

Today's Menu

- Introduction to FX Markets
 - Fixed, floating, managed
 - China today
 - Background
 - Terminology
 - Conventions
 - Facts and Figures
 - Purchasing Power Parity
 - HW1 Assigned (Web)

What are the types of currency systems?

- Fixed
 - Pegged
- Freely Floating
- Hybrid
 - Managed Floating
 - Examples?

PACIFIC Exchange Rate Service

Monthly Avg. Exchange Rates: Mexican Pesos per U.S. Dollar

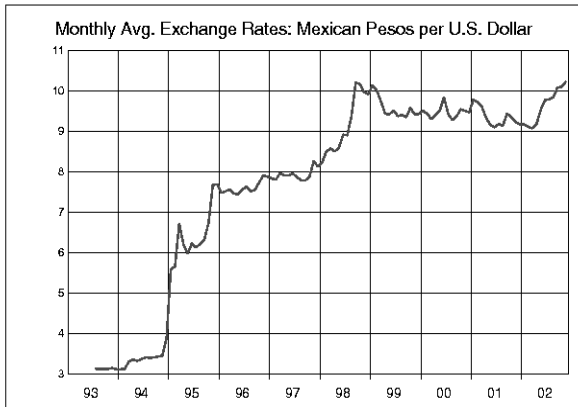
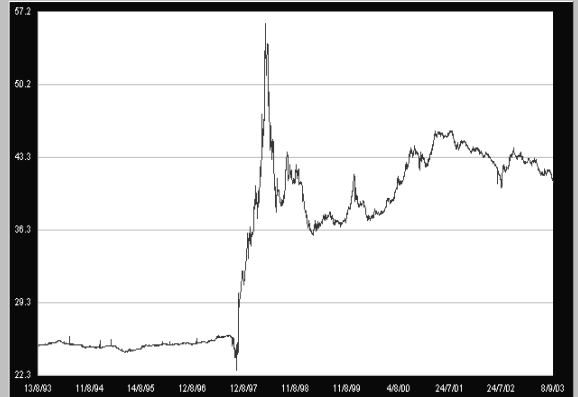
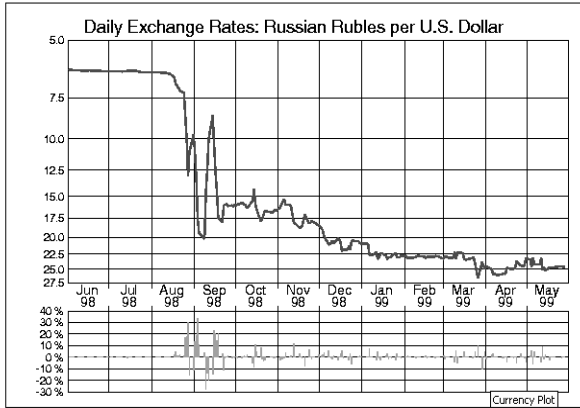


Chart: THB per 1 USD | Updated: 8/09/2003 | www.ozforex.com



PACIFIC Exchange Rate Service



Introducing the Euro:

The Euro is the new 'single currency' of the European Monetary Union, adopted on January 1, 1999 by 11 Member States. Greece became the 12th Member state to adopt the Euro on January 1, 2001. On January 1, 2002, these 12 countries will officially introduce the Euro banknotes and coins as legal tender. The irrevocable conversion rates for the Euro, along with the last day for the individual currencies of each of the Member States is:

| Irrevocable conversion rate | Last day |
|-----------------------------|---------------|
| 1 EUR = 40.3399 BEF | Feb. 28, 2002 |
| = 1.95583 DEM | Dec 31, 2001 |
| = 166.386 ESP | Feb. 28, 2002 |
| = 6.55957 FRF | Feb. 17, 2002 |
| = 0.787564 IEP | Feb. 09, 2002 |
| = 1936.27 ITL | Feb. 28, 2002 |
| = 40.3399 LUF | Feb. 28, 2002 |
| = 2.20371 NLG | Jan. 28, 2002 |
| = 13.7603 ATS | Feb. 28, 2002 |
| = 200.482 PTE | Feb. 28, 2002 |
| = 5.94573 FIM | Feb. 28, 2002 |
| As of January 1, 2001 | |
| = 340.750 GRD | Feb. 28, 2002 |

Notes 2

Introduction to FX Markets

- Why do we need foreign currency?
 - Import/Export demand and supply
 - Foreign Direct Investments (physical capital)
 - Portfolio Investments (financial securities)
 - "Speculation"
- How are foreign currencies quoted?
- See <http://www.bloomberg.com/markets/currencies/fxc.html> or <http://pacific.commerce.ubc.ca/xr/today.html>
 - European Terms (units of currency per US\$)
 - American Terms (£, EURO)
 - Cross Rates

Notes 2

January 2003

Location: <http://pacific.commerce.ubc.ca/xr/today.html>

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 Luxembourg, Netherlands, Portugal, and Spain: please refer to the row "Europe (Euro)".

| Code | Country | Units/USD | USD/Unit | Units/CAD | CAD/Unit |
|------|-----------------------|-----------|-----------|-----------|-----------|
| ARP | Argentina (Peso) | 3.2248 | 0.3101 | 2.1013 | 0.4759 |
| AUD | Australia (Dollar) | 1.6941 | 0.5903 | 1.1039 | 0.9059 |
| BSD | Bahamas (Dollar) | 1.0000 | 1.0000 | 0.6516 | 1.5347 |
| BRL | Brazil (Real) | 3.4196 | 0.2924 | 2.2282 | 0.4488 |
| CAD | Canada (Dollar) | 1.5347 | 0.6516 | 1.0000 | 1.0000 |
| CLP | Chile (Peso) | 723.23 | 0.001383 | 471.25 | 0.002122 |
| CNY | China (Renminbi) | 8.2778 | 0.1208 | 5.3937 | 0.1854 |
| COP | Colombia (Peso) | 2934.4 | 0.0003408 | 1912.0 | 0.0005230 |
| DKK | Denmark (Krone) | 6.9696 | 0.1435 | 4.5413 | 0.2202 |
| EUR | Europe (Euro) | 0.9372 | 1.0670 | 0.6106 | 1.6376 |
| FJD | Fiji Islands (Dollar) | 1.9869 | 0.5033 | 1.2947 | 0.7724 |
| GHC | Ghana (Cedi) | 8432.4 | 0.0001186 | 5494.5 | 0.0001820 |
| GBP | Great Britain (Pound) | 0.6220 | 1.6077 | 0.4053 | 2.4673 |
| HNL | Honduras (Lempira) | 16.960 | 0.05986 | 11.051 | 0.09049 |
| HKD | Hong Kong (Dollar) | 7.7969 | 0.1282 | 5.0817 | 0.1968 |
| ISK | Iceland (Krona) | 79.231 | 0.01262 | 51.626 | 0.01937 |
| INR | India (Rupee) | 47.914 | 0.02087 | 31.221 | 0.03203 |
| IDR | Indonesia (Rupiah) | 8871.1 | 0.0001127 | 5780.3 | 0.0001730 |
| ILS | Israel (Shekel) | 4.8551 | 0.2060 | 3.1636 | 0.3161 |
| JPY | Japan (Yen) | 118.136 | 0.00846 | 76.976 | 0.01289 |
| MYR | Malaysia (Ringgit) | 3.7997 | 0.2632 | 2.4759 | 0.4039 |

Today's Exchange Rates Friday, September 5, 2003

€ currencies of Austria, Belgium, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, Netherlands, Portugal, and Spain: please refer to the row Europe (Euro).

| Country | Units/USD | USD/Unit | Units/CAD | CAD/Unit |
|-----------------------|-----------|-----------|-----------|-----------|
| Argentina (Peso) | 2.9347 | 0.3407 | 2.1404 | 0.4672 |
| Australia (Dollar) | 1.5465 | 0.6466 | 1.1279 | 0.8866 |
| Bahamas (Dollar) | 1.0000 | 1.0000 | 0.7293 | 1.3711 |
| Brazil (Real) | 2.9080 | 0.3439 | 2.1209 | 0.4715 |
| Canada (Dollar) | 1.3711 | 0.7293 | 1.0000 | 1.0000 |
| Chile (Peso) | 681.12 | 0.001468 | 496.77 | 0.002013 |
| China (Renminbi) | 8.2746 | 0.1209 | 6.0350 | 0.1657 |
| Colombia (Peso) | 2821.2 | 0.0003545 | 2057.6 | 0.0004860 |
| Denmark (Krone) | 6.7046 | 0.1492 | 4.8900 | 0.2045 |
| Europe (Euro) | 0.9031 | 1.1073 | 0.6597 | 1.5182 |
| Fiji Islands (Dollar) | 1.8985 | 0.5267 | 1.3847 | 0.7222 |
| Ghana (Cedi) | 8733.1 | 0.0001145 | 6369.4 | 0.0001570 |
| Great Britain (Pound) | 0.6292 | 1.5893 | 0.4589 | 2.1791 |
| Honduras (Lempira) | 17.500 | 0.05714 | 12.763 | 0.07835 |
| Hong Kong (Dollar) | 7.7993 | 0.1282 | 5.6883 | 0.1758 |

Introduction to FX Markets

- At what price does one really buy/sell?
 - Bid: market maker buys the currency in the denominator
 - Ask: market maker sells the currency in the denominator
 - Spread (pips): market maker's profit
- See <http://www.oanda.com/>

Tue Nov 12 03:35:01 2002

Real Time Currency Rates by OANDA.com

| Currency | bid | offer | Time |
|----------|--------|--------|--------------------------|
| EUR/USD | 1.0105 | 1.0107 | Tue Nov 12 03:35:00 2002 |
| USD/JPY | 119.43 | 119.46 | Tue Nov 12 03:34:40 2002 |
| GBP/USD | 1.5888 | 1.5892 | Tue Nov 12 03:34:58 2002 |
| USD/CAD | 1.5724 | 1.5728 | Tue Nov 12 03:34:44 2002 |
| USD/CHF | 1.4477 | 1.4481 | Tue Nov 12 03:34:56 2002 |
| EUR/JPY | 120.70 | 120.74 | Tue Nov 12 03:35:00 2002 |
| EUR/GBP | 0.6359 | 0.6361 | Tue Nov 12 03:35:00 2002 |
| EUR/CHF | 1.4632 | 1.4635 | Tue Nov 12 03:35:00 2002 |
| GBP/CHF | 2.3001 | 2.3011 | Tue Nov 12 03:34:58 2002 |
| GBP/JPY | 189.78 | 189.88 | Tue Nov 12 03:34:58 2002 |

Trade currencies at these rates

This table automatically update every 5 minutes.

[Close Window](#)



Currency Arbitrage / Spreads

- Arbitrage through rate inconsistencies in different money centers
 - Buy currency in one market for immediate sale in another.
- What factors affect the spread?
 - 1) Depth of market.
 - 2) Uncertainty.
 - 3) Adverse Selection--Informed trading.

Triangular Arbitrage

- Arbitrage through discrepancies in the cross-rates.



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Address http://www.bloomberg.com/markets/currencies/fxc.html

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Benchmark Currency Rates

| | USD | EUR | JPY | GBP | CHF | CAD | AUD | HKD |
|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Benchmark Currency Rates | | | | | | | | |
| World Currencies | | | | | | | | |
| Funds | | | | | | | | |
| Commodities | | | | | | | | |
| RESOURCES: | | | | | | | | |
| Bloomberg TV | | | | | | | | |
| Bloomberg Radio | | | | | | | | |
| Markets | | | | | | | | |

Above is a chart designed to display the cross rates of eight major world currencies. Scan across the chart to find the rate of exchange between any two of these currencies.

TRADE

Introduction to FX Markets

- Some Terminology and Notation
 - Base Currency:** currency in which "financial results" are reported
 - Direct Terms** Quotes: Base currency is in the numerator
 - Indirect Terms** Quotes: Base currency is in the denominator

Example: German firm

85 ¥/Euro

indirect terms

0.00117 (=1/85) Euro/¥

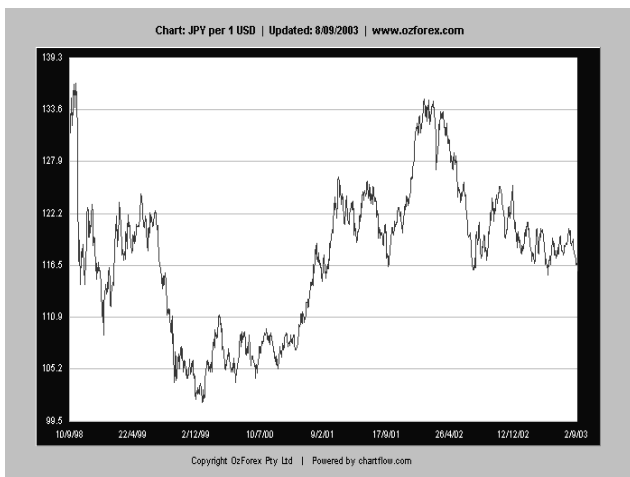
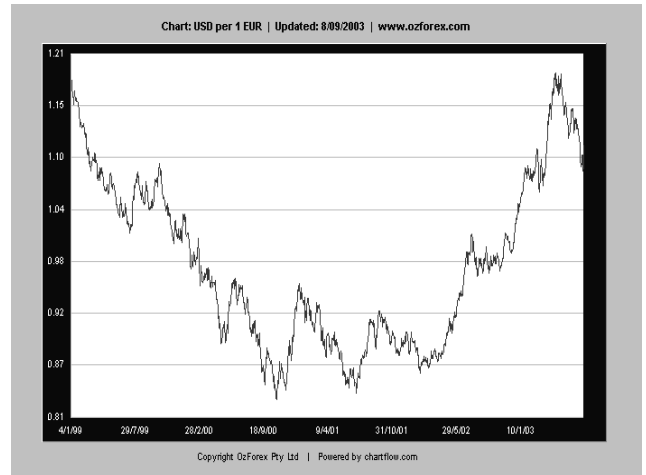
direct terms

Introduction to FX Markets

- Changes in currency values
 - In general, a rise in any FX quote is an appreciation of the currency in the denominator

Example: 1.06 \$ / Euro → 1.10 \$ / Euro
Euro appreciates vs. \$

- Appreciation/Depreciation is *not* equal to Revaluation/Devaluation (see <http://www.ozforex.com.au/> and <http://pacific.commerce.ubc.ca/xr/plot.html>)



Notes 2

Introduction to FX Markets

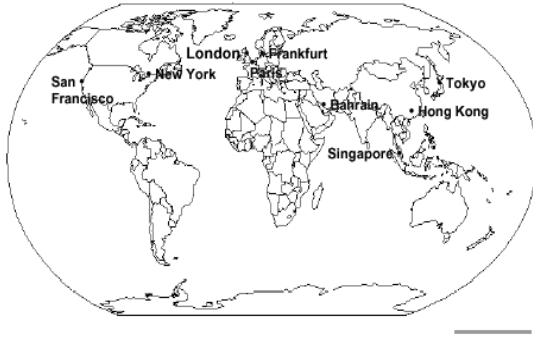
Example continued:

What is the percentage change in the value of the \$ vs. the ITL?

$$\%DX_{S/ITL} = (1837-1580)/1580 = 16.26\%$$

\$ appreciated by 16.26% vs. ITL

Locations of Major Currency Trading



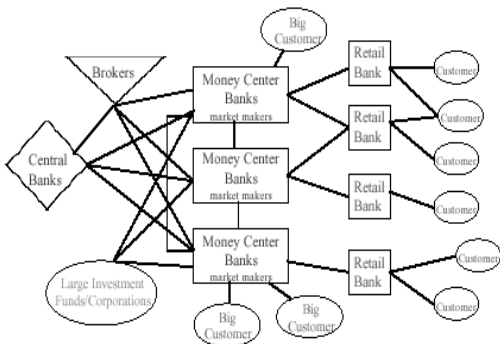
Notes 2

Introduction to FX Markets

- Inter-dealer Market
- Over The Counter market (OTC)
- Distribution networks (Reuter, Bridge)
- Open 24/5 (6?)
- Typical trade > US\$ 1 mil.

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“Picture” of Currency Market



Notes 2

Currency Valuation: Links with Goods Markets

- International Law of One Price (ILOP) or “Goods Markets Arbitrage”

Example: Price of a Bushel of Wheat
 $US p_S = \$2.00$
 $UK p_£ = £1.00$
 $\rightarrow FX_{\$/£} = \$2.00 / £1.00 = 2\$/£$

What if $FX_{\$/£} = 1.5$?

Exchange \$ 2.00 vs. £, get $2.00 / 1.5 = 1.33$ £

Buy 1.33 bushels in UK (instead of 1 bushel in US)
 Doing this will lower the value of \$ in terms of £

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Currency Valuation: Links with Goods Markets

- ILOP Formula:

$$FX_{\$/C} = p_{\$/C} / p_C \text{ or } FX_{C/\$} = p_C / p_{\$/C}$$

- ILOP cannot hold with pegged ER's (Fig. 2.3)
- Floating ER's *should* fix problems through Purchasing Power Parity (PPP)

Purchasing Power Parity

- Assume ILOP holds at any point in time

Prices: $p_{\$/C}^0, \dots, p_C^0 \rightarrow FX_{\$/C}^0 = p_{\$/C}^0 / p_C^0$

Inflation Rates: $i_{\$/C}, i_C \rightarrow p_{\$/C}^1 = p_{\$/C}^0 (1+i_{\$/C})$
 $p_C^1 = p_C^0 (1+i_C)$

→ PPP Formula: $FX_{\$/C}^1 = p_{\$/C}^1 / p_C^1 = FX_{\$/C}^0 (1+i_{\$/C}) / (1+i_C)$
 (relative PPP)

Example: $FX_{\$/\text{£}}^0 = 1.75$ $i_{\text{£}} = 20\%$ per year
 $i_{\$/C} = 0\%$ per year

$$FX_{\$/\text{£}}^1 = 1.75\$/\text{£} * 1 / (1.2) = 1.458 \$/\text{£}$$

- i.e., currency of higher inflation country depreciates for ILOP (somewhere defined as Absolute PPP) to hold

PPP

- What are the limitations?
 - Where might it break down?
- Does it hold in practice?
- What is it useful for?