



# **AN APPLIED APPROACH TO FOREX MARKET PREDICTION USING MACHINE LEARNING**

Examiner :

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## BACKGROUND OF STUDY

- The frequent fluctuations of foreign exchange lead to substantial significant financial challenges for global businesses

Meantime in this aspect of the country, the consequences

- of FOREX instability also displays a tragic picture.

develop effective tools to predict and mitigate the effects

- of currency fluctuations on both macroeconomic stability and social well-being.

## PROBLEM STATEMENT

- Normally, many people face the problem of lacking valuable financial knowledge, rather than the Forex market.
- International businesses face Forex risk in nearly every transaction, which can decrease interest and
- increase costs if exchange rates shift unstably.
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## RESEARCH QUESTIONS

- How does the interest rate impact the pairs USD/CNY exchange rate from 2014 to 2024?

Which variables have played a significant role in the

- movement of FOREX?

How does the LSTM model forecast the future exchange

- rate of pairs USD/CNY?

## RESEARCH OBJECTIVES

- To analyse the trend of interest rate, exchange rate of USD/CNY, CPI and 10-year bond from 2014 to 2024.
- To predict the future exchange rate of USD/CNY with interaction of crucial indicators by using the Long short-Term Memory (LSTM) model
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## SIGNIFICANT OF STUDY

### 1. FUTURE RESEARCHERS

- Improve the ability to develop more advance model.

### 2. GOVERNMENT

- Supervising economic inflation, and making appropriate interest policy.

### 3. INVESTOR

- Avoiding the risk from market

### 4. PUBLIC

## SCOPE & LIMITATIONS

- Covers the relationship of interest, CPI and exchange rate Index in China and US.  
The results cannot represent other countries except
- China and US.
- Only focuses on the FOREX
- Unpredictably occurring events.

# RESEARCH METHODOLOGY

## 1. PROBLEM FORMULATION

## 2. DATA DESCRIPTIONS

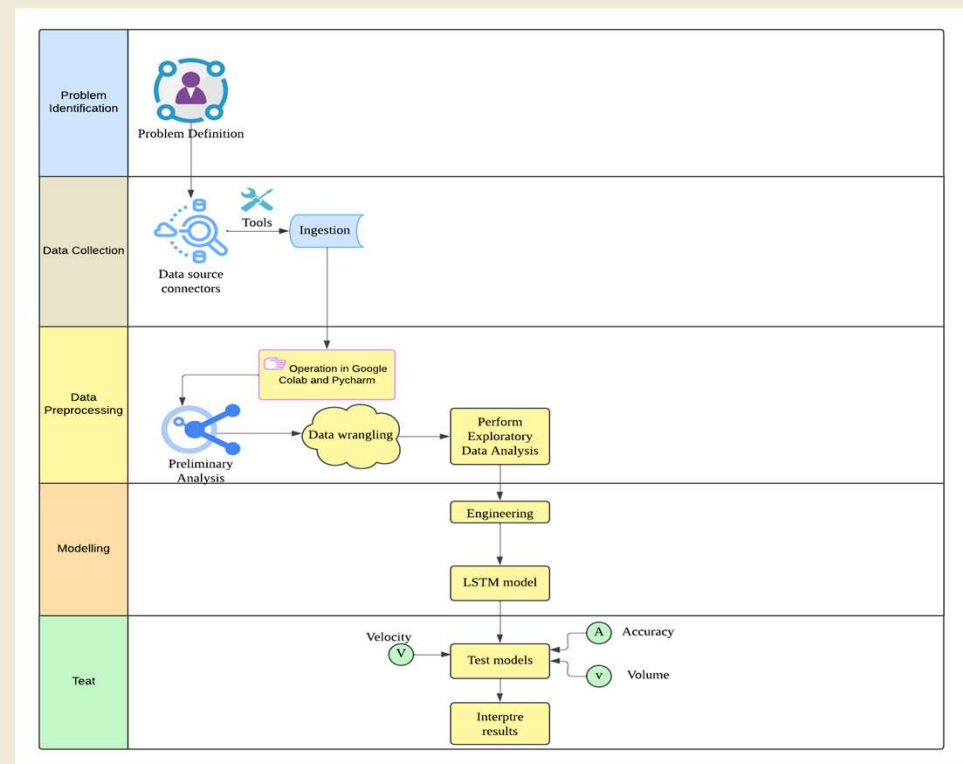
10-years bond, interest, CPI, exchange rate between USD and CNY from 2014 to 2024.

## 3. DATA PRE-PROCESSING

Preliminary analysis

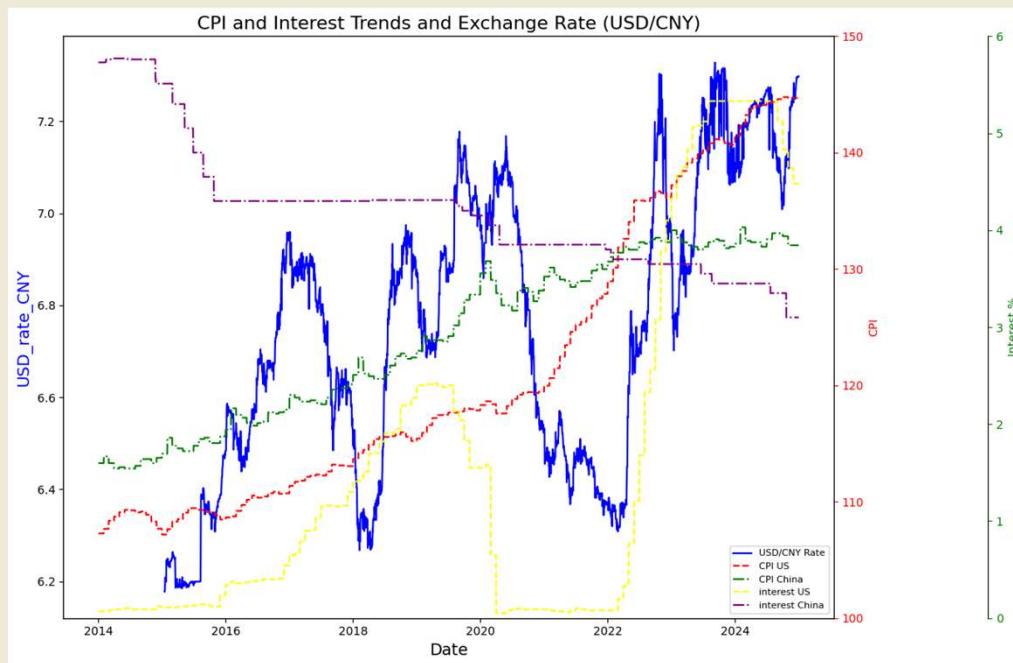
- Data Cleaning
- Data Concatenation
- Data Visualization

## 4. DATA MODELLING



# INITIAL RESULT

## 1. TREND OF EACH VARAIBLES

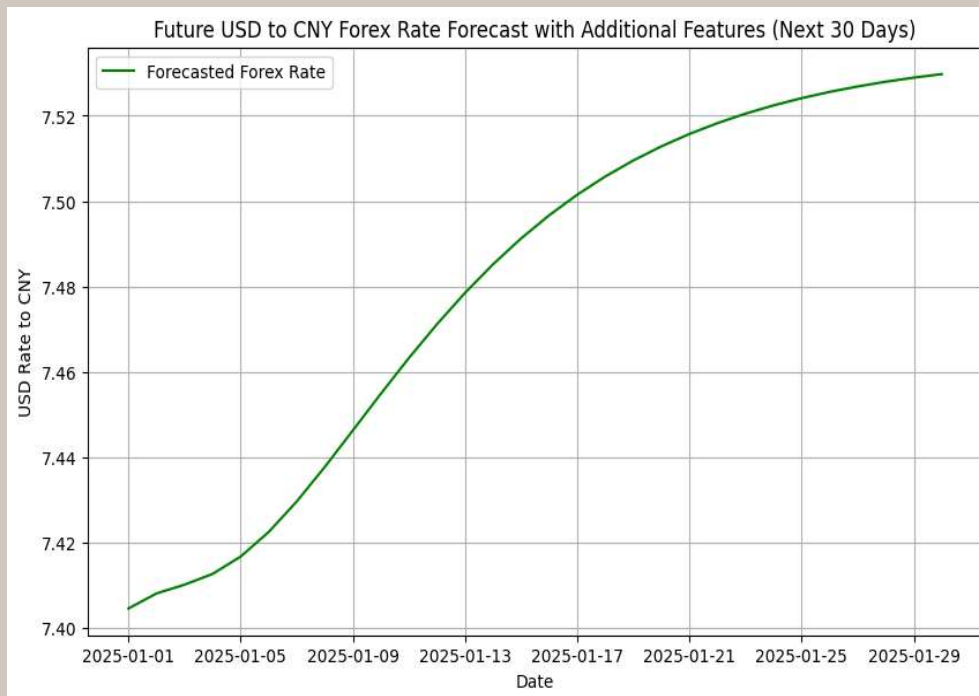


## 2. DESCRIPTIVE ANALYSIS

statistic	Exchange rate	CPI_US	CPI_China	Interest_US	Interest_China	10Y_China	10Y_US
count	4022	4022	4022	4022	4022	4022	4022
mean	6.755219	121.170703	124.109282	1.628834	4.200144	3.132277	2.486363
min	6.177500	107.177760	112.853524	0.050000	3.100000	1.690000	0.520000
25%	6.473700	110.684207	117.680253	0.100000	3.700000	2.780000	1.780000
50%	6.772400	117.523291	124.230807	0.845000	4.300000	3.090000	2.360000
75%	7.016100	132.401040	131.588196	2.390000	4.310000	3.500000	2.980000
max	7.327800	144.763145	133.575159	5.330000	5.770000	4.660000	4.980000
std	0.313176	12.179279	6.942263	1.844476	0.654749	0.538024	1.004274

# INITIAL RESULT

## 1. Initial Result



## 2. RESULT Discussion

From the graph, it can probably be concluded that over the next 30 days, the USD displays a strong and dynamic influence in the FOREX market against the Chinese Yuan. By contrary, the Chinese currency interprets a consistent weakening trend in the financial market, because of a potential decreasing interest rate environment.

## Discussion

### 1. TREND ANALYSIS AND ECONOMIC INFLUENCE

conclude that interest is a major and significant factor which affect the change of the FOREX. Furthermore, CPI and 10-year bond also plays an important role in the movement of the FOREX by directly affecting the interest.

### 2. LSTM model

convey and convert past patterns in the exchange rate and these influencing factors to detect deep relationships and predict future trends.

## FUTURE WORKS

- Gaps and Suggestions for mdoels
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- Government and Investor Implications





Finish

# THANK YOU

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