

AP Macroeconomics

Mechanics of Foreign Exchange (FOREX)

Foreign Exchange (FOREX)

- The buying and selling of currency
 - Ex. In order to purchase souvenirs in France, it is first necessary for Americans to sell their Dollars and buy Euros.
- Any transaction that occurs in the Balance of Payments necessitates foreign exchange
- The exchange rate (e) is determined in the foreign currency markets.
 - Ex. The current exchange rate is approximately 8 Yuan to 1 dollar
- Simply put. The exchange rate is the price of a currency.

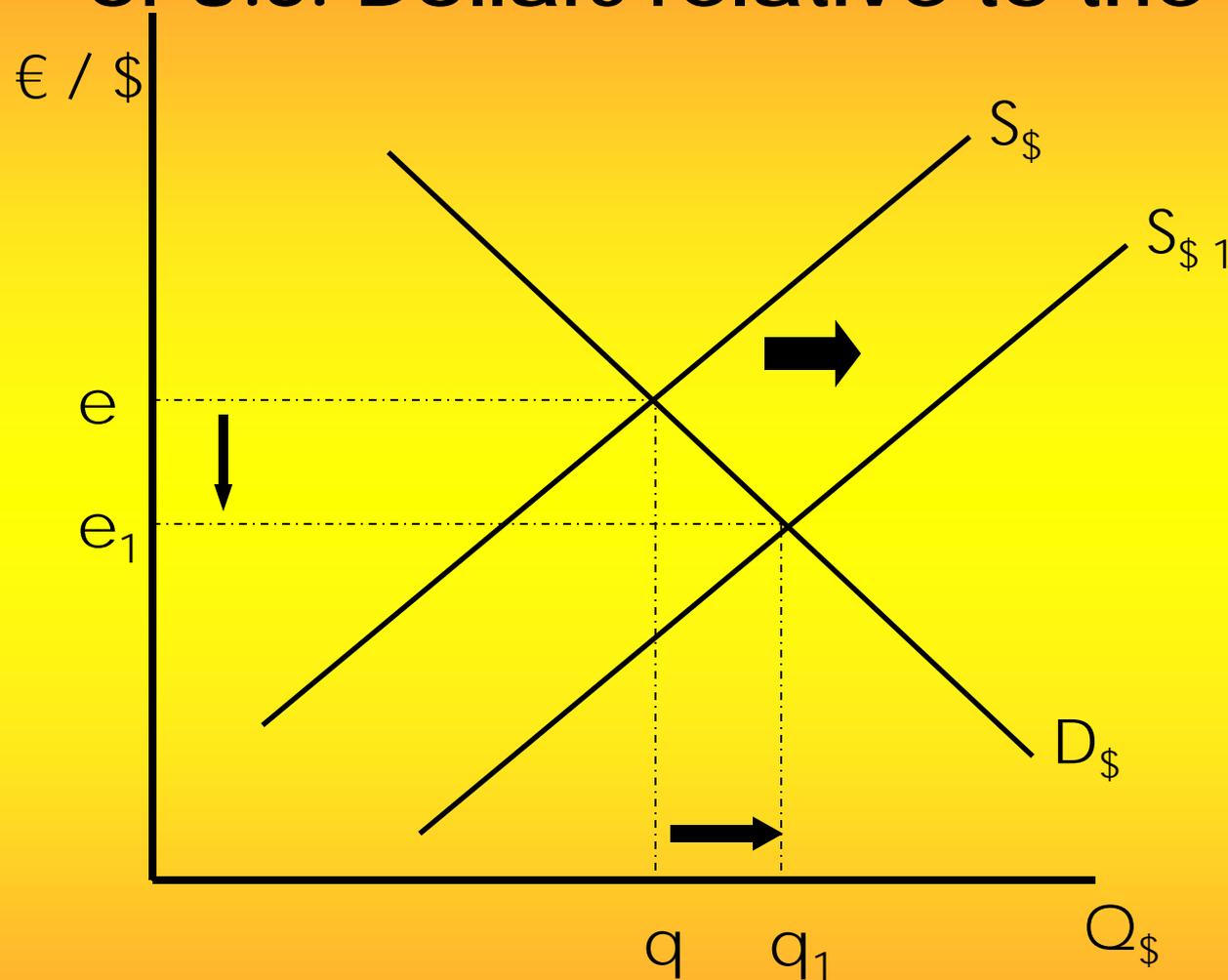
Changes in Exchange Rates

- Exchange rates (e) are a function of the supply and demand for currency.
 - An increase in the supply of a currency will decrease the exchange rate of a currency
 - A decrease in supply of a currency will increase the exchange rate of a currency
 - An increase in demand for a currency will increase the exchange rate of a currency
 - A decrease in demand for a currency will decrease the exchange rate of a currency

Appreciation and Depreciation

- Appreciation of a currency occurs when the exchange rate of that currency increases ($e \uparrow$)
- Depreciation of a currency occurs when the exchange rate of that currency decreases ($e \downarrow$)
 - Ex. If German tourists flock to America to go shopping, then the supply of Euros will increase and the demand for Dollars will increase. This will cause the Euro to depreciate and the dollar to appreciate.

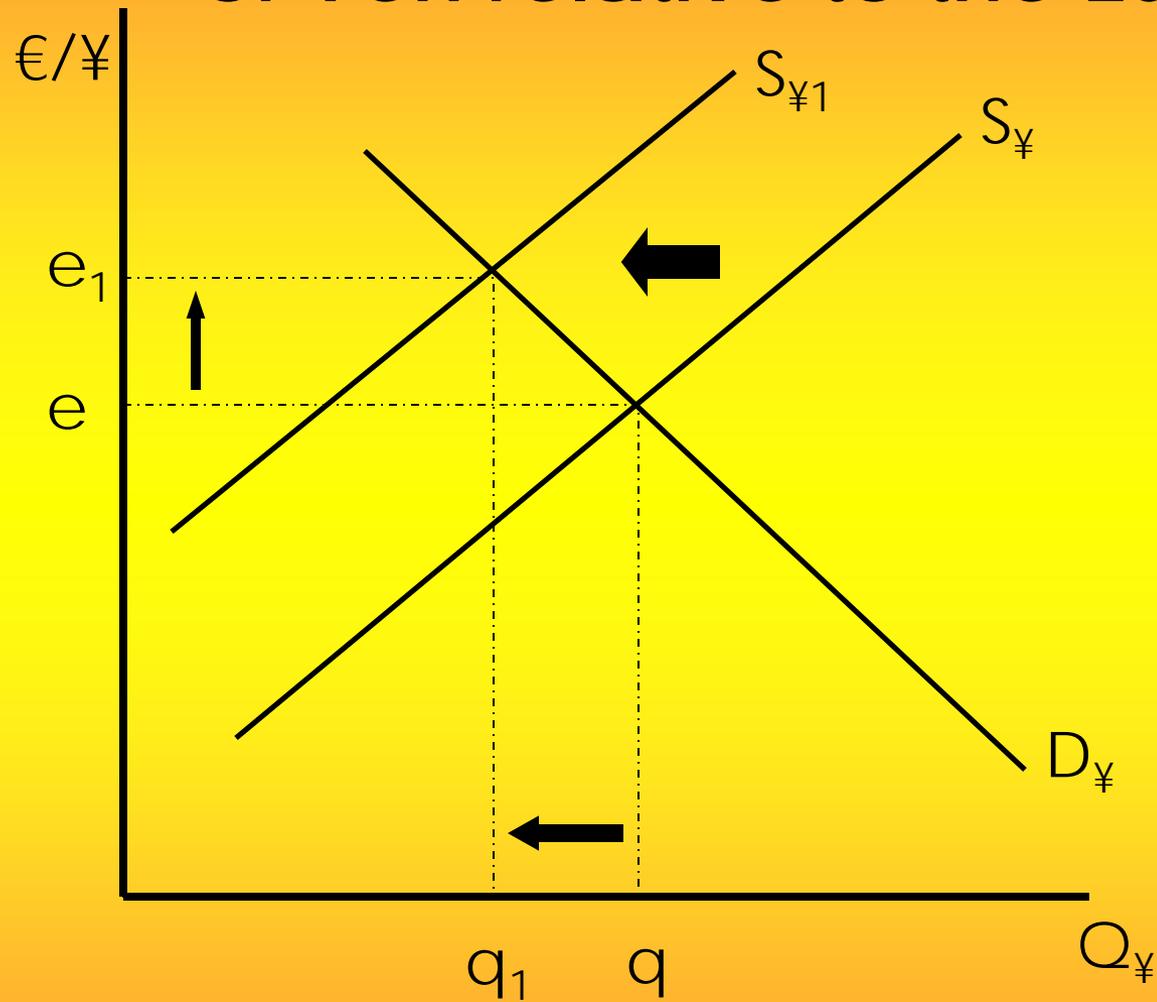
Increase in the Supply of U.S. Dollars relative to the Euro



$S_{\$} \rightarrow \therefore e \text{ (ex. rate)} \downarrow \text{ \& } Q_{\$} \uparrow$

$\therefore \$ \text{ depreciates relative to } \text{€}$

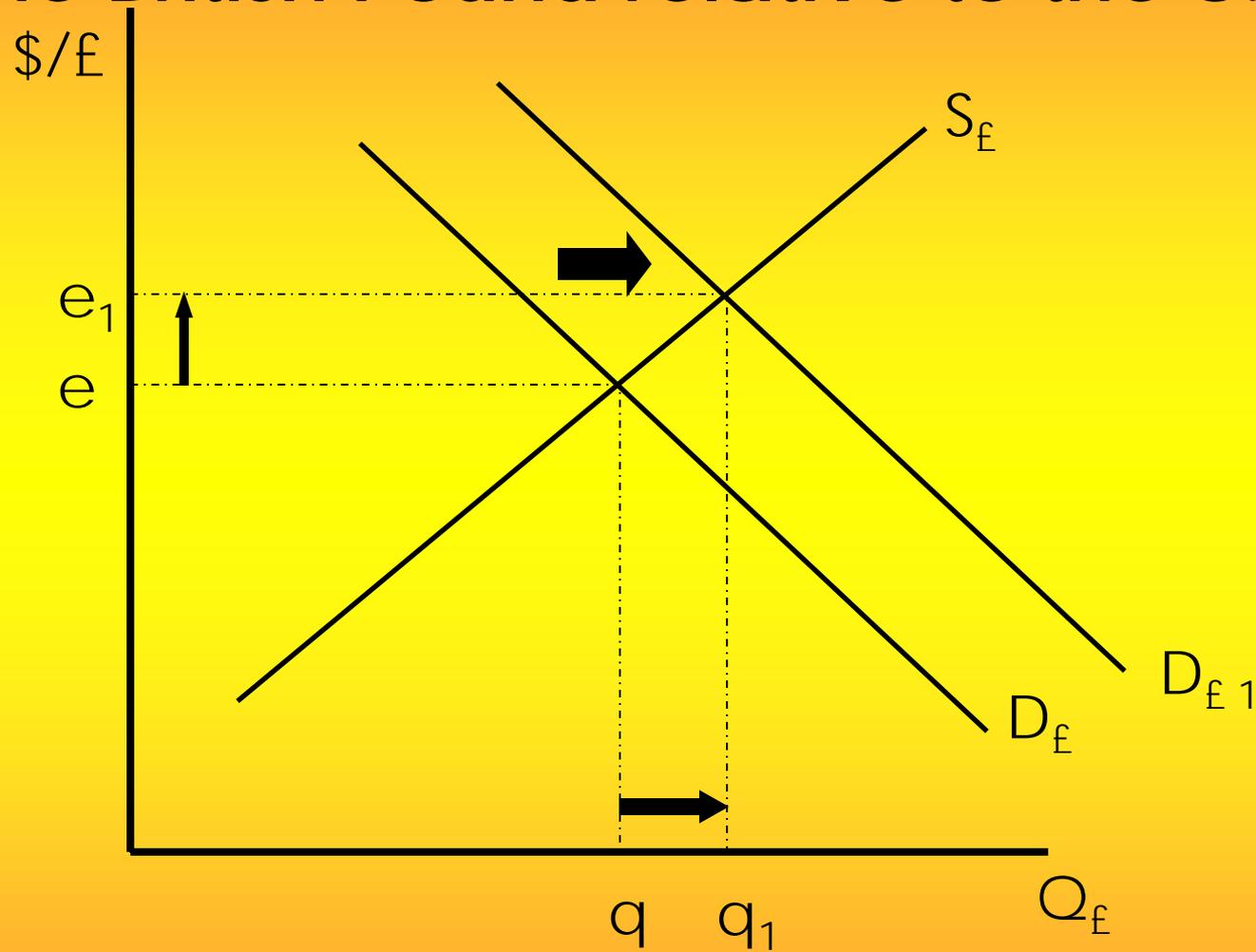
Decrease in the Supply of Yen relative to the Euro



$S_{\text{¥}} \leftarrow \therefore e \uparrow \ \& \ Q_{\text{¥}} \downarrow$

$\therefore \text{¥}$ appreciates relative to €

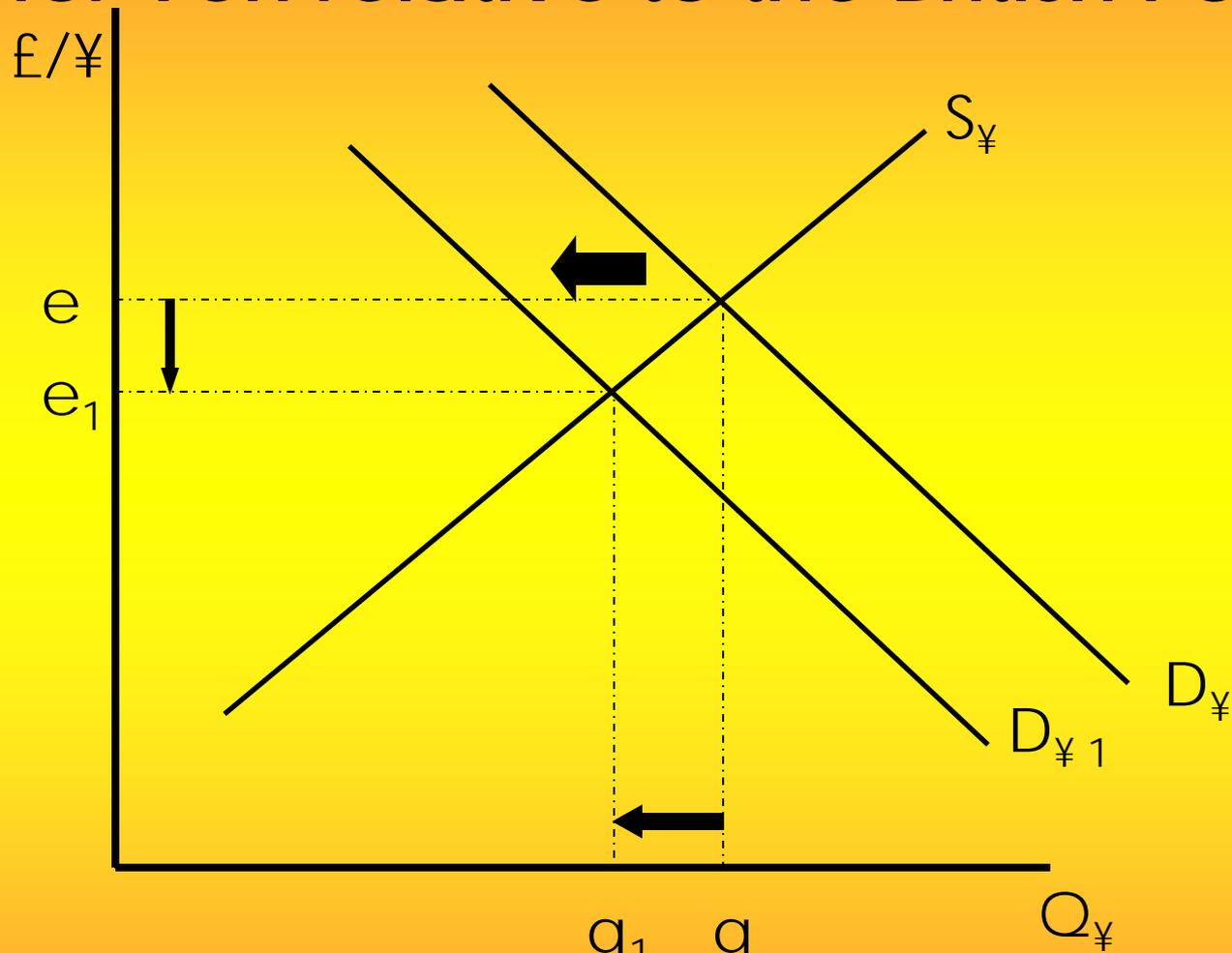
Increase in the Demand for the British Pound relative to the U.S. Dollar



$D_{\text{£}} \rightarrow \therefore e \uparrow \ \& \ Q_{\text{£}} \uparrow$

$\therefore \text{£ appreciates relative to the \$}$

Decrease in the Demand for Yen relative to the British Pound



$D_{\text{¥}} \leftarrow \therefore e \downarrow \& Q_{\text{¥}} \downarrow$

$\therefore \text{¥}$ depreciates relative to the £

Exchange Rate Determinants

- **Consumer Tastes**
 - Ex. a preference for Japanese goods creates an increase in the supply of dollars in the currency exchange market which leads to depreciation of the Dollar and an appreciation of Yen
- **Relative Income**
 - Ex. If Mexico's economy is strong and the U.S. economy is in recession, then Mexicans will buy more American goods, increasing the demand for the Dollar, causing the Dollar to appreciate and the Peso to depreciate

Exchange Rate Determinants

- **Relative Price Level**
 - Ex. If the price level is higher in Canada than in the United States, then American goods are relatively cheaper than Canadian goods, thus Canadians will import more American goods causing the U.S. Dollar to appreciate and the Canadian Dollar to depreciate.
- **Speculation**
 - Ex. If U.S. investors expect that Swiss interest rates will climb in the future, then Americans will demand Swiss Francs in order to earn the higher rates of return in Switzerland. This will cause the Dollar to depreciate and the Swiss Franc to appreciate.

Exports and Imports

- The exchange rate is a determinant of both exports and imports
- Appreciation of the dollar causes American goods to be relatively more expensive and foreign goods to be relatively cheaper thus reducing exports and increasing imports
- Depreciation of the dollar causes American goods to be relatively cheaper and foreign goods to be relatively more expensive thus increasing exports and reducing imports

Expansionary Monetary Policy to Counteract a Recession w/ reinforcing effect on Net Exports

Res. Ratio ↓
Disc. Rate ↓
Buy Bonds

= ER ↑ ,therefore MS ↑ causing $i\% \downarrow$ which leads to $I_G \uparrow$
so AD → ,resulting in PL↑ and $GDP_R \uparrow$,making $u\% \downarrow$

And now! Because $i\% \downarrow$ either $D_{\$} \leftarrow$ or $S_{\$} \rightarrow$ which causes $\$ \downarrow$ making U.S. goods relatively cheaper and foreign goods relatively more expensive causing $X \uparrow$ and $M \downarrow$ which means $X_N \uparrow$ thereby reinforcing the increase in AD already caused by the increase in I_G .

ER = Excess Reserves
MS = Money Supply
 $i\%$ = Nominal Interest Rate
 I_G = Gross Private Investment
 $D_{\$}$ = Demand for dollars in FOREX
X = Exports

AD = Aggregate Demand
PL = Price Level
 GDP_R = Real Gross Domestic Product
 $u\%$ = Unemployment Rate
 $S_{\$}$ = Supply of Dollars in FOREX
M = Imports, X_N = Net Exports

Contractionary Monetary Policy to Counteract Inflation w/ reinforcing effect on Net Exports

Res. Ratio \uparrow
Disc. Rate \uparrow
Sell Bonds

=

ER \downarrow , therefore MS \downarrow causing $i\% \uparrow$ which leads to $I_G \downarrow$
so AD \leftarrow , resulting in PL \downarrow and $GDP_R \downarrow$, making $u\% \uparrow$

And now! Because $i\% \uparrow$ either $D_{\$} \rightarrow$ or $S_{\$} \leftarrow$ which causes $\$ \uparrow$ making U.S. goods relatively more expensive and foreign goods relatively cheaper causing $X \downarrow$ and $M \uparrow$ which means $X_N \downarrow$ thereby reinforcing the decrease in AD already caused by the decrease in I_G .

ER = Excess Reserves
MS = Money Supply
 $i\%$ = Nominal Interest Rate
 I_G = Gross Private Investment
 $D_{\$}$ = Demand for dollars in FOREX
X = Exports

AD = Aggregate Demand
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Expansionary Fiscal Policy Side-effect: 'Crowding-out' of Investment and Net Exports

A possible side-effect of increased government spending and reduced taxes is a budget deficit which may lead to the 'crowding-out' of Gross Private Investment (I_G) and Net Exports (X_N)

When $G \uparrow$ or $T \downarrow$, then government must borrow in order to continue spending. This leads to an increase in the demand for loanable funds or a decrease in the supply of loanable funds, which results in $r\% \uparrow$. This change in $r\%$ leads to $I_G \downarrow$. In addition, the increase in $r\%$ causes $D_{\$} \rightarrow$ and/or $S_{\$} \leftarrow$ as investors seek higher returns in the U.S. This leads to $\$ \uparrow$ which leads to $X \downarrow$ and $M \uparrow$, so $X_N \downarrow$. Because I_G and X_N are direct components of AD, these decreases offset some of the increase in AD.

Don't understand loanable funds? [Click here](#)

Contractionary Fiscal Policy Side-effect: 'Crowding-in' of Investment and Net Exports

A possible side-effect of decreased government spending and increased taxes is a budget surplus which may lead to the 'crowding-in' of Gross Private Investment (I_G) and Net Exports (X_N)

When $G \downarrow$ or $T \uparrow$, then government develops a budget surplus
This leads to a decrease in the demand for loanable funds
or an increase in the supply of loanable funds, which results in $r\% \downarrow$.
This change in $r\%$ leads to $I_G \uparrow$. In addition, the decrease in $r\%$ causes $D_{\$} \leftarrow$ and/or $S_{\$} \rightarrow$ as investors seek higher returns abroad. This leads to $\$ \downarrow$ which leads to $X \uparrow$ and $M \downarrow$, so $X_N \uparrow$. Because I_G and X_N are direct components of AD, these increases offset some of the decrease in AD.

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