

# Exchange Rates: Application of Supply and Demand to Currencies

ECO 120: Global Macroeconomics

# Goals

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## 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

2 / 20

- Textbook: Module 47
- Canvas Quiz due Wed Sept 22, 11:59 PM.  
Multiple-choice, 10 questions, unlimited attempts allowed, only best score counts
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# Exchange Rates

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- **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 20.13 pesos / dollar (Sept 20 2021).
  - One U.S. dollar can be exchanged for 20.13 pesos.
- There are two ways to express every exchange rate.
- Same example:
  - The Mexican Peso / U.S. Dollar exchange rate is 0.0467 dollars / peso (Sept 20 2021).
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## Changes in the Exchange Rate

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- **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 19.91 pesos/dollar to 20.13 pesos/dollar.
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## Converting From One Currency to Another

5 / 20

## MXN to USD

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

How much does this cost in USD?

$$8,440 \text{ MXN} \times \left( \frac{1 \text{ USD}}{20.13 \text{ MXN}} \right) \\ = 419.28 \text{ USD}$$

## USD to MXN

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

How much does this cost in MXN?

$$9,500 \text{ USD} \times \left( \frac{20.13 \text{ MXN}}{1 \text{ USD}} \right) \\ = 191,235 \text{ MXN}$$

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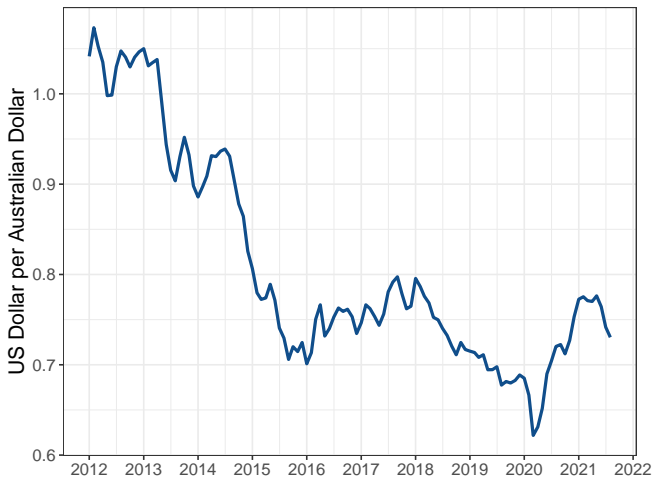


# Mexico: Mexican Pesos per U.S. Dollars



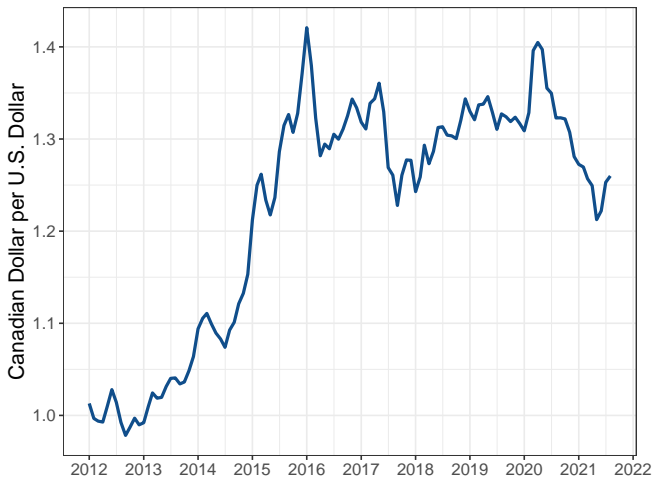
# Australia: U.S. Dollars per Australian Dollar

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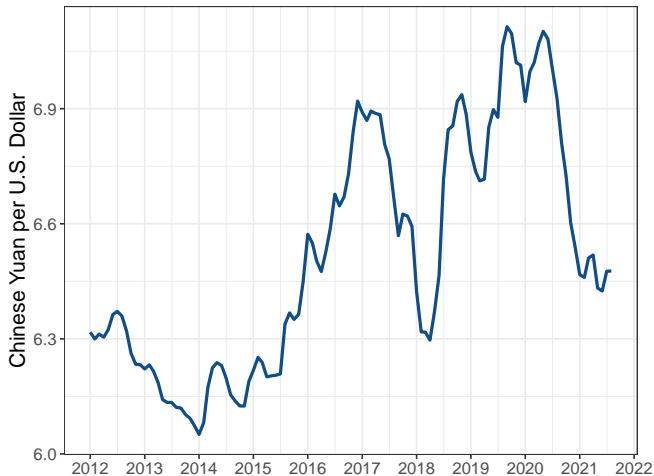
# Canada: Canadian Dollars per U.S. Dollar

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# China: Chinese Yuan per U.S. Dollar

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# Europe: U.S. Dollar per Euro

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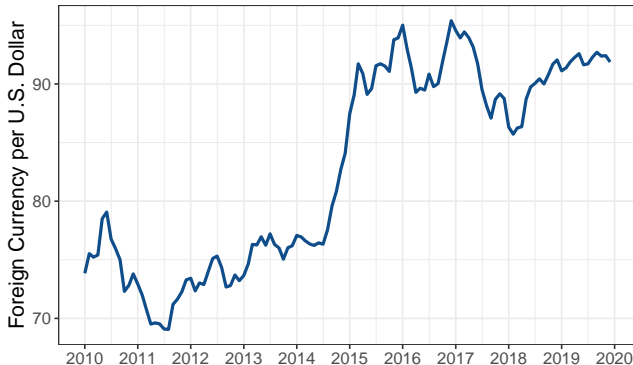
# Japan: Japanese Yen per U.S. Dollars

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# Trade-Weighted Index

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- 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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# Demand for Currency

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- **Exports effect:** if the currency is more expensive, the country's goods are more expensive.

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# Shifts in Demand

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- 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:
  - Changes in demand for country's products.
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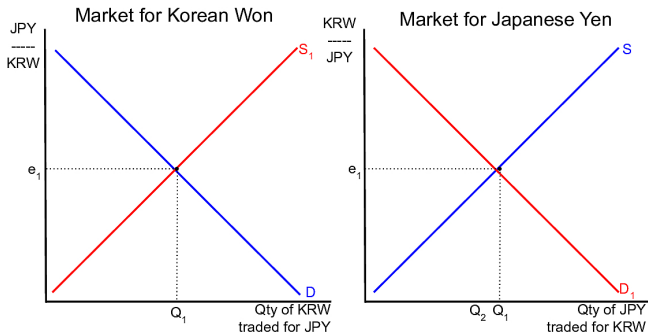
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## Example 1: Decrease in Income in Korea

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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

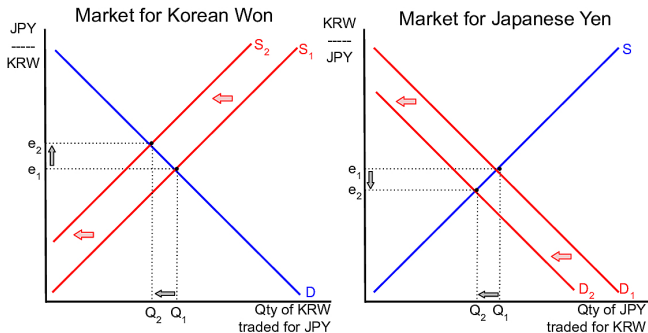


Two related markets. Market for Korean Won (Price= $\text{JPY}/\text{KRW}$ ) and Market for Japanese Yen (Price= $\text{KRW}/\text{JPY}$ )

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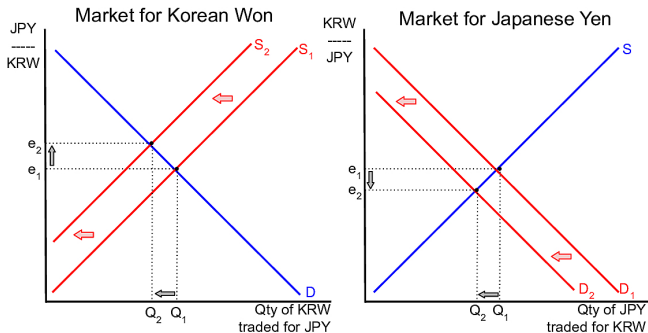


Decrease in Koreans' demand for Japanese Yen  
→ Decrease in Supply of Korean Won.

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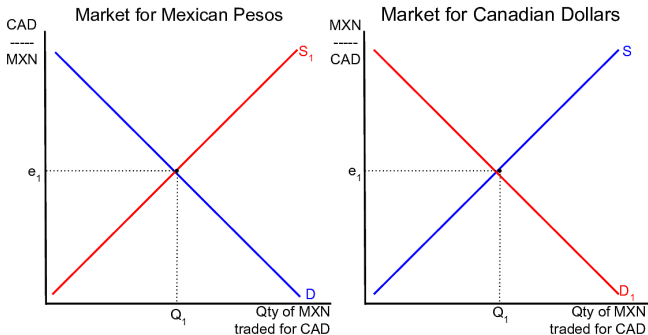
Korean Won appreciates against the Japanese Yen

Equivalently, Japanese Yen depreciates against Korean Won

## Example: Reduction in Trade Restrictions

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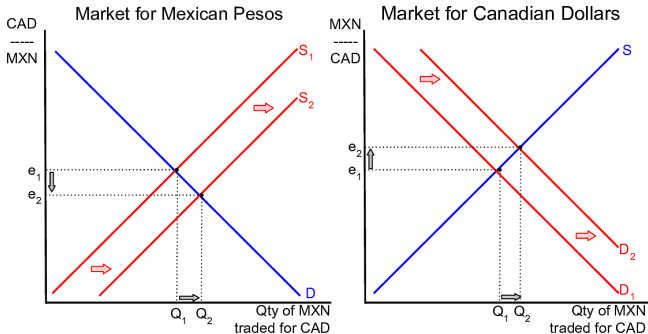


Two related markets. Market for Mexican Pesos (Price=CAD/MXN)  
and Market for Canadian Dollars (Price=MXN/CAD)

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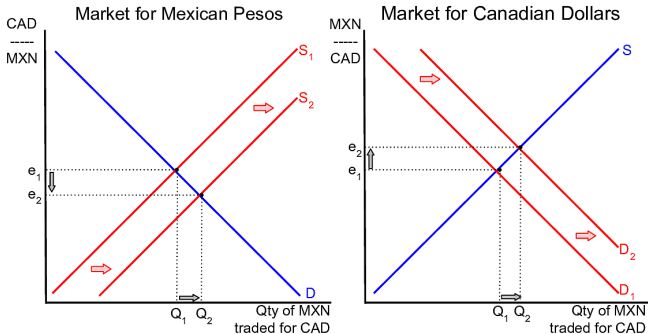
Increase in Mexican consumers' demand for Canadian Dollars

→ Increase in Supply of Mexican Pesos.

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Mexican Peso depreciates against the Canadian Dollar

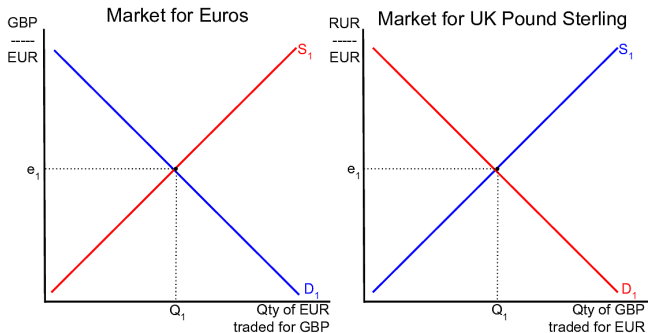
→ Canadian Dollar appreciates against the Mexican Peso



## Example: Increase in U.K. Interest Rate

19/ 20

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

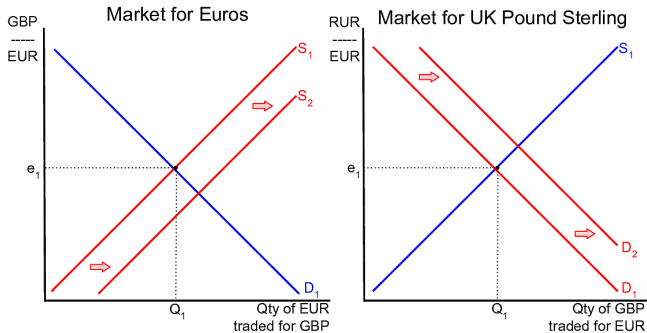


Two related markets. Market for Euro (Price=GBP/EUR)  
and Market for U.K. Pound Sterling (Price=EUR/GBP)

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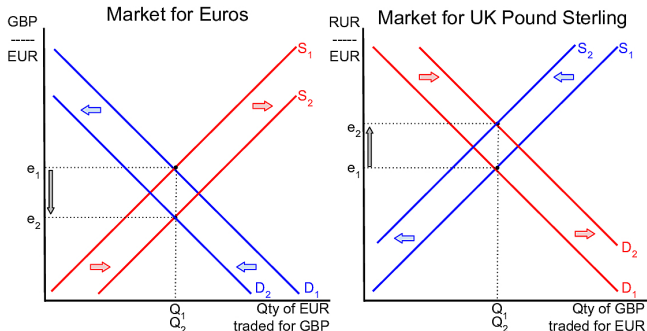
Increase in Euro-area investors' demand for U.K. Pounds

→ Increase in Supply of Euros

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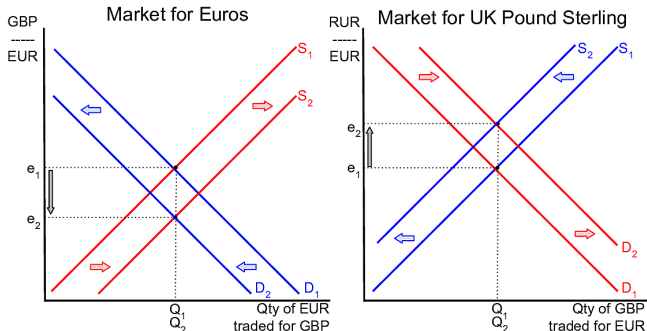
Decrease in British investor's demand for Euros

→ Decrease in Supply of U.K. Pounds.

## Example: Increase in U.K. Interest Rate

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Euro depreciates against the U.K. Pound Sterling

→ U.K. Pound Sterling appreciates against Euro

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- Textbook: Module 47
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Multiple-choice, 10 questions, unlimited attempts allowed, only best score counts
- **Homework/In-class Exercise due Fri Sept 24 11:59 PM.**  
We will work together in class on Thursday.