Exchange Rates: Application of Supply and Demand to Currencies

ECO 120: Global Macroeconomics

Goals

Unit Goals

- Interpret meaning of exchange rates
- Use exchange rates to convert prices and values from one currency to another
- Interpret changes in exchange rates in terms of currency's value against others
- Use a supply and demand model of currencies to predict changes in exchange rates.

Learning objectives

- LO3: Use the supply and demand model for currencies to predict changes in exchange rates.

Reading and Exercises

- Textbook: Module 47
- **Canvas Quiz due Wednesday 11:59 PM**. Multiple-choice, 10 questions, unlimited attempts allowed, only best score counts
- **Homework/In-class Exercise due Friday 11:59 PM**. We will work together in class on Thursday.

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Exchange Rates

- **Nominal Exchange Rate:** how much of one currency can be traded for one unit of another currency.
- Example:
    - The Mexican Peso / U.S. Dollar exchange rate is 20.67 pesos / dollar (Feb 6, 2022).
    - One U.S. dollar can be exchanged for 20.67 pesos.
- There are two ways to express every exchange rate.
- Same example:
    - The Mexican Peso / U.S. Dollar exchange rate is 0.0484 dollars / peso (Feb 6, 2022).
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Changes in the Exchange Rate

- **Appreciation:** A currency appreciates against a second currency when one unit of the first currency can purchase *more* of the second currency.
- **Depreciation:** A domestic currency depreciates against a second currency when one unit of the first currency can purchase *less* of the second currency.
- Examples of an appreciation of the dollar:
  - Exchange rate increases from 20.67 pesos/dollar to 22.00 pesos/dollar.
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Converting From One Currency to Another

MXN to USD

Suppose the price of a bike in Mexico is 8,440 MXN.

How much does this cost in USD?

$$8,440\ MXN \times \left(\frac{1\ USD}{20.67\ MXN}\right)$$

$$= 408.32\ USD$$

USD to MXN

Suppose the price of a car in the U.S. 9,500 USD.

How much does this cost in MXN?

$$9,500\ USD \times \left(\frac{20.67\ MXN}{1\ USD}\right)$$

$$= 196,365\ MXN$$

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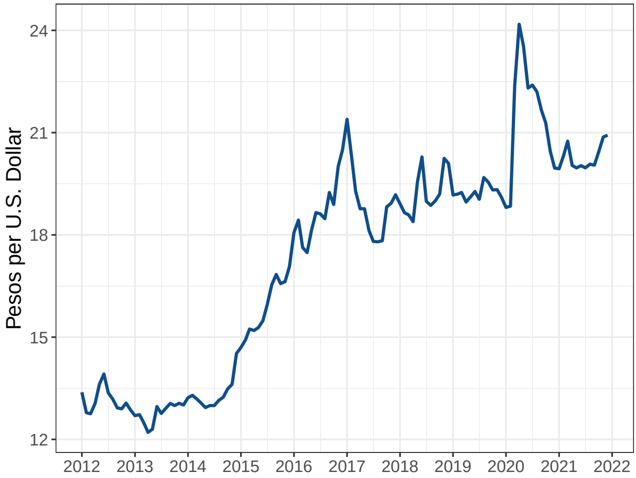
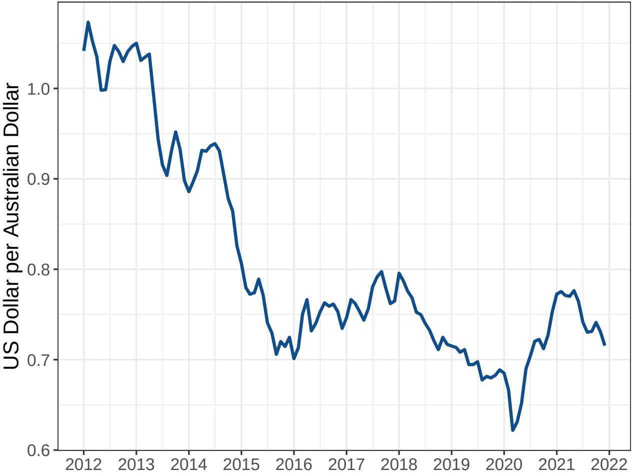
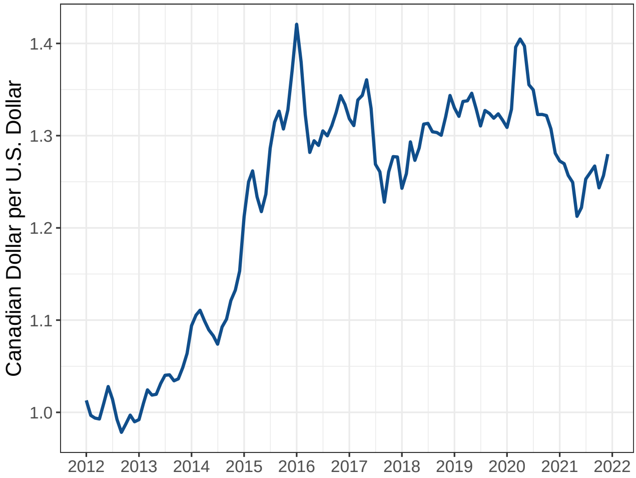
Mexico: Mexican Pesos per U.S. Dollars



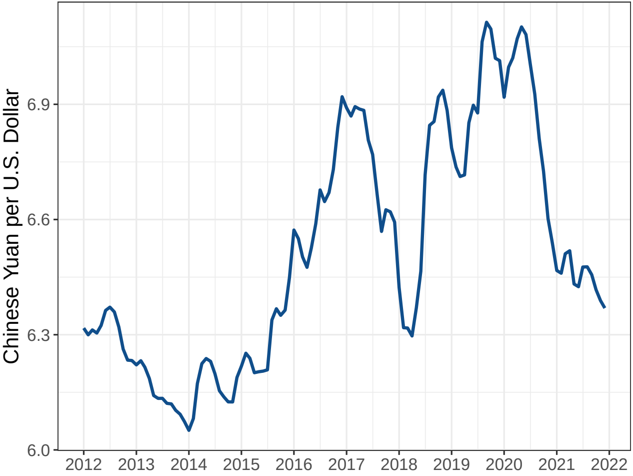
Australia: U.S. Dollars per Australian Dollar



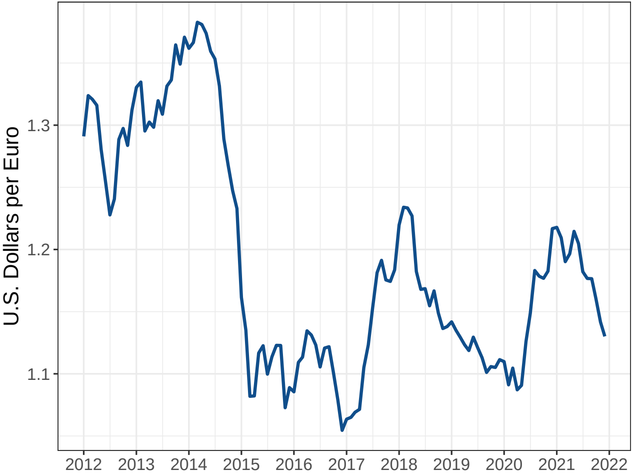
Canada: Canadian Dollars per U.S. Dollar



China: Chinese Yuan per U.S. Dollar

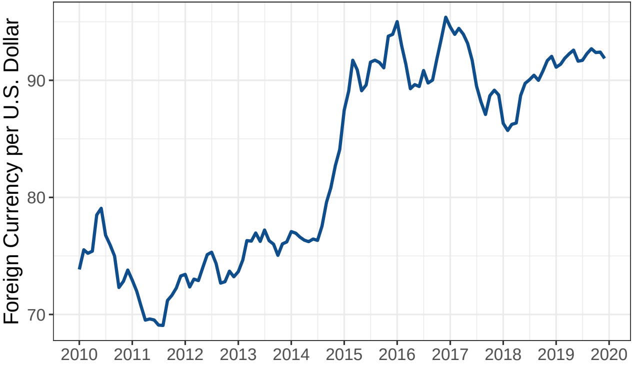


Europe: U.S. Dollar per Euro



Japan: Japanese Yen per U.S. Dollars

Trade-Weighted Index



- Weighted average of many currencies, based on level of trade.
- Includes: Euro Area, Canada, Japan, United Kingdom, Switzerland, Australia, and Sweden.

Demand for Currency

- Price of currency of interest (say U.S. Dollars):
  - Exchange rate expressed as foreign currency per one unit of currency of interest.
  - Example: price of dollars = Euros per U.S. dollar.
  - An increase in this exchange rate means an appreciation of the dollar.
- Demand for currency is a *derived demand*. It depends on...
  - *foreign demand* for the country's goods.
  - *foreign demand* for the country's assets.
  - Financial assets could include stocks and bonds for companies in a country, government bonds from a country
  - Assets may include foreign direct investment, when owners from a foreign country own significant portions of a company or a company's facilities located in a country.

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Shifts in Demand

- When something *besides the exchange rate* influences the demand for a currency, then there is a *shift* in the demand.
- Determinants of demand for currency:
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Supply of Currency

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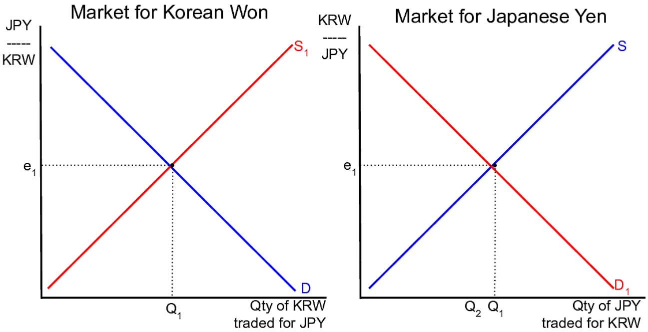
Example 1: Decrease in Income in Korea

Japan and Korea are major trading partners. Suppose there is a decrease in incomes in Korea, leading to a decrease in demand for imported goods from Japan to Korea



Two related markets. Market for Korean Won (Price=JPY/KRW) and Market for Japanese Yen (Price=KRW/JPY)

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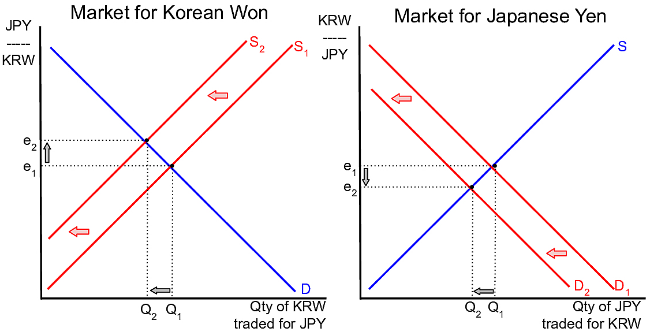

Decrease in Koreans' demand for Japanese Yen
→ Decrease in Supply of Korean Won.

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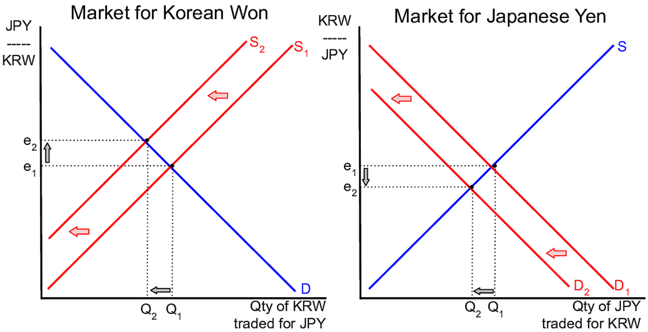
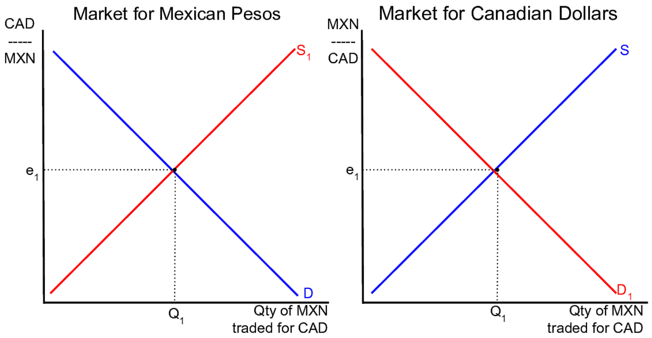


Korean Won appreciates against the Japanese Yen
Equivalently, Japanese Yen depreciates against Korean Won

Example: Reduction in Trade Restrictions

Suppose a trade agreement between Mexico and Canada results in a significant reduction in legal restrictions in Mexico, allowing more imports from Canada.



Two related markets. Market for Mexican Pesos (Price=CAD/MXN)

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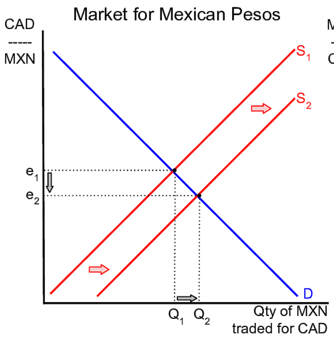

Increase in Mexican consumers' demand for Canadian Dollars

→ Increase in Supply of Mexican Pesos.

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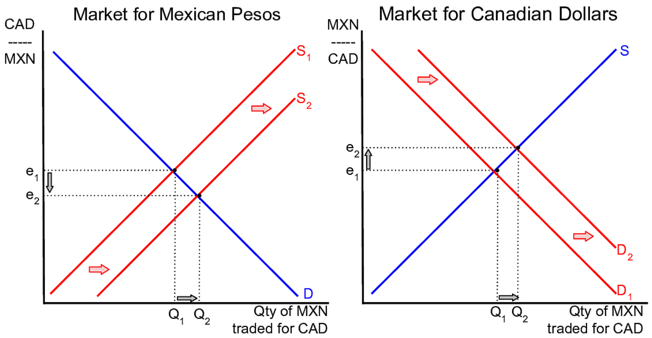
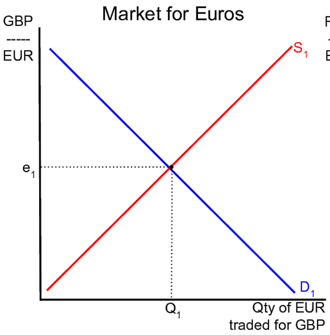


Mexican Peso depreciates against the Canadian Dollar

→ Canadian Dollar appreciates against the Mexican Peso

Example: Increase in U.K. Interest Rate

Suppose interest rates in the United Kingdom increase, but stay the same in the Euro area.



Two related markets. Market for Euro (Price=GBP/EUR)

and Market for U.K. Pound Sterling (Price=EUR/GBP)

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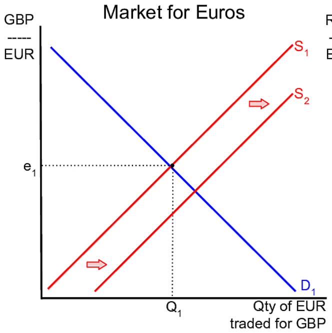

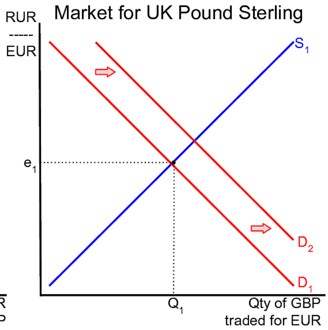

Increase in Euro-area investors' demand for U.K. Pounds

→ Increase in Supply of Euros

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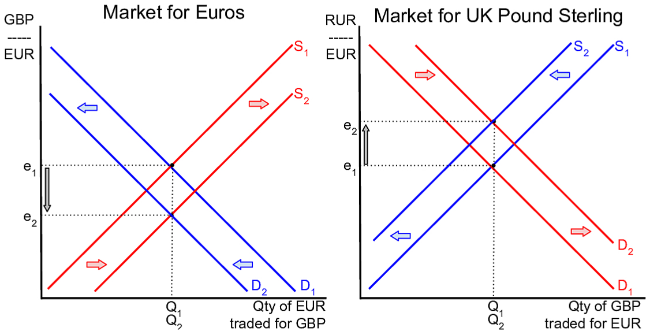

Decrease in British investor's demand for Euros

→ Decrease in Supply of U.K. Pounds.

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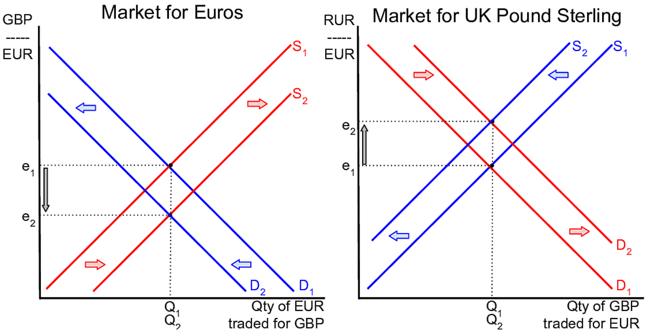

Euro depreciates against the U.K. Pound Sterling

$\rightarrow$ U.K. Pound Sterling appreciates against Euro

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