

A Study on The Novel Coronavirus Pandemic (Covid 19) Impact on Major Sectoral Indices in National Stock Exchange (NSE) & Bombay Stock Exchange (BSE)

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ABSTRACT - The virus that has spooked the world's markets and sparked fear of downturn worldwide has also destructed Indian stock market. Whether the Current market fall can be a best buying opportunity for investors. The world has suddenly become a different place in the last six months, with Coronavirus taking a host of nations by storm. Markets in the US, as well as India, were very strong for quite a while. The stock market fall, in the worldwide markets and India, is for the most part by virtue of Fear of the Unknown. What amount can the circumstance prolong, how viably will nations react in containing the pandemic, in how much time, and the degree of crippling impact this whole circumstance will emphasis on economic activity, demand and trade. The objective of this paper is to estimate the expected return of selected securities from major sectoral indices from NSE & BSE, and to compare their performances i.e. before and after the strike of novel coronavirus pandemic. The 5 different sectors listed in National Stock Exchange (NSE) like Nifty Auto, Nifty Energy, Nifty pharma, Nifty financial services, Nifty FMCG and Bombay Stock Exchange (BSE) like S&P BSE Auto, S&P BSE Energy, S&P BSE Power, S&P BSE Healthcare, S&P BSE FMCG, S&P BSE Bankex are taken into account and 5 securities from each sector is selected for calculating the expected return. The data is collected for the securities listed in NSE for the time frame of 6 months from 1st November 2019 to 30th April 2020 to estimate the expected return on the stock. The securities are ranked based on the CAPM expected return for the above specified period. The study further extended on the determining the Alpha(α) Beta(β) and coefficient of determination (R^2) to find the variance in proportion of dependent variable to that of independent variable.

Key words: CAPM, Alpha, Beta, NSE, BSE, R square, Sectoral indices, Novel Coronavirus, Covid

I. INTRODUCTION

Coronaviruses are a huge group of infections that cause illness extending from the basic virus to increasingly severe diseases and Severe Acute Respiratory Syndrome. As the coronavirus (COVID-19) pandemic keeps on frightening the global equity markets generally Asian and European markets enrolled enormous misfortunes over the economic aftermath. Speculator notion in India is low to the point that regardless of moderately lower cases, Indian market has fared most exceedingly awful among global peers. Indian stock market has lost 26 % in terms of dollar between February 1 and April 9, contrasted and a fall of 20 % and 14 % in the European and US markets. India is opening up its economy and taking steps to return to normalcy, The Reserve Bank of India slashed lending rates, predicting India's GDP growth in 2020-2021 would slow down due to the coronavirus lockdown. Major manufacturing companies in India have temporarily suspended operations and FMCG companies in the country have significantly reduced operations and are focusing on essentials. In India up to 53% of organizations have determined a specific measure of effect as shutdowns

caused due to Covid-19 on operations. Globally, stock markets are in a bear grip on concerns over the novel coronavirus, major industrial sectors like Chemical Industry, Shipping Industry, Auto Industry, Pharmaceuticals Industry, Textiles Industry, IT Industry, Tourism and Aviation had an impact of Covid-19. Banks and financial institutions will be under immense pressure as the fear of NPA, on the other side India's fuel demand in April 2020 as compared to the previous year fell nearly 46%, E-commerce platforms in India announced that it would stop sale of non-essential items in India so that it can focus on essential needs. There is no doubt that Covid-19 will have a large impact on the Indian economy, The recovery of the underlying economy will be slow, and may take around 2 years for normalcy to come back across sectors. Everyone does predictions. It doesn't cost anything and does no harm. Not in my line of work, Stock markets have a mind of their own, formed by the collective emotions and intelligence of millions. Stock markets are frequently slanted and aren't the best pointers of the basic economy. Stock markets will have a solid recuperation, not

because of the essentials quality, yet because of worldwide liquidity.

India has dropped out from the rundown of the world's best 10 stock markets as the covid-19 pandemic prompted a defeat in worldwide values, desolating valuations altogether this year. India's benchmark indices entered a bear market and India is no longer part of the \$2-trillion market cap club, tumbling to the eleventh spot in the alliance table with \$1.57 trillion market cap. In January, India was positioned 10 with a market cap of \$2.16 trillion, and was in the seventh spot while in January 2019, with a total market cap of \$2.08 trillion. India tumbled out of the top 10 list at the end March 2020, when the benchmark indices saw one of the biggest one-day decline, with the Sensex losing 13.15%. March 2020 will be recorded in capital market history as an exceptional month. Stock markets in India post exceedingly terrible misfortunes ever. SENSEX fell over 4000 points and NIFTY over 1150 points, top 5 Nifty losers are financial sectors and slip up to 5%. Markets dread as vulnerability wins and markets the world over colliding with levels not witnessed since the Global Financial Crisis of 2008. Following the solid connection with the patterns and indices of the worldwide market as BSE Sensex and Nifty 50 fell by 38%. The all out market top lost an amazing 27.31% from the beginning of the year. Half of the Nifty 50 stocks, barring financials, are trading at single digit valuations as Indian equity markets are almost 33% off record-significant levels they scaled in January. The Indian stock markets are much lower in percentage terms when compared to the Asian and European markets, as certain sector, for example, hospitality, tourism and entertainment have been affected unfavourably and stocks of such organizations are down by over 40%. While the world has seen numerous monetary crises previously, the last one being the worldwide downturn of 2008, the current coronavirus crises is not quite the same as the past fallout's. Drops in SENSEX and NIFTY are temporary, and each dip provides investors with the opportunity to enter the market and earn a higher return especially for those with long term horizon. Moreover, the higher the volatility, the higher odds of showing signs of better returns. While these crisis are genuine and it impacts the world economy, however truly, such emergency has not kept going long, as the world is skilful enough to think of answers and battle these difficulties. In spite of the way that it's difficult to foresee the extent and effect of Coronavirus on the economy, however it is sure that the markets will ricochet back soon the crisis gets over.

II. REVIEW OF LITERATURE

Dr. S Poornima and Swathiga P, June(2017) the study is on the relationship between risk and return analysis to select stocks on NSE capital quality valuation model this shows the relation of risk and return causes the investor to select

the securities by their choice. The study provides data concerning the performance of assorted stocks within the market in terms of risk and come with the assistance of CAPM. Whereas in case of automobile sector firms here, investors may choose Hieronymus Bosch 3.48% and Maruti Suzuki Ltd 5.31%. Whereas in case of IT sector firms here, they can choose HCL Technologies (1.02%). Since the author has select solely 2 sectors like IT and automobile Sectors, wherever the auto firms has performed higher and has accumulated growth within the market when put next to that Sector has negative average returns.

Dr.S.Saravanan and R.Vidhyatharan, "A study on performance evaluation of different sectoral indices in national stock exchange (2020)" examined that from the past data they infer that NESTLEIND & BRITANNIA has the highest expected return of 4.9148% & 4.3745% respectively from the selected securities. These two securities represent the FMCG sector and have a high yield return as far as other sectors are concerned. And also indicates that FMCG sector has ranked further ahead when compared to other sectors which have taken in to consideration for the above study. Apart from FMCG sectors, the energy sectors performs well and yield high return. The banking sector has progressively number of negative returns and has a low performance with that of different sectors which has been chosen for the examination. Though automobile sector and IT sectors exhibits a moderate performance

Chintan A. Shah (2015) this examination was generally about the Sharpe model gives precise number of securities close by weightage for venture, while this is past the domain of creative mind in CAPM model. They are utilized the graphic research structure and optional information is utilized as a significant thing right now. CAPM model simply suggest different securities where financial pro can contribute anyway it doesn't give a particular portfolio and weightage to interest in different securities. Considering the examination of benefits of top 15 BSE securities from past years data using Sharpe Model, a financial authority can place assets into following securities. HDFC Bank, ICICI Bank, HDFC, TATA Motors and TCS

Dr.Rupinder Katoch, January (2018) The Capital Asset Pricing Model: An Empirical Test on Indian Stock Market and the investigation finishes up blended reactions to the uses of CAPM in Indian Stock Market. The assessment started with the purpose of holding CAPM on Indian Stock Market viz. to test whether higher beta yields higher expected return and the catch ascends to zero. The results of CAPM's estimates that higher risk (beta) is connected with a progressively huge degree of return.

Dr.S.Saravanan and R.Vidhyatharan, Interpretation of Stock Beta in national stock exchange, India (2020)

examined that from the past data we can infer that YES BANK has the highest beta value among all the securities listed in Nifty 50 and only 16 securities has beta value greater than 1 and indicates the amount of risk and ability to fetch high potential return. And furthermore shows that banking sector securities has a bigger impact in Nifty 50 by means for the beta value. As far as coefficient of determination concern in explaining the size effect, the TATA STEEL has a highest proportion of the variance that can be predicted from the corresponding market and suggests that the model is good in explaining the size effect among the other listed securities in the market.

III. RESEARCH DESIGN

3.1 PROBLEM DEFINITION:

To estimate the return and rank them based on their returns before and after the novel corona pandemic in their respective markets and to find the performance by comparing the same among the different sectoral indices in NSE & BSE.

3.2 NEED OF THE STUDY:

- To understand the impact level of the novel corona pandemic and its supremacy in Indian stock exchanges (NSE & BSE) by comparing the performances of the securities.
- To measure the change in performance for securities in NSE & BSE i.e. before and after strike of corona.
- To understand the level of significance for the proportion of beta value for the same securities listed in both NSE & BSE.
- To know the importance of beta value and how it influences the individual stock in the corresponding market.
- To measure the variance in proportion of the dependent variable to that of the independent variable in respective markets.

3.3 OBJECTIVE OF THE STUDY:

- To select securities from five major sectoral indices listed in both NSE & BSE.
- To estimate the beta coefficient value for each securities by the time frame taken for study.
- To calculate the coefficient of determination (R^2) for the securities.
- To estimate the expected return for all selected securities using CAPM.
- To rank all the securities based on their CAPM expected return.

3.4 LIMITATIONS OF THE STUDY:

Every research has its own limitations. The limitations of this study are:

- The study covers only 25 listed securities from NSE & BSE.
- This study is limited to the CAPM return of 25 stocks only.
- Past 6 month data has been used for the calculation and it has been divided into two equal time frames for estimating the return using CAPM.
- In the study, five major sectors have been chosen. The study covers only these 5 sectors based on NSE & BSE, five companies have been taken from each sector.

IV. DATA

Here, researcher has used Descriptive Research Design because in this research design the researcher has got very specific objectives and clear-cut data requirements. Daily data for 25 securities from NSE & BSE are collected for a time frame of 6 months that is from November 1st 2019 to 31st January 2020 (3 months) has been taken as duration before bang of corona and from 1st February 2020 to April 30th 2020 (3 months) has been taken as duration after the bang of corona. Data collected is a secondary data and been collected from the NSE & BSE websites respectively.

The selected securities from different sectoral indices (NSE & BSE):

Table 4.1 selected securities from different sectoral indices (NSE & BSE).

S.no	SYMBOL	SECTOR (NSE)	SECTOR (BSE)
1	BAJAJ-AUTO	NIFTY AUTO	S&P BSE AUTO
2	EXIDEIND	NIFTY AUTO	S&P BSE AUTO
3	HEROMOTOCO	NIFTY AUTO	S&P BSE AUTO
4	MARUTI	NIFTY AUTO	S&P BSE AUTO
5	MRF	NIFTY AUTO	S&P BSE AUTO
6	ADANITRANS	NIFTY ENERGY	S&P BSE POWER
7	HINDPETRO	NIFTY ENERGY	S&P BSE ENERGY
8	ONGC	NIFTY ENERGY	S&P BSE ENERGY
9	RELIANCE	NIFTY ENERGY	S&P BSE ENERGY
10	TATAPOWER	NIFTY ENERGY	S&P BSE POWER
11	CADILAHC	NIFTY PHARMA	S&P BSE HEALTHCARE
12	CIPLA	NIFTY PHARMA	S&P BSE HEALTHCARE

13	DIVISLAB	NIFTY PHARMA	S&P BSE HEALTHCARE
14	DRREDDY	NIFTY PHARMA	S&P BSE HEALTHCARE
15	LUPIN	NIFTY PHARMA	S&P BSE HEALTHCARE
16	COLPAL	NIFTY FMCG	S&P BSE FMCG
17	HINDUNILVR	NIFTY FMCG	S&P BSE FMCG
18	MARICO	NIFTY FMCG	S&P BSE FMCG
19	NESTLEIND	NIFTY FMCG	S&P BSE FMCG
20	PGHH	NIFTY FMCG	S&P BSE FMCG
21	AXISBANK	NIFTY BANK	S&P BSE BANKEX
22	HDFCBANK	NIFTY BANK	S&P BSE BANKEX
23	ICICIBANK	NIFTY BANK	S&P BSE BANKEX
24	KOTAKBANK	NIFTY BANK	S&P BSE BANKEX
25	SBIN	NIFTY BANK	S&P BSE BANKEX

5. ESTIMATION OF BETA COEFFICIENT (β):

The **beta coefficient (β)** is obtained from the following formula:

Where, Beta coefficient (β) =

$$\frac{\text{covariance } (Re,Rm)}{\text{variance } (Rm)}$$

Where,

- i. R_e is the return on an individual stock - Dependent Variable.
- ii. R_m is the return on the overall market - Independent Variable.
- iii. Variance is the square of standard deviation and how far the market's data points spread-out from their average value
- iv. Covariance is how changes in a stock's returns are related to changes in the markets return and it is the statistic that measures how two variables co-vary.

Table 5.1 comparison of beta value for securities listed in NSE:

S.no	SYMBOL	SECTOR	BETA (β) VALUE (1 st November 2019 to 31 st January 2020)	BETA (β) VALUE (1 st February 2020 to 30 th April 2020)
1	BAJAJ-AUTO	NIFTY AUTO	0.32	0.80
2	EXIDEIND	NIFTY AUTO	0.95	0.62

3	HEROMOT OCO	NIFTY AUTO	0.86	0.90
4	MARUTI	NIFTY AUTO	1.18	1.23
5	MRF	NIFTY AUTO	0.78	0.68
6	ADANITRANS	NIFTY ENERGY	0.49	0.64
7	HINDPETRO	NIFTY ENERGY	1.60	0.94
8	ONGC	NIFTY ENERGY	0.95	1.30
9	RELIANCE	NIFTY ENERGY	1.14	1.30
10	TATAPOWER	NIFTY ENERGY	0.76	0.70
11	CADILAHCA	NIFTY PHARMA	0.58	0.94
12	CIPLA	NIFTY PHARMA	0.69	0.98
13	DIVISLAB	NIFTY PHARMA	0.65	0.91
14	DRREDDY	NIFTY PHARMA	0.77	0.86
15	LUPIN	NIFTY PHARMA	0.95	0.86
16	COLPAL	NIFTY FMCG	1.13	0.75
17	HINDUNILVR	NIFTY FMCG	0.79	1.16
18	MARICO	NIFTY FMCG	1.06	0.75
19	NESTLEIND	NIFTY FMCG	1.15	0.97
20	PGHH	NIFTY FMCG	0.73	0.41
21	AXISBANK	NIFTY BANK	1.16	1.33
22	HDFCBANK	NIFTY BANK	0.68	0.84
23	ICICIBANK	NIFTY BANK	0.93	1.14
24	KOTAKBANK	NIFTY BANK	0.63	0.88
25	SBIN	NIFTY BANK	1.58	0.84

Table 5.2 comparison of beta value for securities listed in BSE:

S.no	SYMBOL	SECTOR	BETA (β) VALUE (1 st November 2019 to 31 st January 2020)	BETA (β) VALUE (1 st February 2020 to 30 th April 2020)
1	BAJAJ-AUTO	S&P BSE AUTO	0.33	0.82
2	EXIDEIND	S&P BSE AUTO	0.94	0.61
3	HEROMOT OCO	S&P BSE AUTO	0.88	0.93
4	MARUTI	S&P BSE AUTO	1.20	1.25
5	MRF	S&P BSE AUTO	0.84	0.71
6	ADANITRANS	S&P BSE POWER	0.87	0.79
7	HINDPETRO	S&P BSE ENERGY	0.96	0.62

8	ONGC	S&P BSE ENERGY	0.47	0.95
9	RELIANCE	S&P BSE ENERGY	1.20	1.15
10	TATAPOWER	S&P BSE POWER	1.15	0.86
11	CADILAHC	S&P BSE HEALTHCARE	0.80	1.06
12	CIPLA	S&P BSE HEALTHCARE	0.76	1.02
13	DIVISLAB	S&P BSE HEALTHCARE	0.75	0.99
14	DRREDDY	S&P BSE HEALTHCARE	0.97	0.94
15	LUPIN	S&P BSE HEALTHCARE	1.16	0.88
16	COLPAL	S&P BSE FMCG	1.02	0.76
17	HINDUNILVR	S&P BSE FMCG	0.75	1.17
18	MARICO	S&P BSE FMCG	0.98	0.75
19	NESTLEIND	S&P BSE FMCG	1.16	0.97
20	PGHH	S&P BSE FMCG	0.73	0.40
21	AXISBANK	S&P BSE BANKEX	1.16	1.30
22	HDFCBANK	S&P BSE BANKEX	0.61	0.84
23	ICICIBANK	S&P BSE BANKEX	1.00	1.13
24	KOTAKBANK	S&P BSE BANKEX	0.70	0.89
25	SBIN	S&P BSE BANKEX	1.57	0.81

INTERPRETATION:

A Beta Coefficient value of greater than 1.00 indicates that the stock is highly volatile than the market, and Beta Coefficient value of less than 1.00 is less volatile than the market. A beta Coefficient value of 1.5 means that a stock's excess return is expected to move 1.5 times than the market excess returns.

From the above table 5.1 we can infer that before the impact of COVID in Indian stock market there are only 2 securities (HINDPETRO & SBIN) have a beta value greater than 1.5 which indicates that these 2 securities are expected to move 1.5 times than the market excess returns. There are 6 other securities (MARUTI, AXISBANK, NESTLEIND, RELIANCE, COLPAL, MARICO) has a beta value of greater than 1, which shows that these securities are more volatile in the market. Among these 25 securities there are 17 securities which have a beta value less than 1; this indicates that these 17 securities are less volatile than their corresponding market. HINDPETRO from Nifty Energy has the highest beta value of 1.60 and BAJAJ-AUTO from Nifty Auto has the lowest beta value of 0.32

From the above table 5.1 we can also infer that after the impact of COVID in Indian stock market there are only 6 securities (AXISBANK, RELIANCE, ONGC, MARUTI, HINDUNILVR, ICICIBANK) has a beta value of greater than 1, which shows that these securities are more volatile in the market. Among these 25 securities there are 19 securities which have a beta value less than 1, this indicates that these 19 securities are less volatile than their corresponding market. AXISBANK from Nifty bank has the highest beta value of 1.33 and PGHH from Nifty FMCG has the lowest beta value of 0.41. It seems that no individual sector has a weightage over the other sectors in the market, however the banking sector & energy sectors has the higher risk while compared to other sectors in NSE.

From the above table 5.2 we can infer that before the impact of COVID in Indian stock market there are 8 securities SBIN, RELIANCE, MARUTI, NESTLEIND, AXISBANK, LUPIN, TATAPOWER, COLPAL has a beta value of greater than 1, which shows that these securities are more volatile in the market. Among these 25 securities there are 17 securities which have a beta value less than 1, this indicates that these 17 securities are less volatile than their corresponding market. SBIN from S&P BSE Bankex has the highest beta value of 1.57 and BAJAJ-AUTO from S&P BSE Auto has the lowest beta value of 0.33

From the above table 5.2 we can also infer that after the impact of COVID in Indian stock market there are only 7 securities AXISBANK, MARUTI, HINDUNILVR, RELIANCE, ICICIBANK, CADILAHC, CIPLA has a beta value of greater than 1, which shows that these securities is more volatile in the market. Among these 25 securities there are 18 securities which have a beta value less than 1, this indicates that these 19 securities are less volatile than their corresponding market. AXISBANK from S&P BSE Bankex has the highest beta value of 1.30 and PGHH from S&P BSE FMCG has the lowest beta value of 0.40. It seems that as like NSE no individual sector has a weightage over the other sectors in the market, however the banking sector, & FMCG sectors has the higher risk while compared to other sectors in BSE.

6. ESTIMATION R-SQUARED AND ADJUSTED R-SQUARED:

R-squared is the factual proportion of how close the information is to the fitted relapse line. It is otherwise called the coefficient of assurance, or the coefficient of numerous conclusions for different relapses. 100% shows that the model clarifies all the fluctuation of the reaction information around its mean. So also the balanced R-squared is an altered variant of R-squared that has been balanced for the quantity of indicators in the model. The balanced R-squared increments just if the new term improves the model more than would be normal by some

coincidence. It diminishes when an indicator improves the model by not exactly expected by some coincidence.

Table 6.1 comparison of variance in proportion of the dependent variable to that of the independent variable (R²) value for securities listed in NSE:

S.no	SYMBOL	SECTOR	R ² VALUE (%) (1 st November 2019 to 31 st January 2020)	R ² VALUE (%) (1 st February 2020 to 30 th April 2020)
1	BAJAJ-AUTO	NIFTY AUTO	11.47	66.03
2	EXIDEIND	NIFTY AUTO	32.63	49.82
3	HEROMOTOCO	NIFTY AUTO	41.94	62.73
4	MARUTI	NIFTY AUTO	75.25	86.97
5	MRF	NIFTY AUTO	36.29	57.90
6	ADANITRANS	NIFTY ENERGY	2.62	22.24
7	HINDPETRO	NIFTY ENERGY	59.19	50.26
8	ONGC	NIFTY ENERGY	33.49	54.83
9	RELIANCE	NIFTY ENERGY	51.06	81.73
10	TATAPOWER	NIFTY ENERGY	19.26	37.82
11	CADILAHC	NIFTY PHARMA	13.08	45.90
12	CIPLA	NIFTY PHARMA	27.74	64.05
13	DIVISLAB	NIFTY PHARMA	27.87	73.05
14	DRREDDY	NIFTY PHARMA	33.50	64.45
15	LUPIN	NIFTY PHARMA	40.35	52.00
16	COLPAL	NIFTY FMCG	26.47	67.20
17	HINDUNILVR	NIFTY FMCG	31.41	78.87
18	MARICO	NIFTY FMCG	21.96	59.36
19	NESTLEIND	NIFTY FMCG	37.04	69.32
20	PGHH	NIFTY FMCG	21.38	24.81
21	AXISBANK	NIFTY BANK	50.51	80.45
22	HDFCBANK	NIFTY BANK	42.90	81.72
23	ICICIBANK	NIFTY BANK	38.01	90.09
24	KOTAKBANK	NIFTY BANK	18.72	72.70
25	SBIN	NIFTY BANK	59.01	68.05

Table 6.2 comparison of variance in proportion of the dependent variable to that of the independent variable (R²) value for securities listed in BSE:

S.no	SYMBOL	SECTOR	R ² VALUE (%) (1 st November 2019 to 31 st January 2020)	R ² VALUE (%) (1 st February 2020 to 30 th April 2020)
1	BAJAJ-AUTO	S&P BSE AUTO	11.68	65.13
2	EXIDEIND	S&P BSE AUTO	32.21	48.24
3	HEROMOTOCO	S&P BSE AUTO	43.13	63.73
4	MARUTI	S&P BSE AUTO	74.36	86.56
5	MRF	S&P BSE AUTO	39.40	58.76
6	ADANITRANS	S&P BSE POWER	6.98	21.73
7	HINDPETRO	S&P BSE ENERGY	33.71	33.26
8	ONGC	S&P BSE ENERGY	12.64	48.65
9	RELIANCE	S&P BSE ENERGY	91.82	97.37
10	TATAPOWER	S&P BSE POWER	37.06	34.85
11	CADILAHC	S&P BSE HEALTHCARE	14.63	48.00
12	CIPLA	S&P BSE HEALTHCARE	19.06	59.06
13	DIVISLAB	S&P BSE HEALTHCARE	21.12	72.45
14	DRREDDY	S&P BSE HEALTHCARE	29.83	63.03
15	LUPIN	S&P BSE HEALTHCARE	34.62	45.80
16	COLPAL	S&P BSE FMCG	22.58	66.64
17	HINDUNILVR	S&P BSE FMCG	30.59	79.11
18	MARICO	S&P BSE FMCG	19.90	62.32
19	NESTLEIND	S&P BSE FMCG	40.65	69.34
20	PGHH	S&P BSE FMCG	21.12	25.96
21	AXISBANK	S&P BSE BANKEX	48.61	80.27
22	HDFCBANK	S&P BSE BANKEX	35.46	81.14
23	ICICIBANK	S&P BSE BANKEX	42.51	90.42
24	KOTAKBANK	S&P BSE BANKEX	22.30	75.14
25	SBIN	S&P BSE BANKEX	56.28	66.21

INTERPRETATION:

Coefficient of determination (R²) is to find the variance in proportion of dependent variable to that of independent variable. This is the statistical tool which helps to determine how the differences in one particular variable can be explained by the difference in the other variable, making it simple it is used to explain how much variability of one particular factor can be caused by the another factor which is related to it.

From the above table 6.1 we can infer that before the impact of COVID in Indian stock market there are only 1 securities MARUTI have a strong coefficient of determination value of 75.25% which is greater than 70% and the model is good in explaining the size effect among the other listed securities in the market, it also further indicates that more than 75% of the data fit the regression model. The following 4 securities HINDPETRO, SBIN, RELIANCE, AXISBANK has a coefficient of determination value greater than 50% which indicates that these have generally a moderate size effect. HDFCBANK, HEROMOTOCO LUPIN, ICICIBANK, NESTLEIND, MRF, DRREDDY, ONGC, EXIDEIND, HINDUNILVR has a coefficient of determination value more than 30% which indicates that it has a weak or low size effect. The other 10 securities have coefficient of determination value less than 30% and it have a very weak effect size. ADANITRANS from Nifty Energy has the lowest value of 2.62

From the above table 6.1 we can infer that before the impact of COVID in Indian stock market there are 8 securities ICICIBANK, MARUTI, RELIANCE, HDFCBANK, AXISBANK, HINDUNILVR, DIVISLAB, KOTAKBANK have a strong coefficient of determination value of greater than 70% and the model is good in explaining the size effect among the other listed securities in the market, it also further indicates that more than 70% of the data fit the regression model. The following 12 securities NESTLEIND, SBIN, COLPAL, BAJAJ-AUTO, DRREDDY, CIPLA, HEROMOTOCO, MARICO, MRF, ONGC, LUPIN, HINDPETRO has a coefficient of determination value greater than 50% which indicates that these have generally a moderate size effect. EXIDEIND, CADILAH, TATAPOWER has a coefficient of determination value more than 30% which indicates that it has a weak or low size effect. The other 2 securities have coefficient of determination value less than 30% and it have very weak effect size. ADANITRANS from Nifty Energy has the lowest value of 22.2% and ICICIBANK has the highest value of 90%.

From the above table 6.2 we can infer that before the impact of COVID in Indian stock market there are only 2 securities RELIANCE, MARUTI have a strong coefficient of determination value of greater than 70% and the model is good in explaining the size effect among the other listed

Table 7.1 shows the CAPM expected return for both NSE and BSE:

securities in the market, it also further indicates that more than 75% of the data fit the regression model. SBIN has a coefficient of determination value greater than 50% which indicates that these have generally a moderate size effect. The following 11 securities AXISBANK, HEROMOTOCO, ICICIBANK, NESTLEIND, MRF, TATAPOWER, HDFCBANK, LUPIN, HINDPETRO, EXIDEIND, HINDUNILVR has a coefficient of determination value more than 30% which indicates that it has a weak or low size effect. The other 11 securities have coefficient of determination value less than 30% and it have a very weak effect size. ADANITRANS from S&P BSE Power has the lowest value of 6.9% and RELIANCE also from S&P BSE Power has the highest value of 91.81%.

From the above table 6.2 we can infer that before the impact of COVID in Indian stock market there are 8 securities RELIANCE, ICICIBANK, MARUTI, HDFCBANK, AXISBANK, HINDUNILVR, KOTAKBANK, DIVISLAB have a strong coefficient of determination value of greater than 70% and the model is good in explaining the size effect among the other listed securities in the market, it also further indicates that more than 70% of the data fit the regression model. The following 9 securities NESTLEIND, COLPAL, SBIN, BAJAJ-AUTO, HEROMOTOCO, DRREDDY, MARICO, CIPLA, MRF has a coefficient of determination value greater than 50% which indicates that these have generally a moderate size effect. ONGC, EXIDEIND, CADILAH, LUPIN, TATAPOWER, HINDPETRO has a coefficient of determination value more than 30% which indicates that it has a weak or low size effect. The other 2 securities have coefficient of determination value less than 30% and it have very weak effect size. . ADANITRANS from S&P BSE Power has the lowest value of 21.72 % and RELIANCE also from S&P BSE Power has the highest value of 97.36%.

7. ESTIMATION OF CAPM:

The expected return is obtained from individual securities from the following formula:

$$R_i = R_f + \beta * (R_m - R_f)$$

Where, Beta coefficient (β) = $\frac{\text{covariance}(R_e, R_m)}{\text{variance}(R_m)}$

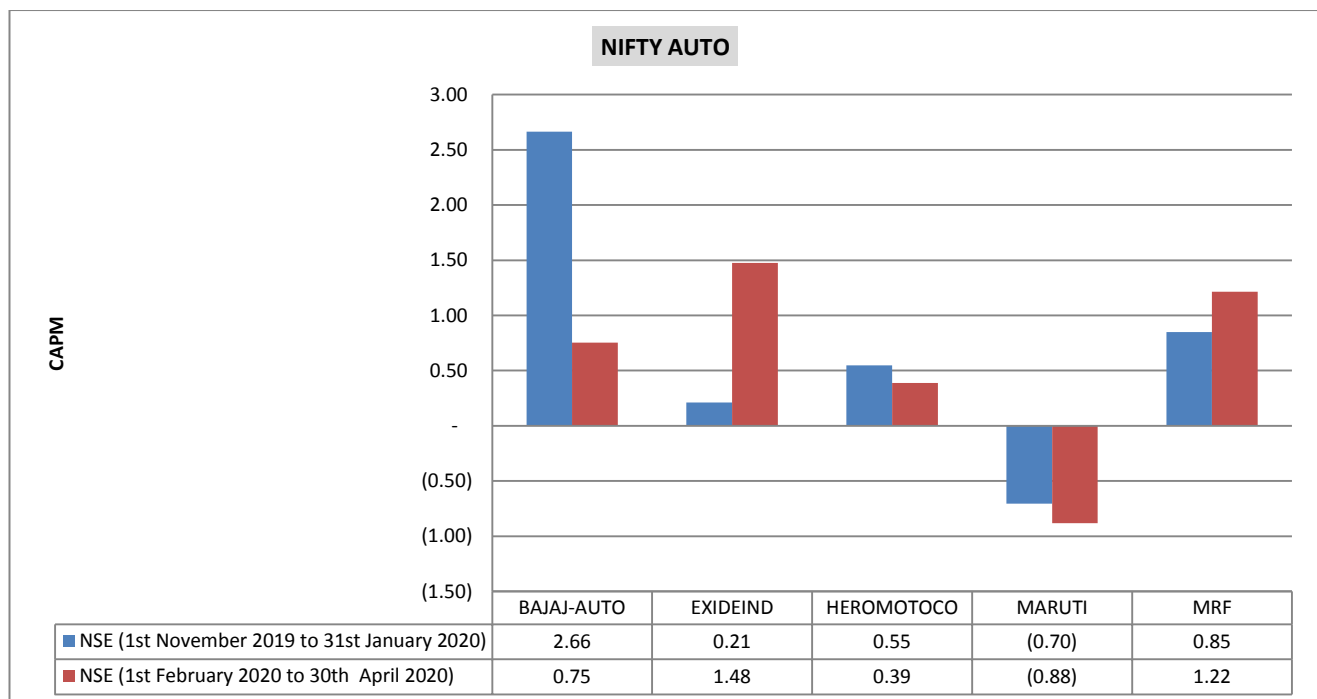
S.no	SYMBOL	NSE		BSE	
		CAPM (%) (1 st November 2019 to 31 st January 2020)	CAPM (%) (1 st February 2020 to 30 th April 2020)	CAPM (%) (1 st November 2019 to 31 st January 2020)	CAPM (%) (1 st February 2020 to 30 th April 2020)
1	BAJAJ-AUTO	2.66	0.75	2.63	0.69
2	EXIDEIND	0.21	1.48	0.24	1.50
3	HEROMOTOCO	0.55	0.39	0.45	0.25

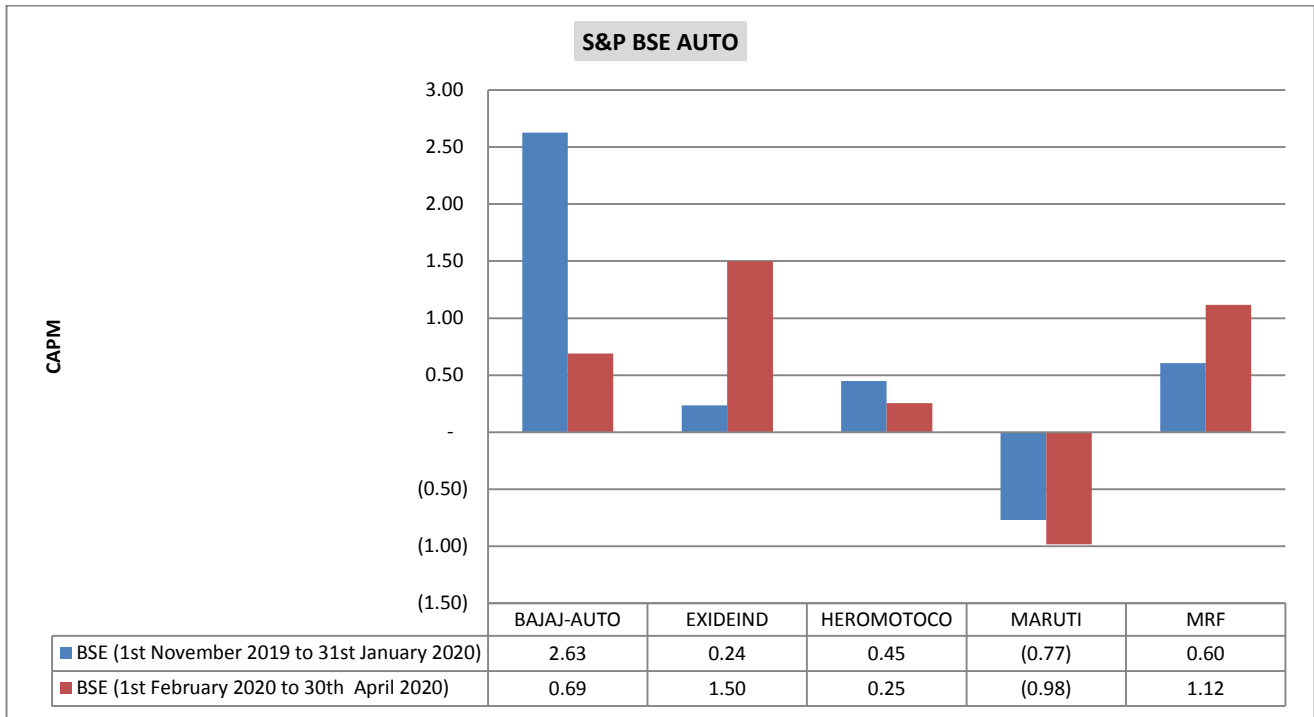
4	MARUTI	-0.70	-0.88	-0.77	-0.98
5	MRF	0.85	1.22	0.60	1.12
6	ADANITRANS	1.99	1.40	0.51	0.81
7	HINDPETRO	-2.36	0.25	0.17	1.47
8	ONGC	0.19	-1.15	2.08	0.18
9	RELIANCE	-0.54	-1.17	-0.80	-0.58
10	TATAPOWER	0.92	1.14	-0.58	0.52
11	CADILAHC	1.66	0.24	0.79	-0.23
12	CIPLA	1.20	0.10	0.93	-0.09
13	DIVISLAB	1.36	0.34	0.97	0.03
14	DRREDDY	0.88	0.53	0.14	0.22
15	LUPIN	0.21	0.55	-0.61	0.45
16	COLPAL	-0.52	0.98	-0.07	0.94
17	HINDUNILVR	0.83	-0.61	0.97	-0.66
18	MARICO	-0.22	0.97	0.09	0.96
19	NESTLEIND	-0.58	0.12	-0.64	0.12
20	PGHH	1.07	2.27	1.07	2.32
21	AXISBANK	-0.64	-1.27	-0.64	-1.17
22	HDFCBANK	1.27	0.60	1.52	0.63
23	ICICIBANK	0.29	-0.55	0.01	-0.50
24	KOTAKBANK	1.44	0.44	1.18	0.43
25	SBIN	-2.27	0.61	-2.20	0.73

ANALYSIS AND INTERPRETATION:

Table 7.2 Showing results for Nifty Auto & S&P BSE Auto on the basis of CAPM expected return.

SYMBOL	NSE			BSE		
	CAPM (before)	CAPM (after)	RANKING (current)	CAPM (before)	CAPM (after)	RANKING (current)
BAJAJ-AUTO	2.66	0.75	3	2.63	0.69	3
EXIDEIND	0.21	1.48	1	0.24	1.50	1
HEROMOTOCO	0.55	0.39	4	0.45	0.25	4
MARUTI	-0.70	-0.88	5	-0.77	-0.98	5
MRF	0.85	1.22	2	0.60	1.12	2

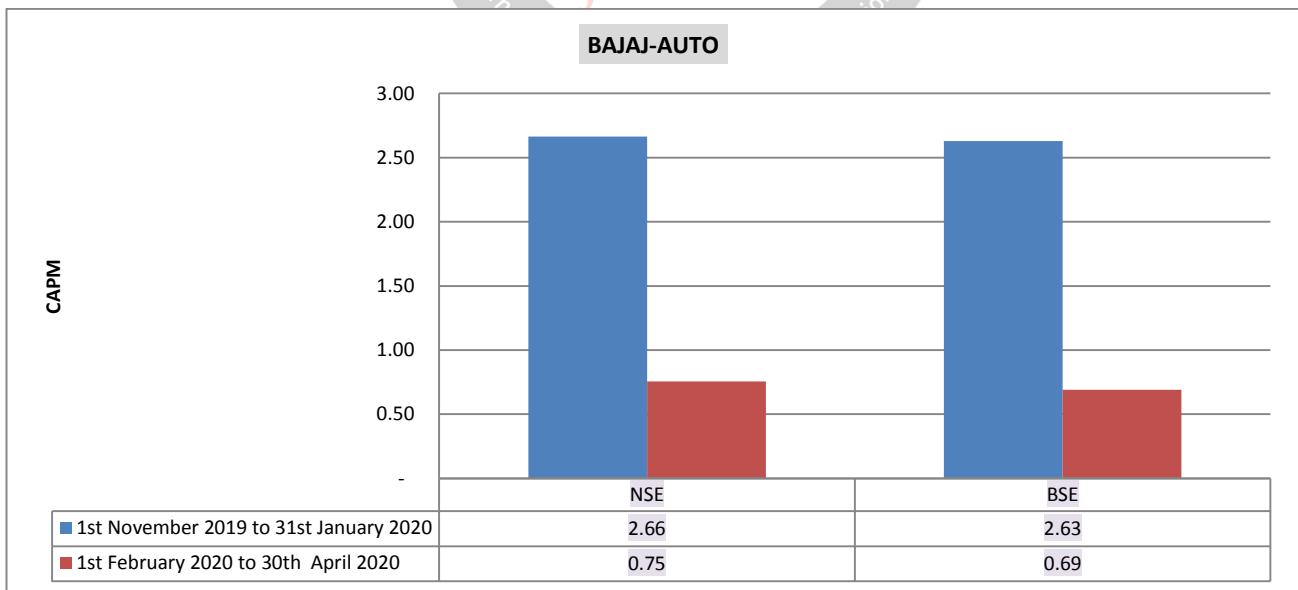


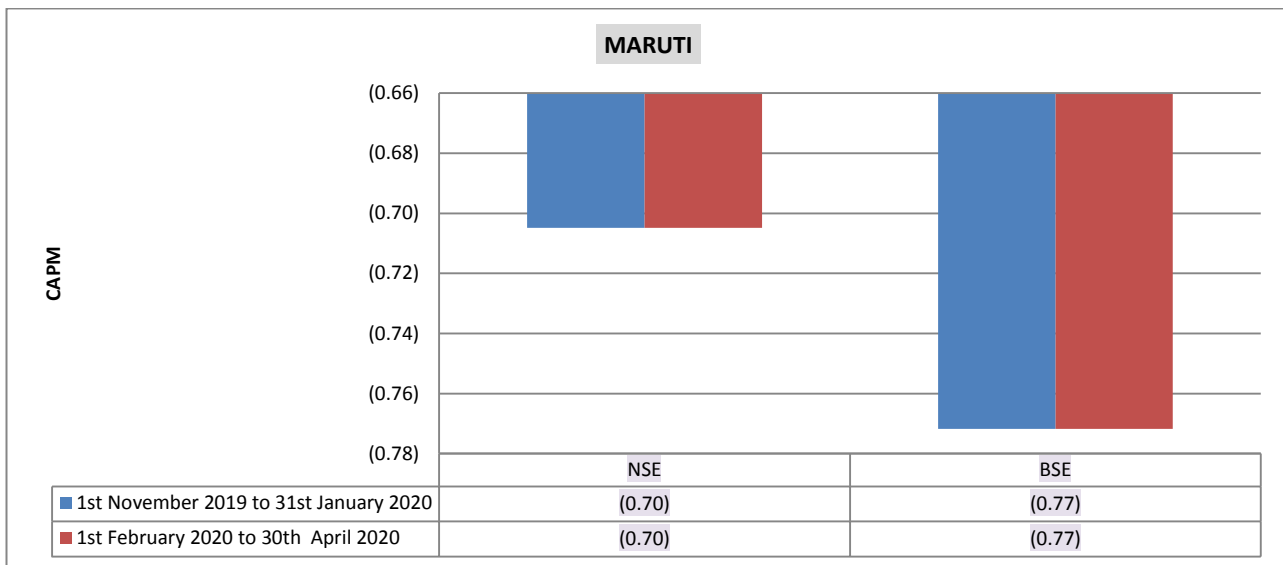
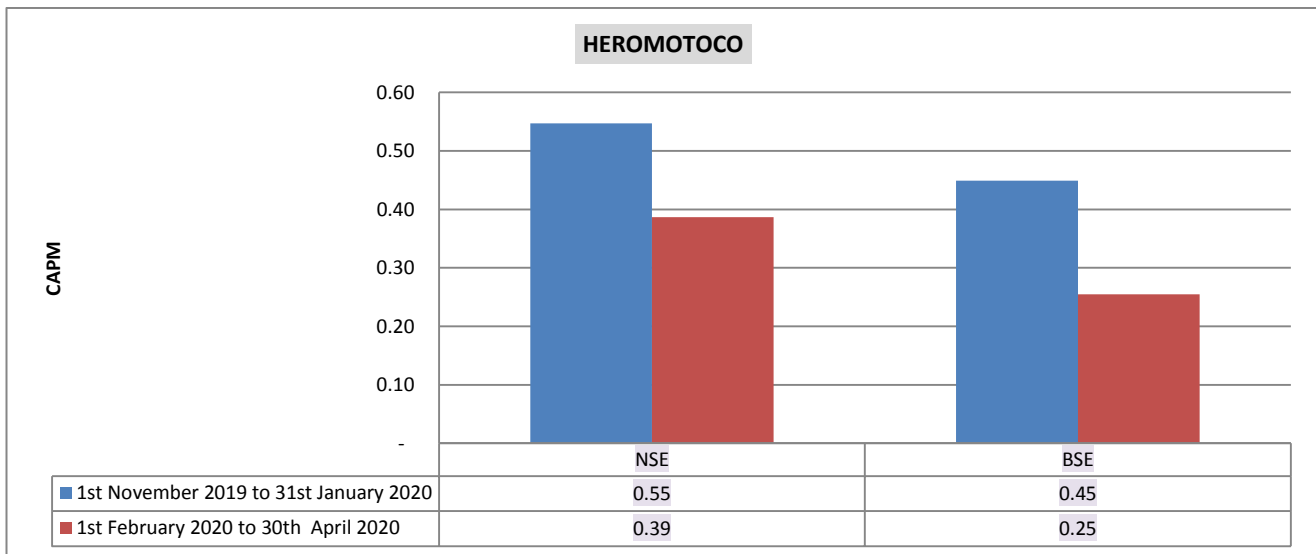
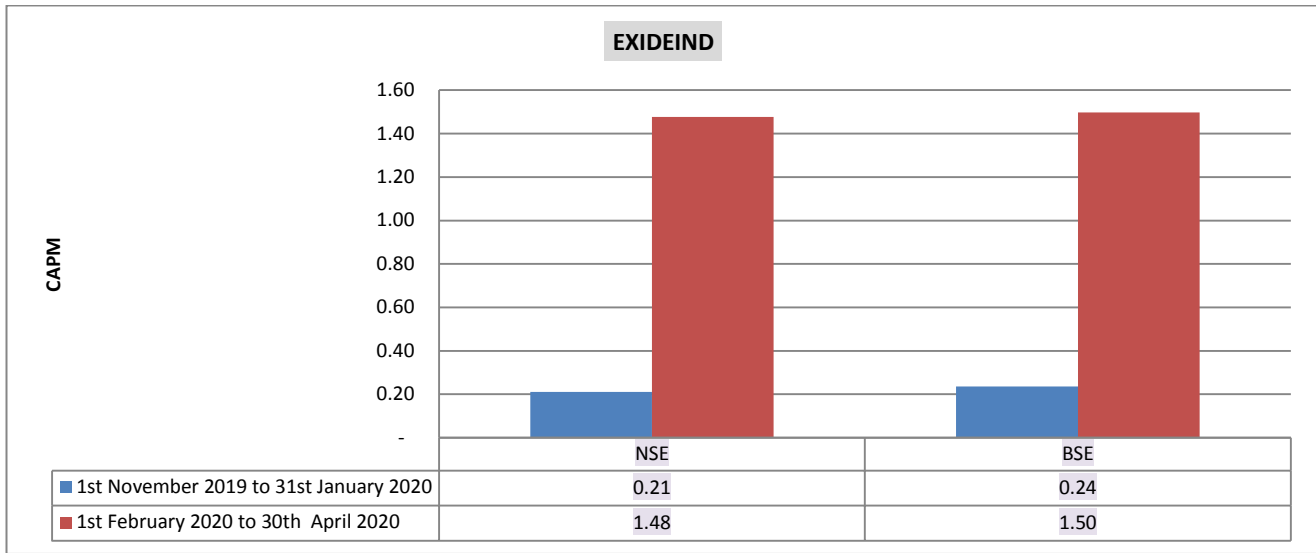


7.1 INTERPRETATION FROM AUTOMOBILE SECTOR:

The wheels of auto stock perforated as the impact of covid-19 disrupts its supplies, and the sales decline in automobile sector due to various phases of lockdown in India the sector seems to be accelerating in top gear while compared with other selected sectors from NSE & BSE. Meanwhile the sector has heavy loss and it is expected to recover in the coming months. From the above table 7.2 we can infer that EXIDEIND and MRF has performed well and from the selected securities only these 2 securities from both NSE & BSE have a growth pattern during the corona supremacy. The BAJAJ-AUTO has yielded a better return before the strike of pandemic but however it has huge decline as far as other securities. HEROMOTOCO having small decline and maintains a minimal fluctuation in the returns. MARUTI have outperformed in both NSE & BSE even before and after the impact of pandemic in the market.

Graphs showing returns for individual securities for both time-frames:





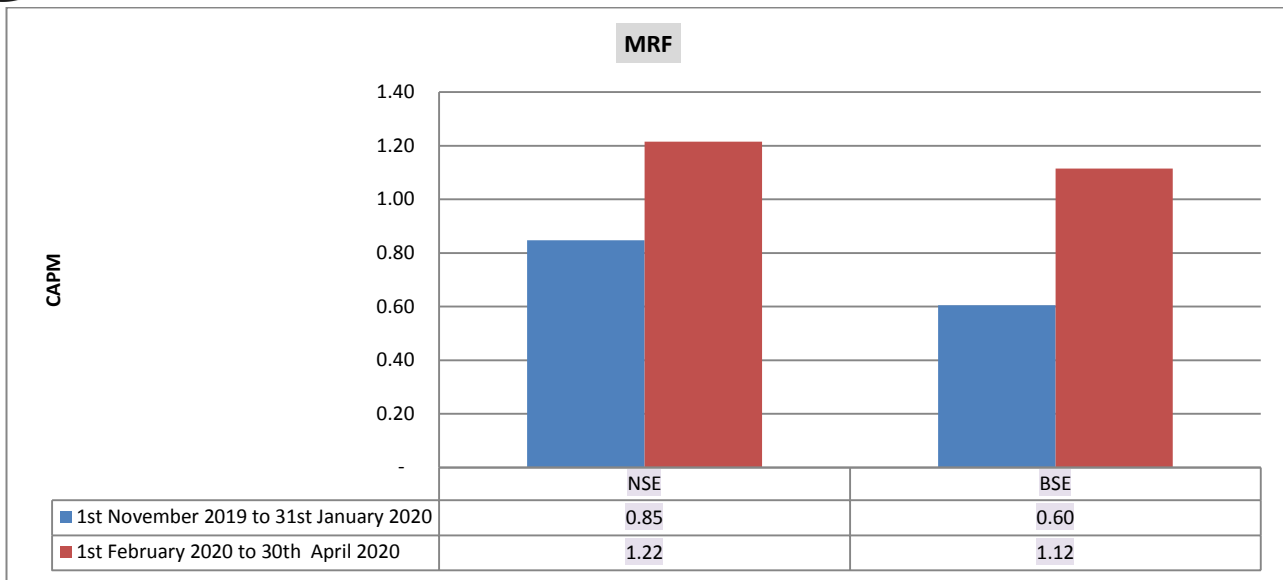
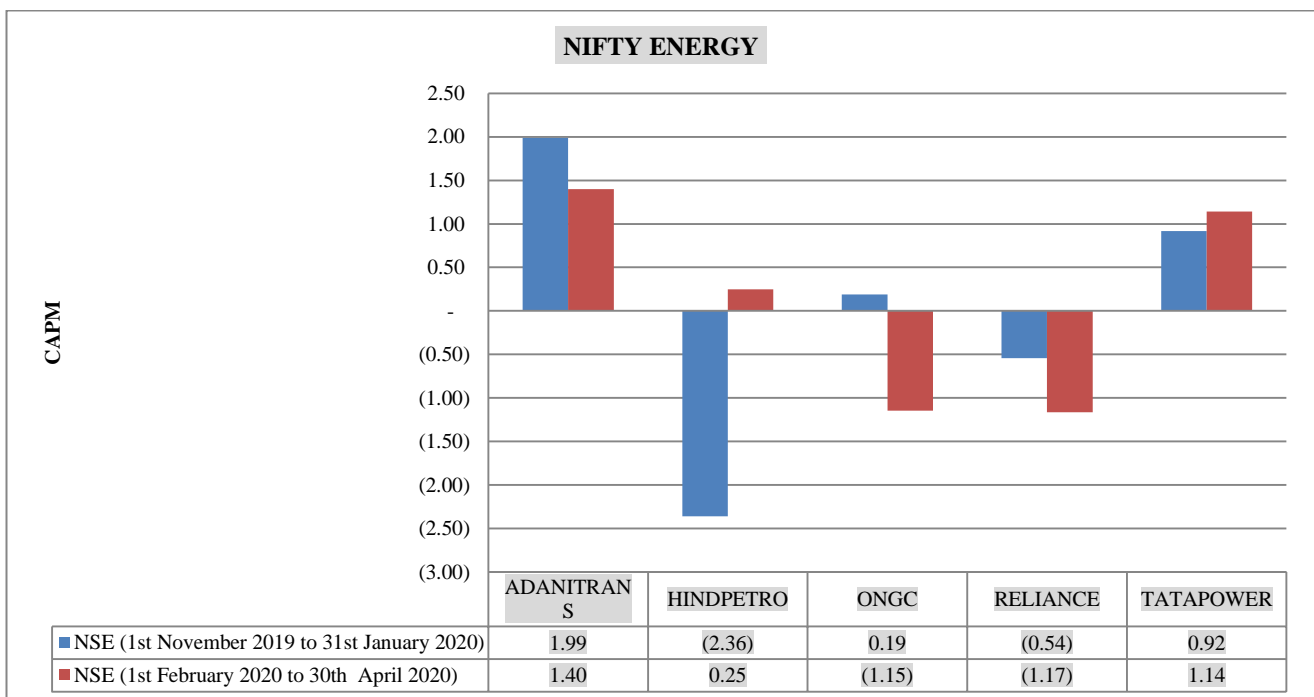
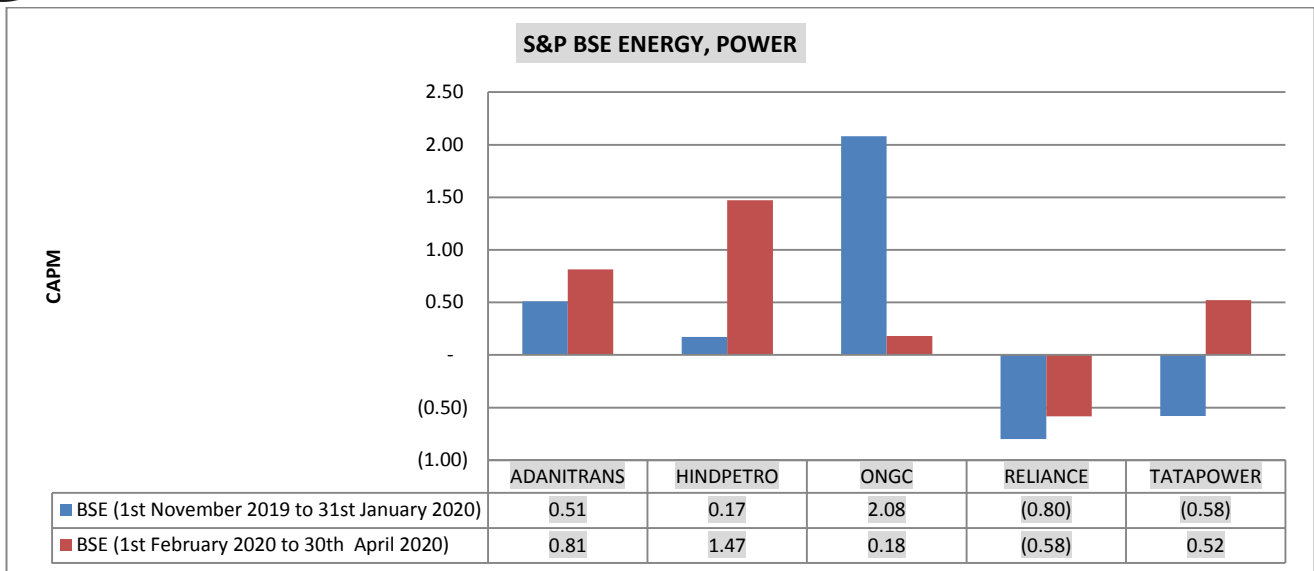


Table 7.3 Showing results for Nifty Energy & S&P BSE Energy, Power on the basis of CAPM expected return.

SYMBOL	NSE			BSE		
	CAPM (before)	CAPM (after)	RANKING (current)	CAPM (before)	CAPM (after)	RANKING (current)
ADANITRANS	1.99	1.40	1	0.51	0.81	2
HINDPETRO	-2.36	0.25	3	0.17	1.47	1
ONGC	0.19	-1.15	4	2.08	0.18	4
RELIANCE	-0.54	-1.17	5	-0.80	-0.58	5
TATAPOWER	0.92	1.14	2	-0.58	0.52	3

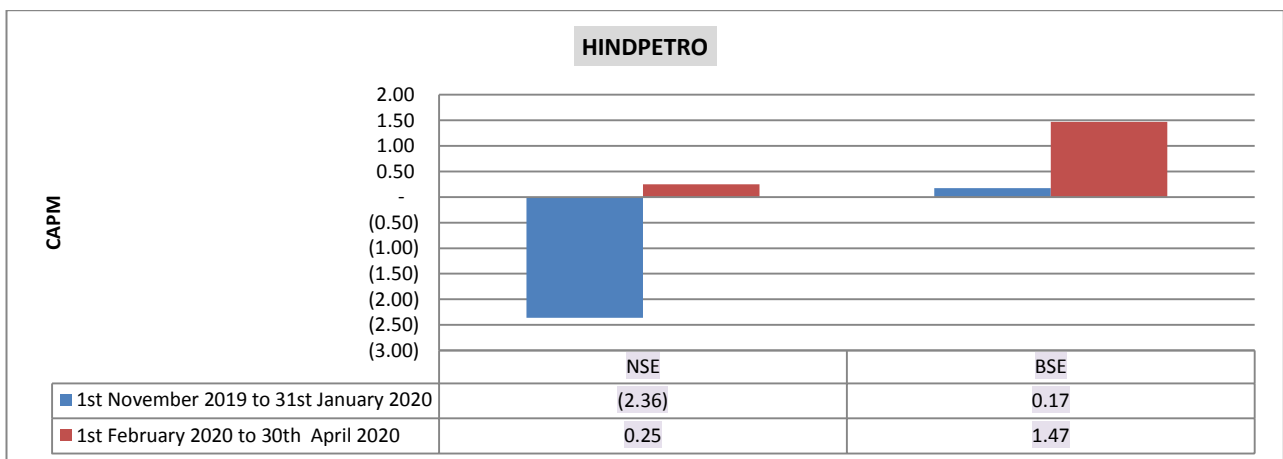
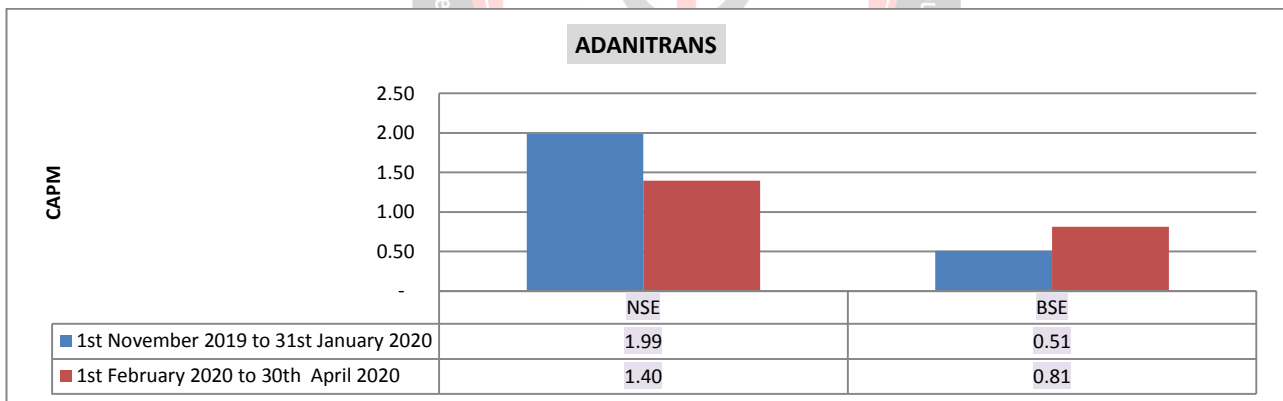




7.2 INTERPRETATION FROM ENERGY SECTOR:

While the energy sector across the globe struggled in deep crisis, the oil prices crashes far down as not before in the history. This downfall may be because of the minimal demand for crude oil in the global market. The other factor which has to be considered in India is the uses of commercial electricity by the industrial sector have slashes down due to the lockdown and various restrictions by the government in order to stop the spread of novel corona virus. But however from table 7.3 we infer that the securities like ADANITRANS, TATAPOWER, & HINDPETRO from both NSE & BSE managed to streamed up with their performance which surprised the investor. By comparing all other securities HINDPETRO have a great fluctuation in terms of growth and ONGC by withering. Although RELIANCE have not surprised the investor as it has outperformed in both time-frames. Hope energy sector will be energized at earliest.

Graphs showing returns for individual securities from both time-frames:



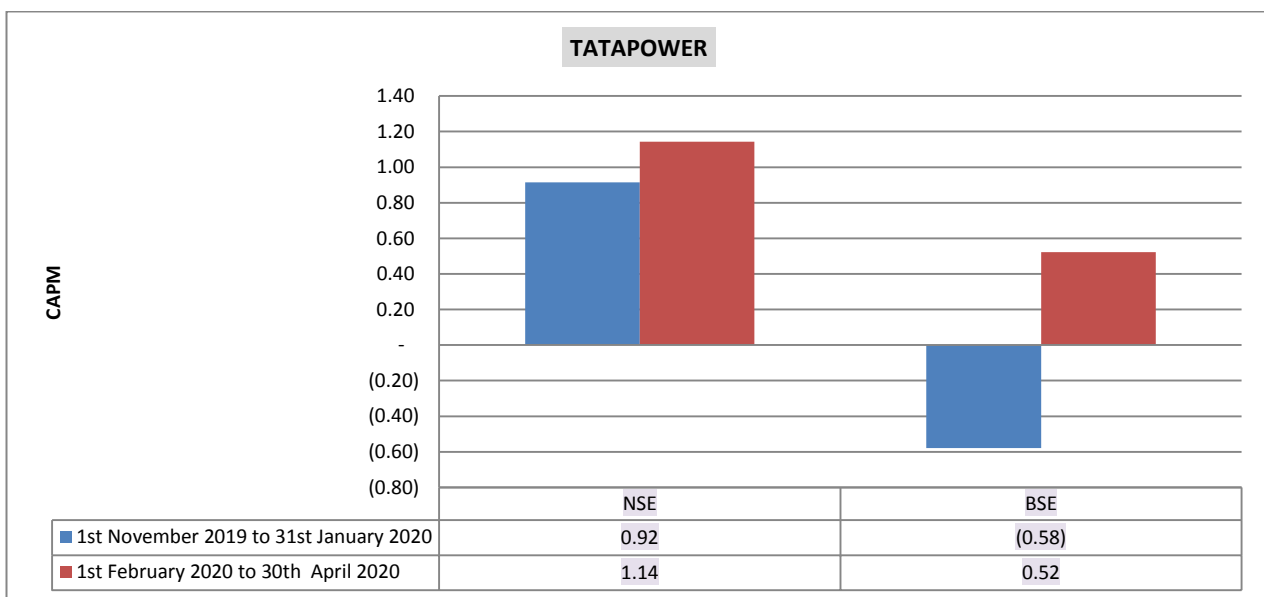
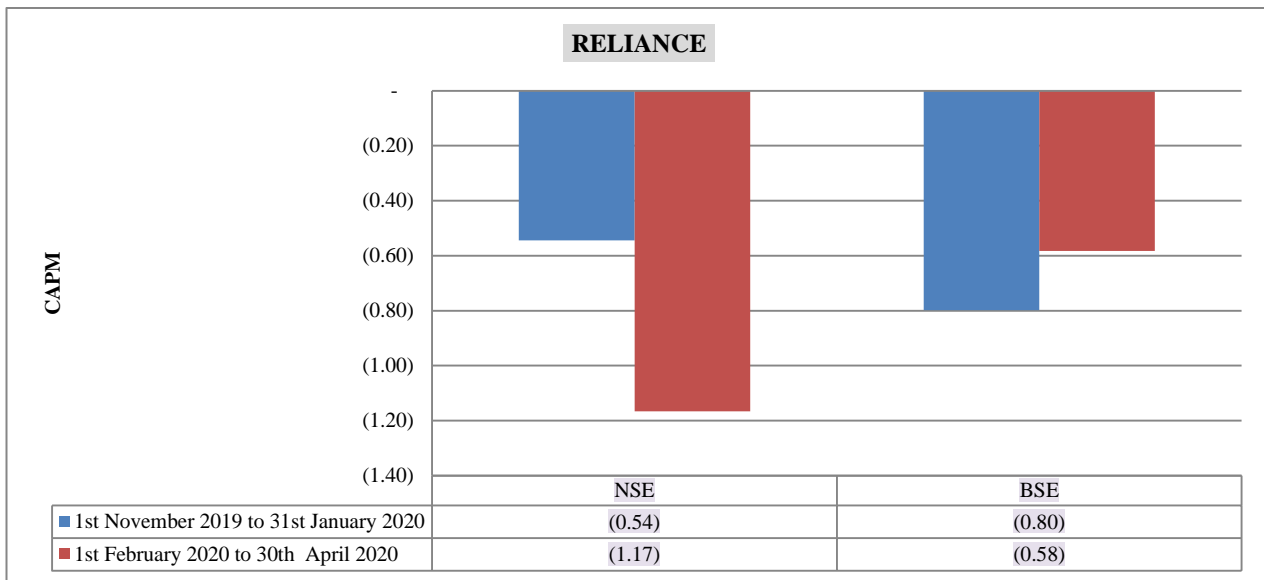
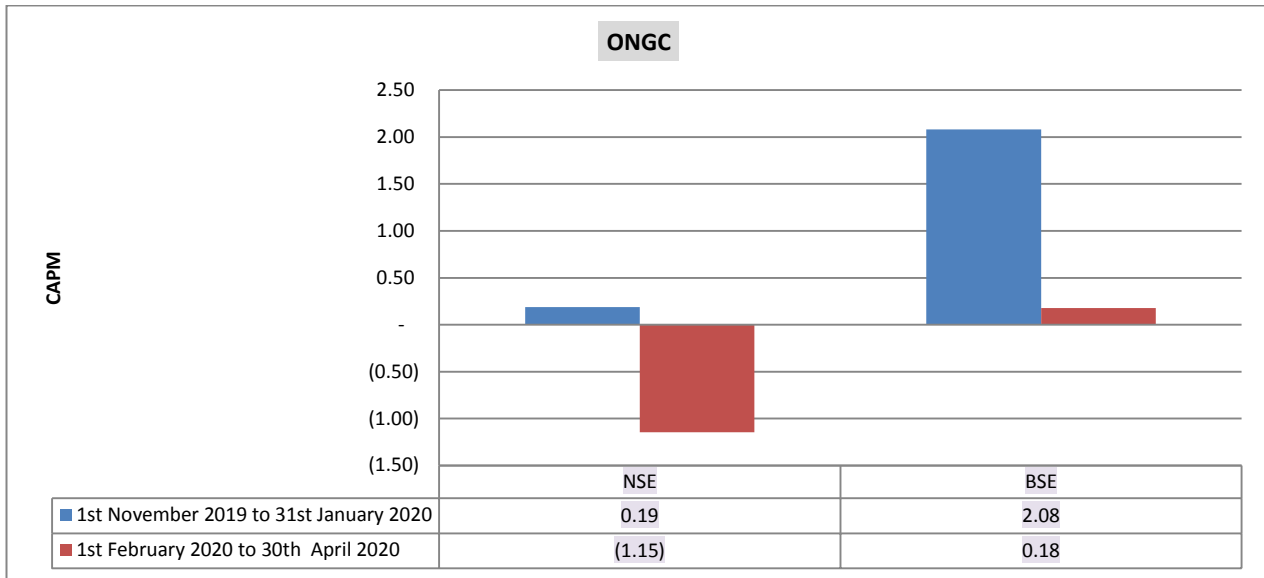
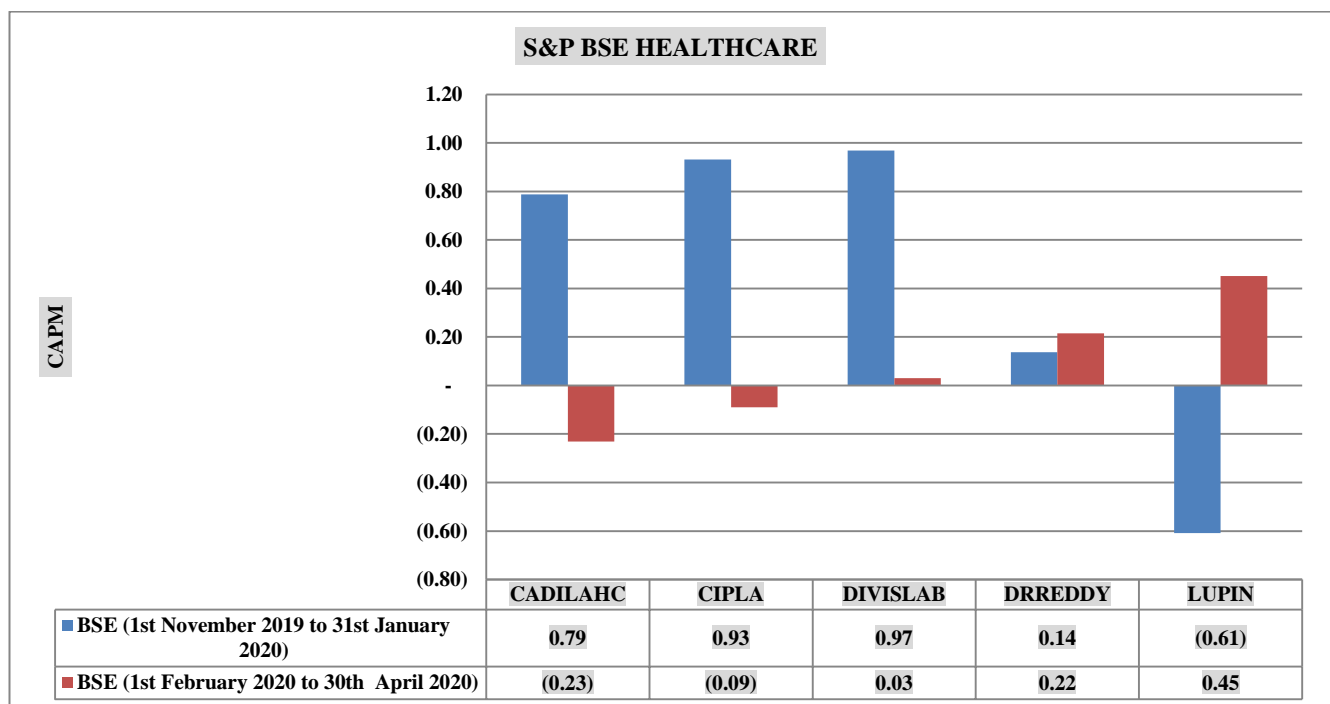
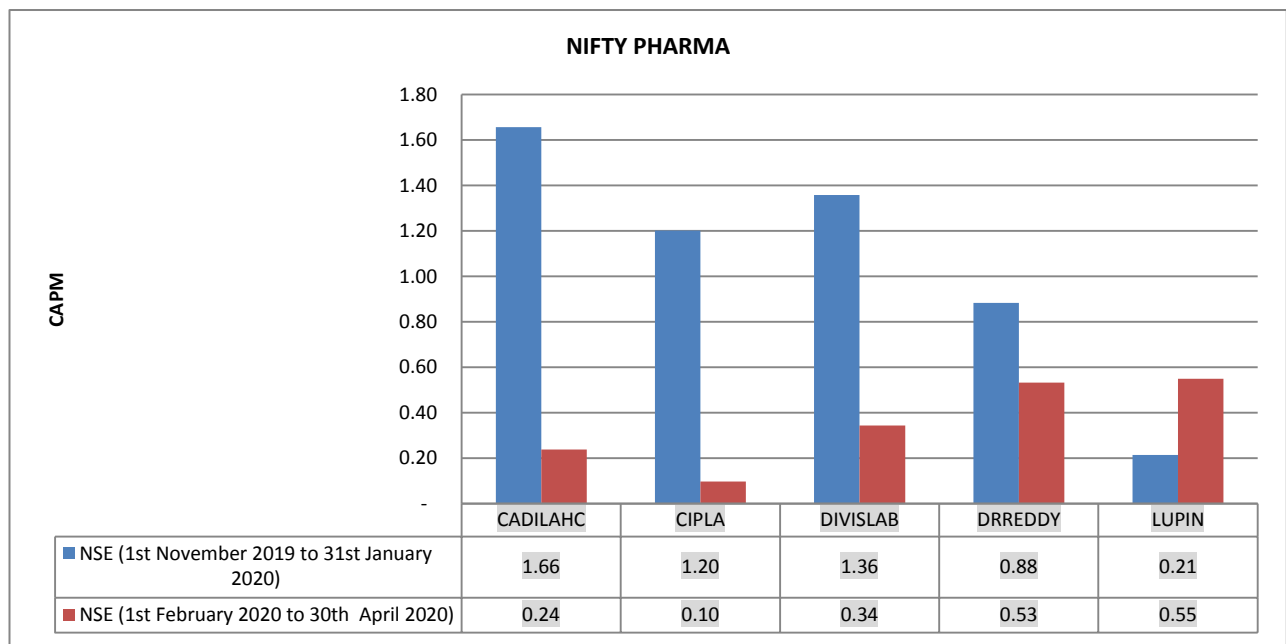


Table 7.4 Showing results for Nifty Pharma & S&P BSE Healthcare on the basis of CAPM expected return.

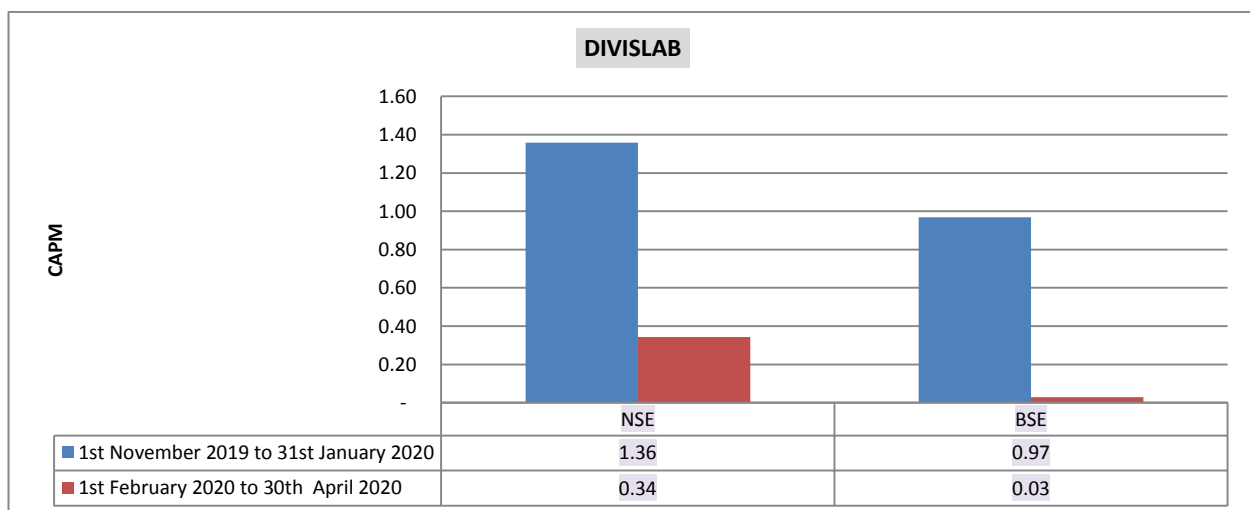
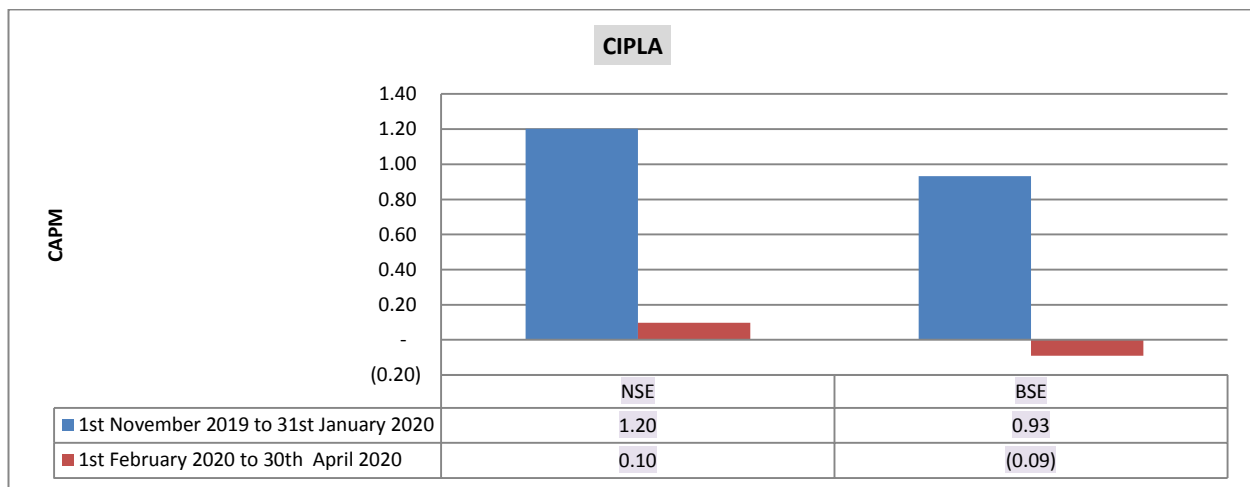
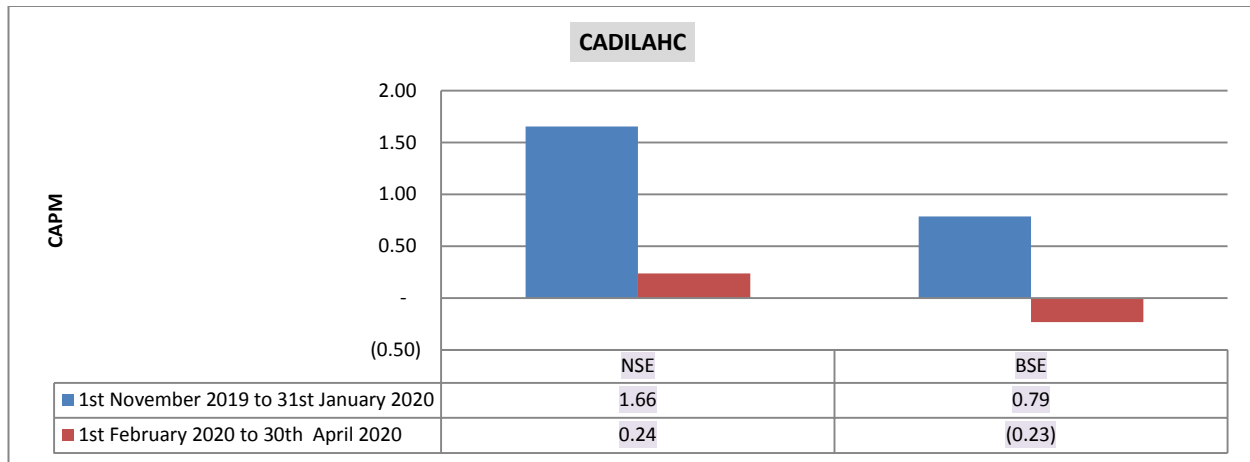
SYMBOL	NSE			BSE		
	CAPM (before)	CAPM (after)	RANKING (current)	CAPM (before)	CAPM (after)	RANKING (current)
CADILAHC	1.66	0.24	4	0.79	-0.23	5
CIPLA	1.20	0.10	5	0.93	-0.09	4
DIVISLAB	1.36	0.34	3	0.97	0.03	3
DRREDDY	0.88	0.53	2	0.14	0.22	2
LUPIN	0.21	0.55	1	-0.61	0.45	1



7.3 INTERPRETATION FROM PHARMA AND HEALTHCAE SECTOR:

Well this sector has its primary impact on covid-19 and directly deals with current scenario. The securities comprised in this sector are more expected by the investor to fetch high yield. Even though except few, many failed to do so in the past. However in the early lockdown stages the pharma securities were underperformed and created many turmoil's among the investors, whether to buy or sell. In recent days this sector has a rapid growth pattern and fetches high yield on the go, as everyone expected a better return from this specific sector. From table 7.4 we can infer that LUPIN & DRREDDY justified the investor during the course of time. The pharma and healthcare sector are expected to recover rapidly and to top the table with profit as much earliest.

Graphs showing returns for individual securities from both time-frames:



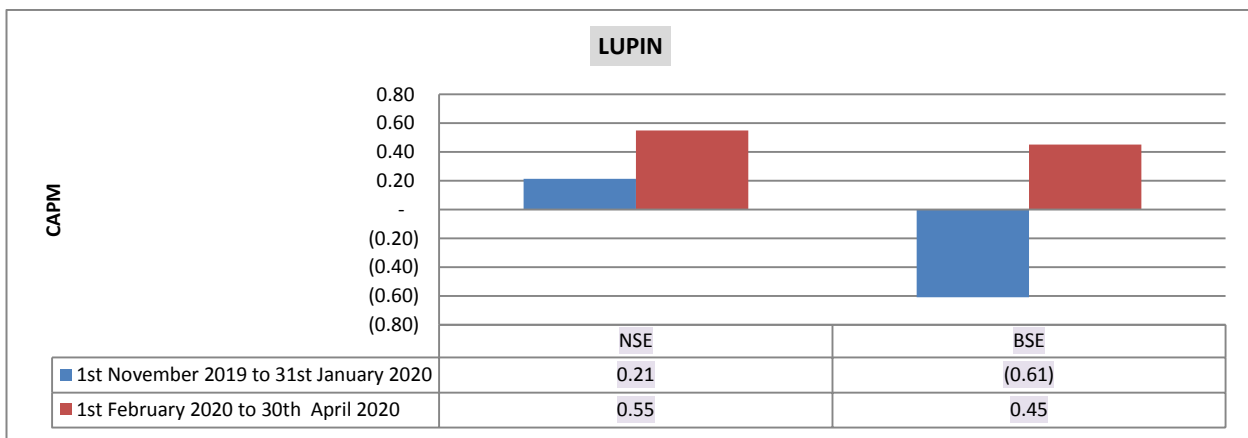
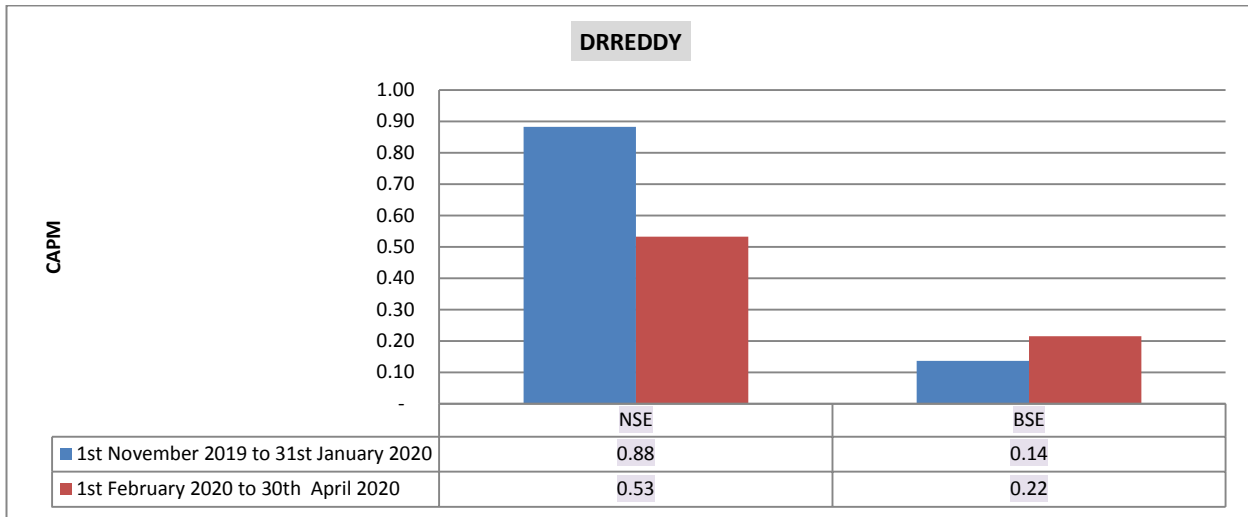
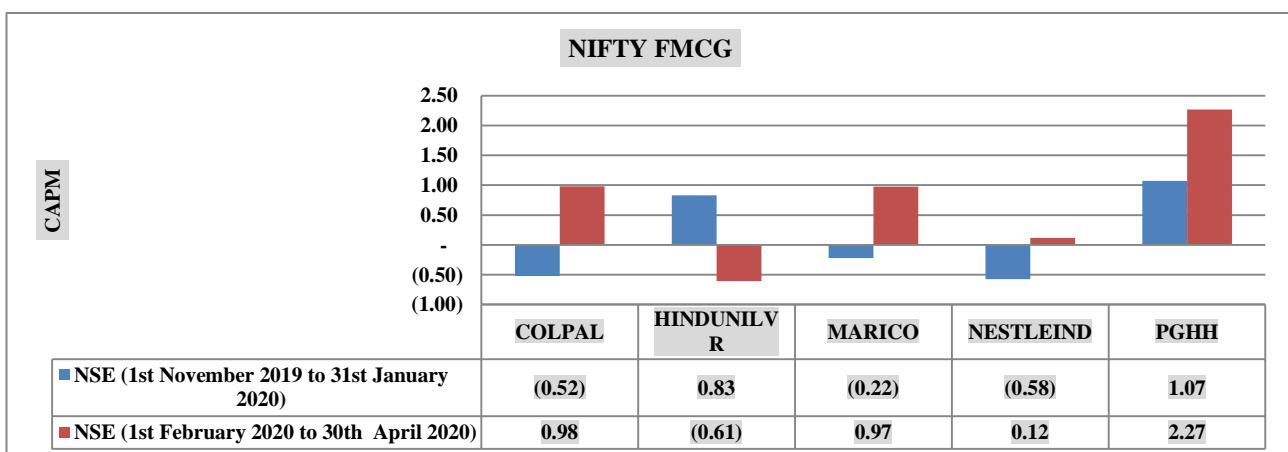
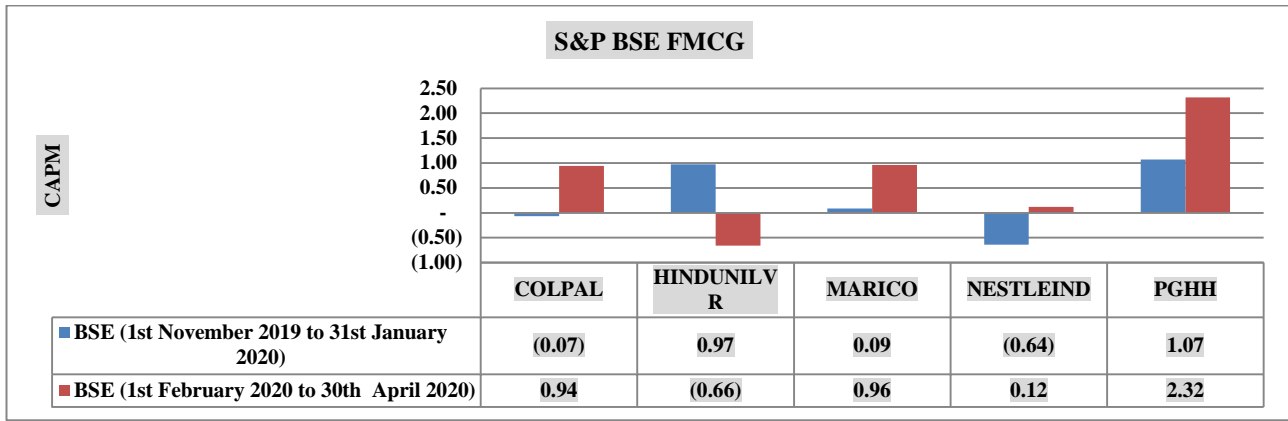


Table 7.5 Showing results for Nifty FMCG & S&P BSE FMCG on the basis of CAPM expected return.

SYMBOL	NSE			BSE		
	CAPM (before)	CAPM (after)	RANKING (current)	CAPM (before)	CAPM (after)	RANKING (current)
COLPAL	-0.52	0.98	2	-0.07	0.94	2
HINDUNILVR	0.83	-0.61	5	0.97	-0.66	5
MARICO	-0.22	0.97	3	0.09	0.96	3
NESTLEIND	-0.58	0.12	4	-0.64	0.12	4
PGHH	1.07	2.27	1	1.07	2.32	1

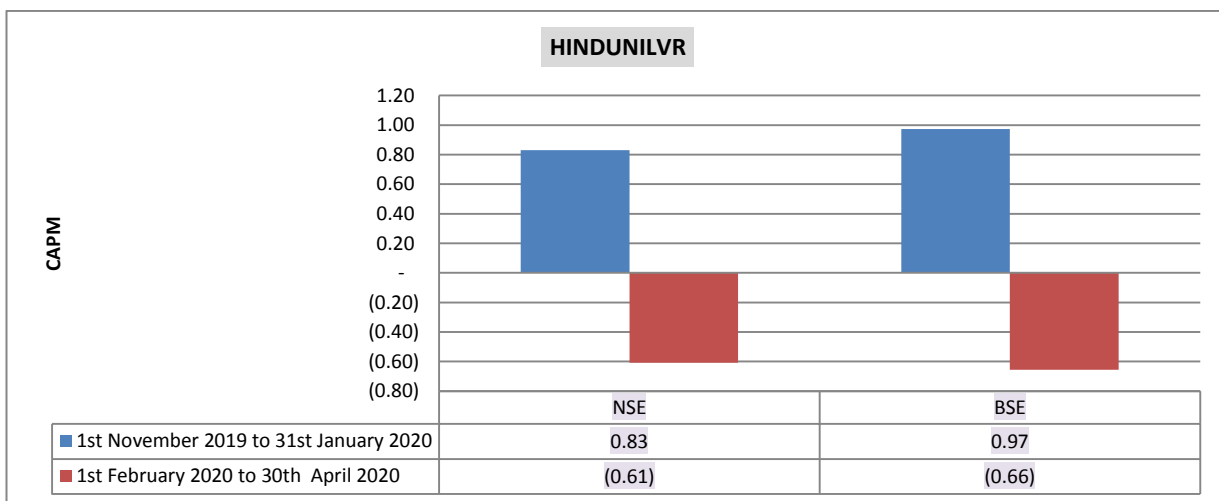
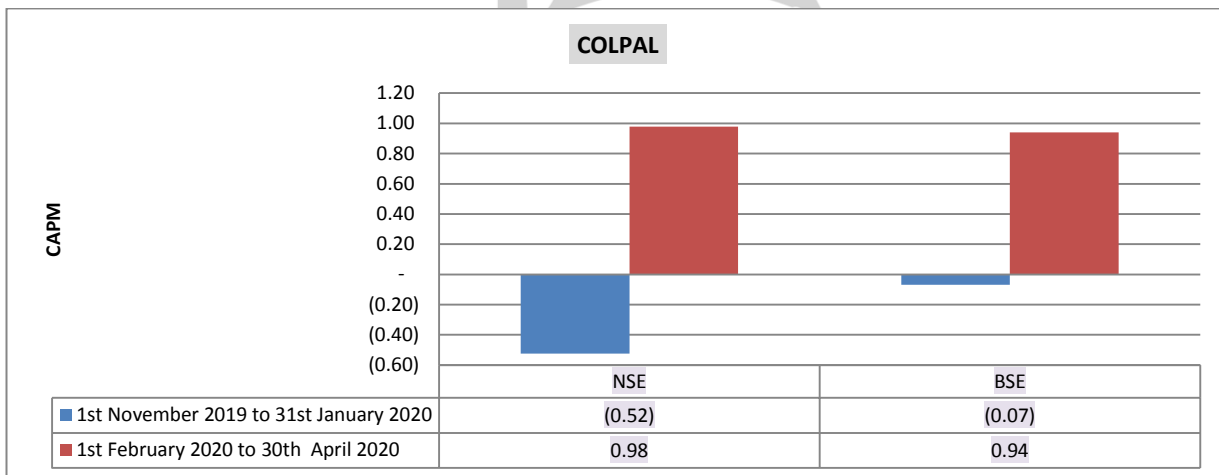




7.4 INTERPRETATION FROM FMCG SECTOR:

In the history of humanity we seen many disasters, but the challenges what we are facing now is somewhat different and the magnitude of this challenge is impenetrable. The FMCG sector is not like other sectors, inspite of covid-19 pandemic this sector had a high demand as they contribute to all our daily needs. The FMCG sector has performed quite well during pandemic period. The prevailing opportunities and demand are been seized by the FMCG sector as many companies have launched and also increased their sales in hygiene products such as liquid hand-wash, soap, sanitizers and disinfectants. From table 7.5 we can infer that securities like PGHH, MARICO, COLPAL & NESTLEIND had a better yield to their investors, many other securities listed under FMCG sector have throttled up their performance during the most difficult times.

Graphs showing returns for individual securities from both time-frames:



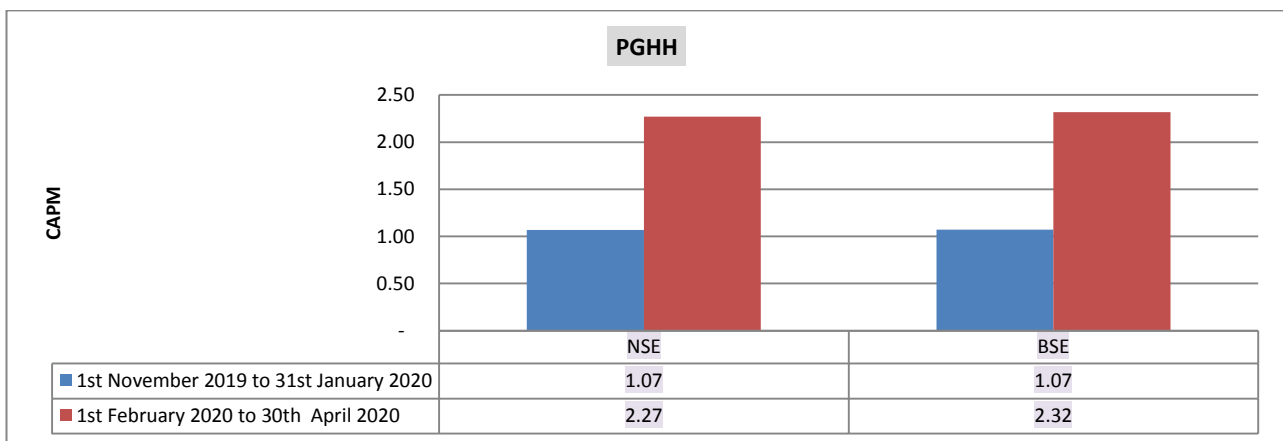
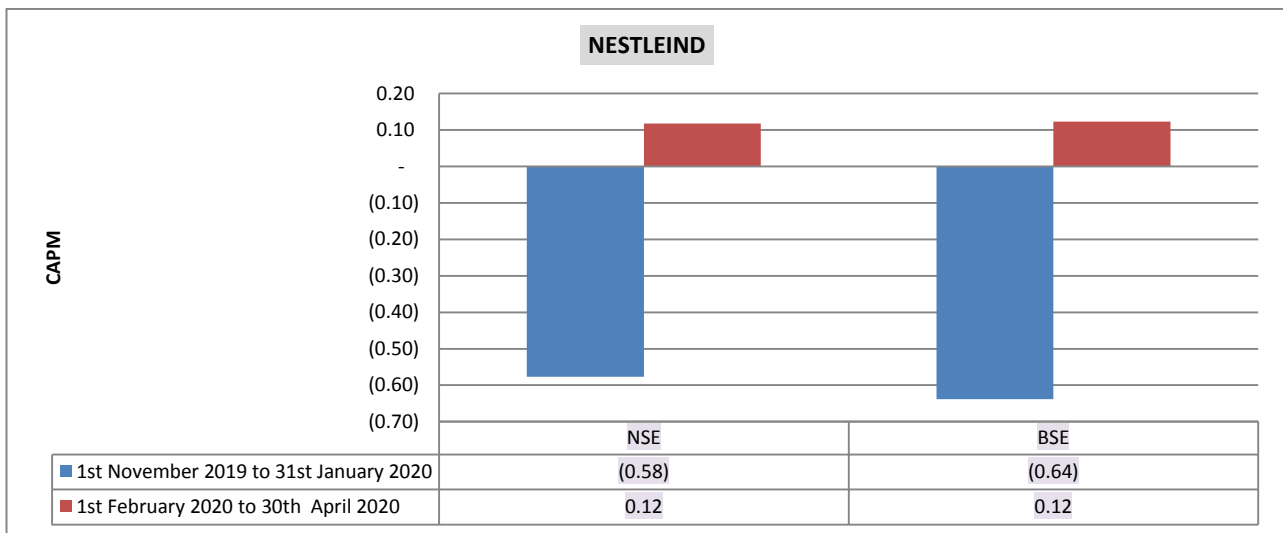
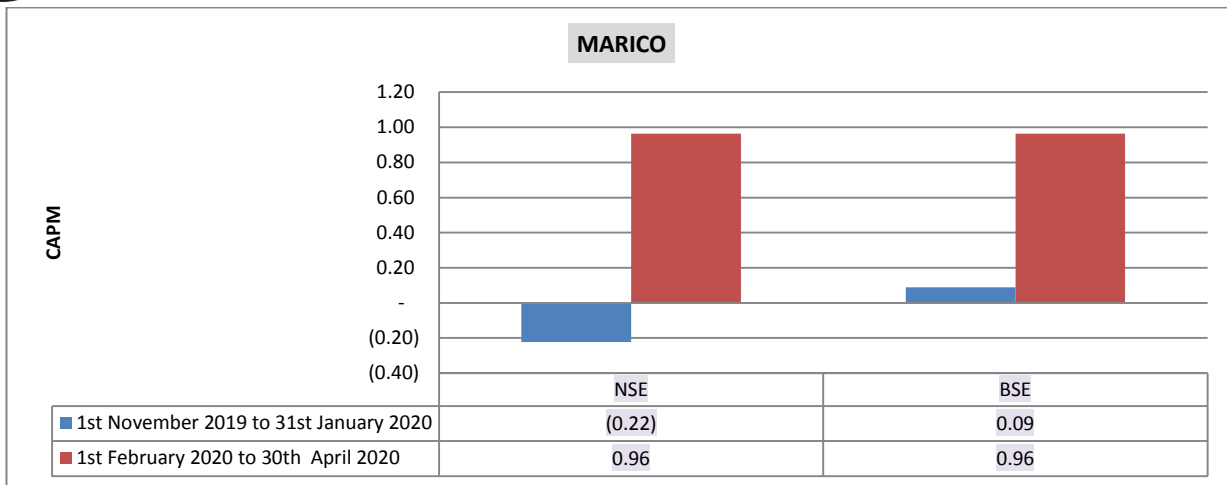
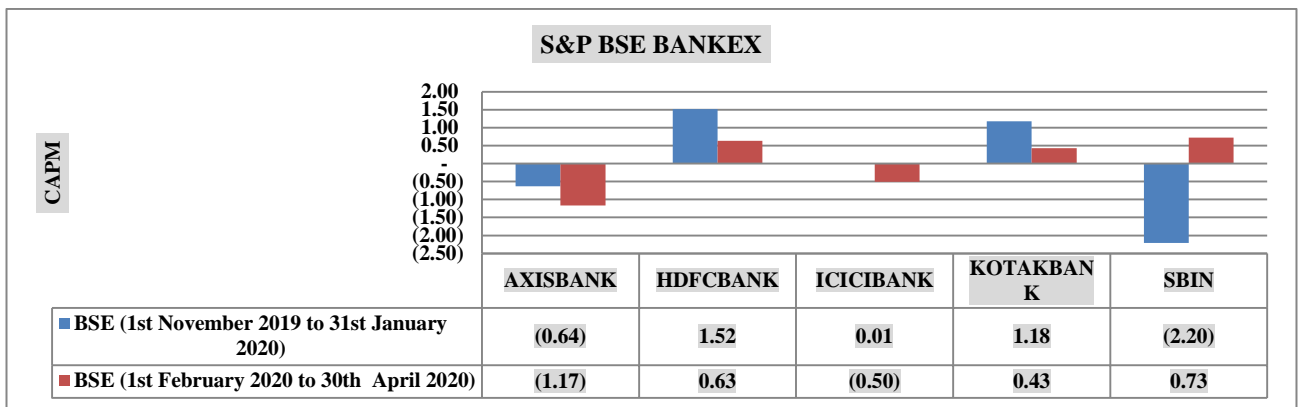
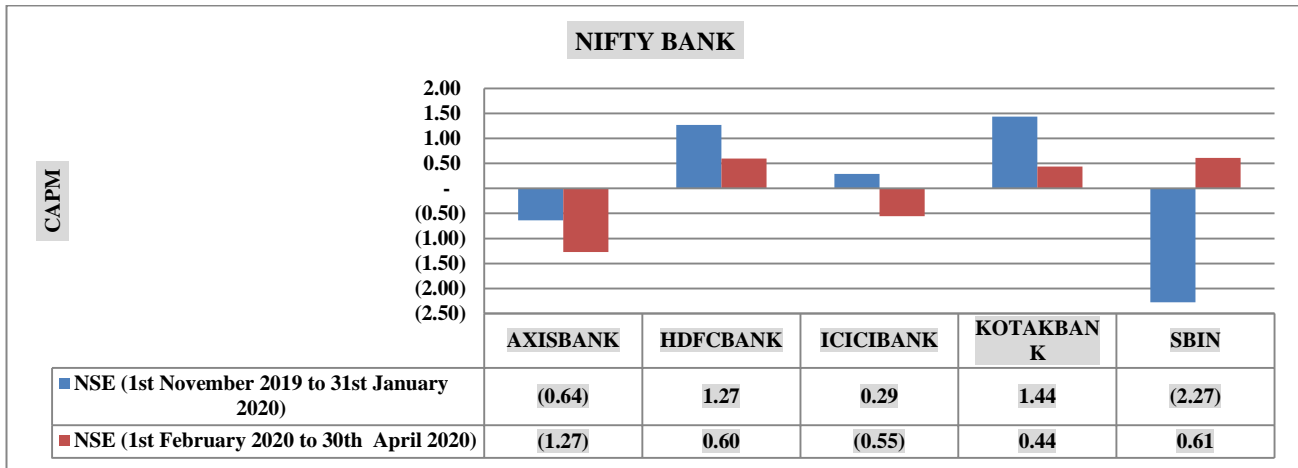


Table 7.6 Showing results for Nifty Bank & S&P BSE Bankex on the basis of CAPM expected return.

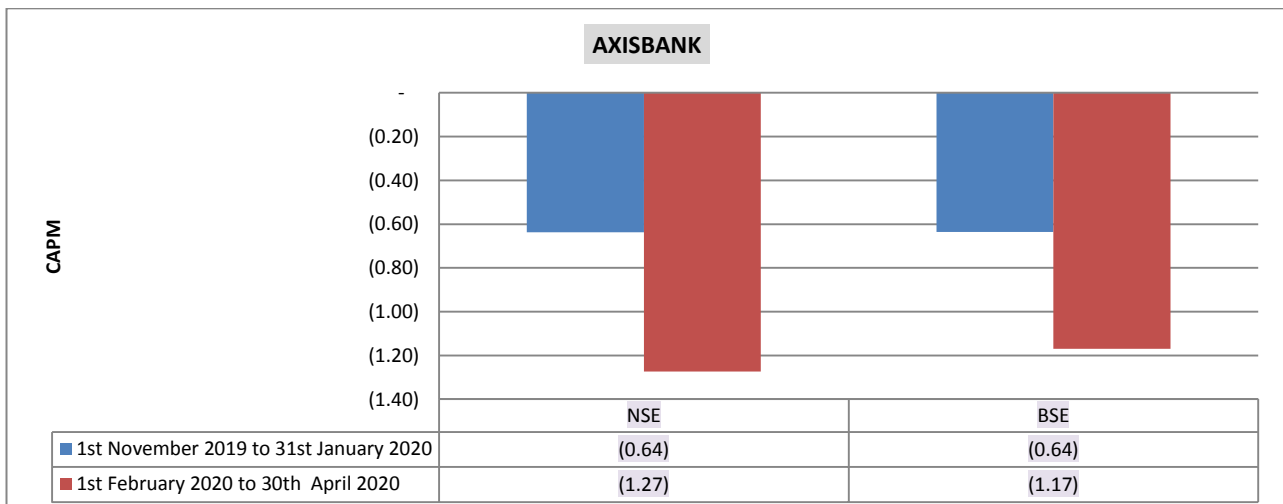
SYMBOL	NSE			BSE		
	CAPM (before)	CAPM (after)	RANKING (current)	CAPM (before)	CAPM (after)	RANKING (current)
AXISBANK	-0.64	-1.27	5	-0.64	-1.17	5
HDFCBANK	1.27	0.60	2	1.52	0.63	2
ICICIBANK	0.29	-0.55	4	0.01	-0.50	4
KOTAKBANK	1.44	0.44	3	1.18	0.43	3
SBIN	-2.27	0.61	1	-2.20	0.73	1

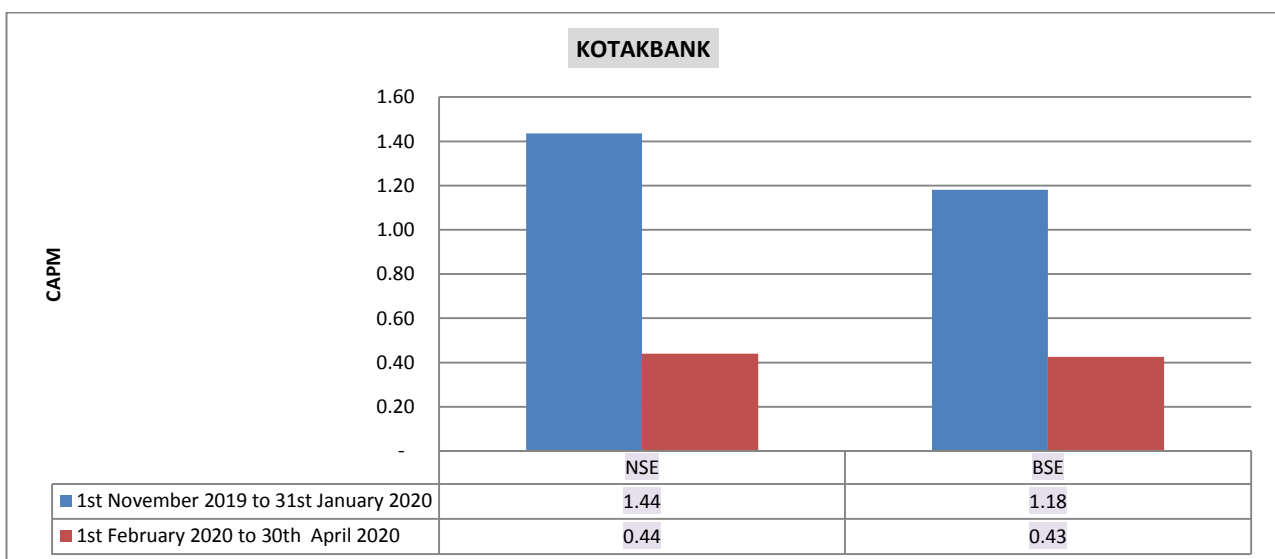
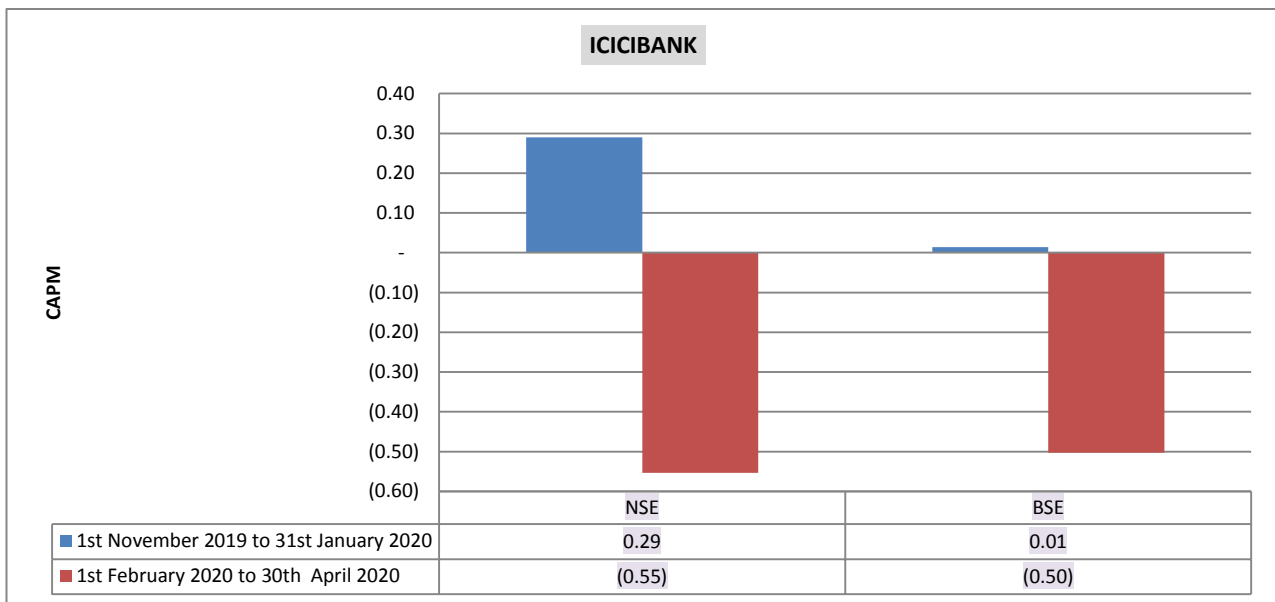
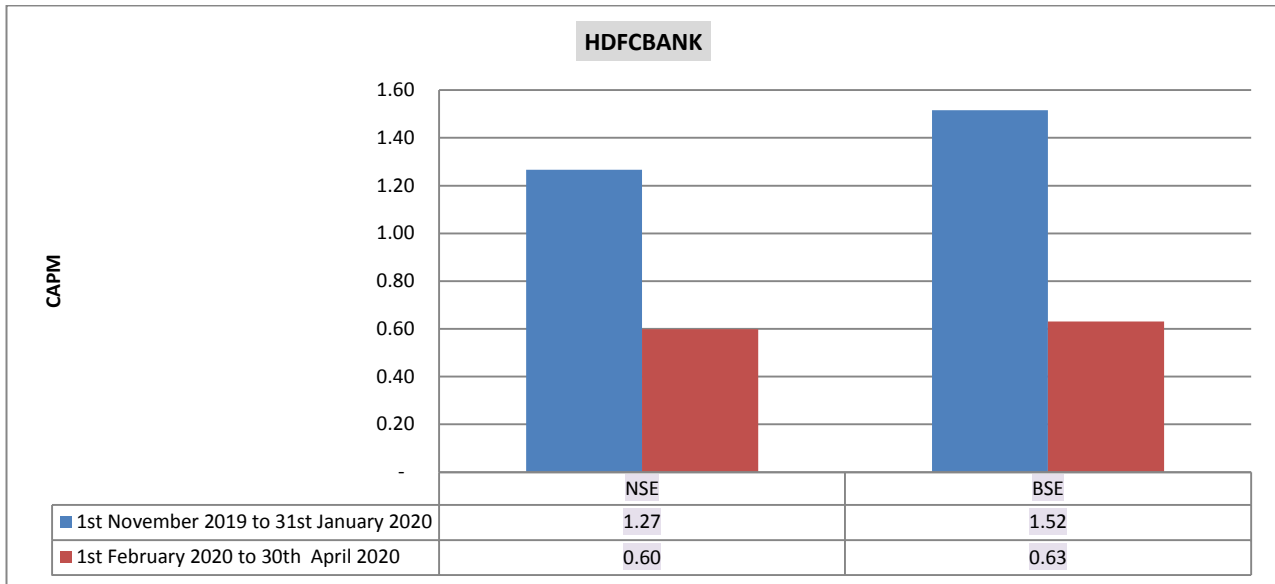


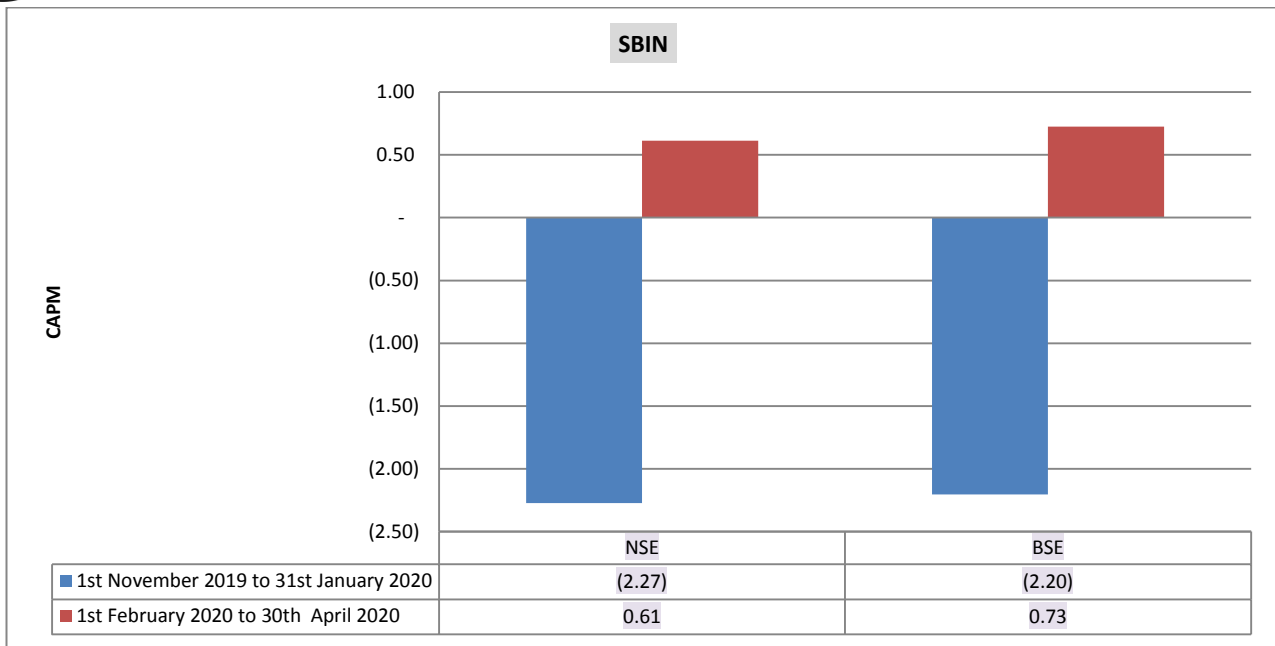
7.5 INTERPRETATION FROM BANKING SECTOR:

Banks are the foundation for any economy and have a direct impact during any financial crisis. Banking stocks are yet to be fully priced, in the meantime it has a severe impact on pandemic and affected a lot. Retrieving of banking sectors from the supremacy of corona is still awaited. There are baskets of selective securities have performed well during the hit of covid-19 waves in India. This downfall might be because of the challenges which they are facing in recovery of loans for the past few months and this exemption is further extended to the end of August, however some moratorium given by RBI as a corrective measure to regulate this sectors during the corona outbreak. Apart from this we have to notice that insurance companies have great scope to emerge in the market. While choosing banking stocks, one should look for a combo of high provision coverage, strong capital ratios & deep funding. From table 7.6 we can infer that only SBIN has performed well than all other selected securities. SBIN is the only public sector bank which is been selected by the author from banking sector and the rest are private sector bank. HDFCBANK & KOTAKBANK have somewhat managed, while AXISBANK & ICICIBANK have faced a huge decline.

Graphs showing returns for individual securities from both time-frames:







8. CONCLUSION

The covid-19 had a greater impact on stock market across the World, many investors in India really had a tough time and hope the comeback to normal as soon as possible. From all the above data we can see that from the selected sectors, only FMCG, Pharma & Healthcare have performed well during covid-19 outbreak and seems to be bullish. After many years of underperformance the Pharma shares had a great comeback and set the market on fire. Pharma has a good exposure in Indian stock market which helps the investors who have invested in this sector to feel safe and would be a better hiding place for them. We can also infer that the fluctuations are more or less same for securities listed in both NSE & BSE. Apart from the selected sectors, Telecom sector performs well and market is towards a bullish market, as the competition shrinks in their respective market.

Investors whose portfolio comprised of FMCG sector, Pharma sector and Telecom sector might be luckier for the investment, which they made on these sectors as these particular markets have yielded high returns to them. Investors who would like to do changes in their portfolio can add some bunches of selected securities from the above sectors. It is better to avoid banking sector at this moment, as their recovery seems to be slow at current market scenario. Not all securities from banking sector are under performing, some perform well. The big deal here is that selecting right securities matters a lot here. Investors who wish to invest in banking sector can refer to the past down cycles to ensure that how some companies managed to overcome during the previous financial crisis over years.

TABLE 8.1 SHOWING OVERALL EXPECTED RETURN FOR SELECTED SECURITIES:

S.no	NSE			BSE		
	SYMBOL	CAPM (before)	CAPM (after)	SYMBOL	CAPM (before)	CAPM (after)
1	PGHH	1.07	2.27	PGHH	1.07	2.32
2	EXIDEIND	0.21	1.48	EXIDEIND	0.24	1.50
3	ADANITRANS	1.99	1.40	HINDPETRO	0.17	1.47
4	MRF	0.85	1.22	MRF	0.60	1.12
5	TATAPOWER	0.92	1.14	MARICO	0.09	0.96
6	COLPAL	-0.52	0.98	COLPAL	-0.07	0.94
7	MARICO	-0.22	0.97	ADANITRANS	0.51	0.81
8	BAJAJ-AUTO	2.66	0.75	SBIN	-2.20	0.73
9	SBIN	-2.27	0.61	BAJAJ-AUTO	2.63	0.69
10	HDFCBANK	1.27	0.60	HDFCBANK	1.52	0.63
11	LUPIN	0.21	0.55	TATAPOWER	-0.58	0.52
12	DRREDDY	0.88	0.53	LUPIN	-0.61	0.45

13	KOTAKBANK	1.44	0.44	KOTAKBANK	1.18	0.43
14	HEROMOTOCO	0.55	0.39	HEROMOTOCO	0.45	0.25
15	DIVISLAB	1.36	0.34	DRREDDY	0.14	0.22
16	HINDPETRO	-2.36	0.25	ONGC	2.08	0.18
17	CADILAHC	1.66	0.24	NESTLEIND	-0.64	0.12
18	NESTLEIND	-0.58	0.12	DIVISLAB	0.97	0.03
19	CIPLA	1.20	0.10	CIPLA	0.93	-0.09
20	ICICIBANK	0.29	-0.55	CADILAHC	0.79	-0.23
21	HINDUNILVR	0.83	-0.61	ICICIBANK	0.01	-0.50
22	MARUTI	-0.70	-0.88	RELIANCE	-0.80	-0.58
23	ONGC	0.19	-1.15	HINDUNILVR	0.97	-0.66
24	RELIANCE	-0.54	-1.17	MARUTI	-0.77	-0.98
25	AXISBANK	-0.64	-1.27	AXISBANK	-0.64	-1.17

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