

# Foreign Exchange Market



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UNIVERSITY**  
SCHOOL OF BUSINESS  
ADMINISTRATION IN KARVINA

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# Meaning of the foreign exchange market



- Widely used abbreviations: FX market or FOREX
- The place where money denominated in one currency is bought and sold with money denominated in another currency
- The place where purchasing power in one currency can be converted into purchasing power in another currency
- The place where exchange rates of the traded currencies are determined



# Meaning of the foreign exchange market

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- The largest financial market made up of banks, commercial companies, central banks, investment management firms, hedge funds, and retail brokers and investors
- Foreign exchange means the money of a foreign country; that is, foreign currency bank balances, banknotes, checks and drafts
- A foreign exchange transaction is an agreement between a buyer and a seller that a fixed amount of one currency will be delivered for some other currency at a specified date

# Size, composition and location of the FX market

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- Market size is USD 5.1 trillion daily and the U.S. dollar is the most important currency on the foreign exchange market
  - Most of trades on the wholesale market
- The most commonly traded currency pairs are EUR/USD and USD/JPY
- FX market is a global market with no specific location
  - Several financial centres where most of trading is done
- Trading 24 hours a day
  - Market activity first heightens when Europe and Asia are open and again when Europe and the United States are open
  - FX market never sleeps...

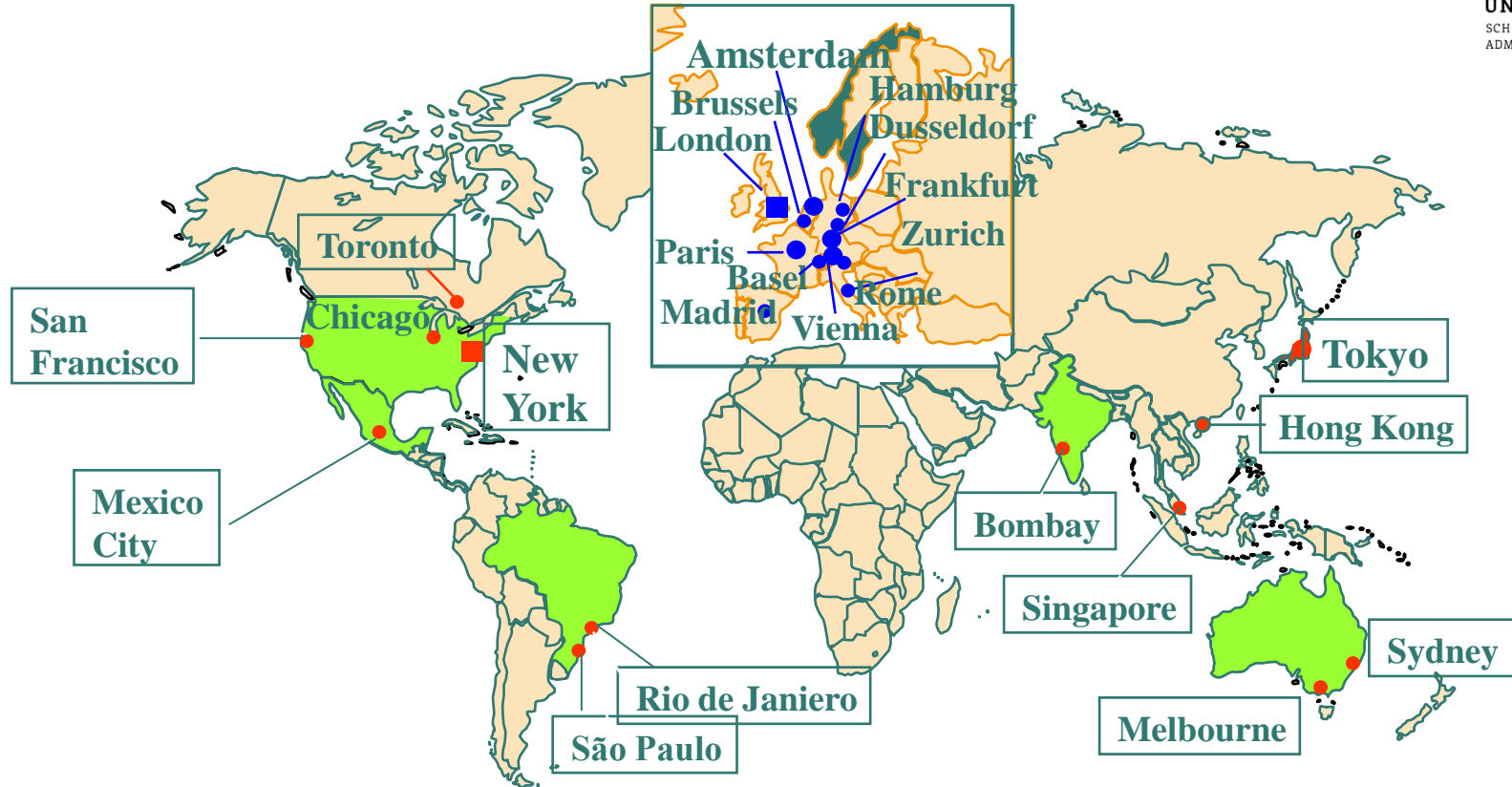
# Size, composition and location of the FX market

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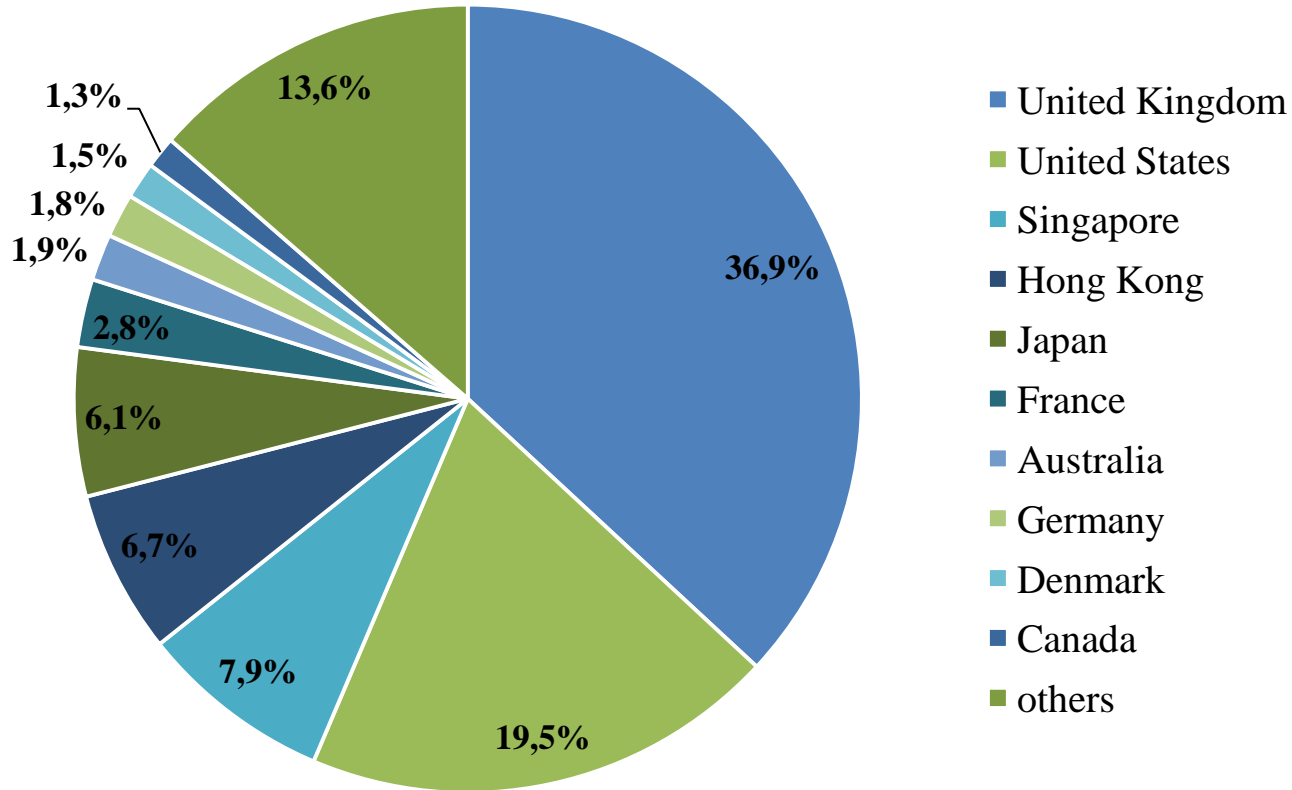


- Electronic platforms made foreign currency transactions easier
  - Electronic brokerage systems, phone, SWIFT
- Market makers are crucial for trading on the FX market
- There is no central clearing of FX transaction
- Bank of International Settlements (BIS) plays a critical role in managing FX transactions worldwide

# World map of the FX market



# Share of global FX market trading in main centres



# FX market never sleeps...



Forexearlywarning.com



Liquidity by Trading Hours



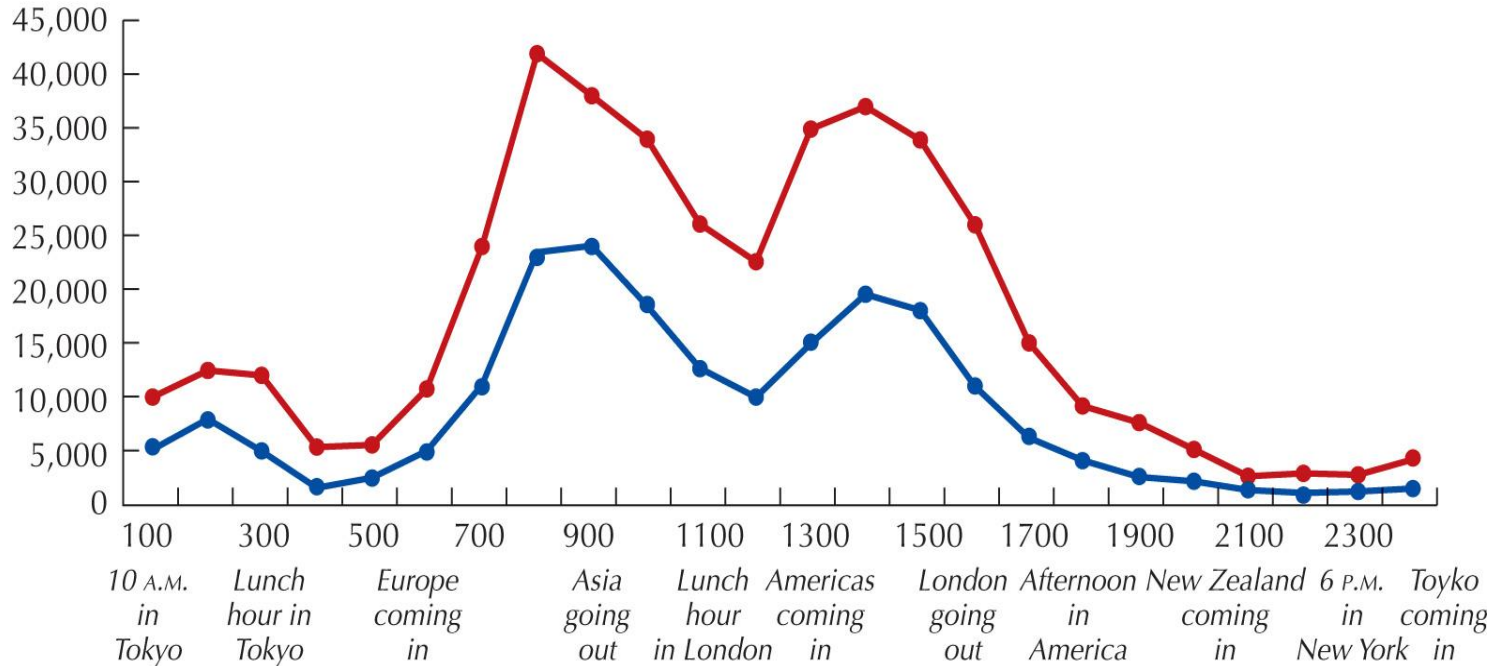
All times are in GMT



# ... but it goes for a lunch

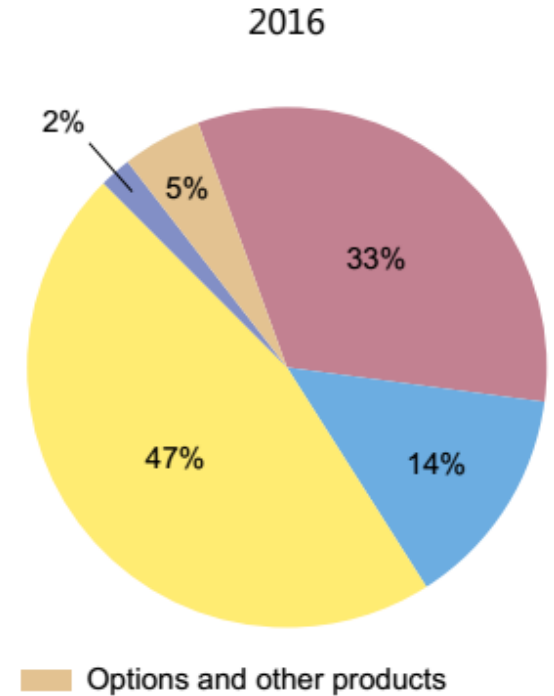
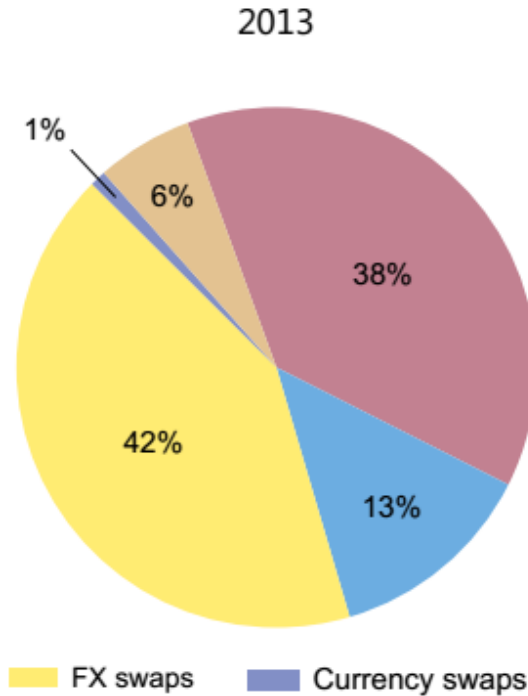
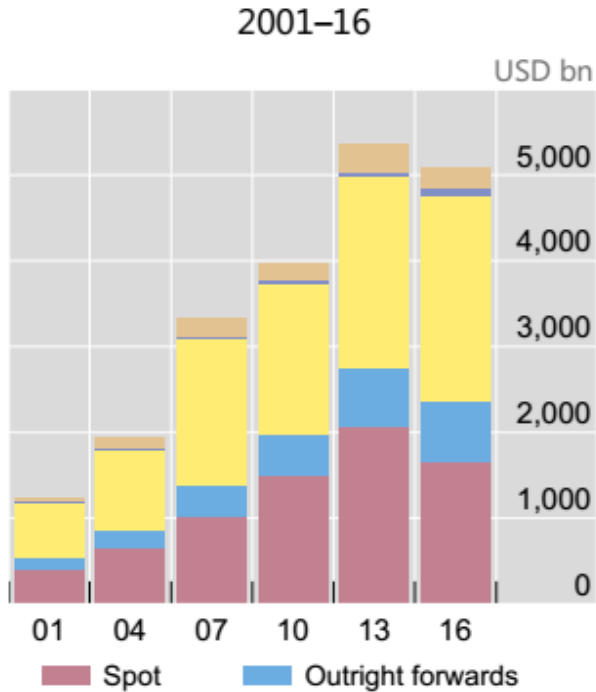


Electronic conversations per hour (Monday–Friday, 1992–1993)



Note: Time (0100–2400 hours, Greenwich Mean Time)

# Global FX market turnover by instrument



# Currency distribution of the FX market turnover (in % of transactions)



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	1998	2001	2004	2007	2010	2013	2016
USD	87.3	90.3	88.7	85.6	84.9	87.0	87.6
EUR (DEM)	(30.1)	37.6	37.2	37.0	39.1	33.4	31.4
JPY	20.2	22.7	20.3	16.5	19.0	23.0	21.6
GBP	11.0	13.2	16.9	15.0	12.9	11.8	12.8
AUD	3.1	4.2	5.5	6.7	7.6	8.6	6.9
CAD	3.6	4.5	4.2	4.2	5.3	4.6	5.1
CHF	7.1	6.1	6.1	6.8	6.4	5.2	4.8
CNY	0.0	0.0	0.1	0.5	0.9	2.2	4.0
CZK	0.3	0.2	0.2	0.2	0.2	0.4	0.3

# FX market turnover by currency pair (in % of transactions)



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	1998	2001	2004	2007	2010	2013	2016
USD/EUR (DEM)	(20)	30	28	27	28	24	23
USD/JPY	18	20	17	13	14	18	18
USD/GBP	8	11	14	12	9	9	9
USD/AUD	3	4	5	6	6	7	5
USD/CHF	5	5	4	5	4	3	4
USD/CAD	3	4	4	4	5	4	4
USD/CNY					1	2	4
USD/others	12	17	16	15	11	13	12
EUR/JPY	---	3	3	3	3	3	2

# Why U.S. Dollar is so widely traded?

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- Investment currency in many capital markets
- Reserve currency held by many central banks
- Transaction currency in many international commodity markets
- Invoice currency in many contracts
- Intervention currency employed by monetary authorities in market operations to influence their own exchange rates
- Vehicle currency that expedites transactions between currencies of limited circulation

- International banks
  - Around 100 large commercial banks worldwide provide the core of the FX market and actively participate
  - „Make a market" in FX, trading FX on behalf of bank customers (MNCs, money managers, exporters, importers, private traders)
  - Most interbank trades are speculative or arbitrage transaction
- Nonbank dealers
  - Wholesale currency traders who are NOT commercial banks, e.g. investment banks (Solomon Smith Barney, Merrill Lynch, JP Morgan, Goldman Sachs, etc.)
  - Establish their own trading centers to trade directly in the FX market, and account for 28% of the interbank (wholesale) volume



- **FX brokers**
  - Brokers/intermediaries who track quotes offered by many dealers in the global market, and then match buyers and sellers for a fee (bid/ask spread), and "make a market," without taking a position themselves (no currency inventory)
  - More and more trading (50-70%) now takes place through automated electronic trading systems, making the role of FX brokers unnecessary
- **Central banks**
  - If a country has a fixed ex-rate (Argentina until recently, Hong Kong), or a pegged rate (China), the central bank (or currency board) has to make regular interventions to support the fixed/pegged ex-rate
- **Individuals and firms**
  - Use the FX market incidentally to their underlying commercial or investment purpose

# Top 10 FX market traders in 2014



Rank	Name	Market share
1	 Citi	16.04%
2	 Deutsche Bank	15.67%
3	 Barclays Investment Bank	10.91%
4	 UBS AG	10.88%
5	 HSBC	7.12%
6	 JPMorgan	5.55%
7	 Bank of America Merrill Lynch	4.38%
8	 Royal Bank of Scotland	3.25%
9	 BNP Paribas	3.10%
10	 Goldman Sachs	2.53%



# Exchange rate

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- A foreign exchange rate is the price of one currency expressed in terms of another currency
- A foreign exchange quotation (or quote) is a statement of willingness to buy or sell at an announced rate
- Each currency pair has a double exchange rate (to buy, to sell)
- Most foreign currencies in the world are stated in terms of the number of units of foreign currency needed to buy one dollar
  - Several exceptions exist, e.g. Euro, British pound, Australian dollar

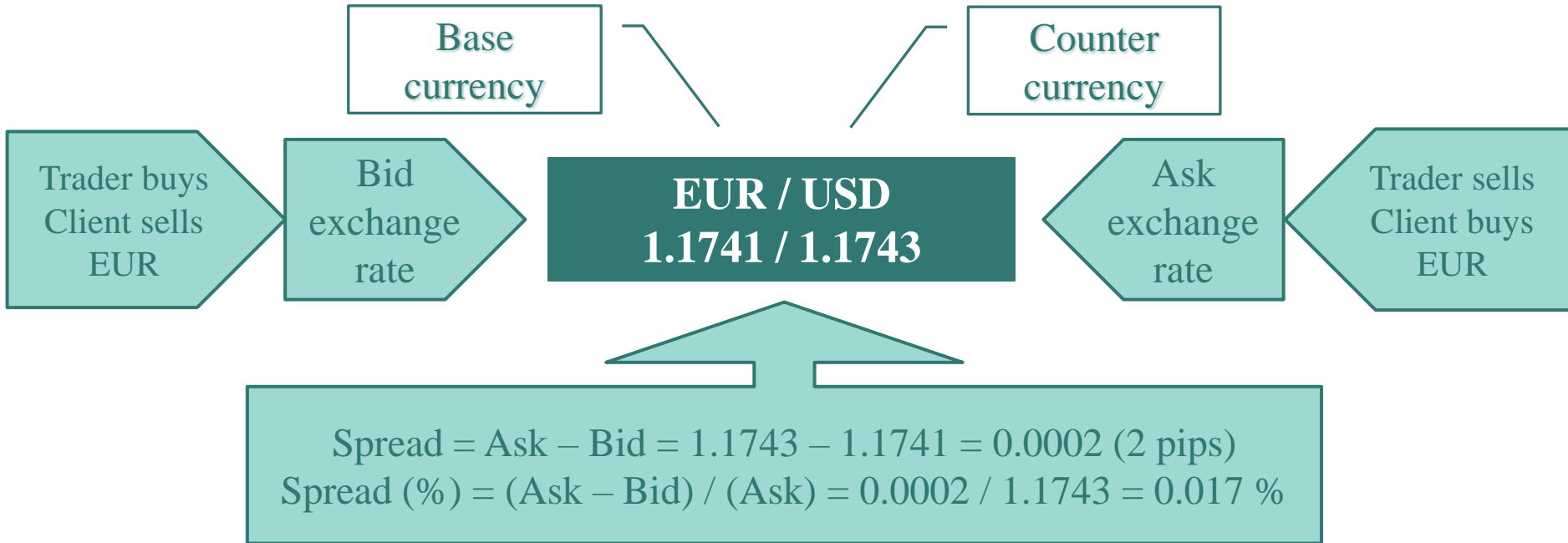
# Two-way quotation of exchange rates

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- Exchange rates are given as a bid and ask (also referred to as offer)
- Bid exchange rate
  - Price (i.e. exchange rate) in one currency at which a dealer will buy another currency
- Ask exchange rate
  - Price (i.e. exchange rate) at which a dealer will sell the other currency
- Spread
  - The difference between bid and ask rates
- Dealers bid (buy) at one price and ask (sell) at a slightly higher price, making their profit from the spread between the buying and selling prices
- A bid for one currency is also the offer for the opposite currency

# Two-way quotation of exchange rates



# Direct vs. Indirect quotation

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- Direct quote gives the home currency price of one unit of foreign currency
  - For example 26.10 Czech korunas for 1 euro written as 26.10 CZK/EUR (European convention) or EUR/CZK 26.10 (American convention)
- Indirect quote tells how many units of foreign currency can be purchased by one unit of domestic currency
  - For example 0.0383 euros for 1 Czech koruna written as 0.0383 EUR/CZK (European convention) or CZK/EUR 0.0383 (American convention)
- Direct quote is the reciprocal of the indirect quote
- In this pair of definitions, the home or base country of the currencies being discussed is critical
- The form of the quote depends on what the speaker regard as “home”

# Interpretation of changes in exchange rates

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- Depreciation of home currency
  - Value of home currency falls relative to the foreign currency
  - Using direct quotation, depreciation of home currency means increase of the exchange rate !!!, e.g. change from 26.10 CZK/EUR to 27.00 CZK/EUR
- Appreciation of home currency
  - Value of home currency raises relative to the foreign currency
  - Using direct quotation, appreciation of home currency means decrease of the exchange rate !!!, e.g. change from 27.10 CZK/EUR to 26.20 CZK/EUR
- It is better to speak about value of currency than change of the exchange rate when using direct quotes

# Main instruments on the FX market

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- Spot transactions
  - Purchase of foreign exchange, with delivery and payment between banks to take place, normally, on the second following business day
  - The date of settlement is referred to as the value date
- Forward transactions (outright forward)
  - Requires delivery at a future value date of a specified amount of one currency for a specified amount of another currency
  - The exchange rate is established at the time of the agreement, but payment and delivery are not required until maturity (several standard maturity dates)
- Swap transactions
  - Simultaneous purchase and sale of a given amount of foreign exchange for two different value dates with the same counterparty



- The simplest FX instrument for immediate exchange of funds and execution
- Pricing on the spot market is by the actual demand and supply of the currency in the market
- Spot exchange rate movements are highly unpredictable even during a single trading day
  - Relying solely on spot trading may be risky
- Standard size of one trade is about USD 10 mil.
- Trading is very fast and hectic, the stakes are high
- Trading jargon widely used among traders to make communication as short and efficient as possible

# Forward FX contracts

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- Contract settled today for future delivery/receipt of foreign exchange
- Agree today on price (forward exchange rate) and quantity (size of the trade) and settlement at fixed future date
  - Most typical are 30-day, 60-day, 90-day, 180-day, 360-day deliveries
- Forward rates are typically quoted in terms of points
  - It is not a foreign exchange rate as such
  - Rather, it is the difference between the forward rate and the spot rate
- Forward rate – spot rate = swap exchange rate
  - Forward > spot : currency is trading at forward premium (is more expensive in future)
  - Forward < spot : currency is trading at forward discount (is cheaper in future)



# Quotation of the forward exchange rate



	USD/GBP		USD/EUR		CHF/USD	
Spot	1.6604	1.6614	1.1575	1.1590	1.3820	1.3830
1 month	14	12	17	18	43	42
2 months	24	22	33	35	87	85
3 months	33	30	50	53	130	127
6 months	53	50	109	112	249	246
12 months	66	62	230	235	481	476

- Add the premium to the spot rate
  - If the bid-ask combination in swap rate is smaller-bigger number
- Deduct the discount from the spot rate
  - If the bid-ask combination in swap rate is bigger-smaller number

# Forward premium / discount

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- The forward premium or discount is the difference between the forward exchange rate and the spot exchange rate, expressed as a percentage of the spot rate
- It is a standard to present the premium or discount annualized

$$\text{premium} = \frac{F_n - S}{S} \times \frac{360}{n} \times 100$$

$F_n$  = forward exchange rate

$S$  = spot exchange rate

$n$  = number of days in the forward contract (delivery period)

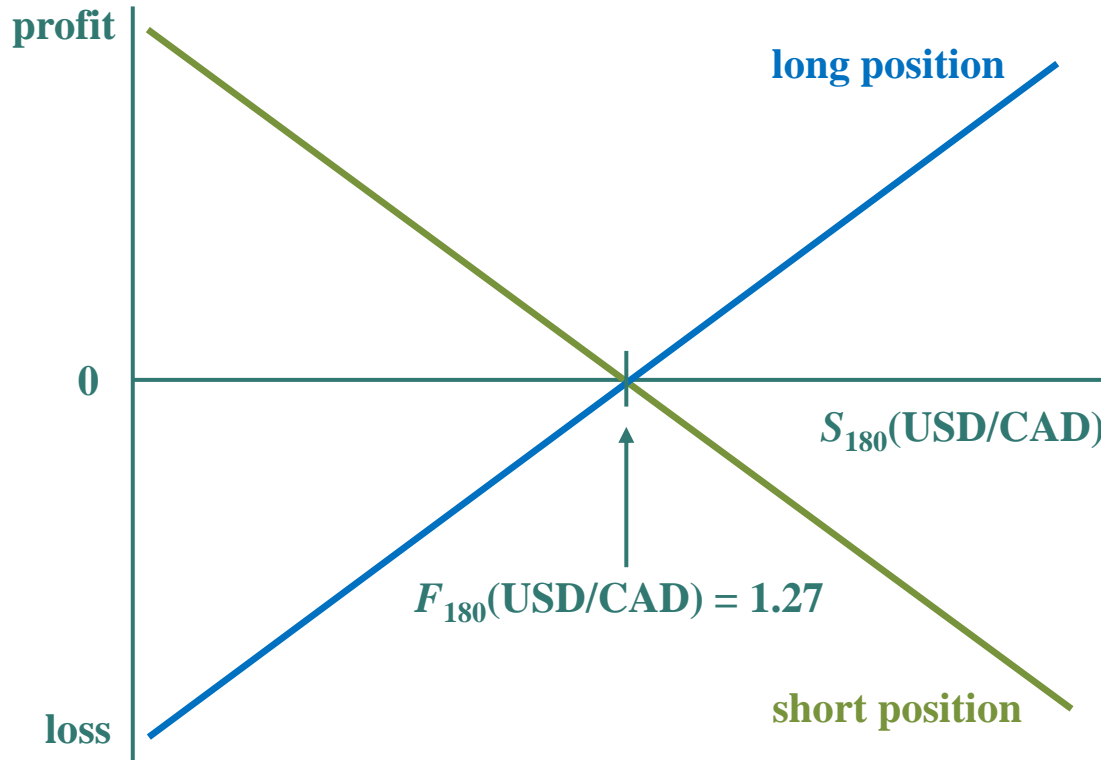
# Long and short forward positions

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- If you have agreed to buy the respective asset (forward or spot), you are „long“
- If you have agreed to sell the respective asset (forward or spot), you are „short“
  
- If you have agreed to buy currency via FX forward, you are long in this currency
- If you have agreed to sell currency via FX forward, you are short in this currency

# Payoff profiles of the forward contract

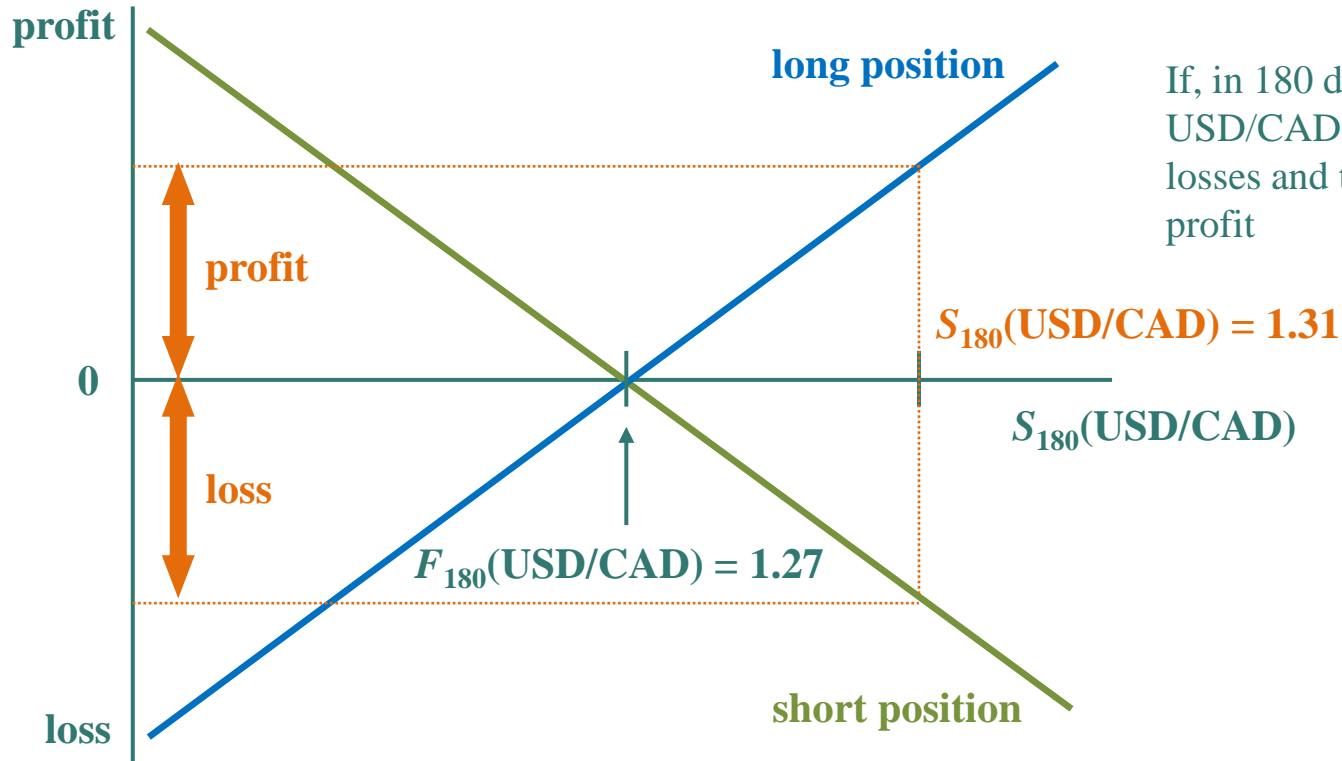


If, in 180 days the spot price rises the short loses and the long makes a profit

If, in 180 days the spot price falls the short makes profit and the long loses

The short entered into the forward agreeing to sell USD in 180 day at USD/CAD 1.27 and the long to buy USD at the same price

# Payoff profiles of the forward contract



If, in 180 days the spot price rises to USD/CAD 1.31 the short position losses and the long position makes a profit

# Purposes of trading on the FX market

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- Hedging
  - Operations to minimize foreign exchange risk
- Arbitrage
  - Non-risk operations to exploit differences in exchange rates
  - Triangular arbitrage, covered interest rate arbitrage
- Speculation
  - Risky operations to bet on particular exchange rate development
  - Leverage trading
  - Carry trade, short selling
- Investment
  - Operations to invest in currencies as a class of assets



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