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A STUDY ON THE IMPACT OF GST ON THE PERFORMANCE OF SPECIFIC INDICES OF BOMBAY STOCK EXCHANGE INDIA

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Abstract: This paper understands the concepts of GST and analyzes the Indian Stock market performance with respect to implementation of GST. This paper reviews twenty five published articles by renowned authors to further understand this field of research. This paper collects the data of BSE Auto index, BSE Oil and gas index, and BSE banking index prices among others. This paper analyzes the data using models such as Descriptive Statistics, Regression, Unit Root Test, Paired T test and the Granger's Causality test. The analysis provides desirable results and helps further interpretation and analysis. The results of the analysis also help develop good strategies for the Auto and ancillary sectors. This paper finds that Index Prices and Sensex prices are highly positively related whose correlation is almost perfect positive. The daily close prices of the index do not show any effect of Causality which shows that the amount of data is not significant. The regression test shows the impact of GST as the effect of index prices on Sensex increased in the Post-GST period. Paired T test also gave the similar results and hence there is an impact of GST on the stock market and specifically on Auto and ancillary sectors. Finally, the author recommends that the government should focus on the revival of the Auto sector and see to it that the introduction of further changes in this sector like BS VI vehicles should not bring problem to the sector as it is in a bad state now. For the banking sector the major problem is the increase in the price of the banking services. The tyre sector goes in line with the Auto only. Oil and Gas sector has been affected due to crude oil prices majorly and not the tax reforms in the country majorly.

***Index Terms* – GST, Auto sector, Banking sector, Oil and Gas sector.**

I. INTRODUCTION

GST is one indirect tax for the whole nation, which will make India one unified common market. The GST intends to subsume most indirect taxes under a single taxation regime. GST is a single tax on the supply of goods and services, right from the manufacturer to the consumer. Credits of input taxes paid at each stage will be available in the subsequent stages of value addition, which makes GST essentially a tax only on value addition at each stage. The final consumer will thus bear only the GST charged by the last dealer in the supply chain, with set-off benefits at all the previous stages. This is expected to help broaden the tax base, increase tax compliance, and reduce economic distortions caused by inter-state variations in taxes.

GST is the biggest tax reform for Indian economy and thus has a huge impact on the performance of various sectors. This is a very interesting area for research as the future implications are very dynamic. The economy is developing and the Auto sector, Banking sector and Oil and Gas sector being the pillars of this economy.

II. REVIEW OF LITERATURE

"Goods and services tax in India - A positive reform for indirect tax system" studied by Akanksha khurana and Aastha Sharma (2016), concluded that since independence, GST is the biggest and the most impact tax reform. It would remove all the existing indirect taxes and will be levied on manufacture, sale and consumption of goods and services. It will also help in uniting the country economically by making the nation one tax effective. This research talks about the objectives, background and the impact of GST in the current-day tax scenario of India. Further, it explores the many opportunities and benefits brought in by GST by classifying it into the different sectors being affected by it.

Nidhi Garg (2019) studied, "Impact of GST on Various Sectors of Indian Economy" and concluded that GST is a consumption tax levied on the supply of goods and services. The main idea behind it is to remove the cascading effect of taxes and implement the one nation one tax scheme by bringing the entire nation under one tax. To move the taxation of economy to the destination based consumption tax is the main objective of the government of India. Many existing taxes like Excise Duty, VAT, entertainment taxes, state surcharge and several other surcharges on supply of goods and services have been removed due to the implementation of GST. The research paper focuses on the main concept, features and its impact on the different sectors of Indian economy.

Nair Sreeja Sivankutty and B Sudarshan Chakravarthy (2017) studied, "Impact of Goods and Service Tax on the Banking Sector" and called GST the game changer of the Indian economy. The introduction of such a tax reform would lead to the rationalization of the tax content in product price and enhance the ability of various business entities to compete globally. The impact of GST on the Banking Industry of the country has been discussed in this research. It has talked about how the GST has a very minimal positive effect on the banking industry. Introduction of GST proved to be challenging due to the higher tax rates on several services as compared to the pre-GST tax mechanism. Challenges like state wise registration requirement, place of supply of goods and services, taxability of interest reversal of input tax credit on capital goods, accompanied by the increase in fees on various financial services to 18% has put GST in a negative light for this industry.

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Priyanka Yadav and Dr. Manoj Kumar (2019) studied, "Impact of GST on various sector of Indian economy" and concluded that GST is a consumption based tax collected from manufacturer, sale and consumption of goods and services which would further help in transforming the country into one integrated common market. This paper helps in understanding the concept of GST and further discusses its benefits. Also the paper gives insight on the impact of GST after its implementation on Indian economy with sectoral impact and in the end draws a conclusion that it is a god tax reform but difficult to implement in a huge economy like India. GST will have a lot of long term implications both from the perspective of the consumer and the government.

Anand Deo (2017) studied, "Goods & Services Tax (GST) – Impact analysis &road ahead" and concluded that GST has a positive impact on various sectors of the economy. The imperfect GST that India now has is still superior to the inefficient indirect tax system that it has replaced. But two things need to be done now. One being the complexity of the GST structure right now, as well as its novelty, will mean that companies will take time to figure out their tax liabilities. There will be honest mistakes. The government would do well to give taxpayers the benefit of doubt for few months. There should be regulatory forbearance to avoid the prospect of overenthusiastic tax officials assuming that every mistake is a crime. Indian economy is a complex one and thus people will take considerable time to understand this tax reform.

V. Lavanya, Dr. D. Pradeep Kumar, Dr. T. Narayana Reddy (2017) studied, "Impact of GST on Automobile Sector in India" and concluded that the industry has potential to grow to become a major economic contributor. The Government of India has also realized the importance of Automobile industry in the Indian economy and hence is currently working on Automotive Mission Plan 2026 to set targets for the industry for the year 2026. The objective of this research paper is to analyse the impact of GST on Automobile sector in India. Due to the implementation of GST, taxes moves from the origin state to the consumption state due to which overall economic activity is expected to increase and it could expect a better GDP growth that should push demand for vehicle across categories. Impact of tax cascading will also go away that will reduce overall cost of vehicle manufacturing as all taxes on input paid will be offset with the output liability of GST. Thus the sector would get the benefit of this tax reform in long run.

III. RESEARCH OBJECTIVES

This paper aims to achieve the following objectives:

- To find out the impact of the PRE-GST prices and POST-GST prices of Auto index, Banking index and Oil and Gas index of BSE on SENSEX.
- To find out the impact of change in price of Auto index, Banking index, Oil and Gas index, and SENSEX on each other.

IV. STATEMENT OF PROBLEM

GST is the biggest tax reform since independence and thus would affect the entire economy. This effect is not very clear as there are various sectors in the economy and each and every sector would be affected by a certain degree. A major downfall has been seen in the Auto sector after the implementation of GST. The degree of change has to be measured in order to estimate the impact on the performance of individual sectors as well as their impact on the indices further. Stock market plays a vital role in communicating the position of the economy by converting the perception of the investors into monetary transactions. It gives quantitative results which are reliable. Main problem is to identify the downfall in the economy even when this tax reform is said to reduce corruption and also claims to be better than the indirect taxes system.

V. SCOPE OF PROBLEM

Stock market plays a vital role in communicating the position of the economy by converting the perception of the investors into monetary transactions. It gives quantitative results which are reliable. Main problem is to identify the downfall in the economy even when this tax reform is said to reduce corruption and also claims to be better than the indirect taxes system still there are many issues which have to be solved as the reform requires a lot of efficiency in implementation stage which was absent.

VI. VARIABLES

To make things simpler and easier to understand and based on the availability of data, the daily data has been taken for 6 months for each of the variables. All variables change continuously in the dataset as the closing price of the indices are volatile and change as per market demand and supply and thus the PRE-GST implementation and POST-GST implementation data has been taken for S&P BSE SENSEX, S&P BSE AUTO INDEX, S&P BSE BANKING INDEX, S&P BSE OIL AND GAS INDEX .

For each of the indices daily close price has been taken for 6 months PRE-GST implementation and 6 months POST-GST implementation. To make the comparison same, the daily close price has been taken.

Convenience sampling technique used to pick sample.

Dependent Variable	PRE-GST & POST-GST PRICES OF SENSEX
Independent Variables	PRE-GST & POST-GST PRICES OF THREE INDICES

VII. HYPOTHESES

Regression-

H_0: There is no impact of Auto Index, Oil and Gas Index, Banking Index prices on Sensex Index

H_1: There is an impact of Auto Index, Oil and Gas Index, Banking Index prices on Sensex Index

Paired T test-

H_0 – There is a significant difference between the means of the variables

H_1- There is no significant difference between the means of the variables

VIII. METHOD OF DATA COLLECTION

The entire study has been done with secondary data and no primary data has been used whatsoever.

BSE SENSEX closing price for 6 months before implementation of GST and 6 months after the implementation of GST has been taken from BSE website. Then, S&P BSE AUTO INDEX, S&P BSE BANKING INDEX, S&P BSE OIL AND GAS INDEX close prices have been taken from the BSE website on the similar lines by taking historical prices of the index in the data collection section. Sensex is the oldest index in the Indian stock market and the most relevant data is available as per the accordance of research study undertaken.

IX. SAMPLING, SAMPLE SIZE & STATISTICAL DESIGN

To make things simpler and easier to understand and based on the availability of data, the daily data has been taken for 6 months for each of the variables. All variables change continuously in the dataset as the closing price of the indices are volatile and change as per market demand and supply and thus the PRE-GST implementation and POST-GST implementation data has been taken for S&P BSE SENSEX, S&P BSE AUTO INDEX, S&P BSE BANKING INDEX, S&P BSE OIL AND GAS INDEX .

For each of the indices daily close price has been taken for 6 months PRE-GST implementation and 6 months POST-GST implementation. To make the comparison same, the daily close price has been taken.

Convenience sampling technique used to pick sample.

Dependent Variable	PRE-GST & POST-GST PRICES OF SENSEX
Independent Variables	PRE-GST & POST-GST PRICES OF THREE INDICES

X. LIMITATIONS OF THE STUDY

a) Data usually are collected from a few cases or individuals so findings cannot be generalized to a larger population. Findings can however be transferable to another setting.

b) The volume of data makes analysis and interpretation time consuming.

c) Findings can be more difficult and time consuming to characterize in a visual way.

d) Related secondary data is sometimes not available or accessing available data is difficult impossible.

e) Data may not be robust enough to explain complex issues.

f) The result of the study might not be accurate because of the issues of reliability of the data source.

XI. ANALYSIS AND INTERPRETATION

Regression test using first difference dataset of before GST prices

Dependent variable – SENSEX Index

Independent variable – AUTO Index, OIL and GAS Index, BANKING Index

H_0: There is no impact of Auto Index, Oil and Gas Index, Banking Index prices on Sensex Index

H_1: There is an impact of Auto Index, Oil and Gas Index, Banking Index prices on Sensex Index

Dependent Variable: SENSEX
Method: Least Squares
Date: 02/08/20 Time: 00:25
Sample (adjusted): 2 123
Included observations: 122 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.951786	7.727244	1.029058	0.3056
AUTO	0.268689	0.053407	5.030952	0.0000
OG	0.173869	0.072152	2.409764	0.0175
BANKING	0.423251	0.049631	8.527928	0.0000

R-squared	0.724109	Mean dependent var	35.46033
Adjusted R-squared	0.717094	S.D. dependent var	155.7166
S.E. of regression	82.82392	Akaike info criterion	11.70355
Sum squared resid	809456.6	Schwarz criterion	11.79548
Log likelihood	-709.9164	Hannan-Quinn criter.	11.74089
F-statistic	103.2348	Durbin-Watson stat	2.086588
Prob(F-statistic)	0.000000		

Interpretation

Since the p value is less than 0.05, the null hypothesis is rejected and alternative hypothesis is accepted. Therefore, there is an impact of AUTO, OIL and GAS, and BANKING Index on SENSEX.

Regression test using first difference dataset of after GST prices

Dependent variable – SENSEX Index

Independent variable – Auto Index, Oil and Gas Index, Banking Index

H_0: There is no impact of AUTO Index, OIL and GAS Index, BANKING Index prices on SENSEX Index

H_1: There is an impact of AUTO Index, OIL and GAS Index, BANKING Index prices on SENSEX Index

Dependent Variable: SENSEX
Method: Least Squares
Date: 02/07/20 Time: 23:59
Sample (adjusted): 2 125
Included observations: 124 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.234544	7.756558	-0.030238	0.9759
AUTO	0.279751	0.048107	5.815125	0.0000
BANK	0.460471	0.039116	11.77193	0.0000
OG	0.287450	0.065863	4.364369	0.0000

R-squared	0.804939	Mean dependent var	22.86460
Adjusted R-squared	0.800063	S.D. dependent var	190.1426
S.E. of regression	85.02100	Akaike info criterion	11.75540
Sum squared resid	867428.5	Schwarz criterion	11.84638
Log likelihood	-724.8348	Hannan-Quinn criter.	11.79236
F-statistic	165.0644	Durbin-Watson stat	1.993292
Prob(F-statistic)	0.000000		

Interpretation

Since the p value is more than 0.05, the null hypothesis is not accepted and alternative hypothesis is accepted. Therefore, there is an impact of AUTO, OIL and GAS, and BANKING index on SENSEX.

PAIRED T TEST WITH BEFORE GST PRICES

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Auto1df	22.5938	122	190.02848	17.20437
	Sensex1df	35.4603	122	155.71663	14.09792
Pair 2	OG1df	8.0726	122	122.35142	11.07718
	Sensex1df	35.4603	122	155.71663	14.09792
Pair 3	Bank1df	47.3343	122	194.58169	17.61660
	Sensex1df	35.4603	122	155.71663	14.09792

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Auto1df & Sensex1df	122	.721	.000
Pair 2	OG1df & Sensex1df	122	.523	.000
Pair 3	Bank1df & Sensex1df	122	.787	.000

H_0 – There is a significant difference between the means of the variables
H_1- There is no significant difference between the means of the variables

Interpretation- The significance level is more than 0.05 in the case of Pair 1 and Pair 3 so, the null hypothesis is accepted. Whereas for Pair 2, the alternate hypothesis is accepted as the value is less than 0.05.

PAIRED T TEST WITH AFTER GST PRICES

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Auto1df	24.4531	124	203.80675	18.30239
	Sensex1df	22.8646	124	190.14261	17.07531
Pair 2	OG1df	24.0805	124	137.81899	12.37651
	Sensex1df	22.8646	124	190.14261	17.07531
Pair 3	Bank1df	20.2759	124	236.10928	21.20324
	Sensex1df	22.8646	124	190.14261	17.07531

Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Auto1df - Sensex1df	-12.86656	133.02218	12.04326	-36.70937	10.97626	-1.068	121	.287
Pair 2	OG1df - Sensex1df	-27.38770	138.89365	12.57484	-52.28292	-2.49249	-2.178	121	.031
Pair 3	Bank1df - Sensex1df	11.87393	120.04977	10.86880	-9.64371	33.39158	1.092	121	.277

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Auto1df & Sensex1df	124	.712	.000
Pair 2	OG1df & Sensex1df	124	.595	.000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Auto1df - Sensex1df	1.58847	149.98487	13.46904	-25.07267	28.24960	.118	123	.906
Pair 2	OG1df - Sensex1df	1.21589	154.75143	13.89709	-26.29255	28.72432	.087	123	.930
Pair 3	Bank1df - Sensex1df	-2.58871	136.05546	12.21814	-26.77377	21.59635	-.212	123	.833

H_0- There is a significant difference between the means of the variables
H_1- There is no significant difference between the means of the variables

Interpretation- All the significance values are more than 0.05 and hence in all the pairs, the null hypothesis is accepted. So, there is no significant difference between the means of Auto index and Sensex, Oil and Gas index and Sensex, Banking index and Sensex.

XII. SUMMARY OF FINDINGS

Summary from the study

The research was conducted to study the impact of GST on the performance of Auto index, Oil and Gas index, and Banking index variables of Bombay Stock Exchange India. The variables identified were Auto index, bank index and also Oil and Gas index. To make the study more informative, the impact of how GST, as a tax reform in the Indian economy affected the performance of specific sectors. The sectors identified were those that had a significant weightage in the Index. The Sectors chosen were Auto index, Banking index and

Oil and Gas index which have found to be interrelated. To the study the impact, a regression analysis and Paired T test was done apart from Granger Causality, Descriptive statistics and unit root test has been performed.

For the research variables, data was taken daily for 6 months from 1st January 2017 to 30th June 2017 for PRE-GST and for the dataset pertaining to POST-GST daily close price was taken for 6 months from 1st July 2017 to 31st December 2017. The data on Indices was altered to fit the model of the independent variables. E-views and SPSS were used to conduct the tests.

The study found that the three independent variables, Auto index, Oil and Gas index and Banking index showed that they had a significant impact on the Sensex Index. There was a high correlation between specific indices and Sensex index both PRE and POST GST. While studying the impact of change in specific index prices to change in Sensex Index, it was found that the mean difference between oil and gas index for PRE-GST dataset and Sensex does not exist. This changed in the POST-GST dataset and it was found that there is a significant mean difference between the variables. Also, the degree of correlation increased from PRE-GST to POST-GST so this shows that there is an impact on the performance of the indices due to GST. The study also proves (particularly through regression analysis) that the impact of the independent indices on Sensex has increased from PRE-GST period to POST-GST period.

For Policy Making

Based on the empirical findings of the study, the following recommendations are offered to policy makers, stakeholders and management of companies in India: For a better stock market performance, policy makers should put in place measures that will ensure stable macroeconomic environment, since any disturbances in the macroeconomic environment may affect the stock market's activities. So to attract investors means that we should have a stable macroeconomic environment; it is also recommended that investors should take into consideration the nature of volatility in the macroeconomic variables in the economy to make an informed decision as to where to direct their investments. The government should bring out policies to revive the automobile sector and should refrain from bringing new legislations like the change from BS-4 vehicles to BS-6 which then results in wastage of the inventories of automobile companies. The government should have a mission or plan to revive automobile sector and should provide relief to them just like telecom sector. With the introduction of electric vehicles, the government should give a good amount of time for the transition such that there is no resistance to the change. Also, Oil and Gas has been a heated political issue and hence the government to control the price of the Oil and Oil products such that common man does not face much difficulty. The Banking index includes all the private sector banks and that if why there was no significant difference before GST as the public sector banks were much affected before GST due to huge NPA's but after GST, all the banks have suffered as the banking services have become costlier as compared to PRE-GST period.

For Business Development

The study recommends that the government should come up with strategies and policies to protect the Auto, Banking, and Oil and Gas sectors (specifically banking) due to their immense contribution to the economy of the country. Through agencies such as the central bank the government should formulate policies that are aimed at controlling the effects of rapid fluctuations of the macro economic factors and their effects on the various sectors. The macro-economic environment should be studied thoroughly and then the policy implementation should further help the revival of the industry. In all, GST was a quick decision and it obviously has been taken for the betterment of the economy. But, the implementation was not done properly and only qualified or highly educated people were able to adjust with this reform in the beginning. So, the government took this decision in order to align the economy with international standards but this decision can be considered as a pre-mature decision and the after effects would be dynamic and difficult to control.

XIII. RECOMMENDATION & CONCLUSION

The research sought to find out the effects of GST on specific indices of BSE namely AUTO INDEX, OIL and GAS INDEX, BANKING INDEX and the further impact on SENSEX. The effect of three sectors on GST as well as impact on the performance of SENSEX particularly has been seen in this research. The findings of the research indicate that there is evidence that prices of AUTO INDEX, OIL and GAS INDEX, and BANKING INDEX have significant effects on the S&P BSE SENSEX Index.

XIV. SCOPE FOR FUTURE RESEARCH

Indian Stock market is an evergreen and developing market. So there is always a scope for future research as macroeconomic factors keep on changing. Banking is an essential element for most of the industrial activities. In a developing country like India, further studies on this topic would be much appropriate. The empirical findings suggest a rich agenda for future research. This study is limited to find the long-term relationship between sectoral variables and their impact on the entire index as well as the impact of GST on their performance. However future research can explore the relationship of stock prices index of other industries prices at large scale, may be included to other Asian, European or American countries or a comparative study among different regional stock markets. There are various other macroeconomic variables that influence the stock markets which are not taken into consideration in our study. There are various domestic and international macroeconomic factors and study on these fields can be done in future.