MANAGERIAL ECONOMICS CHAPTER 6

Exchange Rates and International Trade: Managing Exports

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Chapter 6

- Import-Export Sales & Exchange Rates
- Market for US Dollars
- Risk Management
- Purchasing Power Parity
- Comparative Advantage & Trade

Exchange Rates and International Trade

- More and more firm are becoming multinational enterprises.
- Exporting and importing can be impacted by changes in international exchange rates.
- Differences in long run inflation rates (according to the theory of purchasing power parity) help explain long-term exchange rate movements.
- We also look at regional trading blocs in Europe, North American, and the Far East.

Import & Export Sales and Exchange Rates

- **The international competitiveness of products can be affected by exchange rates.**
  - If the DM-price of a BMW stays the same in Germany, the export revenue in received by BMW changes as the $/DM price changes.
- Cummins Engine, a US exporter, faces a problem when the dollar strengthens in value.
  - Cummins' products become more expensive to foreign purchasers, if they keep the dollar price of engines constant.

- Language used to discuss exchange rate changes depends on whether under floating or fixed exchange rates
  - **Appreciates** or **Depreciates** -- Under Flexible FX Rate Regimes
  - **Revalues** or **Devalues** -- Under Fixed FX Rates
- **Spot Price** for FX -- current price (2 day delivery) can appear in different terms
- **Forward** FX Price -- price of a foreign currency for delivery at a future date agreed by contract today

Exchange Rates

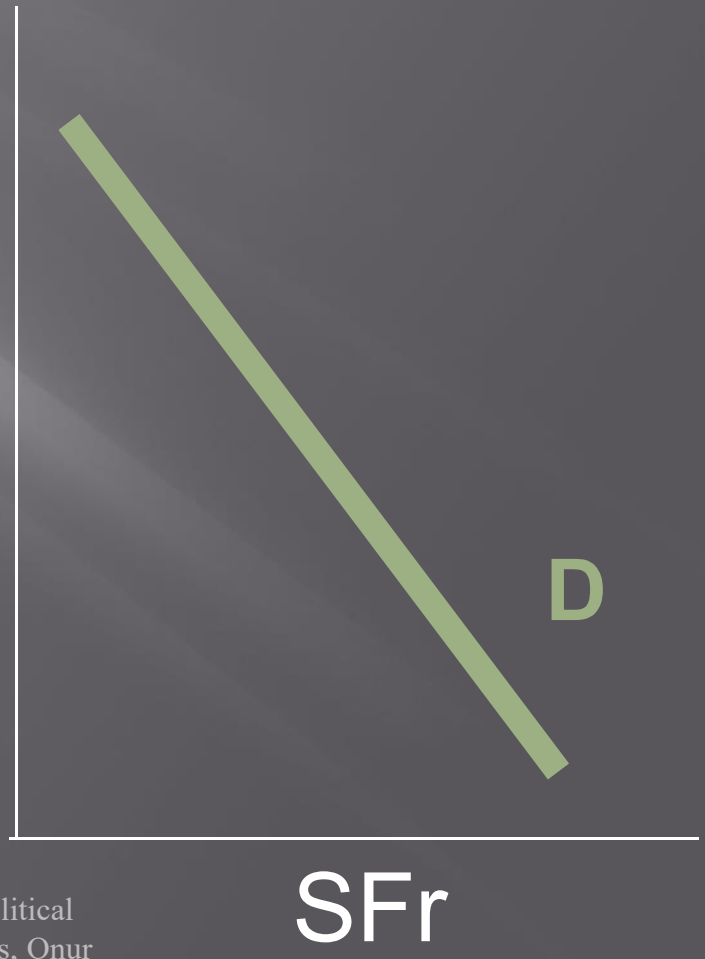
Swiss Franc Spot and Forward Rates

February 8, 2002 from *WSJ* page C20

Country	US $ equivalent		Per US $	
	Friday	*Thurs.*	*Friday*	*Thurs.*
Switzerland (SF)	.5918	.5918	1.6897	1.6897
30 day forward	.5919	.5919	1.6895	1.6895
90 day forward	.5821	.5920	1.6889	1.6891
180 day forward	.5926	.5925	1.6875	1.6878

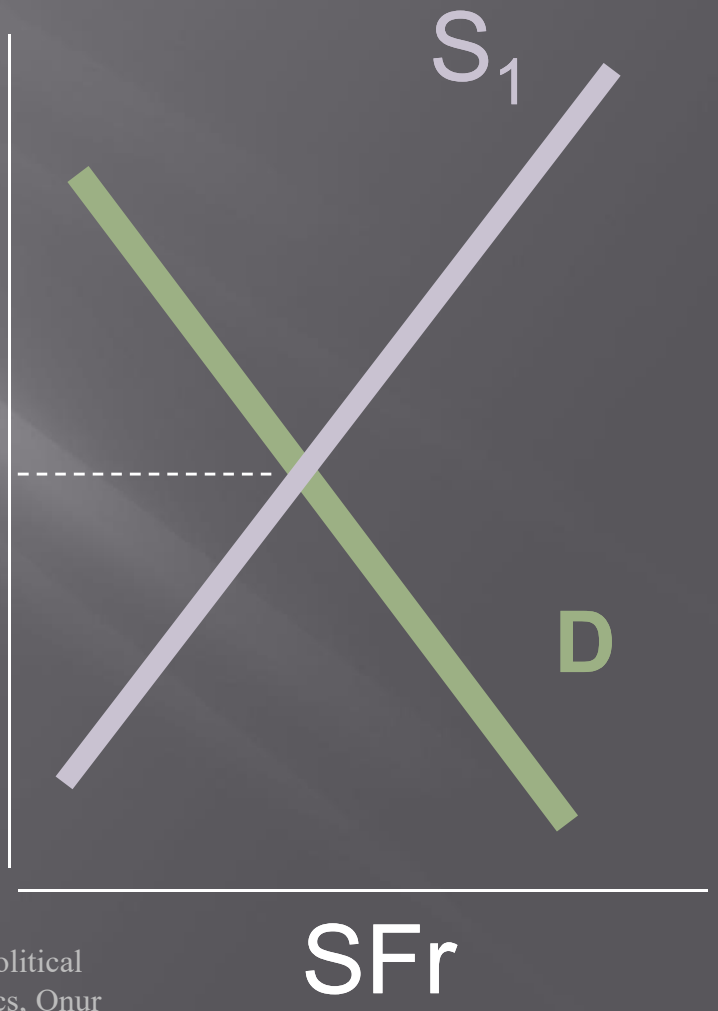
Supply & Demand Model of Exchange Rates

- FX is used for trade and investment.
- Use a *supply & demand* model to for FX rates
- **Demand for Swiss Francs (SFr):** Demand is associated with US demand for **imports** from Switzerland and purchase of Swiss securities



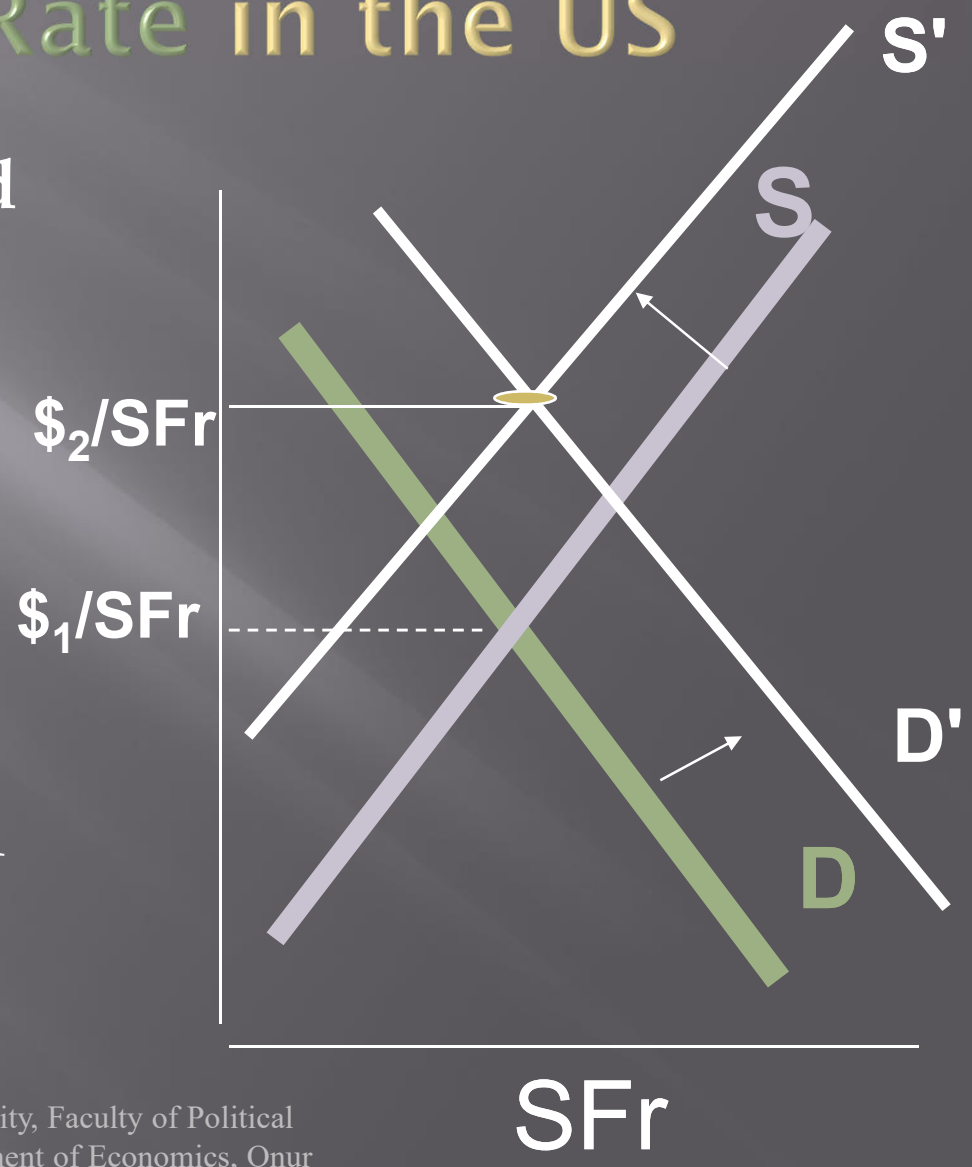
Supply of SFr & Market Clearing in FX

- **Supply of SFr --** Supply is associated with SWISS demand for US **exports** and US investments.
- **Market Clears--** no excess demand or excess supply of SF
- In Flexible Markets, buying & selling through international banks



Suppose that there is a rise in the Inflation Rate in the US

- **Both Supply & Demand of SF** Shift
- SWISS products appear cheaper
- US exports appear more expensive
- The SFr appreciates, and the dollar depreciates



Cross Rates: Dow Jones Telerate

Interbank for $1 million or more 2/8/2002

	US Dollar	Pound	Yen	Euro
Canada	1.5980	2.2601	.011861.3951	
Euroland	1.1455	1.6200	.00850	---------
Japan	134.70	190.51	---------	**.00742**
Mexico	9.0750	12.835	**.06737**	**7.9227**
Switzerland	1.6168	2.3919	**.01254**	**.67792**
U.K.	.67590	---------	**.00525**	**.61728**
U.S.	---------	**1.4143**	**.00742**	**.87300**

- Upper triangle (above dashed lines) are in **home country currency** as in 135 yen for a dollar, **¥**/$.
- Lower BOLD lower triangle are in **foreign currency** as in less than a penny a yen ($.00742), $/¥

Bid – Ask Spreads

$ / € the price of the Euro

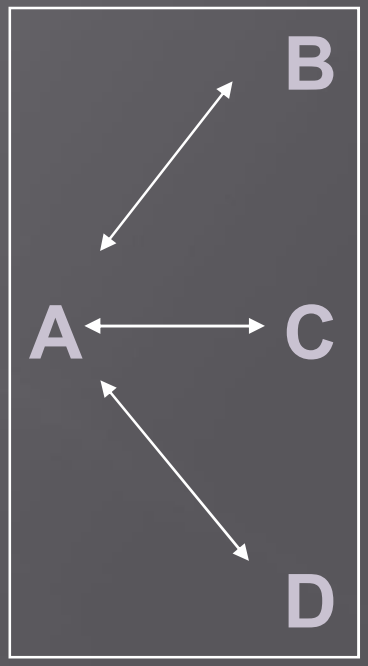
ASK price
price willing to sell
.87627

.87539
Bid price
price willing to buy

- Market makers earn their profit on the spread

Key Currencies & Cross Rates

- Markets develop in each pair of currencies
- If there are N=4 countries, there are as many as $N \bullet (N-1)/2 = 6$ different possible FX rates
- With the US as a Key currency, can reduce the number to only **3**
- For hundreds of countries, chief or key currencies is natural



Exchange Rates, Cash Flows, & Risk

- Economic Exposure (or Risk) involves the impact of exchange rates on a firm's **cash flows**
- Economic decisions ***should*** incorporate expectations about future exchange rates.
- Firms may **self insure** by accepting these risks
  - or they may buy foreign exchange insurance via entering into contracts such as forward

Types of Hedges

- **Internal hedges** – multinational firms buy and sell within the firm in any currency that they select.
- **Hedges using forward contracts** – firms can offset exposure in foreign currency by buying or selling that amount of currency in a forward contract.
- **Hedges using future contracts** – firm may offset risk with a futures contract in that currency.
- **Hedges using currency swaps** – firms may agree to exchange (swap) streams of payments in different currencies, with adjustments at each settlement date.

Asset – Liability Management for Exchange Risk

- One simple approach to reduce exchange rate exposure is to structure parent and subsidiaries such that exchange rate changes affect assets and liabilities in tandem.
- **Method:** Suppose that α percent of the business exported to country X, the firm could borrow the α percentage in the currency of country X.
- Hence, financing is a convenient way to arrange forms of hedging "revenue" assets.

Exchange Risk & Stockholders

- Eliminating all exchange risk may not be in the interest of shareholders.
- If shareholders are well diversified, they may not be particularly sensitive to unsystematic variations due to changes in exchange rates and "exchange risk", especially if reducing that risk sacrifices profits.

Long-Run Exchange Rate Determinants

1. Countries tend to have declining value of their currency when they run **trade deficits**, and tend to have rising currency values if they run trade surpluses.
2. Long-run trends in exchange rates are affected by differences in ***inflation-adjusted interest rates***. High relative interest rates attract investors, tending to raise the value of the currency.
3. Countries with high ***inflation*** tend to depreciate; countries with low relative inflation appreciate.

Purchasing Power Parity (PPP)

- *Purchasing power parity* says that the price of traded goods tends to be equal around the world. The law of one price.
  - if exchange rates are flexible and there are no significant costs or barriers to trade.

$$\frac{S_1}{S_0} = \frac{1 + (\pi_h)}{(1 + \pi_f)}$$

S_1/S_0 shows the expected change in the direct quote of a currency. The right side of the equation is the ratio of home and foreign inflation rates. If the foreign inflation rises (π_f), then the domestic expected future spot rates S_1 declines.

Problems (or qualifications) with relative PPP:

- PPP is sensitive to the starting point, S_0. The base time period may not in equilibrium
- Differences in the traded goods, or cross-cultural differences, may make prevent the law of one price to equilibrate price differences.
- The inflation rate may include non-traded goods.
- PPP tends to work better in the long run than in short run changes in inflationary expectations.

Real Terms of Trade Example--page 251

	Absolute Cost US	Absolute Cost Japan
Carburetors	$120	¥10,000
Memory Chips	$300	¥ 8,000

The question is: Which country should make carburetors and which should make chips?

Comparative Advantage

- Countries or firms should produce more of those goods for which they have lower relative cost.

	Relative Cost in US	Relative Cost in Japan
Automotive carburetors	.4 Chips	1.25 Chips
Computer Chips	2.5 Carburetors	.8 Carburetors

- It costs $120 in the US to make a carburetor and $300 to make chips, the "cost" of a carburetor is the .4 chips foregone (take the ratio $120/$300 to find .4 chips).
- The US relative cost of carburetors is much lower than that of the Japanese (1.25 Chips), whereas the Japanese relative cost of chips (.8 Carburetors) is much lower than that of the US. Japan should make chips and US should make carburetors.

Restrictions on Free Trade

- Tariffs
  - Expands domestic production
  - But raises the price for consumers
- Import quotas
  - Raises the price for consumers
- Exchange rate controls
  - Reduces trade

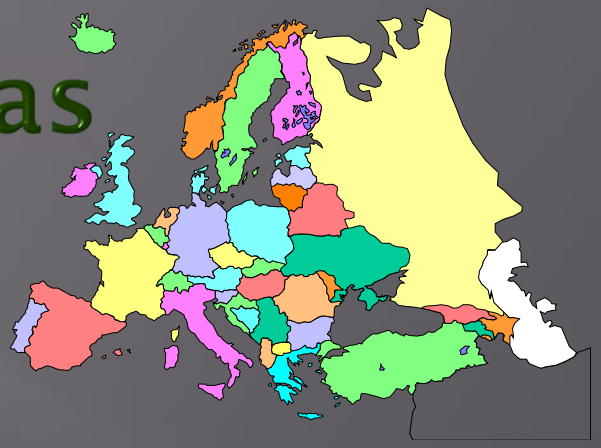
Attempts to Expand Free Trade

- Larger free trade regions called trading blocs
- European Community and the Euro
- NAFTA
- Expansion of NAFTA with Latin America and MERCOSUR

International Trade and Trading Blocs

- Several regions have **reduced trade restrictions**
  - MERCOSUR (in South America)
  - NAFTA (in North America)
  - EU (the European Union, or often the European Community)
  - looser arrangements in Southeast Asia (ASEAN)
  - APEC throughout the Pacific area including the US, Mexico, and Canada.

Optimum Currency Areas



- A tradition of monetary unions within Europe.
- Question: Is the size of this union is too small or too large?
- The Euro will create greater unity, lower transaction costs in trade and travel, and harmonized fiscal and monetary policies.
- An internationalist's dream -- fewer nations and fewer currencies

The New Euro Currency

Arguments for the Eurozone as an Optimal Currency Area

1. Public sentiment is high
2. Greece entered on Jan. 1, 2001
3. The Euro will promote growth
4. Greater fiscal discipline for countries
5. Smooth launch of the Euro
6. European Union interested in furthering integration

Arguments Against the Eurozone as an Optimal Currency Area

1. Political instability if members leave
2. Labor in region is immobile
3. Loss of independent domestic fiscal and monetary policy in each country
4. Heterogeneity of regions
5. England, Denmark, and Sweden have decided to keep their independence

Trade Deficits and the Balance of Payments

- ***Current account*** = goods and service trade flows, receipts and payments US assets abroad and foreign assets in the US, and unilateral governmental and private transfers
- ***Capital account*** = capital inflows and outflows of foreign assets.
- The current account (deficit or surplus) comes from a capital account (surplus or deficit) to balance payments. This is the idea behind the accounting identity of the **balance of payments**.