

Stock Price Prediction Model

By IPBA Batch 8 Group C

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Project link



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1 Introduction and Objective

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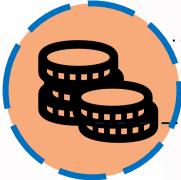
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Introduction

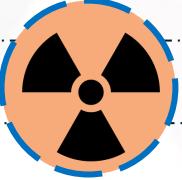
In today's world, market clients want to invest and trade in stocks. As they want to invest in some good value stock, they need to find out the percentage of return and risk involved in stock as well as a good analysis of stock and predicted price for the next day for trade.

2

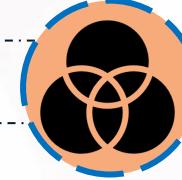
Problem Statement



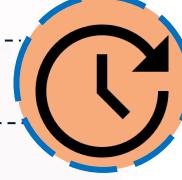
Returns and moving
average from stock



Risk Associated with it



Comparison of stock
performance with
benchmark



Predict price of stock in
future

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Model Evaluation

Our Approach

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Input source data and standard packages

2.1

Insight on stock relativity

- Performance between same industry stock prices and benchmark price
- Relation between stock price with moving average
- Relation between return of stock with benchmark

2.2

Statistical analysis

- Total return
- Average return
- Maximum and Minimum return
- Risk associated with stock
- Rewards and return
- Performance against the benchmark

2.3

Prediction of stock prices

- Prediction of stock price based on 10 days adjusted closing price exponential moving average

Insight into key problems and predictive stock prices

Our Approach

1

Input source data and standard packages

Library:

- Numpy
- Pandas
- Seaborn
- Matplotlib.pyplot
- Pandas_Ta

Source:

▪ train_test_split

▪ Yahoo Finance/ NSE website

Stock considered for analysis:

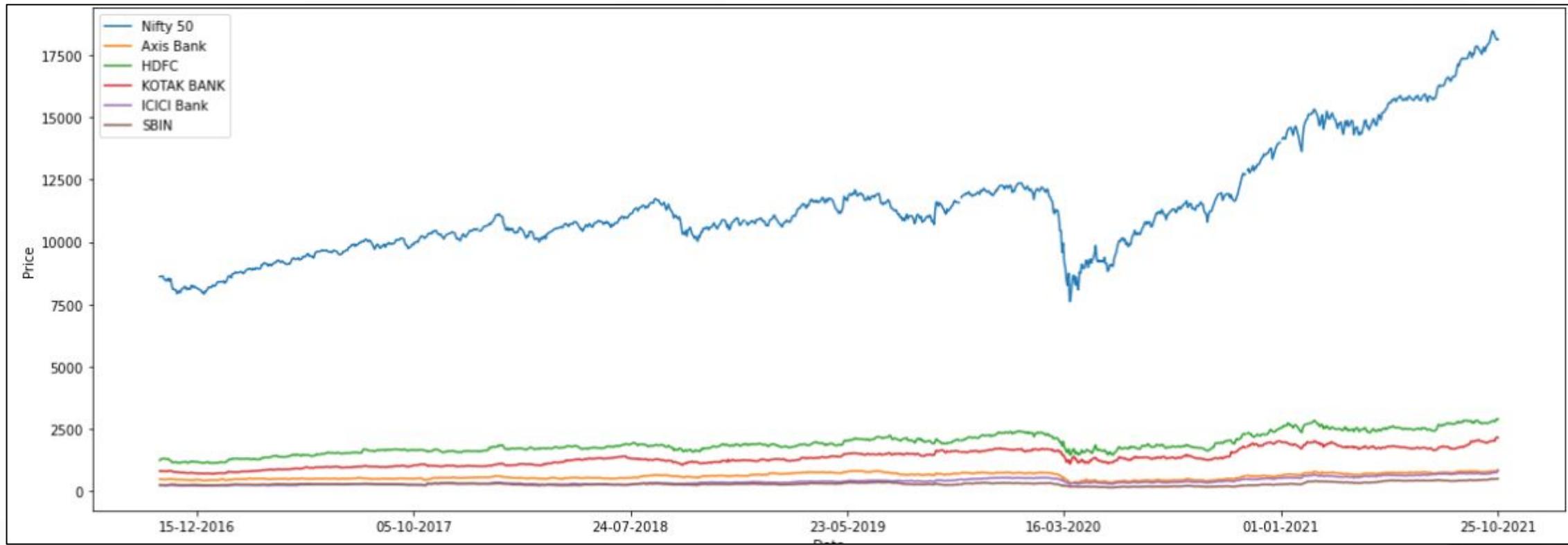
- Axis Bank
- HDFC Bank
- Kotak Bank
- ICICI Bank
- SBI Bank
- Nifty

Our Approach

2.1

Insight on stock relativity

A. Performance between same industry stock prices and benchmark price:

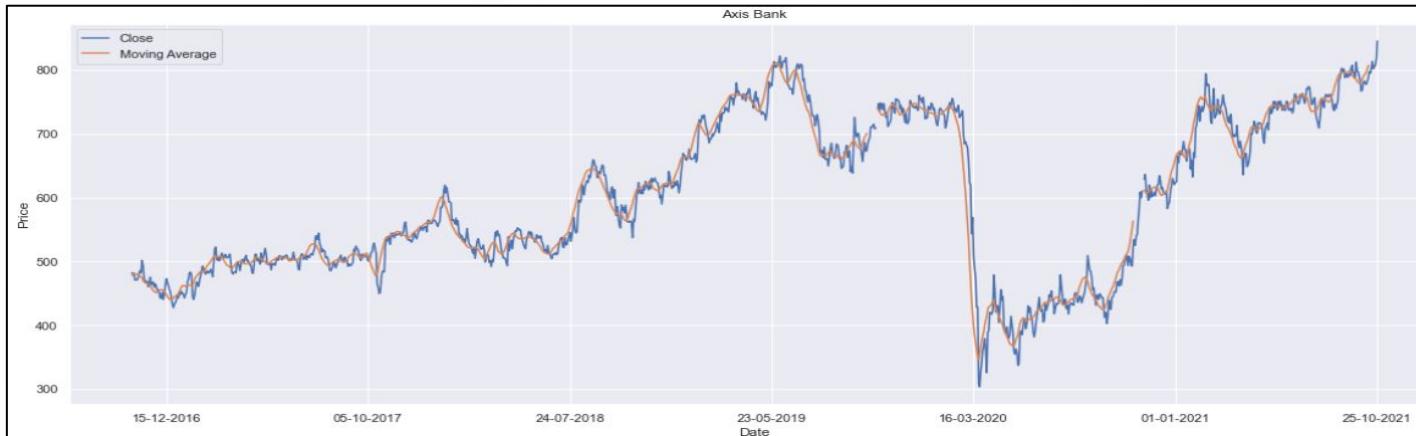


Our Approach

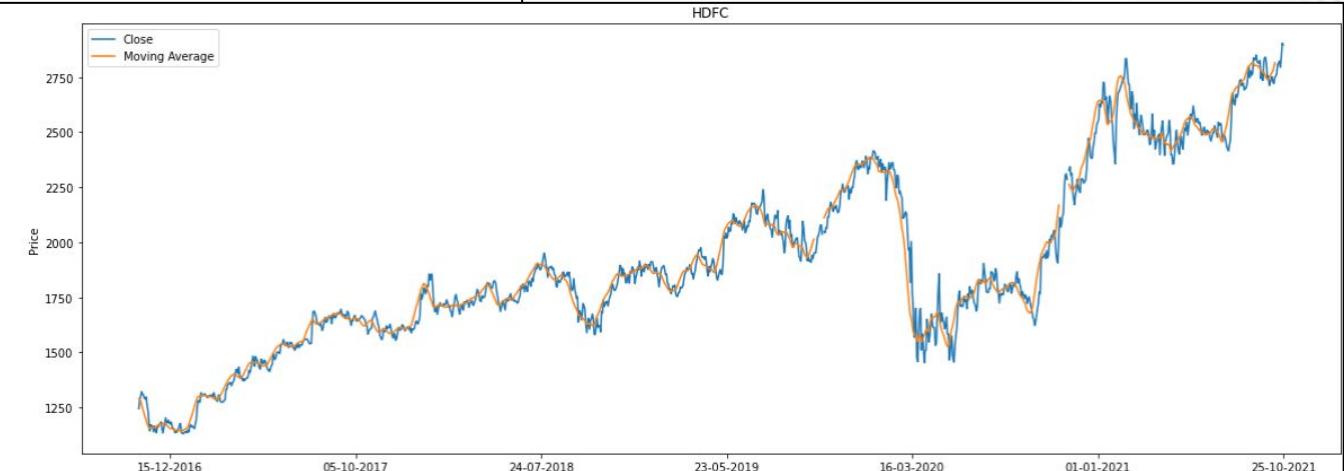
2.1

Insight on stock relativity

B. Relation between stock price with moving average(7 days):



Axis Bank



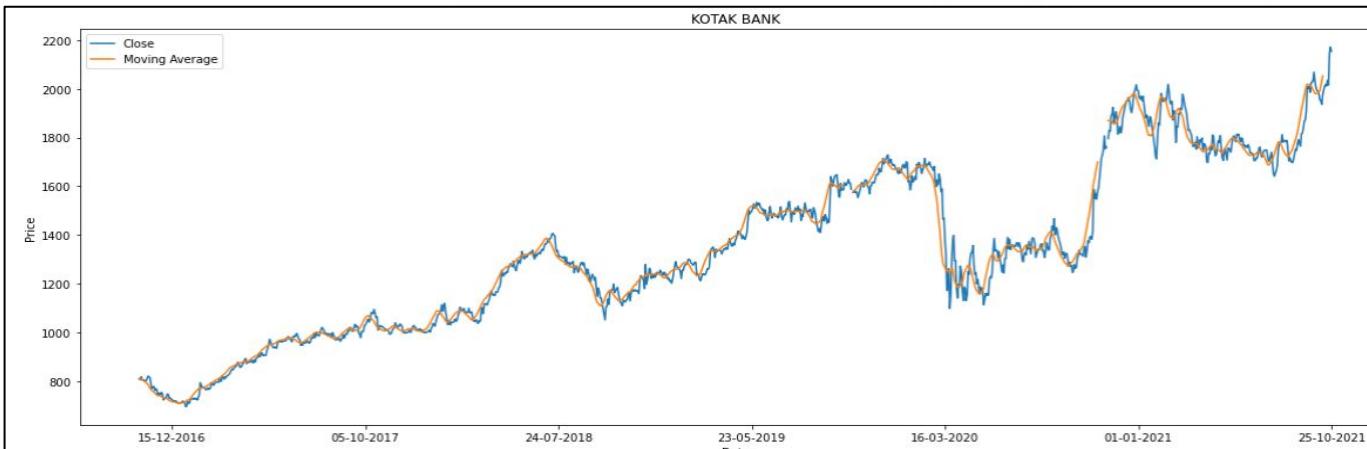
HDFC Bank

Our Approach

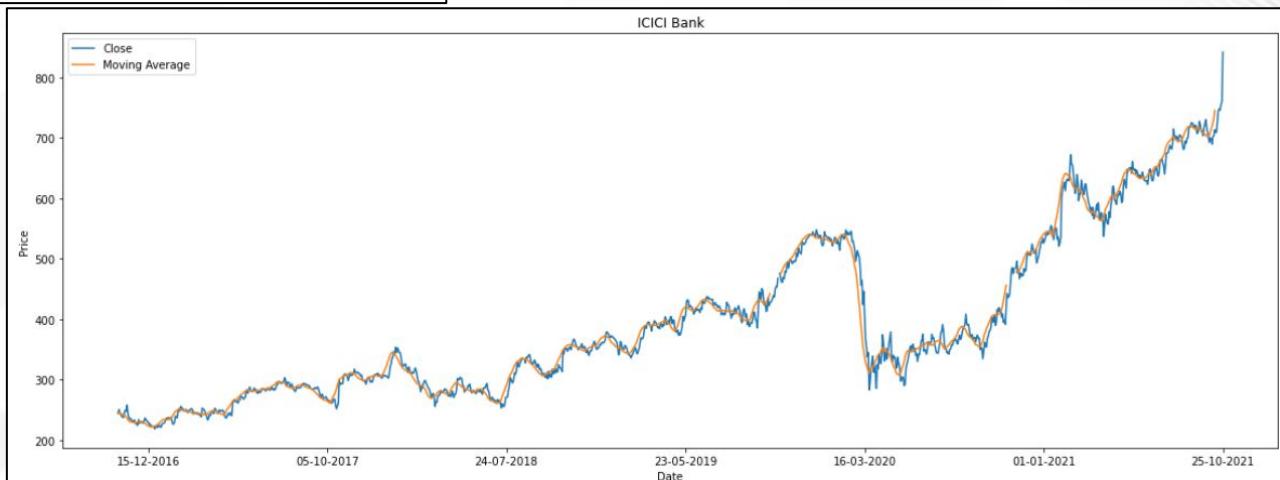
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Insight on stock relativity

B. Relation between stock price with moving average:



Kotak Bank



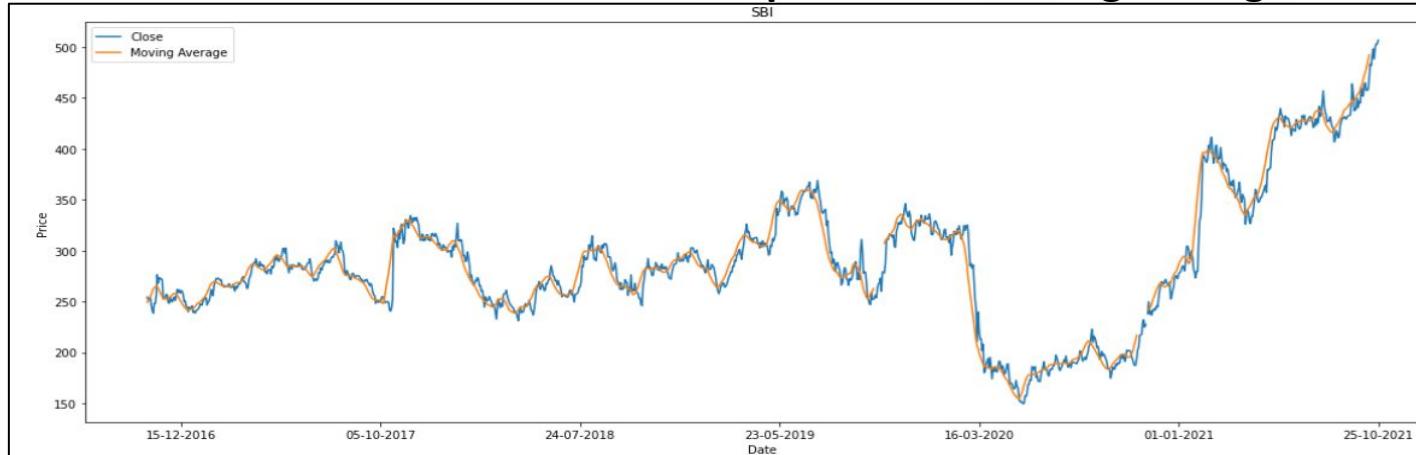
ICICI Bank

Our Approach

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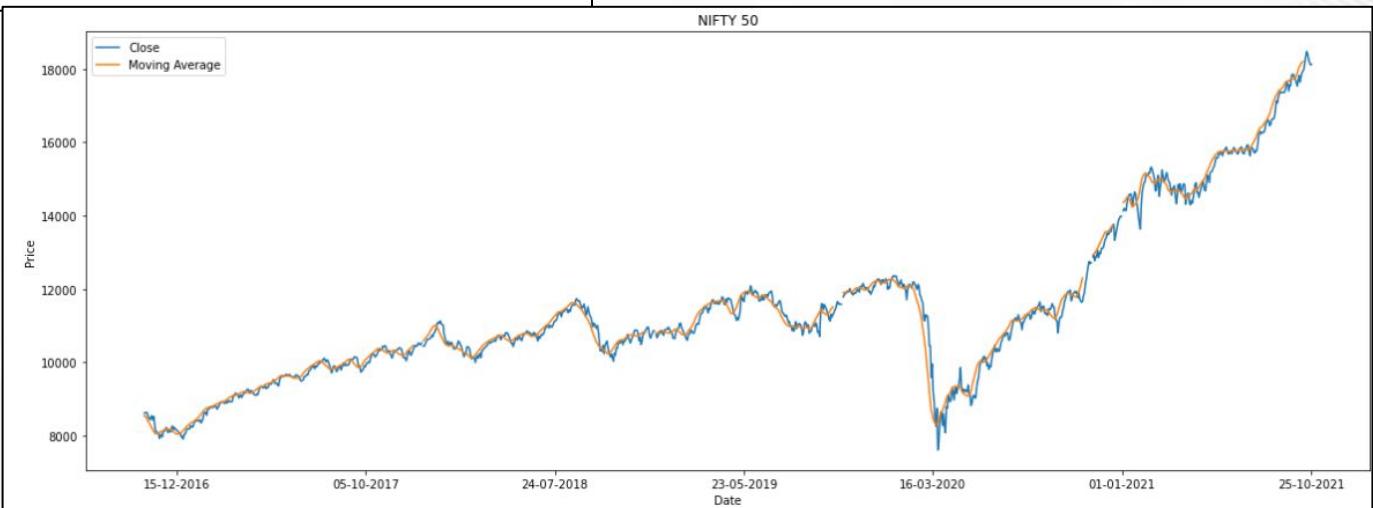
Insight on stock relativity

B. Relation between stock price with moving average:



SBI Bank

Nifty

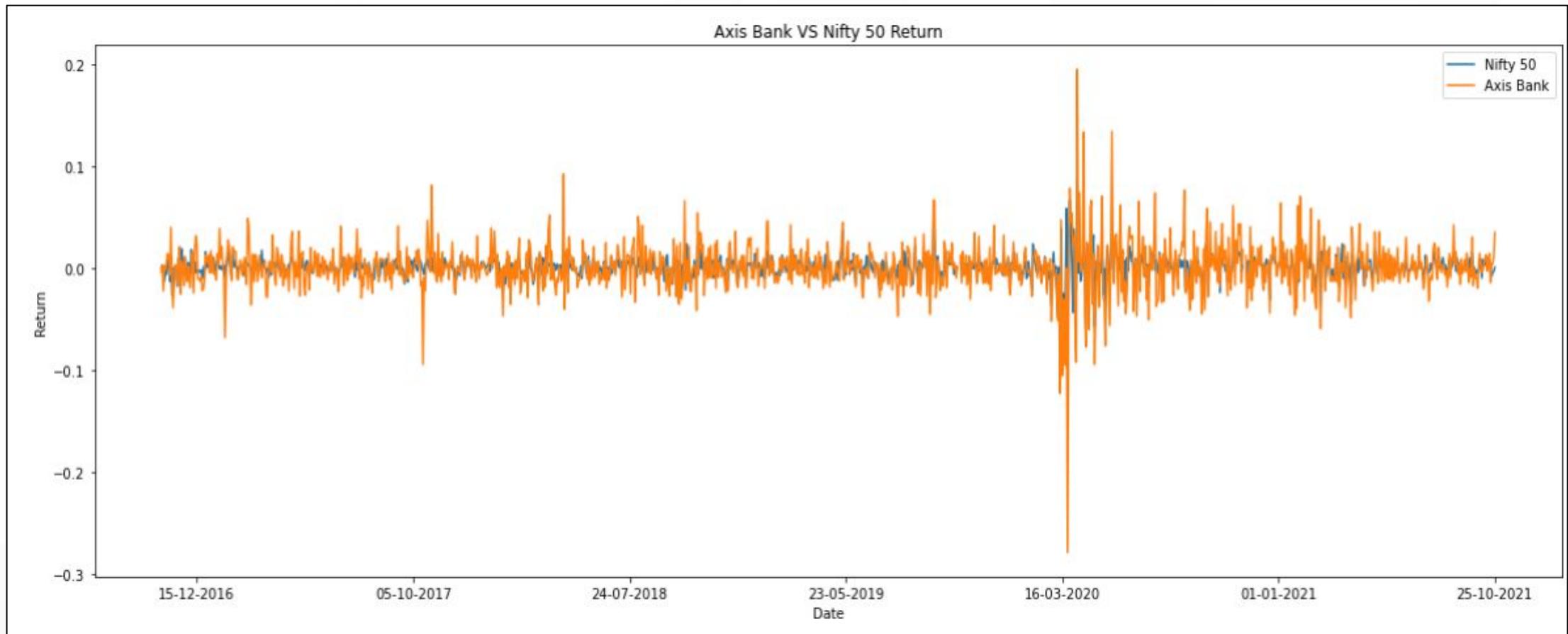


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Insight on stock relativity

C. Relation between return of stock with benchmark:

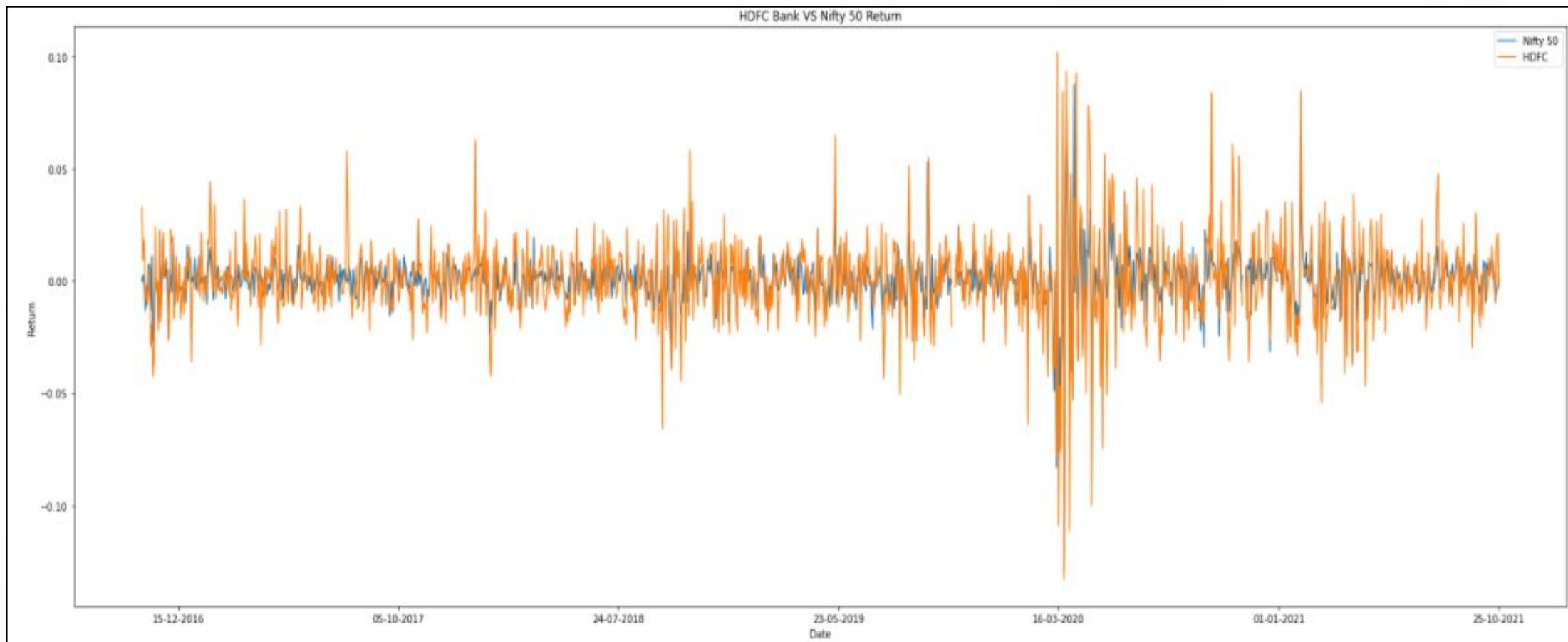


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Insight on stock relativity

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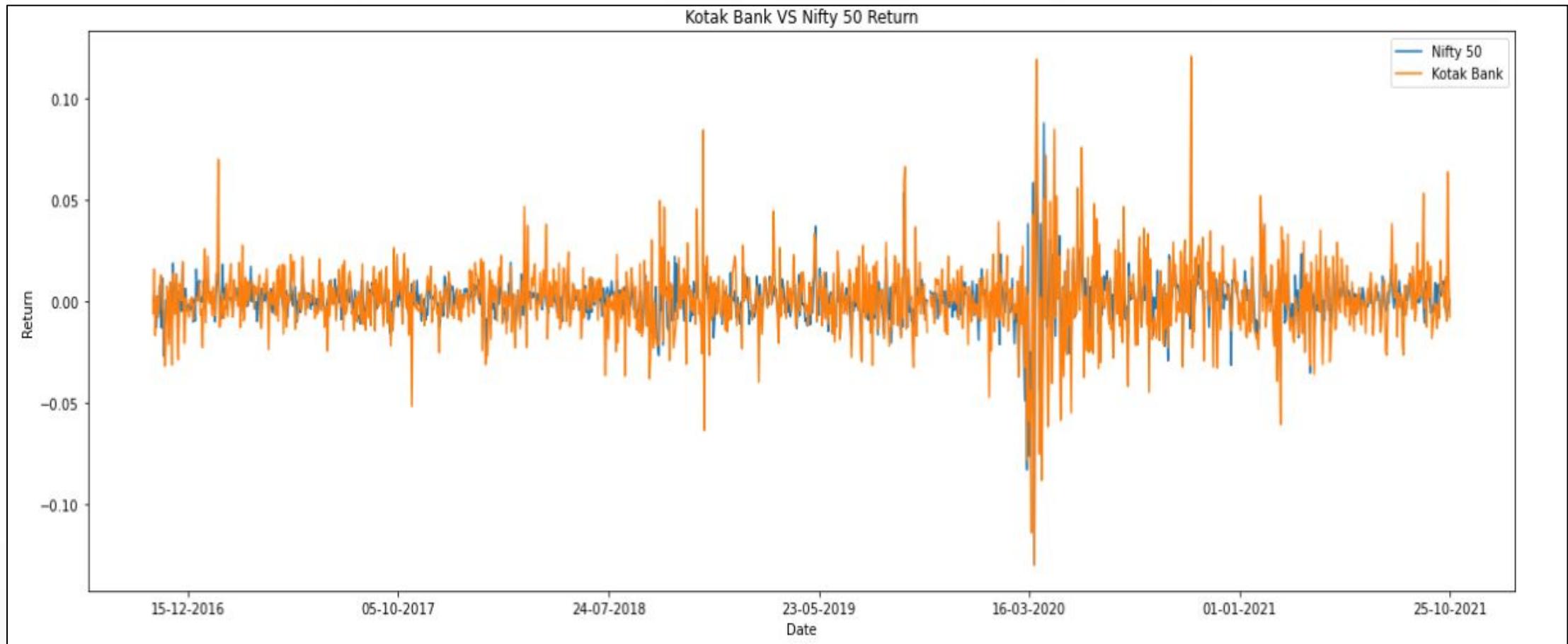


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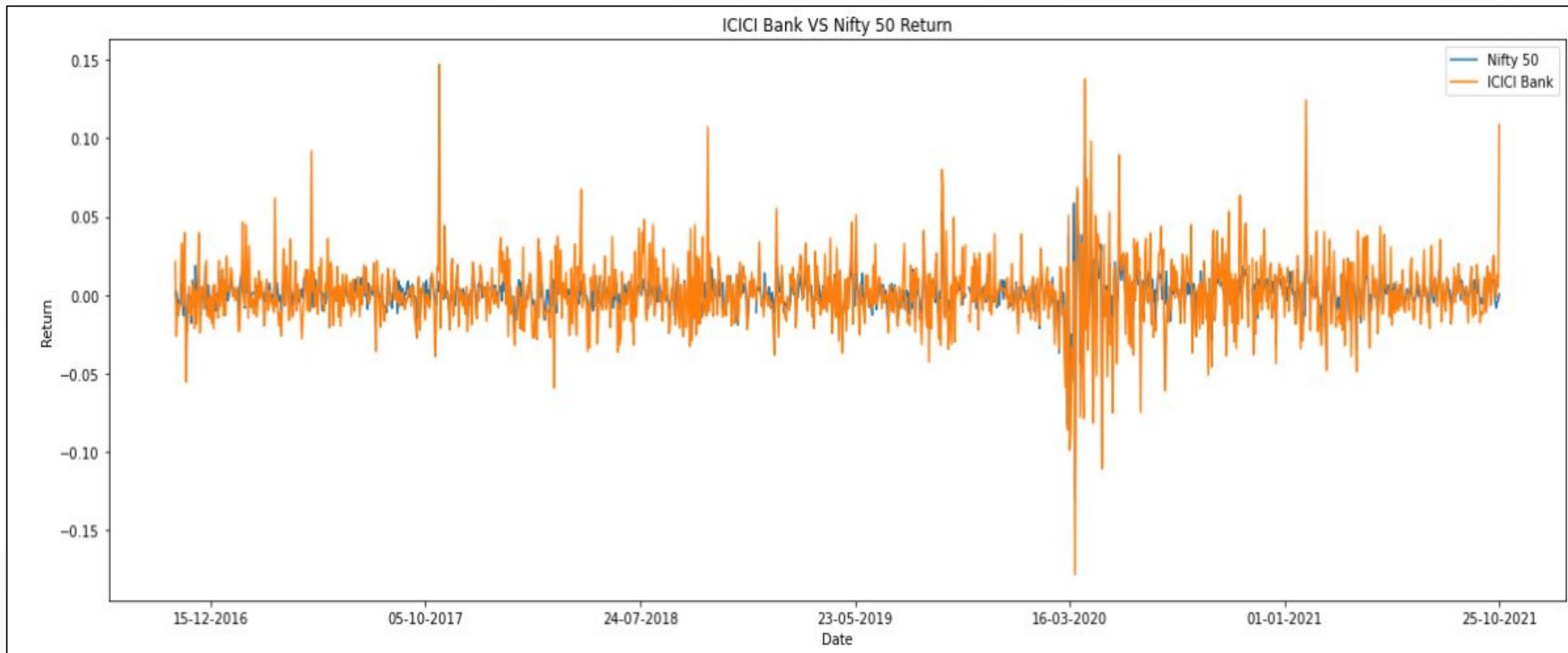


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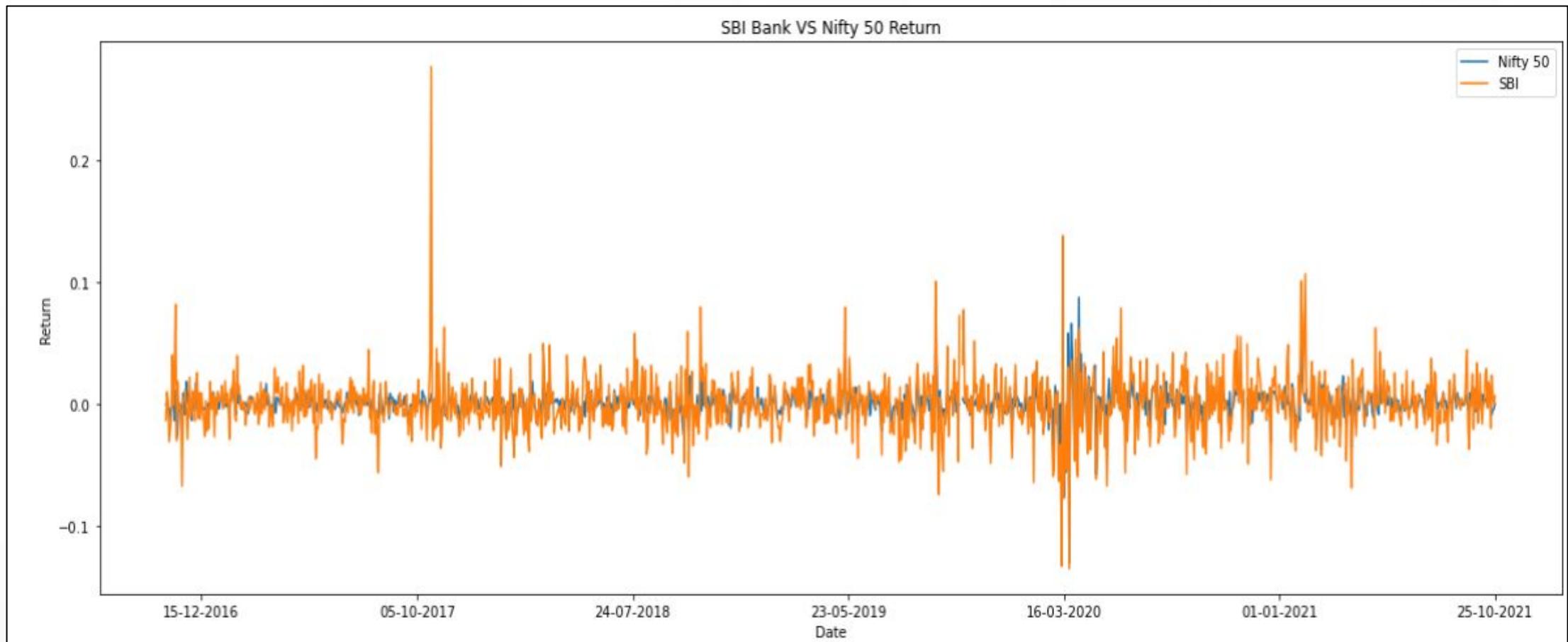


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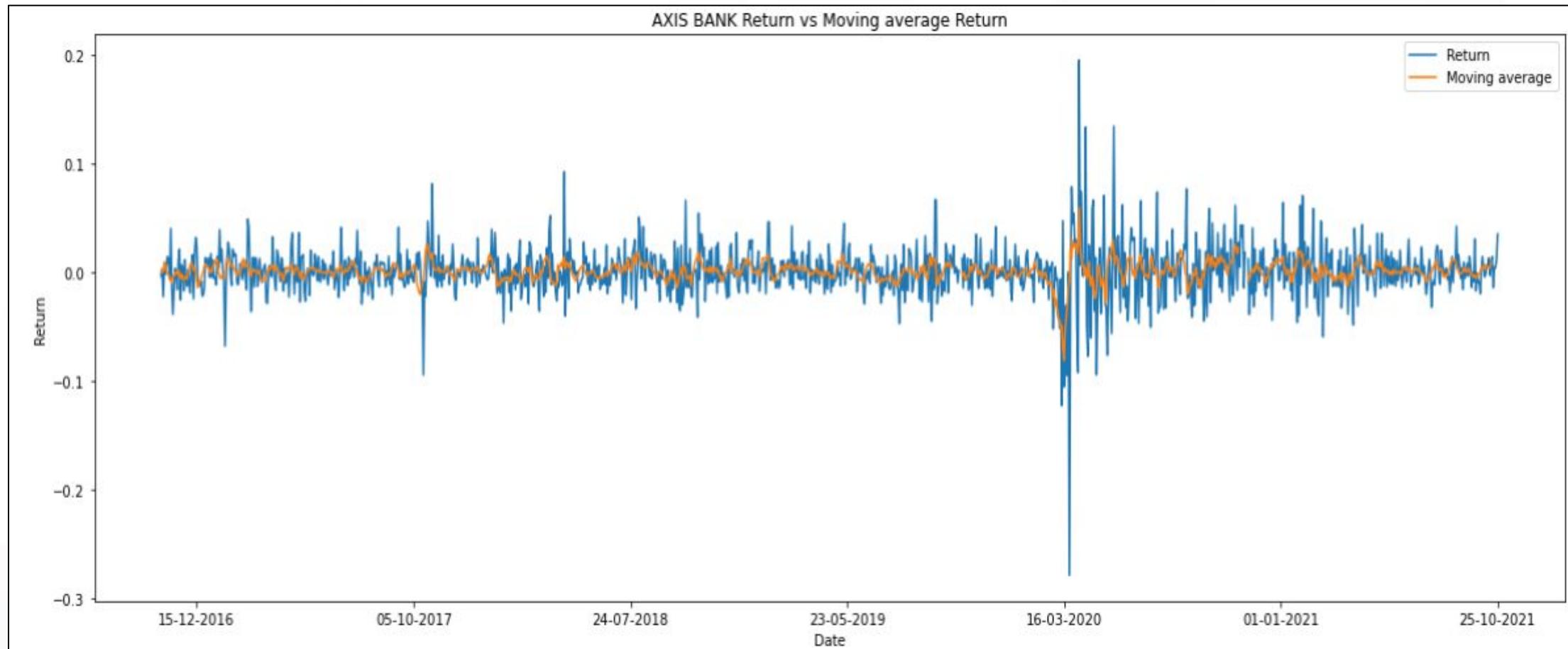


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D. Relation between return with moving average return:

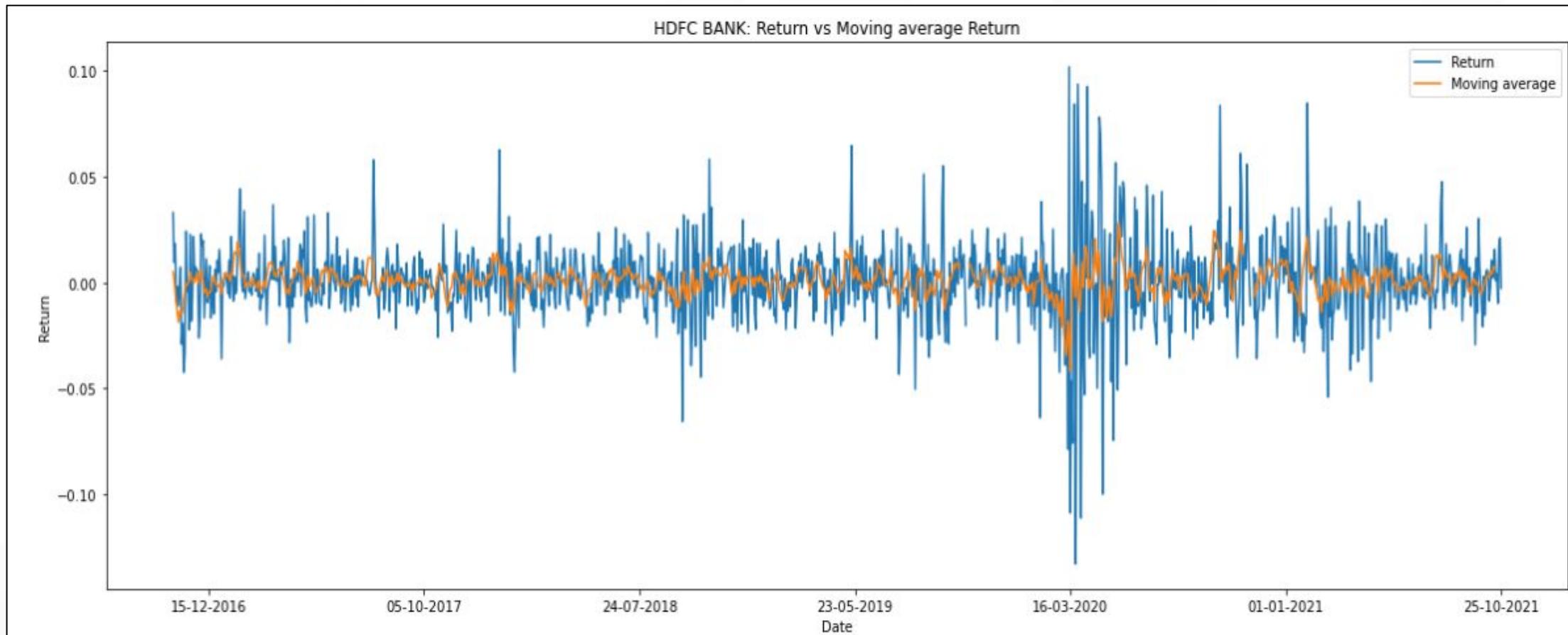


Our Approach

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Insight on stock relativity

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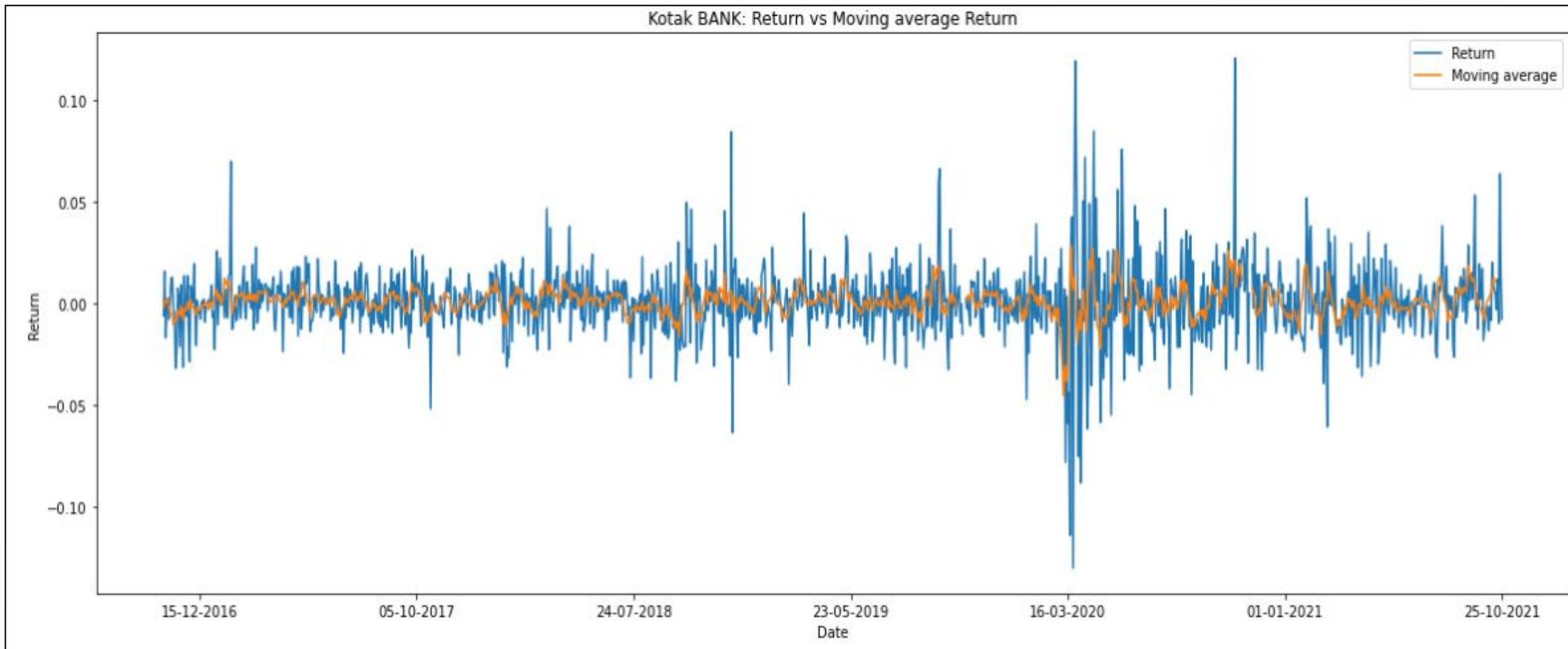


Our Approach

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Insight on stock relativity

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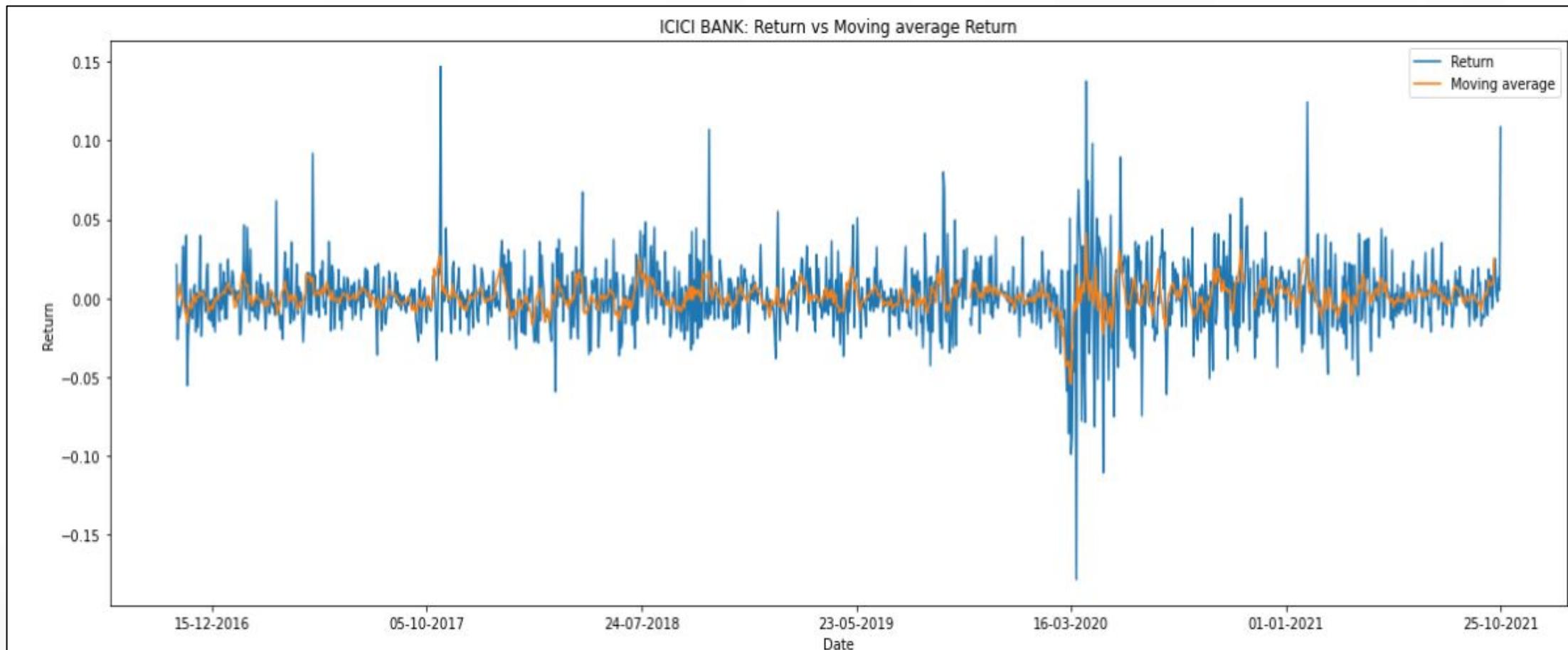


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Insight on stock relativity

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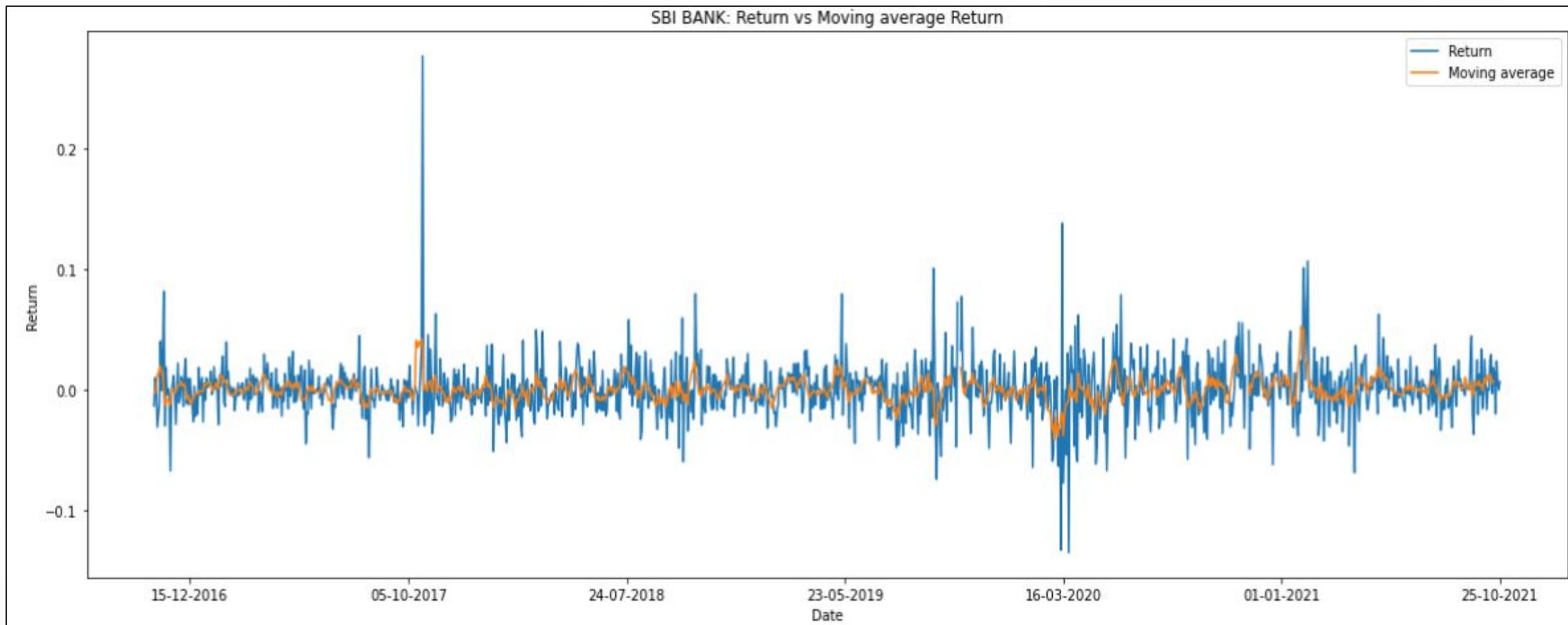


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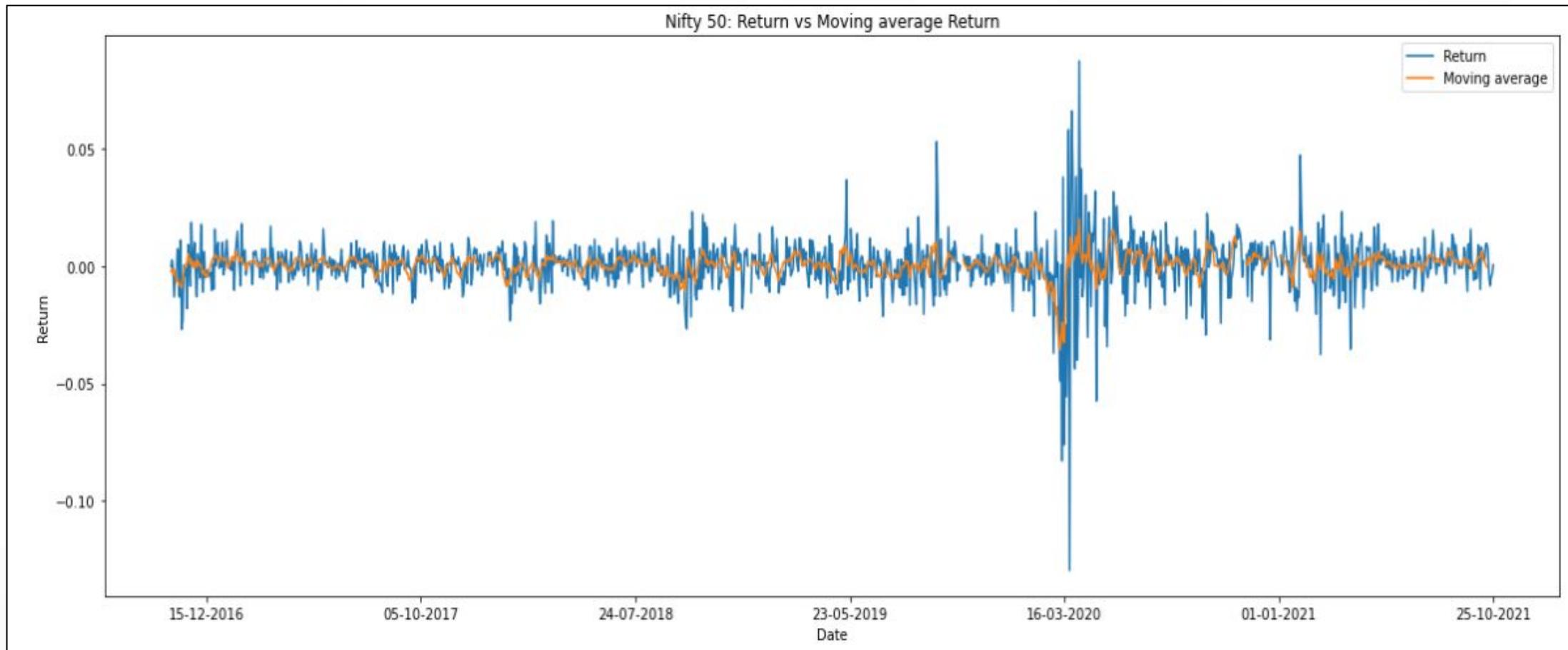


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Insight on stock relativity

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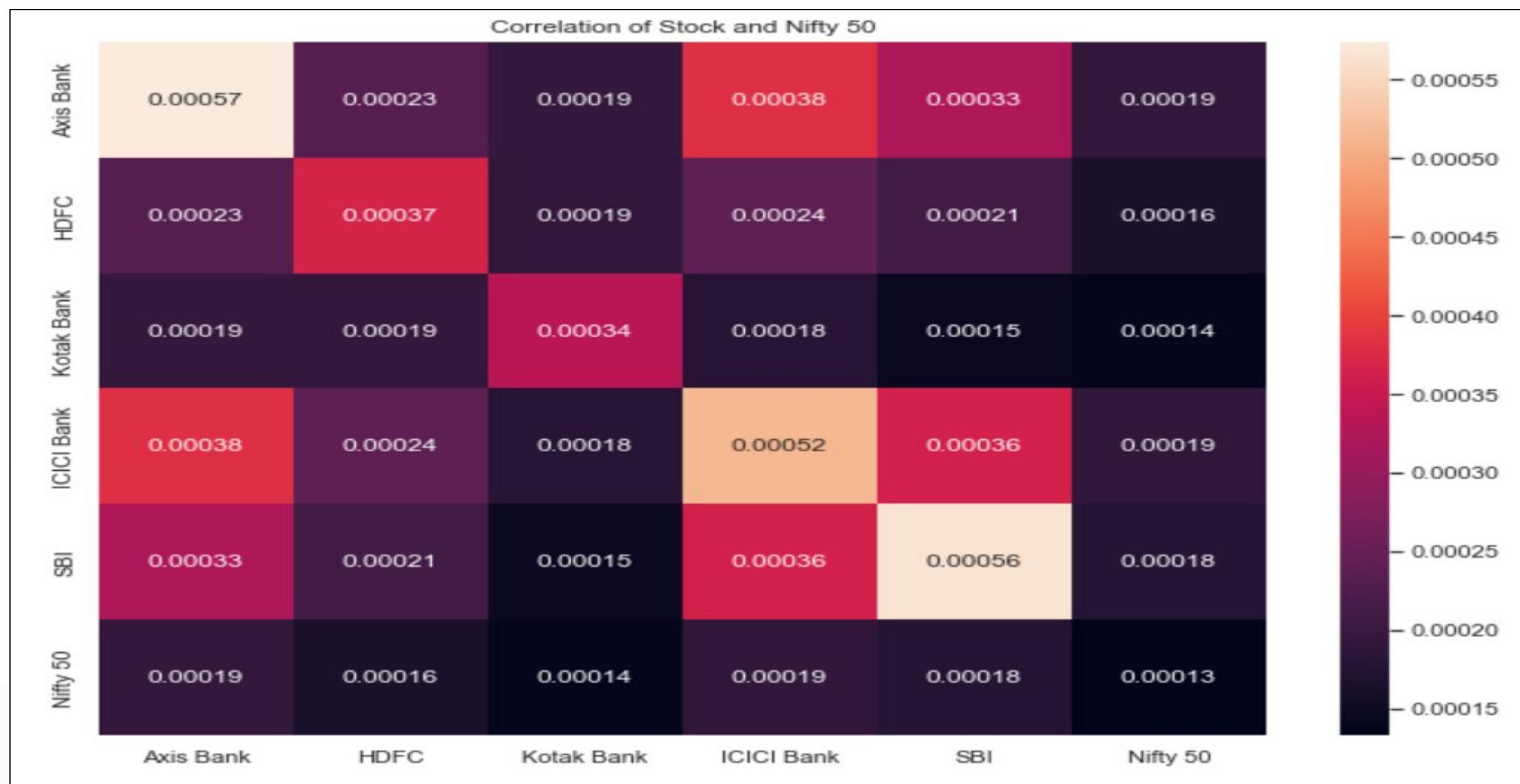
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2.2

Statistical analysis of stock

#	Stock	Total Return	Average Return	Minimum Return	Maximum Return	Risk associate with it	Variance	Skewness	Kurtosis	Performance	Rank
	A	B	C	D	E	F	G	H	I	J=√CXF	
1	ICICI Bank	153.03	12%	-18%	15%	0.0227	0.0515	0.2059	8	5.22%	1
2	SBI Bank	98.82	8%	-13%	28%	0.0238	0.0564	1.3309	18	4.36%	2
3	Kotak Bank	117.47	10%	-13%	12%	0.0183	0.0336	0.0624	8	4.28%	3
4	HDFC Bank	104.78	9%	-13%	10%	0.0192	0.0368	-0.212	7	4.16%	4
5	Axis Bank	84.95	7%	-28%	19%	0.024	0.0574	-0.7107	21	4.10%	5
6	Nifty 50	80.08	7%	-13%	9%	0.0115	0.0133	-1.3673	23	2.84%	6

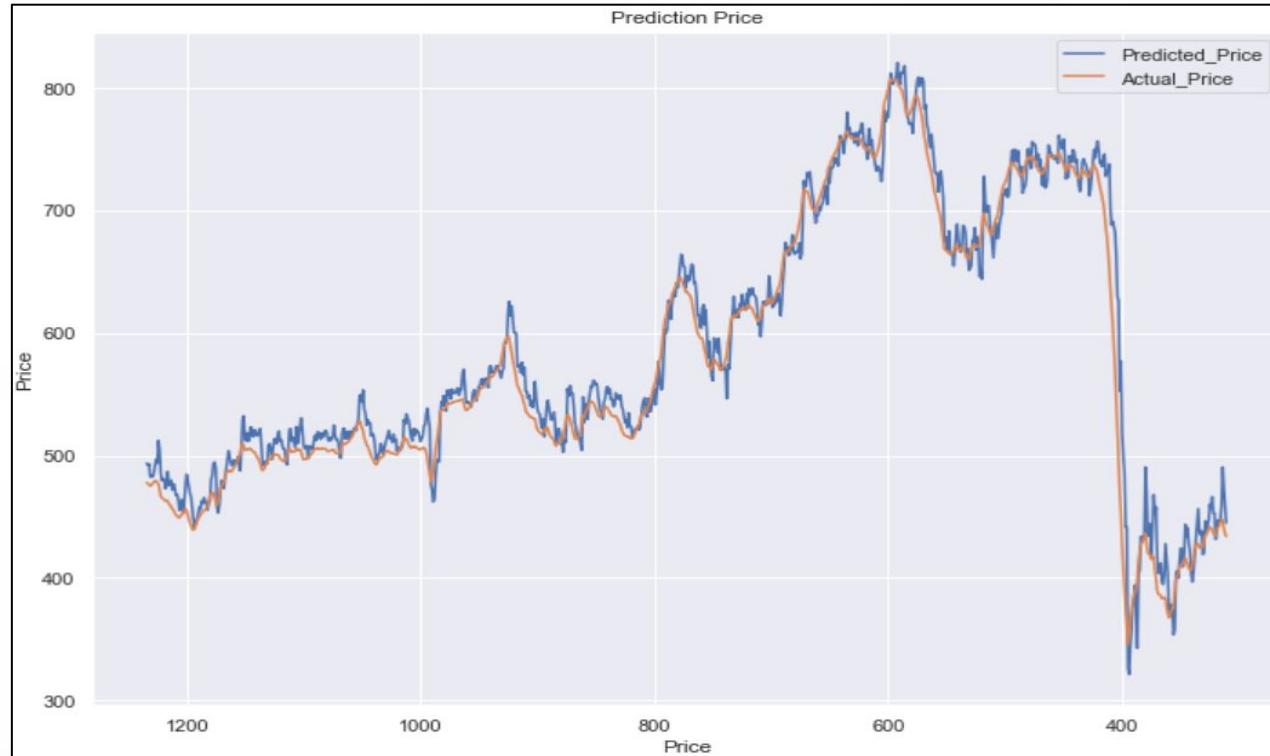
Our Approach



Our Approach

2.3

Prediction of stock price



Instance No	Predicted Price	Actual Price
311	444.91	433.93
312	458.45	436.05
313	473.13	440.56
314	490.57	447.54
315	459.02	447.30
316	447.27	444.88
317	446.41	442.74
318	447.27	441.15
319	440.19	438.51
320	431.57	434.73
321	453.10	435.70
322	452.67	436.41
323	466.30	439.56
324	457.05	440.39
325	460.13	441.66
326	447.27	440.27
327	441.93	438.12
328	436.87	435.41
329	446.55	435.01
330	420.93	429.86

Conclusion and Findings



The market depends on a variety of factors such as but not limited to environmental, social, political and investor sentiment, in this project we use Moving average(MV) and Exponential Moving Average (EMA), with two windows 7 days and 10 days to get the accuracy of prediction, we came to use these two windows by using hit and trial method. The data is pretty much clean and less noisy, as it is a predefined standardised as per international standard and SEBI rule. The price of the stock depends upon the market factors, prediction prices sometimes are far away from the actual price. These factors included covid crisis, lockdown, internalisation affair, and policy change in current regulation.



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Introduction and Objective

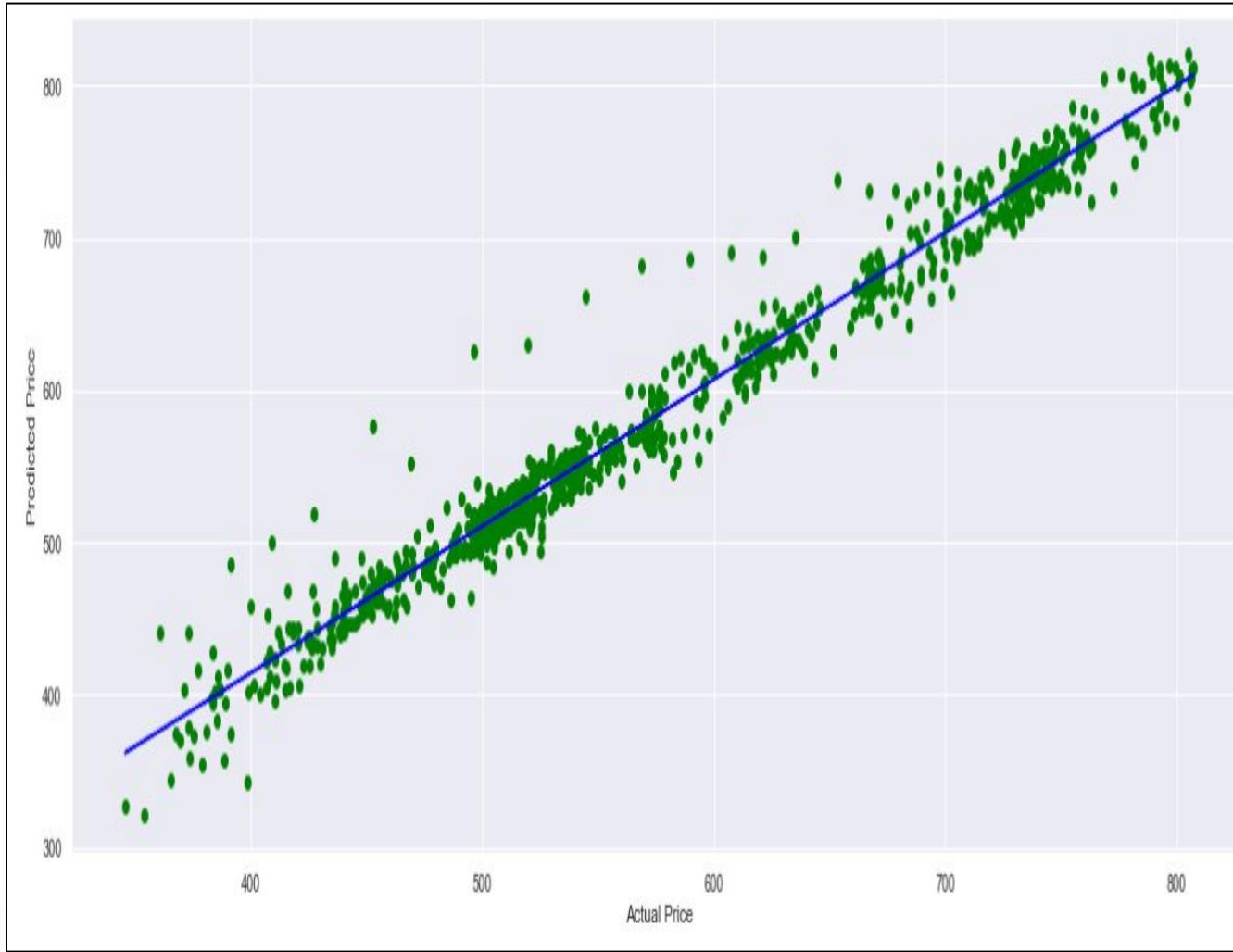
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Our Approach

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Model Evaluation

Model Evaluation



**Model with
98% accuracy**

Mean Absolute Error: 1379

Mean Squared Error: 403.84

Root Mean Squared Error: 20.095

Thank you!

