

# **LALU LINTAS PEMBAYARAN INTERNASIONAL**

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# PASAR DEVISA

- Pasar di mana mata uang suatu negara diperdagangkan dengan mata uang negara lain
- Sebagian besar bank komersial besar di pusat keuangan dunia (yang dipusatkan di London, New York, Tokyo, Singapura)
- Pemain lainnya— penjual eceran, perantara, bank sentral

# PASAR DEVISA

- Lebih dari 80% semua pedagang menggunakan dolar US.
- Sebagian besar bank deposit memperdagangkan – via internet dan telepon
- Pertimbangan untuk memperoleh devisa
  - Tujuan pedagang dan investastor
  - Mengambil keuntungan dari perbedaan tingkat bunga antar negara
  - Spekulasi

# Spot Market vs. Forward Market

- Pasar spot (tunai) melibatkan jual beli mata uang untuk penyerahan sekarang (biasanya mengambil sekitar dua hari - bersih)
- Pasar forward (depan) melibatkan jual beli mata uang untuk masa depan penyerahan (satu bulan, tiga bulan, enam bulan kontrak)
  - Berarti menyediakan hedging dengan mengambil resiko



# Tingkat Pertukaran

- Nilai tukar adalah harga suatu mata uang dalam kaitan dengan yang lain
- “Perdagangan besar” mengambil tingkat kuota dalam berita – untuk transaksi yang melebihi \$ 1 juta
- Midpoint tingkat kuota dikutip dalam dokumen- midpoint antara bank’  
“penawaran” dan “ permintaan” harga

# Tingkat Pertukaran

- Harga penawaran adalah harga pembelian – apa yang mereka bayar
- Adalah harga penjualan bank- apakah bank akan menjual untuk
- “spread” adalah perbedaan antara harga yang ditawarkan dan yang diminta, biaya-biaya transaksi yang ditutup + keuntungan bank; biasanya sekitar 0.1 persen

- October 26, 2004 at 4:00 p.m. in New York, the exchange rate between the Japanese yen and the U.S. dollar was  $\text{¥}1 = \$0.009375$
- $\$/\text{¥} = \$0.009375$
- $\text{¥}/\$ = 1/0.009375 = \text{¥}106.67$
- $\$/\text{¥} = 1/106.67 = \$0.009375$
  
- October 26, 2004 at 4:00 p.m. in New York, the exchange rate between the British pound and the U.S. dollar was  $\text{£}1 = \$1.8352$
- $\$/\text{£} = \$1.8352$
- $\text{£}/\$ = 1/1.8352 = \text{£}0.5449$
- $\$/\text{£} = 1/0.5449 = \$1.8352$

- October 26, 2004 at 4:00 p.m. in New York, the exchange rate between the euro and the U.S. dollar was  $\text{€}1 = \$1.2764$
- $\$/\text{€} = \$1.2764$
- $\text{€}/\$ = 1/1.2764 = \text{€}0.7835$
- $\$/\text{€} = 1/0.7865 = \$1.2764$



- Flexible (Floating) Exchange Rates
  - Determined by market forces of supply and demand
  - Fluctuate from hour to hour, day to day, etc.
  - Currencies of most major trading nations now float
  - Wall Street Journal reports exchange rates (relative to the U.S. dollar) for over 40 currencies every day

# Foreign Exchange Market

- If the dollar price of a pound rises, the dollar has depreciated against the pound, and the pound has appreciated against the dollar
- When dollar price of pound went from \$1.60 to \$1.70, dollar depreciated by  
$$((\$1.70 - \$1.60)/\$1.60)*100 = 6.25\%$$
,  
and pound appreciated by  
$$((.5882 - .625)/.625)*100 = 5.89\%$$

# Foreign Exchange Market

- If the dollar price of a pound falls, the dollar has appreciated against the pound, and the pound has depreciated against the dollar
- Calculations done the same way!

# Arbitrage

- Arbitrage is the act of simultaneously buying a good at a low price in one market and selling that same good at a higher price in another market to make a profit
- A particular currency (e.g. the Swiss franc, SF) is a homogeneous good
- Transactions costs are minimal in the foreign exchange markets

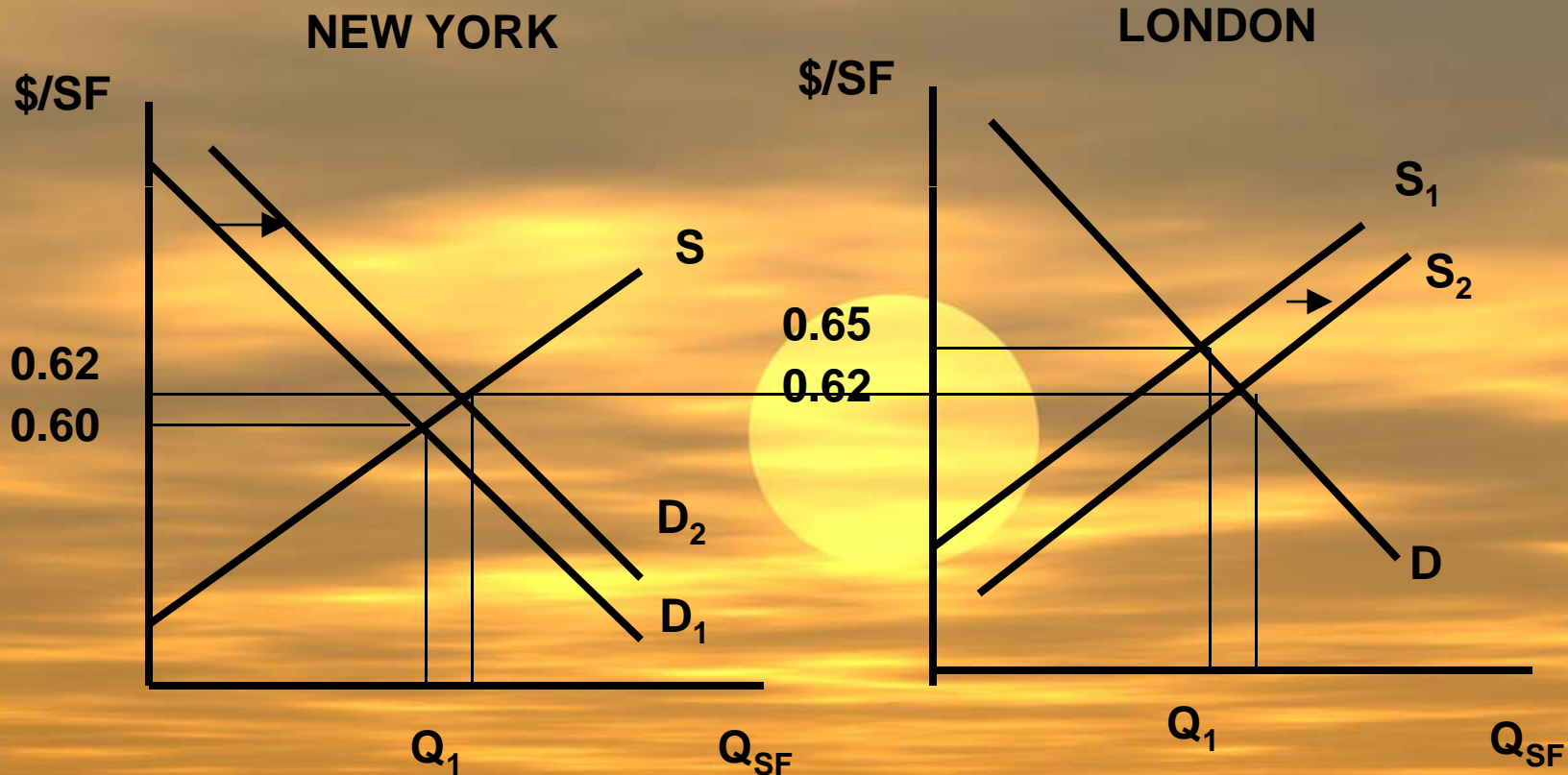


# Arbitrage

- Any discrepancy (greater than transactions costs) between the \$/SF exchange rate in New York and London will result in arbitrage actions that will quickly lead to equality in the \$/SF exchange rate in New York and London
- There will be one world price for the SF

# Illustration of Arbitrage

Initial Prices: 0.60 in New York, 0.65 in London



Arbitrageurs Buy in New York, Sell in London, Price Equalizes

# Currency Cross Rates

- $\$/¥ = \$0.009375$
- $\$/£ = \$1.8352$
- $¥/£ = ¥/\$/£/\$ = (1/0.009375)/(1/1.8352) = 106.67/0.5449 = ¥195.76$

# Currency Cross Rates and Arbitrage

- Suppose  $\$/¥ = \$0.01$
- Suppose  $\$/£ = \$2.00$
- Then  $¥/£$  should be  $¥200$  for consistency
- Suppose  $¥/£$  is  $¥180$
- Arbitrageur will buy pounds with yen, then buy dollars with pounds, then buy yen with dollars and end up with more yen than she started with



# Currency Cross Rates and Arbitrage

- Suppose  $\$/¥ = \$0.01$
- Suppose  $\$/£ = \$2.00$
- Then  $¥/£$  should be  $¥200$ ; suppose it is  $¥180$
- Arbitrageur spends  $¥180$  to get  $£1$  which will buy  $\$2.00$  which will buy  $¥200$  for an 11.1 percent profit
- Arbitrage will result in consistent exchange rates across currencies

# Nominal vs. Real Exchange Rates

- Nominal exchange rate: a bilateral exchange rate that is unadjusted for changes in the two nations price levels
- Real exchange rate: a bilateral exchange rate that has been adjusted for price level changes in the two nations

# Nominal Exchange Rates

- Suppose \$/£ falls from \$2.00 to \$1.80
  - Dollar has appreciated against the pound by  $(2.00-1.80)/2.00 \times 100 = 10\%$
- Can dollar now buy 10% more British goods?
  - Not if British price level has risen relative to American price level

# Nominal vs. Real Exchange Rate

- Nominal exchange rate show purchasing power of domestic currency in terms of another country's currency
- Real exchange rate tracks purchasing power of domestic currency in terms of another country's goods and services
- Real \$/£ exchange rate =  
 $\$/\text{£} \times \text{CPI}_{\text{UK}}/\text{CPI}_{\text{US}}$



# Real Exchange Rate

- Suppose in 2000,  $\$/\text{£} = \$2.00$ , CPI in U.S. = 100, CPI in U.K. = 100
- Suppose in 2004,  $\$/\text{£} = \$1.80$ , CPI in U.S. = 110, CPI in U.K. = 115
- Real Exchange Rate in 2000 =  $\$2.00$
- Real Exchange Rate in 2004 =  $\$1.88$
- Dollar has appreciated in real terms by 6.0%

# Foreign Exchange Risk

- Risk that the value of a future receipt or obligation will change due to variation in foreign exchange rates
  - Transactions exposure
  - Translation exposure
  - Economic exposure

# Covered Exposure

- If the exposure to foreign exchange risk is completely eliminated through hedging, then the exposure is covered.



# Forward Exchange Market

- U.S. importer of British goods will need to obtain a specified number of pounds to pay the British exporter (say £1,000,000)
- If payment is required at time order is placed, importer will use spot market to buy pounds with U.S. dollars
- But much of international trade involves orders in which both delivery of goods and payment for goods will occur at some point in future, e.g., three months



# Forward Exchange Market

If payment is due in three months, what are importer's options?

1. Buy the specified number of pounds now on the spot market (since \$/£ is \$1.8378 this afternoon, this would cost \$1,837,800), then invest the pounds for three months until they are needed.

# Forward Exchange Market

2. Wait three months and then buy the specified number of pounds on the spot market. This is risky, since the \$/£ exchange rate could rise over the next three months, raising the dollar cost of the goods (the dollar could depreciate against the pound).

For example if \$/£ rises to \$1.90, cost rises to \$1,900,000, an increase of \$62,200.

Note: risk can cut both ways.

# Forward Exchange Market

3. Buy the specified number of pounds now on the forward exchange market. In the forward exchange market, currencies are bought and sold for future delivery at a market determined price. This eliminates the risk of an adverse exchange rate movement. Both delivery and payment occur on some future date, typically one month, three months, six months or one year in the future.

Three month forward rate on pound this afternoon is \$1.8255, so 1,000,000 pounds would cost \$1,825,500.

# Forward vs. Spot Rates

- If the forward exchange rate ( $\$/\pounds$ ) exceeds the spot rate ( $\$/\pounds$ ) then forward premium on the pound
- If the forward exchange rate ( $\$/\pounds$ ) is less than the spot rate ( $\$/\pounds$ ) then forward discount on the pound
- Based on average market expectations about future movement of exchange rates



# Forward vs. Spot Rates

- Spot rate  $\$/\pounds = \$1.8378$
- 3-month forward rate  $\$/\pounds = \$1.8255$
- Standardized forward discount on the pound is  $(F_N - S)/S \times 12/N \times 100$
- $(1.8255 - 1.8378)/1.8378 \times 12/3 \times 100 = -2.68$  percent

# Forward vs. Spot Rates

- Suppose instead
  - Spot rate  $\$/\pounds = \$1.8378$
  - 3-month forward rate  $\$/\pounds = \$1.8578$
- Standardized forward premium on the pound is  $(F_N - S)/S \times 12/N \times 100$
- $(1.8578 - 1.8378)/1.8378 \times 12/3 \times 100 = +4.35$  percent

# Forward and Spot Rates

- Supply and demand determine forward rate
- In forward market equilibrium,  $F_N = S_N^E$
- Does forward rate predict the future spot rate? Not too well.

# Foreign Exchange Futures Market

- Like the forward market, in futures market foreign exchange can be bought or sold for future delivery
- Serve same general purpose, but many differences between forward and futures markets



# Futures Market

1. Location specific, e.g., Chicago Mercantile Exchange
  - forward market is part of global foreign exchange market – not location specific
2. Only a few currencies traded at CME (¥, Can\$, £, SF, A\$, Ps, €)
  - many currencies traded on forward market

# Futures Market

## 3. Standardized Contracts

- fixed amounts, e.g. £62,500, ¥12.5 million (forward contracts for any agreed upon amounts)
- much smaller amounts than are possible in forward market, so smaller firms and individuals can play
- fixed maturity dates, 3rd Wednesday of March, June, September and December (forward contracts typically 30, 90 or 180 days, maturing every day of year)

# Futures Market

4. Margin Requirements - trader must deposit money with broker - and daily settlement required - losses deducted from deposit on a daily basis

# Swaps

- Much of the foreign exchange market consists of inter-bank trading
- Commercial banks rarely use forward contracts for inter-bank trading; they use swaps



# Swaps

- Foreign exchange swap combines a spot and a forward transaction in a single deal
- Foreign exchange swap is an agreement to trade one currency for another at one date and reverse the trade at a later date
- Terms of the swap depend on the relationship between the spot price and the forward price

# Foreign Currency Options

- Buying/Selling options is another way to hedge
- Foreign currency option is a contract that provides the right, but not the obligation, to buy or sell a specified amount of a foreign currency at a specified exchange rate
  - (a) on or before the maturity date (American option)
  - (b) on the maturity date (European option)

# Foreign Currency Options

- Call option: the right to buy currency - holder of call option expects currency to appreciate in future
- Put option: the right to sell currency - holder of put option expects currency to depreciate
- Striking (exercise) price: the price of the currency specified in the contract
- Option premium: the amount that must be paid to purchase the option contract (price of option)

# Foreign Currency Options

- Philadelphia Stock Exchange first to “make a market” in foreign currency options in 1982
- Chicago Mercantile Exchange also deals in foreign currency options
- CME also provides futures and options in agricultural commodities (live cattle, pork bellies, fluid milk, etc.), stock indexes and interest rate products



# Markets for Foreign Exchange

- Foreign exchange rates are determined in markets by interaction of supply and demand (except for “fixed” rates)
  - applies to spot market
  - applies to forward market
  - applies to futures market
- Options premiums are also determined in markets by supply and demand