FOREIGN EXCHANGE RATES

BY 4 MASK-AT-EARS

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GitHub link: https://github.com/Alakay-cloud/FOREIGN-EXCHANGE-RATES-

PROBLEM DEFINITION

Being the main force driving the global economic market, currency is no doubt an essential element for a country. However, in order for all the countries with different currencies to trade with one another, a system of exchange rate between their currencies is needed; this system is formally known as foreign exchange or currency exchange.

According to Investopidia.com, Foreign Exchange (forex or FX) is the trading of one currency for another. An exchange rate is the value of one nation's currency versus the currency of another nation or economic zone. For example, how many U.S. dollars does it take to buy one euro? As of Dec. 13, 2019, the exchange rate is 1.10, meaning it takes $1.10 to buy €1.

Currency is a medium of exchange for goods and services. In short, it's money, in the form of paper or coins. A global currency is one that is accepted for trade throughout the world. Some of the world's currencies are accepted for most international transactions. The most popular are the U.S dollar, the euro, and the yuan.

This project will be focussing on one global currency. The U.S. Dollar.We would like to understand the effect of this currency on other foreign currencies.

OBJECTIVES

The main objective for this project is to know the effect of the U.S. dollar on other currencies in the year 2008(The Great Recession). We will achieve this by getting the average currency for that specific year for each country and comparing it with the U.S.

dollar. Once we get the output for this, we will also compare with the previous years to see whether the effect is the same.

PROJECT PLAN

The CRISP-DM will be used as a guideline for conducting this research. Below is an overview plan for this study.

PHASE	DAY & TIME	RESOURCES	PERSON ALLOCATED
Full description of dataset	Monday 4PM	Kaggle.com	DERRICK
Downloaded the CSV file	Monday 2PM	Kaggle.com	PAUL
Organize board on trello	Monday 11AM	Trello	ALEX
Set up project management on trello	Monday 11AM	Trello	LEAN
Data cleaning	Tuesday 12PM	Google colab	DERRICK
Data Analysis	Tuesday 2PM	Google colab	PAUL
Data Report	Wednesday 10AM	Google docs	ALEX
Github repository	Wed 10AM	GitHub	LEAN
Work on slides	Wed 4PM	Google slides	DERRICK
Recommendation	Wed 2PM	Google docs	PAUL
Data visualisation	Wed 3PM	Google colab	ALEX
Conclusion & Next steps	Wed 3PM	Google docs	LEAN

DATA PREPARATION AND QUALITY

For this project, we are using the dataset we sourced from Kaggle.com.

DATA DESCRIPTION

We had only one dataset with the title ("Foreign_exchange_rates") which is a csv file, with 5217 rows and 23 columns.

The column names are names of countries with their respective currencies divided against the dollar.They include:

1. AUSTRALIA - AUSTRALIAN DOLLAR/US$
2. EURO AREA - EURO/US$
3. NEW ZEALAND - NEW ZEALAND DOLLAR/US$
4. UNITED KINGDOM - UNITED KINGDOM POUND/US$
5. BRAZIL - REAL/US$
6. CANADA - CANADIAN DOLLAR/US$
7. CHINA - YUAN/US$
8. HONG KONG - HONG KONG DOLLAR/US$
9. INDIA - INDIAN RUPEE/US$
10. KOREA - WON/US$
11. MEXICO - MEXICAN PESO/US$
12. SOUTH AFRICA - RAND/US$
13. SINGAPORE - SINGAPORE DOLLAR/US$
14. DENMARK - DANISH KRONE/US$
15. JAPAN - YEN/US$
16. MALAYSIA - RINGGIT/US$
17. NORWAY - NORWEGIAN KRONE/US$
18. SWEDEN - KRONA/US$
19. SRI LANKA - SRI LANKAN RUPEE/US$

20. SWITZERLAND - FRANC/US$

21. TAIWAN - NEW TAIWAN DOLLAR/US$

22. THAILAND - BAHT/US$

23. TIMESERIES

DATA VERIFICATION

None of the two datasets had any missing values. There were also no known data errors in the datasets.

DATA CLEANING

LOADING DATA

The dataset was loaded into the python environment from a CSV file which we sourced for Kaggle.com.

CLEANING DATA
- We are going to drop a column ['unnamed:0'] because it just shows us the index of each column.
- our data and didn't find any null values, therefore we could not do anything to null values.
- We found out that some rows had ("ND") as a value, we decided on replacing the ("ND") with a valus ("0") so that we do not drop rows that may affect our data.
- We also decided to change the columns to floats except the Time_series column because they had been read as strings and we cannot work with them as strings.
- We also changed the Time_series column to date_time format as it was also a string.

- We separated the day,month and year from the Time_series column and added a new column for them. This was necessary because we wanted to know how to solve questions on specific days.

DATA ANALYSIS

A trader can develop a big picture sense of the flow of dollars and form an insight on how best to select profitable trading positions by watching how the dollar fares against the other currencies in the index.

- What is the average exchange rate for all the countries in the dataset?
    1. Korea   1100.367769
    2. Sri_lanka   108.299865
    3. Japan   103.386077
    4. India   43.404885
    5. Thailand   32.971423
    6. Taiwan   31.532365
    7. Mexico   11.150755
    8. South_Africa   8.254337
    9. Homg_kong   7.786158
    10. China   6.947592
    11. Sweden   6.590931
    12. Norway   5.642710
    13. Denmark   5.093072
    14. Malaysia   3.330887
    15. Brazil   1.834995
    16. New_zealand   1.423970
    17. Singapore   1.414624
    18. Australia   1.196632
    19. Switzerland   1.082368
    20. Canada   1.066654
    21. Euro   0.683193
    22. United_kingdom   0.545360
- Which is the averagely weakest currency among the above?
  Korea   1100.367769

- Which is the averagely strongest currency among the above?

  United_kingdom   0.545360

- When was the Chinese Yuan highest against the US Dollar in the year 2008.

Time_Serie	China
2008-08-26	6.7800
2008-09-12	6.7810
2008-09-30	6.7899
2008-08-27	6.8070
2008-07-16	6.8104

- When was the Value of the Euro currency highest against the dollar in the year 2008

Time_Serie	Euro
2008-04-22	0.6246
2008-04-16	0.6259
2008-07-15	0.6280
2008-04-17	0.6280
2008-07-14	0.6284

- When was the Value of the Mexican currency Highest against the dollar in year 2008

Time_Serie	Mexico
2008-08-05	9.9166
2008-08-04	9.9355
2008-08-06	9.9518
2008-08-01	9.9720
2008-08-07	10.0070

- When was the Value of the South African currency Highest against the dollar in year 2008

Time_Serie	South_africa
2008-01-14	6.7400
2008-01-11	6.7530
2008-01-02	6.8125

2008-01-15   6.8125

2008-01-03   6.8600

- When was the Value of the Chinese currency Lowest against the dollar from the year 2008 onwards

Time_Serie	China
2008-01-02	7.2946
2008-01-03	7.2755
2008-01-07	7.2705
2008-01-10	7.2700
2008-01-04	7.2695

- When was the Euro currency weakest against the US Dollar overall after 2007

Time_Serie	Euro
2008-10-27	0.8035
2008-10-28	0.8015
2008-11-20	0.7984
2008-11-13	0.7983
2008-11-21	0.7980

- When was the Mexican currency weakest against the US Dollar overall after 2007

Time_Serie	Mexico
2008-11-21	13.9350
2008-12-05	13.8002
2008-12-30	13.7600
2008-10-23	13.6100
2008-10-22	13.5938

- When was the South African currency weakest against the US Dollar after 2007

Time_Serie	South_africa
2008-10-22	11.2700
2008-10-24	11.1075

2008-10-23	*11.0200*
2008-10-27	*10.9625*
2008-10-21	*10.6675*

Below is the Google colab link to where we analysed the data using python : [COLAB](#)

RECOMMENDATIONS

- ❖ We would highly recommend our client to trade in the euro and the chinese currency because:

    1. The Euro is stronger than the U.S. dollar on average.

    2. During the recession the Euro was affected positively and hence gained during this period

    3. Both of the above named currencies were relatively stable during the recession

- ❖ We would also highly discourage our client not to trade with the Mexican and South African currency because:

    1. During the recession period there were some of the currencies that was affected negatively

    2. They fluctuate and hence is not reliable

- ❖ The U.S. dollar seems to be very stable apart from the great recession because we see that after that period it picks up and becomes even stronger than before.

EVALUATION

The Great Recession refers to the economic downturn from 2007 to 2009 after the bursting of the U.S. housing bubble and the global financial crisis. During this time, several currencies around the world were severely affected. Some of them include:

- ❖ Mexico and South Africa - These were some of the currencies that were negatively affected during this period. It led to the currencies decreasing in value.
- ❖ China - This currency was affected negatively for the first month but picked up after that.
- ❖ Euro - This country was affected positively during this period. It led to the currency increasing in value.