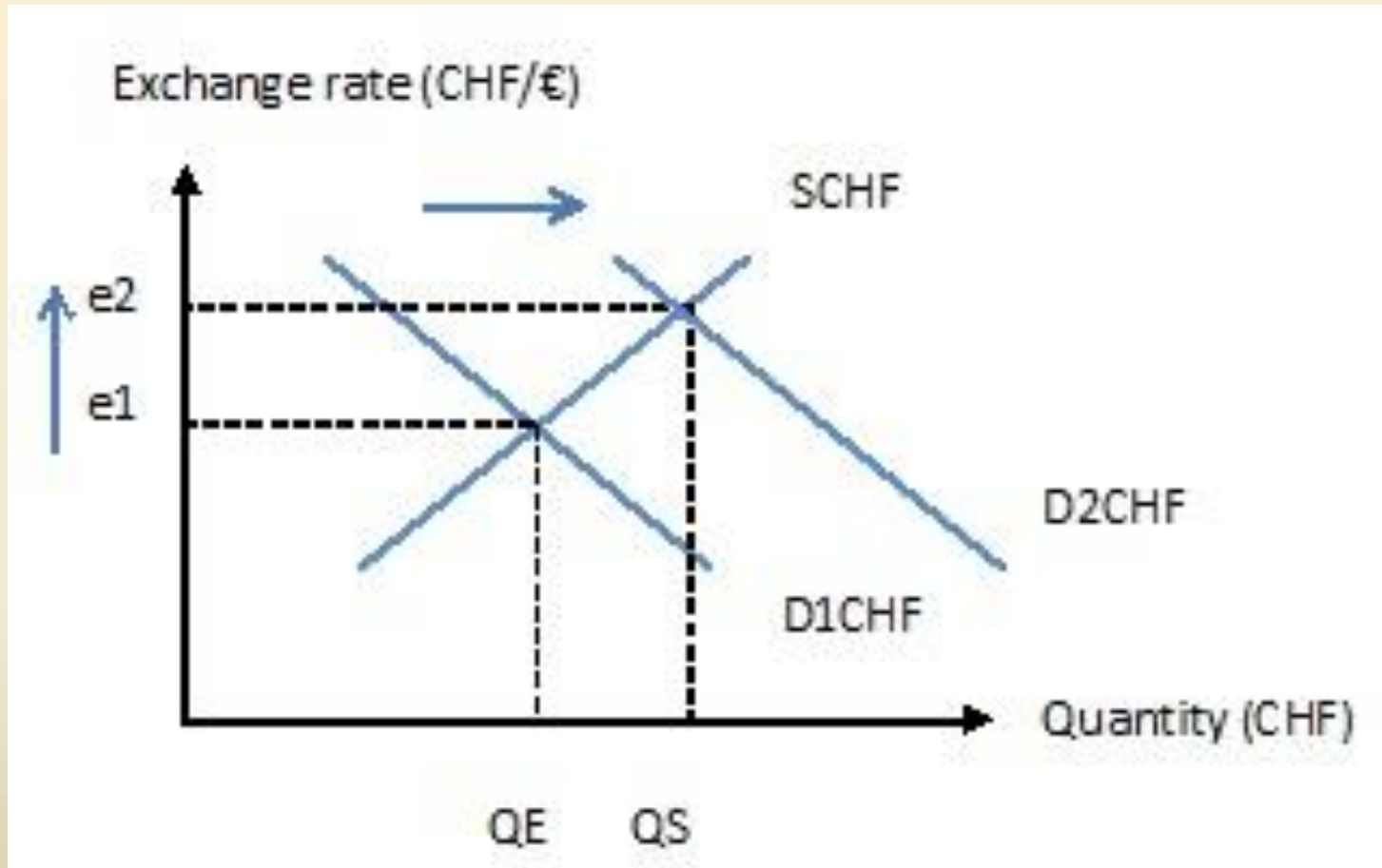
Floating

The floating exchange rates are determined by the demand and supply of currencies in the foreign exchange market. Typically:

Demand \uparrow = appreciation

Demand \downarrow = depreciation

e.g. CH: if there is a rise in the demand for Swiss exports from D1CHF to D2CHF, there is appreciation of the CHF from e1 to e2, while builds an expectation of a greater SCHF, which, in rendering the Swiss exports more expensive, lowers the DCHF and thus pushes the exchange rate back to its initial position.



Demand↑ = appreciation

The factors that increase the demand for a currency include:

- lower inflation rates at home rather than abroad making exports more attractive
- an increase in incomes abroad seeking to purchase more domestic goods
- a change in tastes in favor of home products
- an increase in domestic interest rate making savings more attractive thus increasing capital inflows in domestic banking system;
- foreign investments;
- speculations abroad that the value of the home currency will increase, encouraging purchases of the home currency.

Demand ↓ = depreciation

e.g. CH: If there is a rise in imports or a fall in any of the factors previously described, that is, if there is a fall in the demand DCHF, there is depreciation of the CHF which renders Swiss exports more attractive thus increasing DCHF which pushes the exchange rate back to its initial position.

An additional factor includes a shift of the supply for CHF to the right because the Swiss will want to purchase EU goods or invest in EU firms or their banking sectors or make speculations on the euro

Price elasticity

Since a depreciation of the home currency renders exports more attractive an improvement of the CA will depend on the price elasticity of the demand for domestic exports since depreciation lowers the price for exports thus increasing the quantity demanded of exports at varying degrees

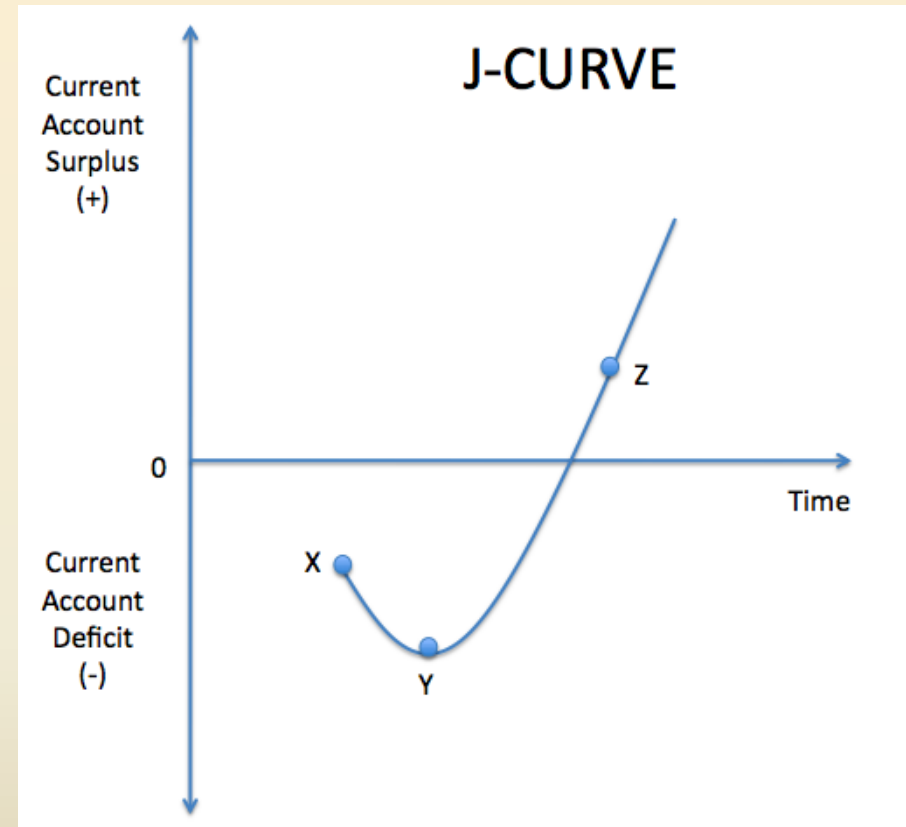
A similar argument can be made for imports: their price will rise if the home currency depreciates and therefore their quantity demanded falls.

It can be concluded from this that depreciation is likely to increase the value of the current account depending on the price elasticity of demand for exports and imports.

This is known as the Marshall - Lerner condition which states that a real currency depreciation can improve the CA so long as the sum of relative elasticities of export and import demand is greater than 1:

$$PED_{exp} + PED_{imp} > 1$$

The condition implies that if the elasticities are low, it is possible for a depreciation to worsen the current account - short run elasticities may be lower than the long-run elasticities leading to the phenomenon known as J-curve



Fixed

Fixed exchange rates involve targeting/pegging the home currency against a major one (e.g. \$, euro) or to a basket of currencies the economy trades with (e.g. Baht => ASEAN currencies => \$)

e.g. CH: it is the regime that the Swiss National Bank (SNB) adopted from 2011 to 2015 due to the depreciation of the euro relative to the CHF posing an acute threat to the Swiss economy and carrying the risk of a deflationary development. In other words, it had had an impact on the GDP and employment considering that a number of Swiss key industries are involved with exporting in the EU.

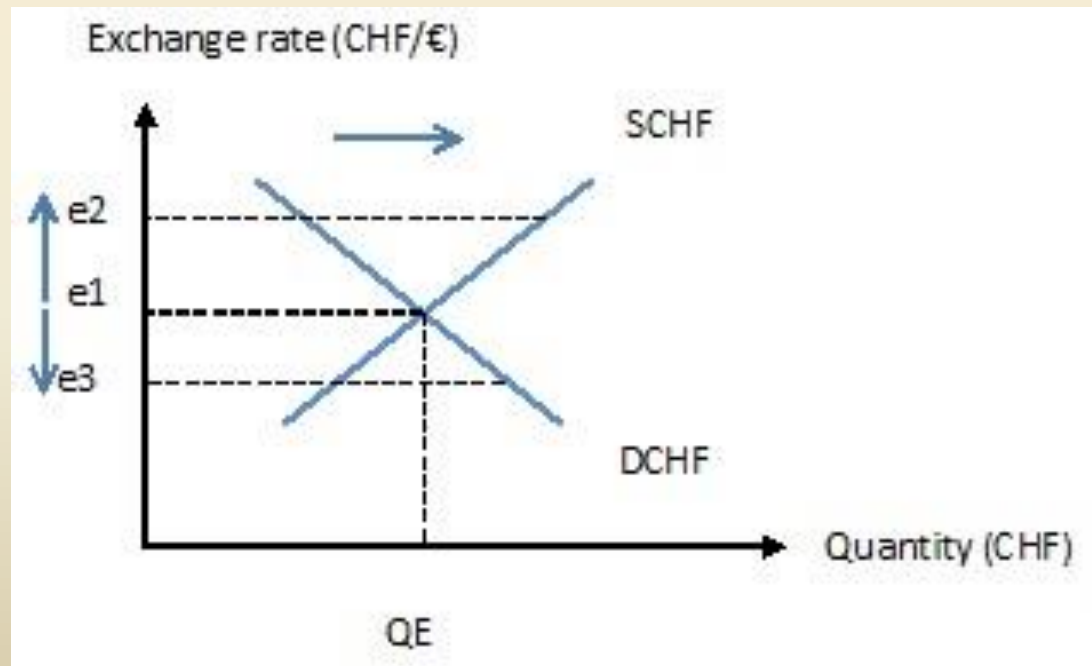
But why are we so afraid of deflation?

Swiss deflation



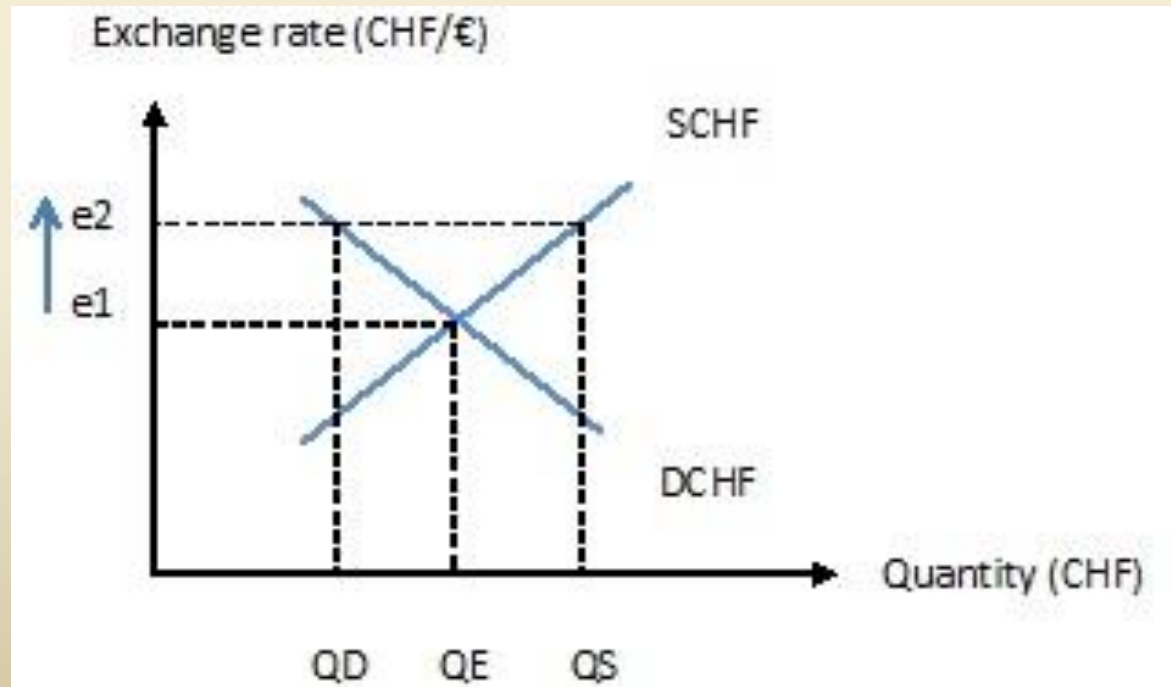
Defending the peg

To defend the peg the central bank needs to resist the market expectations of an appreciation of CHF (from e_1 to e_2) or depreciation of the CHF (from e_1 to e_3) and it uses its foreign reserves to achieve this.



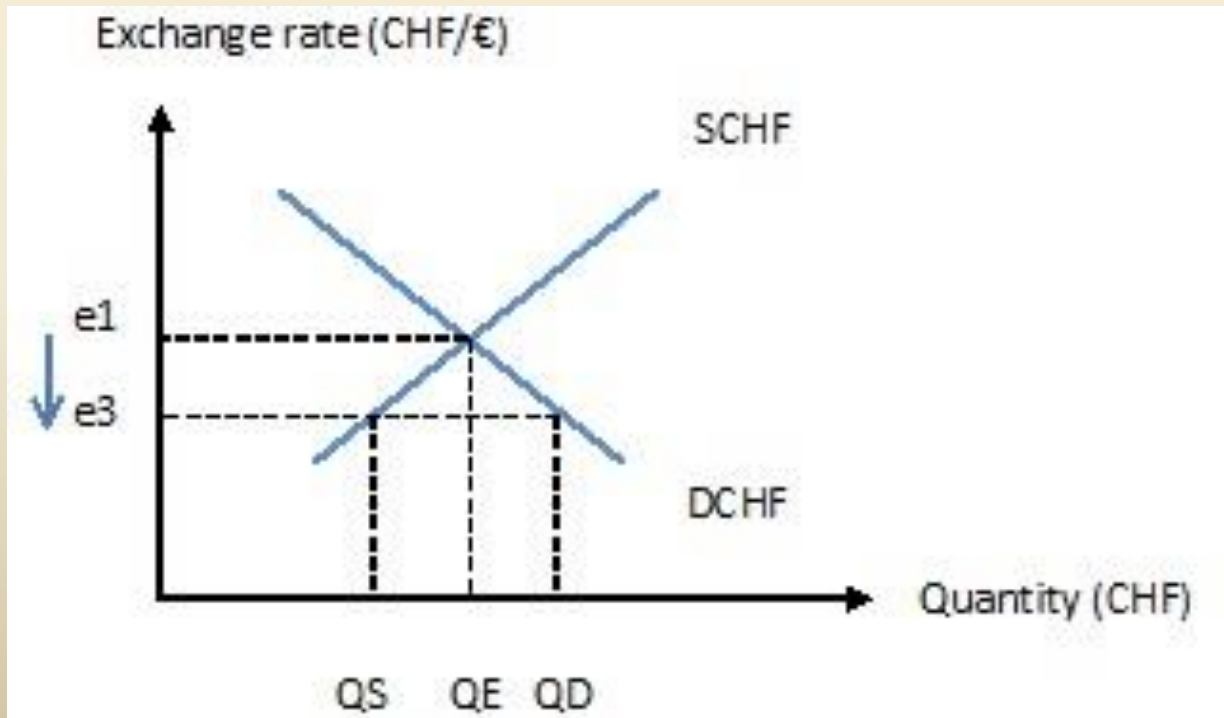
Resisting an appreciation

To resist the market expectations of an appreciation from e_1 to e_2 the central bank will defend the rate at e_1 by reducing the supply of CHF via the increase of foreign reserves, while increasing its demand for CHF with an expansionary monetary policy with lower i -rates.



Resisting a depreciation

To resist the market expectations of a depreciation from e_1 to e_3 the central bank will defend the rate at e_1 by increasing the supply of CHF by selling foreign reserves, while reducing its demand for CHF via a contractionary monetary policy with a higher i -rate.



e.g. CH with a rate to defend at $e1 = \text{CHF}1.20/\text{€}$, the SNB has had to offset the depreciation from $e1$ to $e3$, a depreciation that the markets were expecting to purchase Swiss goods and equity. What the SNB wanted was a CHF that is more expensive to defend the average price of Swiss goods. Consequence: higher prices lead to lower demand for exports, hence a recession.

If offsetting an appreciation the central bank can issue the home currency indefinitely, foreign reserves are finite and thus a peg cannot be defended for a long time.

Resisting a depreciation

Another way of stabilizing the exchange rate while avoiding changing the supply of money, the central bank may carry out sterilization policies.

- If it running a trade deficit ($E < H$), the state can buy bonds off the market by offering a lower interest rate thus putting money back in circulation.
- Conversely, if it running a trade surplus ($E > H$), the state can sell bonds buy offering a higher interest rate thus remove from the market monetary surpluses

Capital mobility

However, sterilization policies may be upset when there is capital mobility, that is, when investors can freely move their capital from one economy to another according to the rates of return.

These are determined by the rates of interest on offer and the current as well as expected exchange rates. Overall, the effect of capital mobility makes that foreign reserves are not enough to offset any monetary consequences of trade imbalances.

Therefore, the central bank is faced with a policy dilemma to either control the interest rate or the exchange rate, but not both at the same time:

- An increase in the i-rate must be matched by a decrease in the money supply.
- An appreciation of the home currency (indicating an increase in demand) must be matched with an increase in the money supply.

Which regime then?

Exchange Rate Systems

Fixed Exchange Rate

▪ Advantages

- Minimizes International Trade/Investment Risk
- Elimination of Destabilizing Speculation
- Requires Discipline in Economic Management

▪ Disadvantages

- Large holdings of foreign reserves are required
- Fixed rates can also be unstable (devalue/revalue)
- Loss of Freedom in terms of Internal Policy (interest rates)
- Countries are vulnerable (and dependent) on the economic conditions of other countries

Floating Exchange Rate

▪ Advantages

- Countries are more protected from the economic conditions of foreign countries
- Central Bank interventions are not needed
- Freedom in internal operations

▪ Disadvantages

- Promotes currency speculation
- Exchange Rate Risk
 - Investors and MNCs must spend considerable resources to protect against
- Inflation



E-rate regimes in the world

