Capstone Project
Background and Objectives

Global Stock Markets Analytics:
To study the global markets & understand which impact the Nifty50

Background

1.Market :
Global Market Indices : Nifty50, Dow Jones Index, Hangseng Index, DAX Index

2.Background
Four Global Market Indices. Daily movement of these markets over past 6 years since 2017 is observed.
The markets open in the following
Nifty50 , Dow Jones Index & DAX
timezones.
Also with the Covid-19 Pandemic
been impacted

Background

3. Objectives

   The objective of the study is three fold :

   – To analyse returns,volatility and correlations existent among markets (Pre and Post the covid impact) & the direct impact each market has on other

   – To predict next day Open/Close Price for Nifty50 Index also capture the effect of global market on Indian Market

   – Understand the sentiment of the Global market using Twitter Data

Background

4. Data
OHLC (Open, High, Low, Close) data for the period 01-01-2017
to 31-10-2023 is considered
The data available is the following :
1. OHLC data of Nifty50 (NSEI)
2. C data of Dow Jones Index (DJI)
3. OC data of Hangseng Index (HS`
4. C data of DAX Index (GDAXI)

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Data : NSEI

This data gives the OHLC values of NIFTY50 Index for the period 01-01-2017 to 31-10-2023

Date	NSEI_Open	NSEI_High	NSEI_Low	NSEI_Close
02-01-2017	8210.099609	8212	8133.799805	8179.5
03-01-2017	8196.049805	8219.099609	8148.600098	8192.25
04-01-2017	8202.650391	8218.5	8180.899902	8190.5
05-01-2017	8226.650391	8282.650391	8223.700195	8273.799805
06-01-2017	8281.849609	8306.849609	8233.25	8243.799805
09-01-2017	8259.349609	8263	8227.75	8236.049805
10-01-2017	8262.700195	8293.799805	8261	8288.599609

Columns	Description	Type	Measurement	Possible values
Date	Date	Date	dd-mm-yyyy	-
NSEI_Open	Opening Price of Nifty50 on a particular day	Numeric	-	Positive Values
NSEI_High	Highest Price of Nifty50 on a particular day	Numeric	-	Positive Values
NSEI_Low	Lowest Price of Nifty50 on a particular day	Numeric	-	Positive Values
NSEI_Close	Close Price of Nifty50 on a particular day	Numeric	-	Positive Values

Data : DJI

This data gives the C values of Dow Jones Index (US) for the period 01-01-2017 to 31-10-2023

Date	DJI_Close
03-01-2017	19881.75977
04-01-2017	19942.16016
05-01-2017	19899.28906
06-01-2017	19963.80078
09-01-2017	19887.38086
10-01-2017	19855.5293
11-01-2017	19954.2793
12-01-2017	19891
13-01-2017	19885.73047
17-01-2017	19826.76953
18-01-2017	19804.7207

Columns	Description	Type	Measurement	Possible values
Date	Date	Date	dd-mm-yyyy	-
DJI_Close	Close Price of DJI on a particular day	Numeric	-	Positive Values

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Data : HSI

Content

This data gives the OC values of Hang Seng Index (Hongkong) for the period 01-01-2017 to 31-10-2023

Date	HSI_Open	HSI_Close
03-01-2017	21993.35938	22150.40039
04-01-2017	22201.08008	22134.4707
05-01-2017	22302.64063	22456.68945
06-01-2017	22583.28906	22503.00977
09-01-2017	22561.10938	22558.68945
10-01-2017	22561.16992	22744.84961
11-01-2017	22816.00977	22935.34961
12-01-2017	22956.43945	22829.01953
13-01-2017	22879.57031	22937.38086

Columns	Description	Type	Measurement	Possible values
Date	Date	Date	dd-mm-yyyy	-
HSI_Open	Opening Price of HSI on a particular day	Numeric	-	Positive Values
HSI_Close	Close Price of HSI on a particular day	Numeric	-	Positive Values

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Data : GDAXI

Content

This data gives the C values of DAX Index (Germany) for the period 01-01-2017 to 31-10-2023

Date	DAX_Close
02-01-2017	11598.33008
03-01-2017	11584.24023
04-01-2017	11584.30957
05-01-2017	11584.94043
06-01-2017	11599.00977
09-01-2017	11563.99023
10-01-2017	11583.29981
11-01-2017	11646.16992
12-01-2017	11521.04004
13-01-2017	11629.17969
16-01-2017	11554.70006

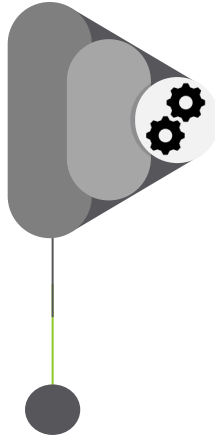| Columns	Description	Type	Measurement	Possible values
Date	Date	Date	dd-mm-yyyy	-
DAX_Close	Close Price of DAX Index on a particular day	Numeric	-	Positive Values

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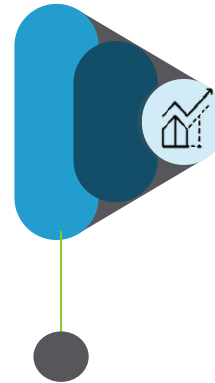
Next steps

Data management

- ➤ Compile all 4 data files based on Date
- ➤ Handling missing values and completing Basic Data checks
- ➤ Create new variables as log returns & lag of log returns for all 4 markets

Descriptive Statistics & Data visualization

- ➤ Understanding the data better like checking volatility among markets, annual growth etc
- ➤ How can this data be presented better visually ?

Predictive modelling

- ➤ Answer the objectives a) To predict next day close value for Nifty50. b) To predict the next day direction of Nifty50 based on global parameters
- ➤ Using different Predictive model techniques to find next day Close value
- ➤ Ensure you follow all steps like checking for stationarity

Text mining

- ➤ Understand the Sentiment of the Global Market

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