Why Exchange Rates Matter?

Wal-Mart
- 80% of Wal-Mart’s suppliers produce in China
- 60% of Wal-Mart items produced in China
- If Chinese Yuan (RMB) appreciates then Wal-Mart will have to raise prices too.

Why does China manipulate the currency?
- Need to keep people working
- Removal of constraints could cause 100m people to lose jobs
  - 100m poor, starving people may be revolutionary

Current debate in the US
Objectives

Understand the evolution of the international monetary system

What determines exchange rates today?

What can firms do to insulate themselves from exchange rate risk?
Milk Prices
Exchange Rates
(price of one currency in terms of another)

<table>
<thead>
<tr>
<th>Country/currency</th>
<th>IN US$ Fri</th>
<th>IN US$ Thurs</th>
<th>US$ VS. % CHG 1-Day</th>
<th>US$ VS. % CHG YTD</th>
<th>PER US$ Fri</th>
<th>PER US$ Thurs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Europe</strong></td>
<td></td>
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<td></td>
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<tr>
<td>Czech Rep. koruna</td>
<td>0.05114</td>
<td>0.05151</td>
<td>0.73</td>
<td>2.9</td>
<td>19.554</td>
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<td>Denmark krone</td>
<td>0.1743</td>
<td>0.1758</td>
<td>0.85</td>
<td>1.5</td>
<td>5.7358</td>
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<td>Euro area euro</td>
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<td>1.3107</td>
<td>0.80</td>
<td>1.5</td>
<td>0.7601</td>
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<tr>
<td>Hungary forint</td>
<td>0.00434237</td>
<td>0.00439032</td>
<td>1.10</td>
<td>4.3</td>
<td>230.29</td>
<td>227.77</td>
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<tr>
<td>Norway krone</td>
<td>0.1746</td>
<td>0.1765</td>
<td>1.07</td>
<td>2.9</td>
<td>5.7279</td>
<td>5.6672</td>
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<tr>
<td>Poland zloty</td>
<td>0.3147</td>
<td>0.3158</td>
<td>0.36</td>
<td>2.8</td>
<td>3.1775</td>
<td>3.1681</td>
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<tr>
<td>Romania leu</td>
<td>0.2085</td>
<td>0.3010</td>
<td>0.86</td>
<td>-0.6</td>
<td>3.3505</td>
<td>3.3219</td>
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<tr>
<td>Russia ruble</td>
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<td>0.03255</td>
<td>0.17</td>
<td>0.0</td>
<td>30.767</td>
<td>30.713</td>
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<td>Sweden krona</td>
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<td>0.1580</td>
<td>1.20</td>
<td>-1.5</td>
<td>6.4043</td>
<td>6.3292</td>
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<tr>
<td>Switzerland franc</td>
<td>1.0510</td>
<td>1.0503</td>
<td>0.94</td>
<td>4.0</td>
<td>0.9515</td>
<td>0.9427</td>
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<tr>
<td>1-mos forward</td>
<td>1.0513</td>
<td>1.0512</td>
<td>0.93</td>
<td>3.0</td>
<td>0.9512</td>
<td>0.9424</td>
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<tr>
<td>3-mos forward</td>
<td>1.0520</td>
<td>1.0519</td>
<td>0.93</td>
<td>3.9</td>
<td>0.9506</td>
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<tr>
<td>6-mos forward</td>
<td>1.0533</td>
<td>1.0532</td>
<td>0.93</td>
<td>3.9</td>
<td>0.9494</td>
<td>0.9406</td>
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<tr>
<td>Turkey lira</td>
<td>0.5537</td>
<td>0.5563</td>
<td>0.48</td>
<td>1.3</td>
<td>1.8061</td>
<td>1.7975</td>
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<tr>
<td>UK pound</td>
<td>1.4820</td>
<td>1.5014</td>
<td>0.63</td>
<td>8.9</td>
<td>0.6702</td>
<td>0.6680</td>
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<tr>
<td>1-mos forward</td>
<td>1.4817</td>
<td>1.5011</td>
<td>0.63</td>
<td>8.2</td>
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<td>0.6692</td>
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<tr>
<td>3-mos forward</td>
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<td>1.5005</td>
<td>0.63</td>
<td>8.2</td>
<td>0.6700</td>
<td>0.6604</td>
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<tr>
<td>0-mos forward</td>
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<td>1.5002</td>
<td>0.63</td>
<td>8.2</td>
<td>0.6708</td>
<td>0.6690</td>
</tr>
</tbody>
</table>
Same rates in very different locations (note, slight difference due to differences in market close from London to NYC)
Exchange rates

Dollar to Euro

Euro to Dollar

(CAMERON School of Business)
Int’l Monetary System

**Foreign Exchange Rate** – price of one currency in terms of another (i.e. € .89 per $1 or $1.12 per € 1)

**Gold Standard (1870-1914)**

- Currencies pegged to value of gold
- Gold was common denominator for all currencies
  - All exchange rates were fixed
- Predictable and stable
  - Until England stopped converting in 1914
  - Tried to reestablish between WWs but not effective
Bretton Woods Conference

- End of WWII
- Meeting of all 44 allied nations

July 1944
Bretton Woods System (1944-1973)

Following WWII

- Chaos in foreign exchange markets
- Bretton Woods system
  - Tied dollar to gold at $35 an ounce
    - Other currencies pegged to dollar
  - Problem:
    - Other countries needed dollars as reserves assets
    - Dollars flowing out. US printed more.
  - But redeemable at $35 an ounce, gold flowing out too.
  - Nixon suspended redemption in 1971, currencies allowed to “float” starting in 1973
International Monetary Fund

International Monetary Fund – international organization established to promote cooperation, exchange stability, and orderly exchange arrangements

Today: lender to country’s with balance of payment problems

- Loans are short term (1-5 yrs)
- Strings attached
  - Reduction in fiscal expenditures
  - Flexible exchange rates
- Greece had to be bailed out and once again is facing a similar bailout (https://www.nytimes.com/2017/04/21/business/dealbook/international-monetary-fund-greece-bailout.html?mcubz=0 )

Int’l Monetary System Today

No single agreement

No official common denominator
- Although dollar is still a key currency

Exchange rates determined by supply and demand
- Currencies traded like any other commodity
  - Except with multiple prices, i.e. US$ has a price in ¥, RMB, €, etc…
- Governments can manipulate those factors
  - Exchange rate policy
Exchange Rates

Suppose the Euro → Dollar rate is €1:$1
Suppose a case of French wine costs €1000
How much does the wine cost in the US?  $1000

Suppose the dollar appreciates, €1:$0.80, how much does the wine cost?  $800

Suppose the dollar depreciates, €1:$1.20, how much does the wine cost?  $1200
<table>
<thead>
<tr>
<th>Strong Dollar</th>
<th>Weak Dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td>▪ Low price imports</td>
<td>▪ Easier for US Exporters</td>
</tr>
<tr>
<td>▪ US tourists travel abroad cheaply</td>
<td>▪ Less competition from imports</td>
</tr>
<tr>
<td>▪ Easier for US firms to acquire foreign firms</td>
<td>▪ Easier for foreign firms to acquire US firms</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>▪ Tough on exporters</td>
<td>▪ Higher prices for consumers on imports</td>
</tr>
<tr>
<td>▪ Hard to compete with low cost imports</td>
<td>▪ US tourists find it hard to travel</td>
</tr>
<tr>
<td>▪ Foreign tourists find it difficult to visit US</td>
<td></td>
</tr>
</tbody>
</table>
Over vs. Undervalued

“Overvalued” and “Undervalued” are relative terms
- Over or undervalued relative to what?

Law of one price – theory that all items should cost the same everywhere
- Doesn’t hold: transport costs, tariffs, etc.
- Suggests that exchange rates “should” move in direction of law of one price otherwise known as “Purchasing Power Parity”
Debate

Chinese Currency Manipulation
China is manipulating their currency to artificially keep its value low and the value of the dollar high.

Question: Should China be “allowed” to artificially depress the value of their currency?

Write a brief press release addressing the issue.

Groups:

- Politicians running for president
- US Manufacturing Unions
- Walmart Representatives
- Chinese ambassador to the US
- National Association of Consumer Advocates
- Senate Democrats
- House Republicans
The Real Conundrum: Why the Hell Do We Care if China Manipulates Its Currency in Our Favor?

Here's a little editing fun of Harold Meyerson's article in today's Washington Post:

"This week, committees on both sides of Capitol Hill will plumb the conundrum of Chinese currency manipulation. The conundrum isn't that -- or why -- China is manipulating its currency: By undervaluing it, China is systematically able to underprice its exports, putting American (and other nations') manufacturing consumers and businesses that purchase China's cheap imports at a significant disadvantage. The conundrum is why the hell the United States isn't doing thinks it should do anything about it.

There are certainly plenty of senators and congressmen -- and Main Street Americans U.S. producers that compete with China -- who'd like to see the White House place some tariffs taxes on American consumers and businesses who purchase the underpriced low-priced Chinese imports. If the administration doesn't act, Congress may just consider mandating some tariffs punitive taxes against American consumers and business on its own."
What Determines Exchange Rates?

Long Run

- Price Differences (PPP)
- Interest Rates & Money Supply
- Productivity and BOP
- Exchange Rate Policies
- Investor Psychology

Short Run
Exchange Rates – Appreciating Currency

Appreciating currency (demand increasing) could be caused by:

- Prices falling in that country
- Interest rates increasing in that country
- Productivity increasing and businesses looking to invest
- Exchange rate policy of strong currency
- Speculators believe currency will increase in value and bid up its value
Depreciating currency (demand decreasing) could be caused by:

- Prices rising in that country
- Falling interest rates
- Political or economic uncertainty (less investment flowing in)
- Central bank printing money
- Speculators believe value will fall and stop buying
Purchasing Power Parity

And Burgernomics
Big Mac Index / PPP steps

Take Big Mac Price in foreign currency

Divide by dollar price

Gives implied PPP of dollar

Compare PPP to actual Exchange Rate

If:

- Actual ER < PPP dollar is undervalued
  - Foreign currency is overvalued
- Actual ER > PPP dollar is overvalued
  - Foreign currency is undervalued
Big Mac Index

\[
\frac{\text{Foreign Price}}{\text{Price}} = \frac{\text{Foreign } \$}{\text{at PPP}}
\]

Real 9.50

\[\text{\$4.07} = 2.34 \text{ R/}\$\]

The Real is Overvalued

Compare to Actual Exchange Rate

The Dollar

“Should Buy” (PPP)

2.34 Reals

“Does Buy” (ER)

1.54 Reals

Over/Under valued

Undervalued

\[=> \text{The Real is Overvalued}\]

http://www.economist.com/content/big‐mac‐index
Sample Problem

Using the big-mac-index as our measure of PPP, is the Chinese yuan over- or under-valued vs. the dollar? Is the dollar over- or under-valued vs. the yuan?

Big Mac price in US: $4.07
Big Mac price in China: Yuan 14.70
Exchange rate: Yuan 6.45 / $1
Sample Problem 2

Big mac in US: $4.07
Big mac in Australia: A4.56
Exchange rate A.92/$

According to PPP, the US dollar should buy
\[
\frac{A4.56}{$4.07} = 1.12
\]
Australian dollars. The US dollar actually buys .92 Australian dollars. Therefore, the US dollar is Undervalued and the Australian dollar is Overvalued.
Strategies to Deal with Exchange Rate Risk
Risk and Objectives

Objectives of firms differ

- Financial firms looking for risk and return
  - More risk than minimal

- Non-financial firms want to preserve value
  - Minimize currency risk – potential for loss with fluctuations in exchange market (also called exchange rate risk)
Hedging Exchange Rate Risk

Economic Exposure (Operating Exposure)

- Exchange rate risk as applied to the firm’s competitive position
  - Operational Hedge (Strategic Hedge) – spread out activities in different currencies to offset losses in one with gains in another

Transaction Exposure

- Exchange rate risk as applied to the firm’s home currency cash flows
- Currency Hedge – Financial transaction that protects traders and investors from exposure to the fluctuations of the spot rate
Strategies for Financial Companies

Primary strategic goal is to profit from the foreign exchange market

- Market where individuals, firms, governments, and banks buy and sell currencies of other countries
- Functions
  - To service the needs of trade and investment
  - To trade in its own commodity
Types of foreign exchange transactions

- **Spot transaction**: Classic single-shot exchange of one currency for another
- **Forward transaction**: Participants buy and sell currencies now for future delivery
  - **Currency hedging**: Protects traders and investors from exposure to the fluctuations of the spot rate
  - **Forward discount**: Forward rate of one currency relative to another currency is higher than the spot rate
Strategies for Financial Companies (continued 2)

- **Forward premium**: Forward rate of one currency relative to another currency is lower than the spot rate
  - **Currency swap**: Conversion of one currency into another at Time 1
    - Includes an agreement to revert it back to the original currency at a specified Time 2 in the future
Implication for Action

Exchange rate literacy and awareness is a must
  - Profits or whole business model may be at risk
  - Open accounts for exporters are risky

Risk analysis must include currency risks

Must have strategy for dealing with exchange rate risks
  - Currency hedging
  - Strategic hedging