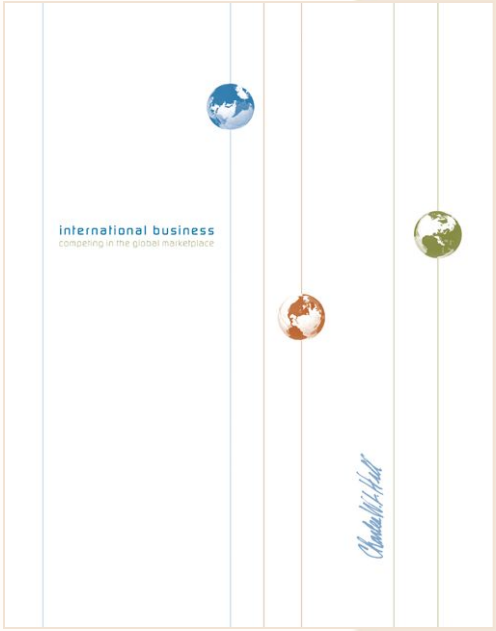
The Foreign Exchange Market



The foreign exchange market

- Foreign exchange market:
  - A market for converting the currency of one country into the currency of another.
- Exchange rate:
  - The rate at which one currency is converted into another
- Foreign exchange risk:
  - The risk that arises from changes in exchange rates

Types of Forex Risk

- Transactions Risk: risk that contract value Will change due to forex change
- Translation Risk: risk that forex change will impact B/S and I/S negatively
- Economic Risk: Risk of losing a market due to forex change

Functions of the foreign exchange market

- Two functions:
  - Converting currencies
  - Reducing risk

Currency conversion

- Companies receiving payment in foreign currencies need to convert these payments to their home currency
- Companies paying foreign businesses for goods or services
- Companies investing spare cash for short terms in money market accounts
- Companies taking advantage of changing exchange rates (Speculation)
- Governments intervening to stabilize currency

Reducing risk

- Insuring against foreign exchange risk
  - Spot exchange rate: rate of currency exchange on a particular day
  - Forward exchange rate: two parties agree to exchange currencies on a specific future date
  - Currency swap: simultaneous purchase and sale of a given amount of foreign exchange for two different value dates

Economic Exposure

- WSJ, Feb 1, 2011, p. B2
  - ***Nissan Presses Export Brakes***
  - "…a move in the value of the dollar by one yen in either direction is equivalent to about 18 billion yen, or $219 million of Nissan's operating profit on an annualized basis, with the impact on net income amounting to about 70% of that figure…."
  - Strategic Response??????

Foreign Exchange Quotes

- See any reputable financial site
- Note that quotes change every second.
- Yahoo Finance, Oanda.com

- What if you were buying a Porsche worth 50000 euros in April 1, 2013 vs Oct 27, 2013?
  - April 1: $1.287 per €
  - Oct 27 : $1.375 per €

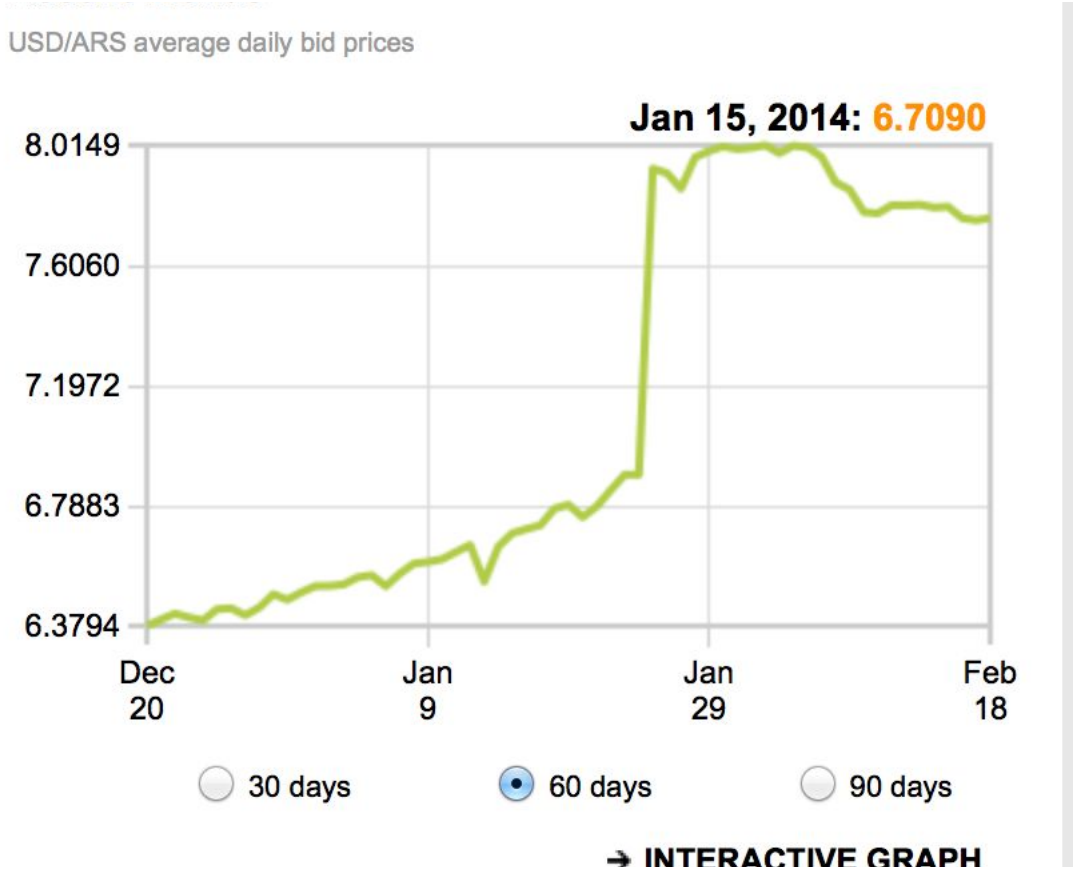
How much more would you have paid by waiting?

- 50,000€ × $1.287 = $64,359.00
- 50,000€ × $ 1.375 =$68,750.00
- Difference of $4391.00
- This is "transactions risk" could also work in your favor. Classic case of Lufthansa and Boeing purchases in 1985.

Important terminology: Direct and Indirect Rates

Direct Rates: units of home currency per one unit of foreign currency
$.33/real, $1.40 per Euro [assuming you are in USA]
Indirect: units of foreign currency per one unit of home currency
3 reals/$
.714 euros/$

Make sure that you are looking at the rates correctly. Its not always clear
From the site and I have often seen tables labeled incorrectly by lazy or inept financial Journalists!

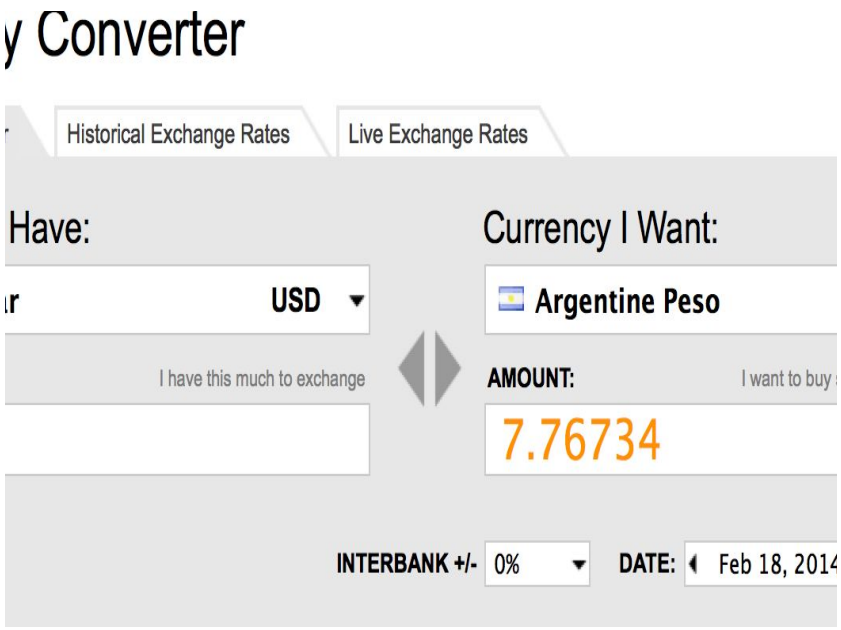


Arg

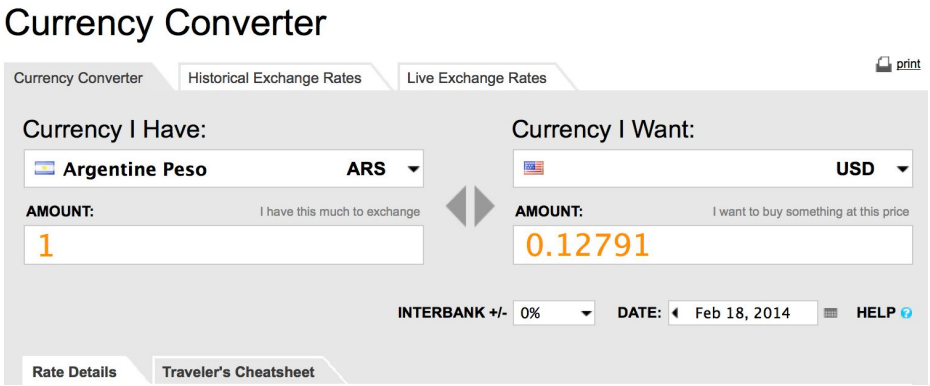
Argentine Peso Dec 20, 2013 – Feb 18, 2014

Rates from Oanada as of Feb 18, 2014

Indirect rate



Direct Rate

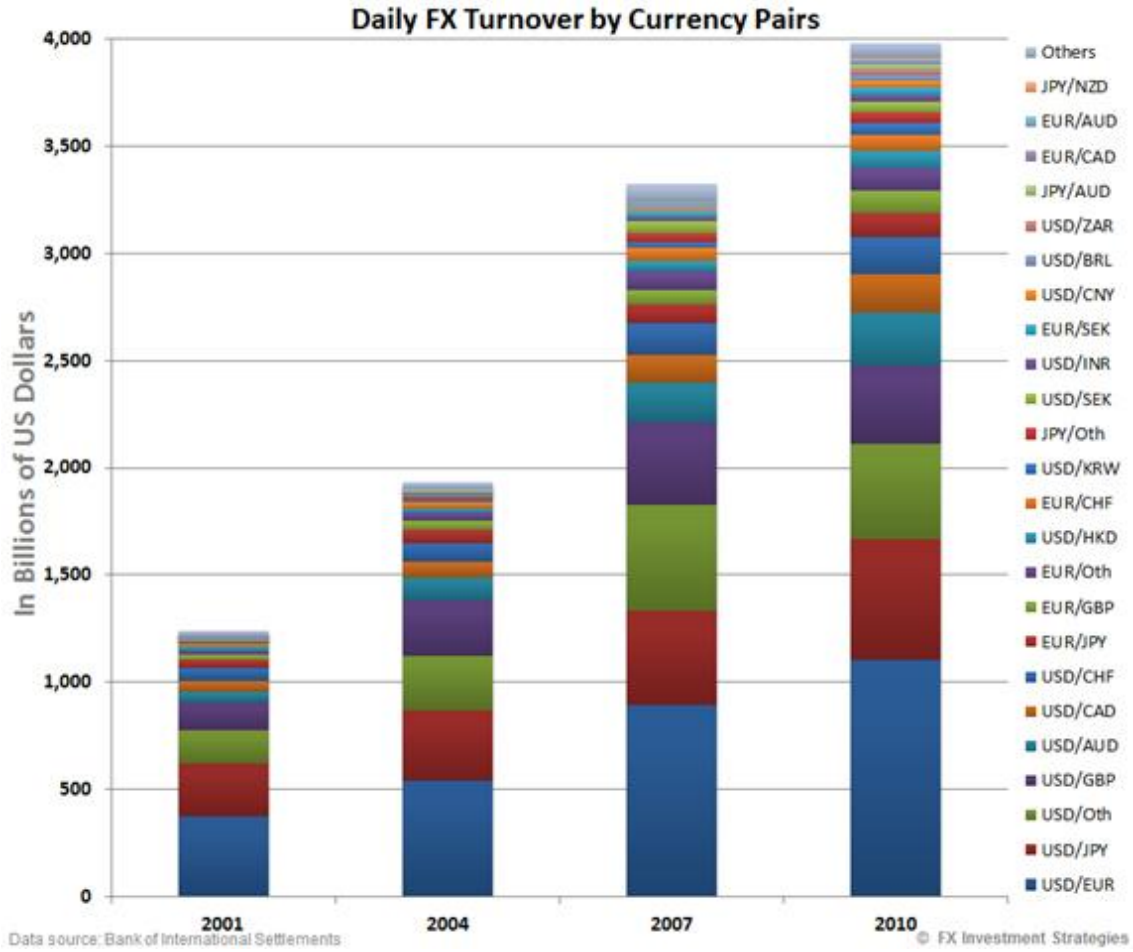


The foreign exchange market (FX)

- Global network of banks, brokers and foreign exchange dealers connected by electronic communications systems
- London's dominance (38%) is explained by:
  - History (capital of the first major industrialized nation).
  - Geography (between Tokyo/Singapore and New York).
- Two major features of the foreign exchange market:
  - The market never sleeps
  - Market is highly integrated

Hierarchy of international financial centers

Daily turnover by currency pairs



Economic theories of exchange rate determination

- "Floating" Exchange rates are determined by the demand and supply of one currency relative to the demand and supply of another
- Exchange rates reflect prices:
  - Law of One Price
  - Purchasing Power Parity (PPP)
  - Money supply and price inflation
- Interest rates and exchange rates
- Investor psychology and "Bandwagon" effects

Law of one price

- *In competitive markets free of transportation costs and trade barriers, identical products sold in different countries must sell for the same price when their price is expressed in terms of the same currency*
- Example: US/French exchange rate:

$1= .78€ A jacket selling for $50 in New York should retail for 39.24Eur in Paris (50x .78).

- $1.28 per € (50/1.28 =$39.00)

Purchasing power parity

- By comparing the prices of identical products in different currencies, it should be possible to determine the ‘real’ or PPP exchange rate - if markets were efficient
- In relatively efficient markets (few impediments to trade and investment) then a ‘basket of goods’ should be roughly equivalent in each country

- http://www.economist.com/content/big-mac-index
- Why?

2012 Big Mac Index

Country	Big Mac prices in local currency	Big Mac prices in dollars*	Implied PPP† of the dollar	Actual dollar exchange rate January 11th 2012	Under (-)/ over (+) valuation against the dollar, %
United States‡	$4.20	$4.20	-	-	-
Argentina	Peso 20.0	$4.64	4.77	4.31	10
Australia	A$4.80	$4.94	1.14	0.97	18
Brazil	Real 10.25	$5.68	2.44	1.81	35
Britain	£2.49	$3.82	1.69§	1.54	-9
Canada	C$4.73	$4.63	1.13	1.02	10
Chile	Peso 2,050	$4.05	488	506	-3
China**	Yuan 15.4	$2.44	3.67	6.32	-42
Colombia	Peso 8,400	$4.54	2001	1852	8
Costa Rica	Colones 2,050	$4.02	488	510	-4
Czech Republic	Koruna 70.22	$3.45	16.73	20.4	-18
Denmark	DK 31.5	$5.37	7.50	5.86	28
Egypt	Pound 15.5	$2.57	3.69	6.04	-39
Euro area††	€ 3.49	$4.43	1.20	1.27§§	6
Hong Kong	HK$ 16.5	$2.12	3.93	7.77	-49
Hungary	Forint 645	$2.63	153.67	246	-37
India***	Rupee 84.0	$1.62	20.01	51.9	-61
Indonesia	Rupiah 22,534	$2.46	5369	9160	-41
Israel	Shekel 15.9	$4.13	3.79	3.85	-2
Japan	Yen 320	$4.16	76.24	76.9	-1
Latvia	Lats 1.65	$3.00	0.39	0.55	-29
Lithuania	Litas 7.8	$2.87	1.86	2.72	-32
Malaysia	Ringgit 7.35	$2.34	1.75	3.14	-44
Mexico	Peso 37	$2.70	8.82	13.68	-36
New Zealand	NZ$ 5.10	$4.05	1.22	1.26	-4
Norway	Kroner 41	$6.79	9.77	6.04	62
Pakistan	Rupee 260	$2.89	61.95	90.1	-31
Peru	Sol 10.0	$3.71	2.38	2.69	-12
Philippines	Peso 118	$2.68	28.11	44.0	-36
Poland	Zloty 9.10	$2.58	2.17	3.52	-38
Russia	Rouble 81.0	$2.55	19.30	31.8	-39
Saudi Arabia	Riyal 10.0	$2.67	2.38	3.75	-36
Singapore	S$ 4.85	$3.75	1.16	1.29	-11
South Africa	Rand 19.95	$2.45	4.75	8.13	-42
South Korea	Won 3,700	$3.19	882	1159	-24

Where the numbers from from.

- Take price in $ and divide into local price.
- [81 rubles/4.20$] = 19.3 rubles/$ is implied rate
- Actual rate is 31.8 rubles/$
- Ruble is 39% below where it should be
- (19.3 – 31.8)/31.8 = -39%
- PPP says prices should converge…
- What if there are no Golden Arches?
- 750ml Beer Parity Index!

Money supply and inflation

- PPP theory predicts that changes in relative prices will result in a change in exchange rates
  - A country with high inflation should expect its currency to depreciate against the currency of a country with a lower inflation rate
  - Inflation occurs when the money supply increases faster than output increases
- Purchasing power parity puzzle: transport costs and trade barriers inhibit PPP arbitrage.
- Always are exceptions: Brazil……USA in early 80s

Interest rates and exchange rates

- Theory says that nominal interest rates reflect expectations about future exchange rates.
  - Fisher Effect (I = r + inf).
  - International Fisher Effect:
    - For any two countries, the spot exchange rate should change in an equal amount but in the opposite direction to the difference in nominal interest rates between the two countries.

Interest Rate Parity

Forward rate premium or discount will be equal to but opposite in sign to the difference in interest rates between two Currencies.

If not, major arbitrage opportunities will arise.

Covered Interest Arbitrage

FWD premium and Discount

- Using direct rates:

- [[Fwd-spot]/spot] X 12/N x100 =

% premium or discount.

According to IRP this should be equal to Difference in nominal interest rates…..if not Arbitrage will take place

Covered Interest Arbitrage

Arbitrage and Foreign Exchange
In economics, **arbitrage** is the practice of taking advantage of a state of imbalance between two (or possibly more) markets: a combination of matching deals are struck that exploit the imbalance, the profit being the difference between the market prices. A person who engages in arbitrage is called an **arbitrageur**

Covered Interest Arbitrage

You are a currency trader in a :London Bank.
You have $2,200,000 that you can invest to get the highest rate possible.

You see that interest rates in the US are 3% for a 90 day deposit (or 12% per year)
Interest rates in the UK are 4.25% for a 90 day deposit.

The Spot rate between the $ and pound is $2.20 per pound
The 90 day forward rate is. $2.178.

What would you do? Could you take advantage of an arbitrage situation?

Cross Rates

- When there is no quote between two currencies

You need to use a third currency as the common

Link.

- Ex: you have 1,000,000 Euros

You see rate in Germany of 3.09 Brazilian reals/Euro

Rates in New York are 2.1336 Euros/$ and 6.6525

reals/$

Left column is buy rate
Right Column is sell

Will pay 529 pesos for $1
Sell $1 for 537 pesos

What is cross rate for $US And $CAN?

Seen in a forex kiosk in Santiago, January 2014

- Assume $US and $Can are at 1$US=$C1.08. You have $C1,000,000 at your disposal. What would you do? Note sell rate for $CAN is 483 pesos.

Investor psychology and bandwagon effects

- Evidence suggests that neither PPP nor the International Fisher Effect are good at explaining short term movements in exchange rates
- Explanation may be investor psychology and the bandwagon effect
  - Studies suggest they play a major role in short term movements. Soros and the British Pound…
  - Hard to predict

Exchange rate forecasting

- Timing, direction, magnitude
- Efficient market school: Prices reflect all available public information
- Inefficient market school: Prices do not reflect all available information
  - Use fundamental (economic theory) or technical (price/volume data) analysis to predict the exchange rate
  - Analysis suggest that professional forecasters are no better than forward exchange rates in predicting future spot rates

Approaches to forecasting

- Fundamental analysis
  - Draws on economic theory to construct sophisticated econometric models for predicting exchange rate movements
- Technical analysis
  - Uses price and volume data to determine trends

Currency convertibility

- Political decision.
  - Many countries have some kind of restrictions
- Governments limit convertibility to preserve foreign exchange reserves
  - Service international debt
  - Purchase imports
  - Government afraid of capital flight

Counter trade

- Barter-like agreements where goods/services are traded for goods/services
- Helps firms avoid convertibility issue
- More on this later

Managerial implications

- Exchange rates influence the profitability of trade and investment deals
- International businesses must understand the forces that determine exchange rate
  - Forward exchange rate not an unbiased predictor
  - Inflation affects foreign exchange markets
  - International businesses need to take the proper precautions before trading or investing in a country. Forex mkt hedge, money market hedge.

Managing Exposure

- Transactions Exposure: Fwd Hedges, Currency Swaps, Leading and Lagging
- Translation Exposure: Minimized by FASB 52
- Economic Exposure: Disburse operations to different currency zones.