

Lecture 3: Int'l Finance

1. Mechanics of foreign exchange
 - a. The FOREX market
 - b. Exchange rates
 - c. Exchange rate determination
2. Types of exchange rate regimes
 - a. Fixed regimes
 - b. Floating regimes
3. Balance of Payments adjustment
 - a. Under a fixed rate regime
 - b. Under a flexible rate regime

Mechanics of Foreign Exchange

- People in different countries speak different languages; they also transact business in different currencies (\$, €, ¥, or £), requiring conversion from one currency to another
- Foreign exchange is the currency of another country that is needed to carry out international transactions
- The market where currencies are exchanged is called the foreign exchange market, or FOREX market

The FOREX Market

- Not a physical place but a network of telephone/internet connections between all major banks in the world
- Biggest markets are in New York, London, and Tokyo
- Volumes traded daily are huge: *\$1.5 trillion per day* (100 times greater than value of trade per day)

Exchange Rates

- Price determined in the FOREX market is the exchange rate: the price of one currency measured in terms of another
- When a currency becomes more valuable relative to another currency it has appreciated
 - \$1 buys ¥120 instead of ¥110 previously
- When a currency becomes less valuable relative to another currency, it has depreciated
 - \$1 buys ¥100 instead of ¥110 previously

Snapshot of Exchange Rates

	 USD	 GBP	 CAD	 EUR	 AUD
	1	1.49094	0.81028	1.3496	0.712037
	0.670717	1	0.543469	0.9052	0.477575
	1.23414	1.84003	1	1.66559	0.878754
	0.74096	1.10472	0.600385	1	0.527591
	1.40442	2.0939	1.13797	1.8954	1

Monday, April 6, 2009

- On 04/16/09, the price of a £ = \$1.49; € = \$1.35.
- On 01/11/10, the rates were £ = \$1.62 and € = \$1.45.
- Has the dollar *appreciated* or *depreciated* since last April?

U.S. Dollars to 1 Swiss Franc



Last 120 days: latest (Jan 11) 0.984; ***lowest*** (Jul 30) 0.917; ***highest*** (Dec 3) 1.002. When the price of the Swiss Franc falls, the dollar has appreciated; when it increases, the dollar has depreciated.

Exchange Rate Determination

- What determines the price of foreign exchange?
- Exchange rates are determined by the equilibrating actions of buyers and sellers of currencies in the FOREX market: demand and supply determine exchange rates.
 - Demand for Swiss francs represents US residents' need for francs to buy Swiss goods or financial assets, or when they travel to Switzerland
 - Supply of Swiss francs is a function of Swiss residents' need for dollars to consummate transactions with the US

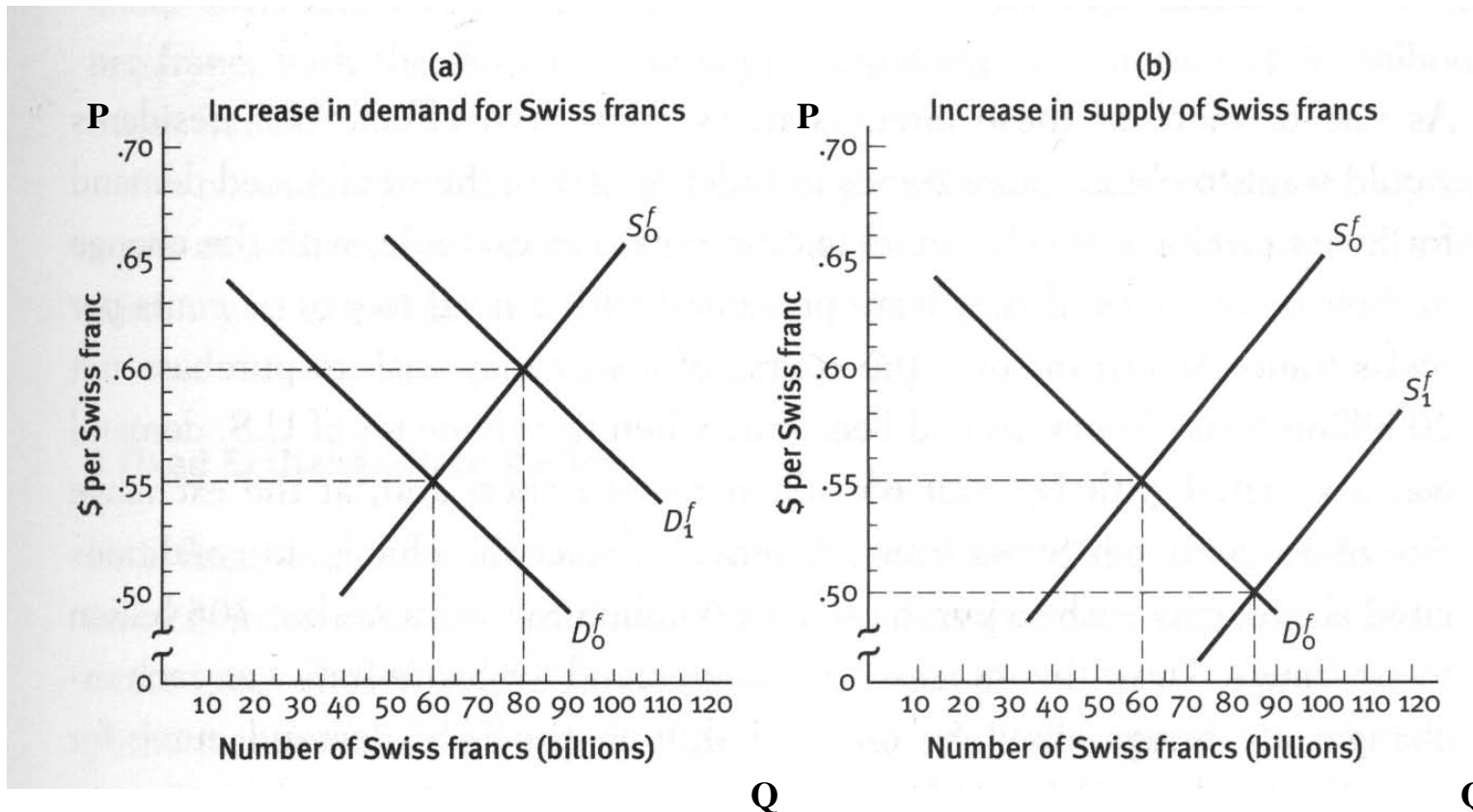
What causes changes in demand?

- Changes in tastes for goods
 - e.g. Americans want more Swiss products
- Changes in relative national incomes
 - e.g. US economy grows, causing an increase in demand for all goods, including Swiss goods
- Changes in relative returns on financial assets
 - e.g. Swiss bonds earn more than US bonds

What causes demand changes? (cont.)

- All these forces increase demand for Swiss francs
- On Panel A of Figure 1, they show up as an upward shift in the demand curve (From D_0 to D_1)
- If Swiss citizens don't change their preferences for U.S. goods and assets, the value of the Swiss franc will increase (the franc *appreciates*).

Figure 1: Exchange rate determination



Demand for Swiss francs = US residents' "demand" francs to buy Swiss goods and financial assets. Supply of Swiss francs = Swiss residents' "supply" dollars when they buy U.S. goods and financial assets.

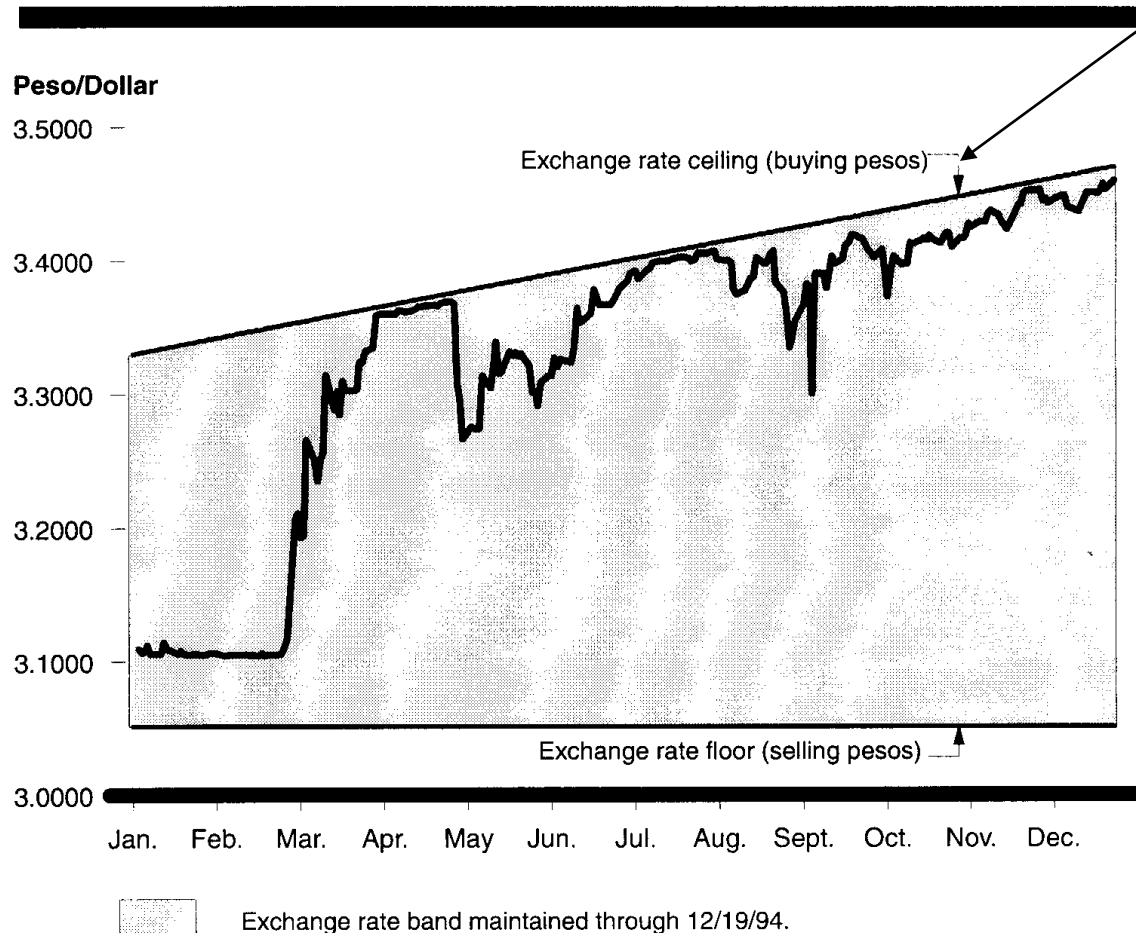
Exchange rate regimes

- Nations can choose to let market forces determine exchange rates, as above. This is a floating regime (e.g. U.S.)
- Or a nation can choose to adopt a fixed regime. Here, the govt sets the price of its currency and maintains that price via policy changes
 - Note: there are many variations of fixed and floating regimes (dirty floats, target zones, crawling pegs, crawling bands, currency boards, currency unions, etc)
 - We focus on fixing and floating

How do fixed exchange rates work?

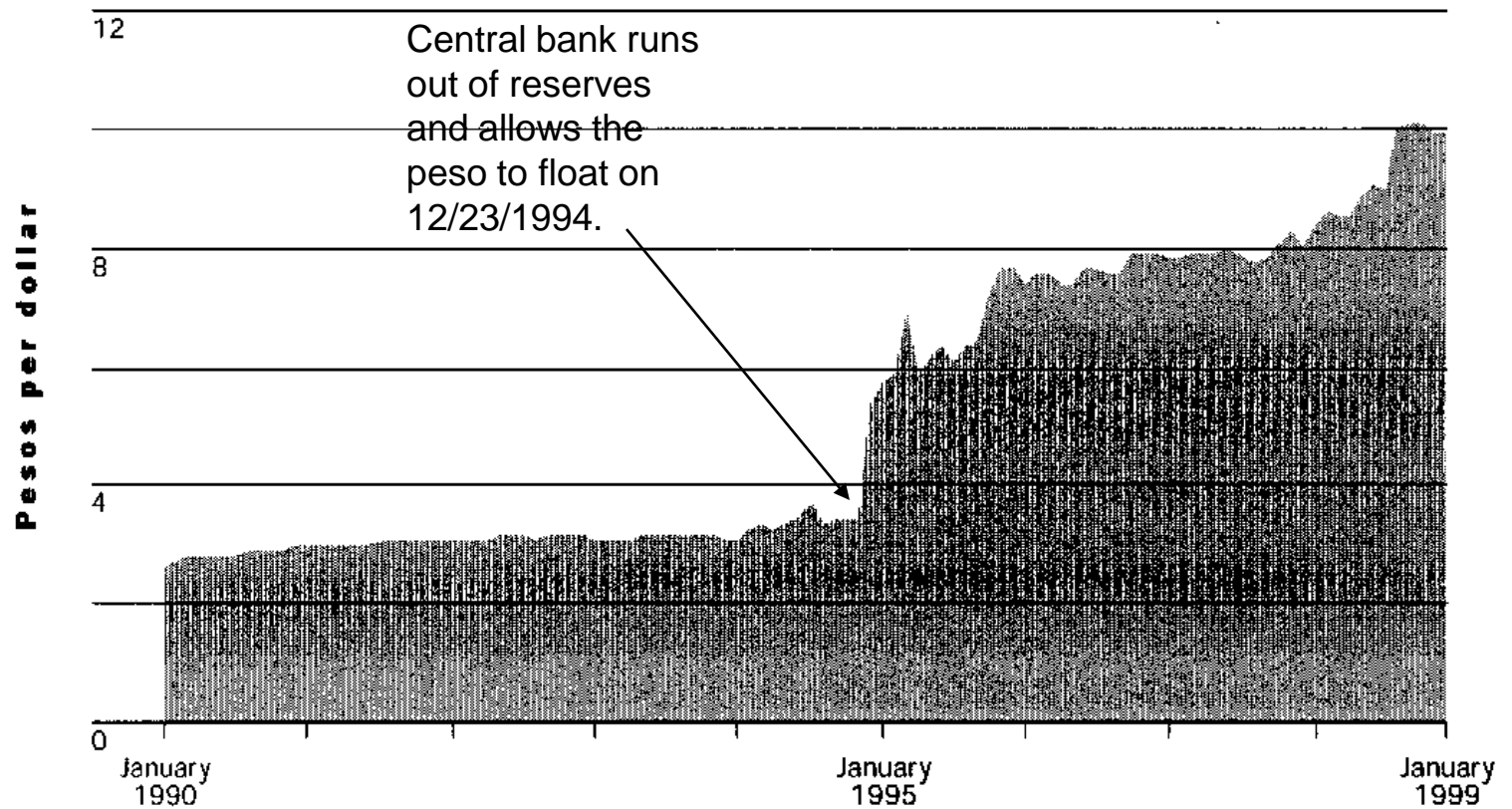
- How does a government maintain a fixed price for its currency, in the face of changes in demand and supply?
 - Intervention in the FOREX market: Government buys and sells its currency to offset market forces
 - Monetary policy: government changes its monetary policy (interest rates) to affect demand and supply for its currency

Mexico's Fixed Exchange Rate in 1994



As value of peso approaches the ceiling, Mexico's central bank buys pesos. That is, it uses its reserves of dollar-denominated assets to purchase pesos

Peso–Dollar Exchange Rate to 1999



Source: Haver Analytics

Balance of Payments Adjustment

- The BOP is the sum accounting of a nations transactions with the rest of the world.
- Occasionally, nations run imbalances and must therefore adjust.
- **The adjustment process operates differently for floating and fixed exchange-rate regimes**

BOP adjustment: floating regimes

- Adjustment works via the exchange rate:
- Swiss franc appreciates (fig 1), which reduces US demand for Swiss goods and services. Appreciation also increases U.S. exports to Switzerland.
 - Both the decline in Swiss exports and the increase in imports from the US reduce BOP surplus
- Appreciation also makes US financial assets 'cheaper' to Swiss residents, leading to an outflow of capital to the US.
- These developments eliminate the BOP surplus (the adjustment requires no govt action)

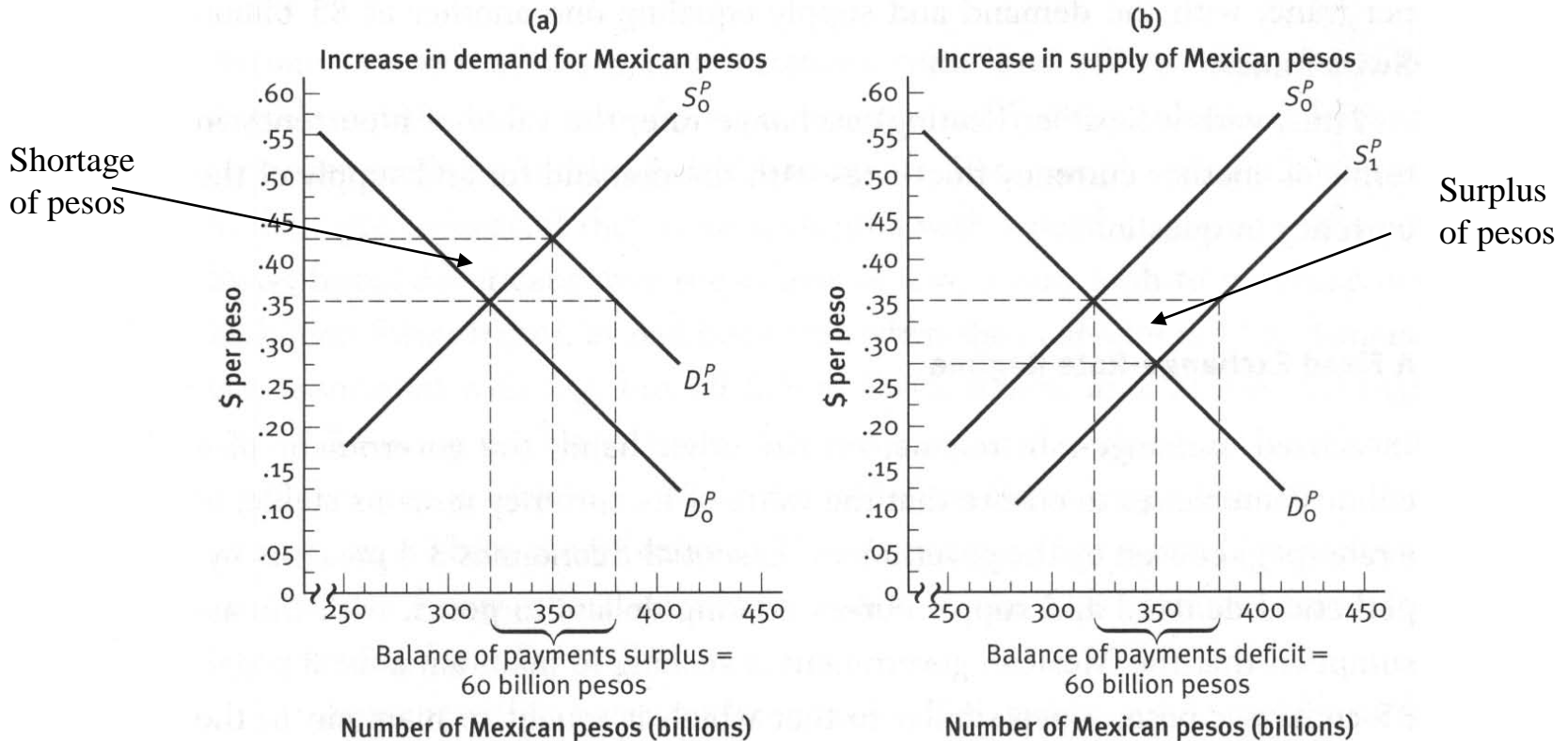
BOP adjustment: floating regimes

- Same holds for BOP deficits:
- Swiss franc depreciates, which increases US demand for Swiss goods and services. Franc depreciation also reduces imports from the US.
 - Both the increase in Swiss exports and the fall in imports help eliminate BOP deficit
- Depreciation also makes Swiss financial assets cheaper to U.S. residents, leading to an inflow of capital.
- These processes eliminates the BOP deficit

BOP adjustment: fixed-rates

- Requires heavy govt involvement.
- BOP deficits are much more troublesome than BOP surpluses
- Ex: BOP surplus (left panel in Fig. 2)
 - Mexican central bank simply sells pesos-- which it can print freely--and exchanges them for foreign exchange (U.S. dollars)
 - This alleviates the shortage of pesos in the FOREX market, causing the peso's value to depreciate back to the promised rate

Figure 2: Fixed Exchange Rate Regime



U.S. demand for pesos increases (outward shift in D). At the official fixed rate of .35 cents, the peso is undervalued. Govt intervenes in FOREX market by selling 60B pesos, e.g. it exchanges pesos for dollar-denominated US treasury bonds. These holdings are known as foreign exchange reserves.

Mexicans want more US goods/assets so supply of pesos increases (downward shift in S). At the official fixed rate of .35 cents, the peso is overvalued. Govt intervenes by buying 60B pesos with dollar reserves. Problems arise when Mexico exhausts its foreign exchange reserves.

BOP adjustment: fixed-rate regimes (cont)

- BOP deficit (right panel in Fig. 2)
 - Govt must use its foreign exchange reserves to buy up the local currency. Problem: foreign reserves are exhaustible.
 - When this happens, govt must use monetary policy to increase demand for its currency: raise domestic interest rates to attract capital inflows
 - But high interest rates have damaging effects: they choke off investment and can cause problems in banking system
 - Furthermore, expectation of devaluation can be “self-fulfilling...

“Self Fulfilling” Currency Crisis

- If speculators expect that a govt will devalue its currency, they will sell the currency
 - The goal is to get out of the currency while the fixed regime is still in place
 - As speculators sell a currency, this weakens the currency further, confirming the prophecy.

Currency Crisis: Thailand 1998

- Baht pegged to the US dollar at the rate of 24 baht = \$1
- A speculator could borrow 24 billion baht at a Thai bank and then convert it to US dollars for \$1 billion.
- With other speculators selling baht for dollars, the Thai govt runs out dollar reserves and has to devalue. Baht is now worth 40 baht = \$1.
- Speculator takes \$600 million and converts it into baht, taking this 24 billion baht to bank and pays off loan
- He/she is left with a tidy profit of \$400 million!

Fixed Exchange Rates: Benefits and Costs

Benefits

- Exchange-rate stability promotes globalization – more trade and investment.
- Fixing value of currency to the currency of a low inflation country forces govt to keep prices in line

Costs

- Eliminates domestic policy independence - policy can't be used for domestic purposes.
- Speculative pressures build up and pose a risk of currency crises

Floating Exchange Rates: Benefits and Costs

Benefits

- Automatic correction of payments imbalances
- Governments have policy independence - can choose any domestic inflation rate (exchange rate will adjust)

Costs

- Unstable/uncertain exchange rates reduce globalization
- Policy independence may be a problem if government cannot control inflation