

Foreign-Exchange Markets

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The FX market is the mechanism for the exchange of one currency for another.

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FX-Market Overview

- Functions of FX markets
- Demographics of FX markets
- FX rates
- Over-the-counter FX markets
- Exchange-traded FX markets

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Functions of FX Markets

- Facilitating international trade
- Facilitating international sourcing & investing of funds
- *Hedging*
- Speculating
- *Arbitrage*

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Hedging

- Defensive operations to protect against FX risk
- Risky exposure is eliminated.

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Speculation

- Seeking to profit simply from movements in the value of a currency
- Risky exposure is deliberately created.

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Arbitrage

- Simultaneously buying and selling the same product or contract
- Profiting from a small price discrepancy

???: How much risk does the arbitrageur bear?

???: How much money is needed?

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Demographics of FX Markets

- Size of FX markets worldwide
 - \$4,100,000,000,000 *per day*
- Most important FX markets
- Most important currencies
- More than 160 currencies

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FX Quotes (1)

- The price of one currency in terms of another
 - *European terms*: FC1 / US\$1
 - *American terms*: US\$ / FC1
- The currency in the denominator is being priced.
 - The *unit currency* (1)

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FX Quotes (2)

- **Outright quotes**

SF 1.6522/\$1 – SF 1.6525 / \$1

or: SF 1.6522-5 / \$1

- Buy & sell
- Bid & offer
- Bid & ask

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FX Quotes (3)

- The quotes are the bank's prices.

- Your prices are just the *opposite*.

- If the bank is *buying* \$ w/ ¥, then you would be *selling* \$ & *buying* ¥.

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FX Rates

- Wholesale vs. retail

- *Spot rate*

- *Forward rate*

- *Cross rate*

- *OTC versus exchange-traded*

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Over-the-Counter FX Market

- 95% of the market
- Commercial and investment banks
- Every currency has an OTC market.
- OTC contracts are *customized*.
 - Size
 - Maturity

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OTC Market

- OTC markets are *verbal*.
 - But *legally binding*
- *No collateral* is required.

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OTC Market

- The bank and customer are each *other's counterparty*.
- There is *no secondary OTC market*.

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Participants in the FX Market

- FX dealer
- FX customers
- National governments (when intervening)

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FX Markets

- *FX dealer = FX trader works for the bank*
- Each bank chooses which currencies to trade.
 - No bank trades ALL currencies.
 - Many smaller banks do not trade FX at all.

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The Dealing Bank

- The most important participant in the OTC FX markets.
- Source of profit for dealing banks
 - *Spread* between the buy & sell quotes
 - Arbitrage
 - Speculation

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The Dealing Bank

- The FX dealing banks are the *market makers*:
 - Actually buying and selling
 - Not just serving as a broker between buyer and seller.
 - Dealing banks are ALWAYS in the market -- both buying & selling at all times.

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The Dealing Bank

- The FX *dealer buys* for the bank's account when the customer is *selling*.
- The FX *dealer sells* from the bank's account when the customer is *buying*.

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FX Customers

- Companies
- Non-trading banks
- *Institutional investors*
- Government agencies
- International agencies
- Wealthy individuals

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FX Review: *Intervention*

- *How does a government intervene if it wishes to lower the value of its currency in the FX market?*

- *What limits how much the central bank can intervene to lower its currency's XR?*

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FX Review: *Intervention*

- *What does the central bank do if it wishes to increase the value of its currency in the FX market?*

- *What limits how much the central bank can intervene to raise its currency's XR?*

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Spot Market

- **The OTC market for the shortest-term FX contracts**
 - *Settlement date: usually 2 business days*

- **All convertible currencies have spot markets.**

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Spot Market (2)

- All other FX markets are tied to the spot markets!
 - Forward market
 - Futures market
 - Option market

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Purchasing-Power Parity

- A long-term forecasting tool for *spot-market* XRs
- Tendency for the spot rate to change so that the relative purchasing power of the currencies is unchanged

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Spot Market (3)

- Government intervention is almost solely in the spot OTC markets.
 - Approximately 33% of FX trading is in the spot market.

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FX Review: *Spot Rate*

- **Changes in the values of currencies in the *spot* markets are caused by:**
 - Normal supply & demand for commercial and financial transactions
 - Arbitrage
 - Hedging
 - "Hot-money" flows
 - Government intervention

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Forward Market

- **The OTC market for longer-term FX contracts**
 - Settlement is more than 2 business days.

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Forward Market (2)

- **Most common forward rates:**
 - 1 & 2 weeks
 - 1, 2, 3 & 6 months
 - 1 year
 - *Long forwards* in a few major currencies

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Forward Market (3)

- The forward XR is determined today.
- The customer knows exactly how much will be paid or received.
- FX risk is eliminated.
- Customer pays nothing now.

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Forward Market (4)

- The forward (FR) rate is almost always different from the spot.
 - *Premium*
 - *Discount*

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Forward Market (5)

- The forward rate is *determined by interest-rate differences.*
 - *Not supply & demand*
- **(Effective) Interest-rate parity (IRP)**
 - Interest-sensitive "*hot money*"

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Forward Market (6)

- Only about 11% of the FX activity of U.S. banks is in *outright forwards*.
- Only 15 - 20 currencies have active forward markets.

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Forward Market (7)

- 3 methods of quoting FR:
 - *Outright quote*
 - \$ 1.3510-14 / €1
 - To calculate the FR outright, you need:
 - Spot rate
 - +
 - Interest rates in both currencies

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Forward Market (8)

- *Swap quote* [= *point quote*]

Spot	1 Mo	3 Mos	6 Mos
P1.2345-1.2348 / \$1	8-11	24-30	52-65
1 Mo: P1.2345 - 1.2348 / \$1 +8 +11 P1.2353 - P1.2359 / \$1			

What happened to the spread?

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Forward Market (9)

Spot	1 Mo	3 Mos	6 Mos
F4.2345-4.2348 / \$1	18-11	40-30	80-65
1 Mo: F4.2345 - 4.2348 / \$1			
	-18	-11	
F4.2327 - F4.2337 / \$1			

- *What happened to the spread?*

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Forward Market (10)

- Annual % premium or discount

$$\frac{FR - SR}{SR} * 100 * \frac{12}{n} = \% \text{ P or D}$$

$$\frac{SR - FR}{FR} * 100 * \frac{12}{n} = \% \text{ P or D}$$

- *In choosing the appropriate formula, are you expecting a (+) or (-) answer?*

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Forward Market (11)

- Attractions of forward market
 - Guarantee of future value of
 - Trade contracts
 - Financial payments & receipts
 - Hedging
 - Speculation

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Forward Market (12)

- Forwards are legally-binding contracts
- Banks must satisfy their customers' contracts.
- Customers must satisfy their contracts with their bank.

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FX Review: *Forward Rates*

- *What determines the forward-market rate?*
- *What causes movements in the values of currencies in the forward markets?*

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FX Review: Forward Rates

- *The forward rate is not determined by the market's expectation about the future spot rate!!!*
- *The actual forward rate & expectations of the future spot rate can be very different!*

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FX Review: Forward Rates

The forward rate is determined only by two things:

- *Spot rate*
- *Difference in short-term interest rates (e.g., T-bills) between the 2 currencies*

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FX Review: Forward Rates

- **Again: the forward rate is *not* based upon forecasts of the future spot rate!!!**

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FX Review: Forward Rates

- *When is the XR determined for a forward contract?*
- *When does the customer pay for the contract?*
- *Who are the customers of the forward FX market?*

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Other OTC FX Markets

- *Swap* transactions: simultaneous purchase and sale of FX for 2 different transaction dates
- 50% of FX activity is in swaps.

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Other OTC FX Markets

- Bank-traded (i.e., OTC) *FX futures*
- Bank-traded *FX options*

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