



# Impact of Automobile Companies Stock Returns on Indian Stock Market Indices with Special Reference to Nifty Fifty Index

<sup>1</sup>Dr. Rajani

PhD, Faculty of commerce, Dayalbagh Educational Institute, Agra  
Email - [rajanisingh298@gmail.com](mailto:rajanisingh298@gmail.com)

<sup>2</sup>Prof. Nidhi Sharma

Professor, Department of accountancy & law, Faculty of commerce, Dayalbagh Educational Institute, Agra  
Email - [drnidhisharma@ymail.com](mailto:drnidhisharma@ymail.com)

<sup>2</sup>Nishant Singh Chauhan

M.Com (Jamia Millia Islamia, New Delhi), UGC-NET (Commerce).  
Email - [nishantschauhan15@gmail.com](mailto:nishantschauhan15@gmail.com)

**Abstract:** *The Nifty Fifty Index has a free-float market capitalization-weighted index. It represents the weighted average of the top 50 Indian companies listed on the National Stock Exchange, and it is one of the main stock indices being used in India, besides the BSE Sensex of the Bombay Stock Exchange. The Nifty 50 index represents 62% of the free float market capitalization of the stocks listed in the NSE (NATIONAL STOCK EXCHANGE) as on September 30, 2022. Sectors' stocks are performing more consistently and provide high return with high risk in (NSE) NATIONAL STOCK EXCHANGE, these stocks are emerging as most reliable stock in capital market. Nifty Fifty Index also influenced by the variation in Automobile Industry which happened due to market fluctuation. The Automobile Sector has influenced by micro and macro indicators. So in this, researcher found a relationship between Nifty Fifty Index and different selected Automobile companies by the application of some statistical tools like as regression to examine the impact of different companies stock return on Nifty fifty Index and correlation to check the relationship between Nifty Fifty and Automobile Sector Companies. And for this study data of 18 years from 1 January 2003 December 2022 has been taken. After the application of test this can be concluded that nifty fifty Index have impact of Automobile companies' stock return variation on it and Nifty fifty index and Automobile companies are highly positively correlated with each other. At last it can be recommended that one variable can be used for forecasting another variable. So it can be concluded that development of economy and capital market has a relationship with performance of Automobile Industry in stock market and its return providing capacity. This study is going to be helpful for those investors who prefer to invest in Automobile Sector.*

**Key Words:** Automobile Sector, National Stock Exchange, Regression, Correlation, Nifty Fifty Index.

## 1. INTRODUCTION :

### National Stock Exchange

The National Stock Exchange of India (NSE) is the largest derivatives exchange in the world, according to data compiled by the Futures Industry Association (FIA) for the year 2021. The NSE was the first exchange in India to introduce screen-based or electronic trading. According to SEBI data, it has been in operation since 1994. It also monitors compliance with SEBI and exchange laws and regulations by trading, clearing members, and listed firms.



## Stock Market Index

The variation or trend of the prices in the market is determined by price indices, called stock market Indices, such as Nifty, Sensex, and Nifty Auto Index. Such indexes are generally market-weighted, with the weights reflecting the contribution of the stock to the index.

## Nifty 50 Index

The index has a free-float market capitalization-weighted index. It represents the weighted average of the top 50 Indian companies listed on the National Stock Exchange, and it is one of the main stock indices being used in India, besides the BSE Sensex of the Bombay stock exchange. The nifty 50 index represents 62% of the free float market capitalization of the stocks listed in the NSE (National Stock Exchange) as on September 30, 2022.

The nifty 50 indexes were launched on 22<sup>nd</sup> April 1996, and from there it has been shaped up to be the largest single financial product in India. It is also the world's most actively traded contract. The nifty 50 Index covers 13 core sectors of the Indian economy. It also gives weight to different sectors like financial services, energy, IT, Consumer goods, Automobile, and to Agricultural Sectors.

## 2. Objectives of the Research :

The objectives of the study are given in the following heads-

- To study the impact between Nifty Fifty Index and Selected Automobile Companies.
- To examine the relation between market index and selected automobile sector Companies.

## 3. REVIEW OF LITERATURE :

**Gopal Krushna, Binita Tiwari in the year 2022** a study on “Conceptual framework on innovation, adoption thus creating a sustainable business performance in the automobile industry” has been conducted to explore conceptual framework on innovation, adoption thus creating a sustainable business performance in the automobile industry. and at the end It was found that knowledge of management, climate for innovation learning ability and internal corporate communication passively affect innovation adoption..

**Mohammad Imtiaz Subhani, Amber Osman in the year 2022** done a study on “Volatility in the market share through financial fundamentals for global Automobile Industry” In this study researcher examined volatile behaviour of automobile industry market share of top, manufacturing nations in the presence of financial fundamentals. After the study this research paper conclude that there is no GARCH 1, 1 process in any of the given series as ARCH and GARCH terms are found insignificant in the presence of stated conditional variable and there is presence of hetrodescasity not found.

**Shreyas Thakre in the year 2021** a study on the topic impact of just in time on inventory management system in automobile industry has been done to study the impact of just in time on inventory management system in automobile industry and after the study this paper estimates management can face lower management performance when it not manages its inventory just in time.

**Shreyas Thakre in the year 2021** done a study on the topic Study of the impact of (just in time) “inventory management in the automobile sector in India” this study aims to know the impact of just in time on inventory management system in automobile industry and after the study researcher conclude concluded that management can face lower management performance when it not manages its inventory just in time.

**Bijin Philip, Dr. Silbert Jose S in the yare 2020** done a study on the topic of “Propitious Contribution of GDP and Performance Assessment in Automotive Sector – Be Fence with Indian Economy” the objective to conduct this study was to know the impact of automobile sector towards India's (GDP) and estimate the future GDP contribution based on the past data and to analyse the past four years market value of stock. This paper estimate contribution of auto industry in GDP from 2014 to 2018 is 5.7% to 7.1% .Past year growth of automobile industry force to predict that the contribution will increase up to 10% in future .And the government Automotive Mission Plan 2026 will bring the Indian auto industry in to top Three industries among of engineering, manufacture and exports of vehicles.

## 4. Research Methodology :

### Research Design

- **Independent Variable:** The researcher hypothesized Nifty 50 Index as independent variable.
- **Dependent Variable:** The researcher selected Automobile Companies (Maruti Suzuki, Tata Motors, Eicher Motors, Hero Moto Corp, Mahindra & Mahindra, Bajaj Auto, and Ashok Leyland) as dependent variable.
- **Data Description:** The monthly adjusted closed price of selected Automobile Companies and market capitalized value of Nifty 50 Index taken on monthly basis.



- This study's research approach is both theoretical and empirical in character, since it is carried out with defined aims and makes use of a vast quantity of data from chosen vehicle firms. And to analyze the monthly adjusted price converted in to return by using following equation.

**Table- 1: List of Companies Selected as Sample**

S.NO	AUTOMOBILE COMPANIES
1.	Maruti Suzuki
2.	Tata Motors
3.	Mahindra & Mahindra
4.	Ashok Leyland
5.	Eicher Motors
6.	Hero Moto corp.
7.	Bajaj Auto
8.	TVS Motors

- **Justification of the Sample Selection**
  - On the basis of Market Capitalization as on 01.08.2017 exceeding worth Rupees 1000 crores.
  - On the basis of Top trading companies of Automobile Sector.
- **Duration of the Study**
  - For the purpose of the study a period of last eighteen years from January 2003 to December 2021 were taken into consideration. Time series data for study has been taken on monthly basis.
  - **Secondary data:** was gathered from many sources, such as yearly financial reports from chosen vehicle firms and other necessary data obtained from the N.S.E. and B.S.E.'s web sites for study.
  - a. **Regression Analysis:** Researcher used the Regression test for analyzing the impact between Dependent variable and independent variable.
  - b. **Correlation test:** It talks about the positive or negative correlation between the dependent variable and independent variable. After using correlation researcher finds the existence of negative or positive relationship between Nifty50 Index and Nifty Auto Index.

**Table-1.1: Regression Analysis of Maruti Suzuki**

Descriptive Statistics			
	Mean	Std. Deviation	N
Maruti suzuki	2861.2468	2641.00670	204
NIFTY FIFTY INDEX	11983.3298	7244.07870	204

**Interpretation:** - According to the above table, the average mean of Maruti Suzuki Limited is 2861.22, while Nifty Fifty Index is 11983.32. Maruti Suzuki Limited's standard deviation is 2641.00, indicating that data is clustered around the mean, whereas NIFTY FIFTY INDEX's standard deviation is 7244.07.

**Table-1.2:Correlations**

		Maruti suzuki	NIFTY FIFTY INDEX
Pearson Correlation	Maruti suzuki	1.000	.911
	NIFTY FIFTY INDEX	.911	1.000
Sig. (1-tailed)	Maruti suzuki	.	<.001
	NIFTY FIFTY INDEX	.000	.
N	Maruti suzuki	204	204
	NIFTY FIFTY INDEX	204	204

**Interpretation:** - The above table shows the correlation between Maruti Suzuki Limited and the NIFTY FIFTY INDEX, with a value of .911 indicates that Maruti Suzuki Limited is highly correlated with the NIFTY FIFTY INDEX.



Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.911 <sup>a</sup>	.829	.829	1093.37662

a. Predictors: (Constant), NIFTY FIFTY INDEX

**Interpretation:** - The value of adjusted R Square which denotes the percentage of change in the dependent variable that can be explained by the independent variables in the above Regression Model R Square is .829 indicates an 82.90% change in the dependent variable Maruti Suzuki Limited due to a change in the Predictor value NIFTY FIFTY INDEX.

**Regression of Tata Motors**

	Mean	Std. Deviation	N
Tata motors	232.8965	151.33481	204
NIFTY FIFTY INDEX	11983.3298	7244.07870	204

**Interpretation:** - According to the above table, the average mean of Tata Motors is 232.8965, while Nifty Fifty Index is 11983.3298. Tata Motors' standard deviation is 151.33481, indicating that data is clustered around the mean, whereas NIFTY FIFTY INDEX's standard deviation is 7244.07870.

		Tata motors	NIFTY FIFTY INDEX
Pearson Correlation	Tata motors	1.000	.702
	NIFTY FIFTY INDEX	.702	1.000
Sig. (1-tailed)	Tata motors	.	<.001
	NIFTY FIFTY INDEX	.000	.
N	Tata motors	204	204
	NIFTY FIFTY INDEX	204	204

**Interpretation:** - The above table shows the correlation between Tata Motors and the NIFTY FIFTY INDEX, with a value of 0.702 indicates that Tata Motors is highly Positive correlate with the NIFTY FIFTY INDEX.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.702 <sup>a</sup>	.493	.490	108.06588

a. Predictors: (Constant), NIFTY FIFTY INDEX

**Interpretation:** - The value of adjusted R Square which denotes the percentage of change in the dependent variable that can be explained by the independent variables in the above Regression Model R Square is 0.493 indicates an 49.3% change in the dependent variable Tata Motors due to a change in the Predictor value NIFTY FIFTY INDEX.

**Regression Analysis of Mahindra & Mahindra**

	Mean	Std. Deviation	N
Mahindra	386.5407	234.25720	204



NIFTY FIFTY INDEX	11983.3298	7244.07870	204
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**Interpretation:** - According to the above table, the average mean of Mahindra & Mahindra is 386.5407, while Nifty Fifty Index is 11983.3298. Mahindra & Mahindra's standard deviation is 234.25720, indicating that data is clustered around the mean, whereas NIFTY FIFTY INDEX's standard deviation is 7244.07870.

		Mahindra	NIFTY FIFTY INDEX
Pearson Correlation	Mahindra	1.000	.972
	NIFTY FIFTY INDEX	.972	1.000
Sig. (1-tailed)	Mahindra	.	<.001
	NIFTY FIFTY INDEX	.000	.
N	Mahindra	204	204
	NIFTY FIFTY INDEX	204	204

**Interpretation:** - The above table shows the correlation between Mahindra & Mahindra and the NIFTY FIFTY INDEX, with a value of 0.972 indicates that Mahindra & Mahindra is very high Positive correlate with the NIFTY FIFTY INDEX.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.972 <sup>a</sup>	.945	.945	54.82521

a. Predictors: (Constant), NIFTY FIFTY INDEX

**Interpretation:** - The value of adjusted R Square which denotes the percentage of change in the dependent variable that can be explained by the independent variables in the above Regression Model R Square is 0.945 indicates an 94.50% change in the dependent variable Mahindra & Mahindra due to a change in the Predictor value NIFTY FIFTY INDEX.

**Regression Analysis of Ashok Leyland**

	Mean	Std. Deviation	N
Ashok leyland	40.4353	35.26788	204
NIFTY FIFTY INDEX	11983.3298	7244.07870	204

**Interpretation:** - According to the above table, the average mean of Ashok Leyland is 40.4353, while Nifty Fifty Index is 11983.3298. Ashok Leyland's standard deviation is 35.26788, indicating that data is clustered around the mean, whereas NIFTY FIFTY INDEX's standard deviation is 7244.07870.

		Ashok leyland	NIFTY FIFTY INDEX
Pearson Correlation	Ashok leyland	1.000	.925
	NIFTY FIFTY INDEX	.925	1.000
Sig. (1-tailed)	Ashok leyland	.	<.001
	NIFTY FIFTY INDEX	.000	.





N	Ashok leyland	204	204
	NIFTY FIFTY INDEX	204	204

**Interpretation:** - The above table shows the correlation between Ashok Leyland and the NIFTY FIFTY INDEX, with a value of 0.702 indicates that Ashok Leyland is very high Positive correlation with the NIFTY FIFTY INDEX.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.925 <sup>a</sup>	.855	.854	13.46264

a. Predictors: (Constant), NIFTY FIFTY INDEX

**Interpretation:** - The value of adjusted R Square which denotes the percentage of change in the dependent variable that can be explained by the independent variables in the above Regression Model R Square is 0.855 indicates an 85.50% change in the dependent variable Ashok Leyland due to a change in the Predictor value NIFTY FIFTY INDEX.

**Regression Analysis of Eicher Ltd.**

	Mean	Std. Deviation	N
Eicher	899.9128	1027.00493	204
NIFTY FIFTY INDEX	11983.3298	7244.07870	204

**Interpretation:** - According to the above table, the average mean of Eicher Ltd. is 899.9128, while Nifty Fifty Index is 11983.3298. Eicher Ltd's standard deviation is 1027.00493, indicating that data is clustered around the mean, whereas NIFTY FIFTY INDEX's standard deviation is 7244.07870.

		Eicher	NIFTY FIFTY INDEX
Pearson Correlation	Eicher	1.000	.949
	NIFTY FIFTY INDEX	.949	1.000
Sig. (1-tailed)	Eicher	.	<.001
	NIFTY FIFTY INDEX	.000	.
N	Eicher	204	204
	NIFTY FIFTY INDEX	204	204

**Interpretation:** - The above table shows the correlation between Eicher and the NIFTY FIFTY INDEX, with a value of 0.949 indicates that Eicher is very high Positive correlation with the NIFTY FIFTY INDEX.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.949 <sup>a</sup>	.901	.901	323.89121

a. Predictors: (Constant), NIFTY FIFTY INDEX

**Interpretation:** - The value of adjusted R Square which denotes the percentage of change in the dependent variable that can be explained by the independent variables in the above Regression Model R Square is 0.901 indicates an 90.1% change in the dependent variable Eicher due to a change in the Predictor value NIFTY FIFTY INDEX.



**Regression Analysis of Hero Moto**

	Mean	Std. Deviation	N
Hero	1537.7018	926.98272	204
NIFTY FIFTY INDEX	11983.3298	7244.07870	204

**Interpretation:** - According to the above table, the average mean of Hero Moto is 1537.7018, while Nifty Fifty Index is 11983.3298. Hero Moto’ standard deviation is 926.98272, indicating that data is clustered around the mean, whereas NIFTY FIFTY INDEX's standard deviation is 7244.07870.

		Hero	NIFTY FIFTY INDEX
Pearson Correlation	Hero	1.000	.976
	NIFTY FIFTY INDEX	.976	1.000
Sig. (1-tailed)	Hero	.	<.001
	NIFTY FIFTY INDEX	.000	.
N	Hero	204	204
	NIFTY FIFTY INDEX	204	204

**Interpretation:** - The above table shows the correlation between Hero Moto and the NIFTY FIFTY INDEX, with a value of 0.976 indicates that Hero Moto is very high Positive correlation with the NIFTY FIFTY INDEX.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.976 <sup>a</sup>	.953	.953	201.42524

a. Predictors: (Constant), NIFTY FIFTY INDEX

**Interpretation:** - The value of adjusted R Square which denotes the percentage of change in the dependent variable that can be explained by the independent variables in the above Regression Model R Square is 0.953 indicates a 95.30% change in the dependent variable Hero Motors due to a change in the Predictor value NIFTY FIFTY INDEX.

**Regression Analysis of TVS Motors**

	Mean	Std. Deviation	N
TVSmotors	186.7403	206.23731	204
NIFTY FIFTY INDEX	11983.3298	7244.07870	204

**Interpretation:** - According to the above table, the average mean of TVS Motors is 186.7403, while Nifty Fifty Index is 11983.3298. TVS Motors’ standard deviation is 206.23731, indicating that data is clustered around the mean, whereas NIFTY FIFTY INDEX's standard deviation is 7244.07870.



		TVS motors	NIFTY FIFTY INDEX
Pearson Correlation	TVS Motors	1.000	.904
	NIFTY FIFTY INDEX	.904	1.000
Sig. (1-tailed)	TVS Motors	.	<.001
	NIFTY FIFTY INDEX	.000	.
N	TVS Motors	204	204
	NIFTY FIFTY INDEX	204	204

**Interpretation:** - The above table shows the correlation between TVS Motors and the NIFTY FIFTY INDEX, with a value of 0.904 indicates that TVS Motors is very high Positive correlation with the NIFTY FIFTY INDEX.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.904 <sup>a</sup>	.817	.816	88.53346

a. Predictors: (Constant), NIFTY FIFTY INDEX

**Interpretation:** - The value of adjusted R Square which denotes the percentage of change in the dependent variable that can be explained by the independent variables in the above Regression Model R Square is 0.817 indicates an 81.70% change in the dependent variable TVS Motors due to a change in the Predictor value NIFTY FIFTY INDEX.

**Regression Analysis of Bajaj Auto**

	Mean	Std. Deviation	N
Bajaj	1647.4289	1104.56987	204
NIFTY FIFTY INDEX	11983.3298	7244.07870	204

**Interpretation:** - According to the above table, the average mean of Baja Auto is 1647.4289, while Nifty Fifty Index is 11983.3298. Bajaj Auto’s standard deviation is 1104.56987, indicating that data is clustered around the mean, whereas NIFTY FIFTY INDEX's standard deviation is 7244.07870.

		Bajaj	NIFTY FIFTY INDEX
Pearson Correlation	Bajaj	1.000	.854
	NIFTY FIFTY INDEX	.854	1.000
Sig. (1-tailed)	Bajaj	.	<.001
	NIFTY FIFTY INDEX	.000	.
N	Bajaj	204	204
	NIFTY FIFTY INDEX	204	204





**Interpretation:** - The above table shows the correlation between Bajaj Auto and the NIFTY FIFTY INDEX, with a value of 0.854 indicates that Bajaj Auto is high Positive correlate with the NIFTY FIFTY INDEX.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.854 <sup>a</sup>	.730	.728	575.84820
a. Predictors: (Constant), NIFTY FIFTY INDEX				

**Interpretation:** - The value of adjusted R Square which denotes the percentage of change in the dependent variable that can be explained by the independent variables in the above Regression Model R Square is 0.730 indicates a 73% change in the dependent variable Bajaj Auto due to a change in the Predictor value NIFTY FIFTY INDEX.

### 5. Conclusion :

The above analysis shows the correlation value with NIFTY FIFTY data of Auto mobile sector companies. The Automobile companies such as Maruti Suzuki, Mahindra & Mahindra, Ashok Leyland, Eicher, Hero Motocorp, Bajaj Auto, Tata Motors and TVS Motors of auto mobile sector has very high positive correlation value. The Bajaj has high positive correlation value i.e., 0.854. The Tata Motors has Moderate Correlation Value i.e., 0.702. To analyse the Contagion Impact of Automobile Companies Stock Returns on Indian Economy with Special Reference to Nifty Fifty Index regression and correlation has been applied to know the impact and relationship of Nifty Fifty Auto Index with selected automobile companies this analytical study conclude that, there is significant Impact of Nifty Fifty index on selected Auto companies for the selected period (2003 to 2021) of the study. Maruti Suzuki, Tata Motors Mahindra and Mahindra, Hero Moto Corporation, Eicher Ltd., Ashok Leyland, TVS Motors, and Bajaj Auto companies are highly correlated with Nifty Fifty Auto Index. All selected automobile companies have positive relationship with Nifty Fifty Index which shows the dependency or relativity of nifty fifty auto index position in relation to its rise and fall due to market fluctuation .Auto sector plays a pivotal role in making the position strong or weak of Nifty Auto Index in capital market. Due to the COVID -19 many ups and down has been faced by auto sector. These changes due to covid-19 pandemic realise the market about its weakness and after recovery from pandemic auro sector became more reliable for its investors as it survived so well during pandemic.

### 6. Suggestions of the study :

- Auto mobile company should focus on the market share that leads to attract the investors and generate more funds to expand operation of the business.
- Auto mobile company should focus on the liquidity position which was affected due to the COVID 19. Now after COVID – 19, Auto Company should manage the liquidity for their survival in the auto sector.
- Automobile company should reduce operational cost that will help to capture the market.
- If Auto Company face any difficulty in the survival, then they try to merge with other auto company which leads to enhance the market share, profitability and make survival easy.

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