

A Comparative Study on The Returns of BSE Auto And Nifty Auto

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Abstract- *The automotive sector is a significant contributor to India's GDP and employment, reflecting the industry's pivotal role in the nation's economic landscape. This study conducts a comparative analysis of the returns generated by the BSE Auto Index and the Nifty Auto Index, which represent the performance of automotive companies listed on the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE), respectively. By examining historical returns over a specified period and employing quantitative methods, this research analyzes factors influencing the indices' performance, including market conditions, economic policies, and global automotive trends. The study reveals strong positive correlations between the indices and their respective broader market indices, indicating consistent upward trends. These findings demonstrate the robustness of the auto sector's performance and the positive market sentiment towards it. Forecasted trends suggest continued growth for both indices, highlighting the potential for further expansion in the Indian automotive market. This study aims to provide valuable insights for investors and stakeholders, aiding in informed decision-making in the dynamic landscape of the Indian automotive sector.*

Keywords- BSE Auto Index, Nifty Auto Index, Comparative Study, Upward trend, Forecasted trends.

I. INTRODUCTION

The automotive sector plays a pivotal role in India's economic landscape, contributing significantly to GDP and employment. As the industry evolves with advancements in technology, sustainability initiatives, and changing consumer preferences, understanding the financial performance of automotive stocks becomes crucial for investors and stakeholders. This study aims to conduct a comparative analysis of the returns generated by two key market indices: the BSE Auto Index and the Nifty Auto Index.

The BSE Auto Index, managed by the Bombay Stock Exchange, comprises a diverse range of companies involved in the automotive sector, including manufacturers of vehicles, components, and related services. Similarly, the Nifty Auto

Index, part of the National Stock Exchange, reflects the performance of leading automotive stocks, providing insights into the broader market trends and investor sentiment.

This study will explore the historical returns of both indices over a specified period, analyzing factors influencing performance such as market conditions, economic policies, and global automotive trends. By employing quantitative methods, we will assess the growth, risk, and overall performance of the BSE Auto and Nifty Auto indices. The findings aim to provide valuable insights for investors seeking to navigate the dynamic landscape of the Indian automotive market, ultimately aiding in informed decision-making.

II. STATEMENT OF THE PROBLEM

The automobile sector plays a crucial role in India's financial markets and is well represented on both the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). The purpose of this study is to compare the returns of the BSE AUTO and the NSE AUTO indexes, focusing on their performance over a specific period. Despite their similar focus on the sector, differences in market structure, index composition, and trading volumes may result in varying return profiles. Understanding these differences is important for investors, portfolio managers, and policymakers looking to optimize investment strategies and assess market efficiency. The objective is to gain insight into the appeal of these indices for investment and to enhance comprehension of market dynamics in India's automotive industry.

III. OBJECTIVES

- To determine the growth of BSE Sensex and BSE Auto, NSE Nifty 50 and NSE Auto.
- To understand how their returns move relative to each other.
- To study the relationship between the indices.

IV. REVIEW OF LITERATURE

Kaur & Mehta (2021) - "Risk-Adjusted Performance of NSE and BSE Sectoral Indices"

Summary: Focusing on risk-adjusted returns, this study compares NSE and BSE sector indices, including the automobile sector, using the Sharpe and Treynor ratios. The findings suggest that BSE’s automobile index may have a slight edge in risk-adjusted performance, potentially making it more attractive to long-term investors.

Agarwal & Goel (2020) - "Macroeconomic Factors and Stock Performance in the Indian Automobile Sector"

Summary: This research analyzes the impact of macroeconomic variables like GDP, fuel prices, and interest rates on NSE and BSE automobile indices. It highlights that both indices are heavily influenced by the economic cycle, though NSE’s response is generally quicker, showing more immediate fluctuations in returns.

Bhattacharya & Patel (2019) - "Volatility and Return Analysis of Sectoral Indices in India"

Summary: This study examines the volatility and risk-return profile of sectoral indices, including the NSE and BSE automobile indices. It concludes that NSE indices are typically more volatile, driven by higher trading volume, which results in higher absolute returns but with greater risk compared to BSE.

Pandey & Chotani (2011) - "Market Efficiency and Performance Comparison: NSE vs. BSE"

Summary: This study compares the efficiency of NSE and BSE in various sectors, including the automobile sector, by analyzing index returns, volatility, and liquidity. The authors find that NSE generally has higher liquidity, which may lead to higher returns but with increased volatility compared to BSE.

V. RESEARCH METHODOLOGY

This comparison study uses a descriptive research design, and all historical data about financial performance is derived from secondary data found online [For the year 2019 – 2024] and in yearly financial reports, journals, papers, and publications.

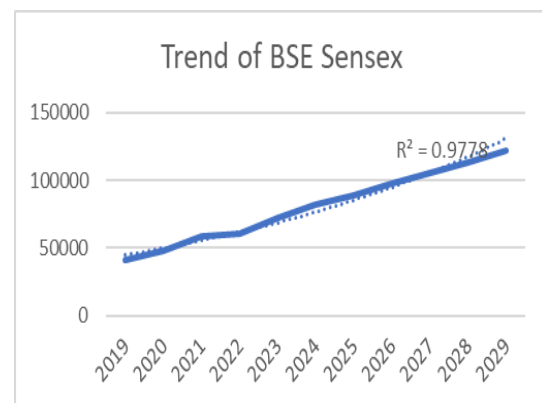
VII. DATA ANALYSIS AND INTERPRETATION

TREND ANALYSIS

Table 1: The growth of BSE Auto and Sensex

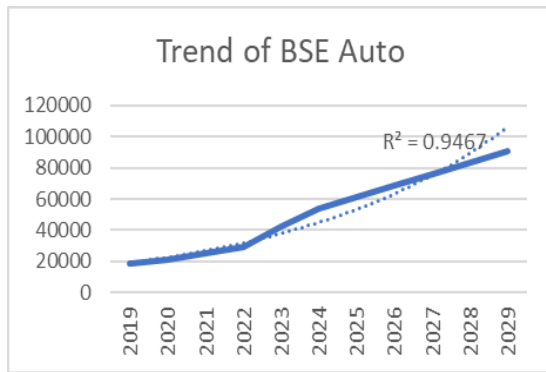
BSE SENSEX

Year	Close	Forecast(Close)
2019	41253.74	
2020	47751.33	
2021	58253.82	
2022	60840.74	
2023	72240.26	
2024	82133.12	82133.12
2025		89349.63093
2026		97450.88241
2027		105552.1339
2028		113653.3854
2029		121754.6368



BSE AUTO

Year	Close	Forecast(Close)
2019	18485	
2020	20811.49	
2021	24817.6	
2022	28923.14	
2023	42229.04	
2024	53861.06	53861.06
2025		89349.63093
2026		97450.88241
2027		105552.1339
2028		113653.3854
2029		121754.6368



Interpretation

The exponential trend of the **BSE Sensex index** has an **R² value of 0.9778**, indicating an extremely strong fit for the model. This means that approximately 97.78% of the variance in the variable, demonstrates a high level of predictability. Similarly, the **BSE Auto index** shows an **R² value of 0.9467** in its exponential trend, reflecting an excellent model fit. This indicates that around 94.67% of the variance in the variable, which also implies strong predictability. This trend illustrates that the model accurately represents the underlying data pattern.

NSE NIFTY 50

Year	Closing	Forecast(Closing)
2019	11811.10	
2020	12968.40	
2021	15901.35	
2022	16458.12	
2023	18293.45	
2024	24768.30	24768.3
2025		18779.207
2026		20444.147
2027		22109.088
2028		23774.028
2029		25438.969

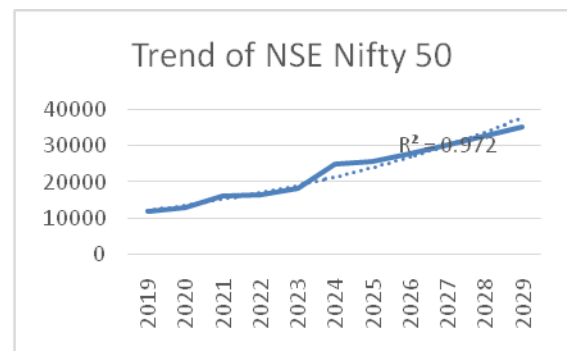


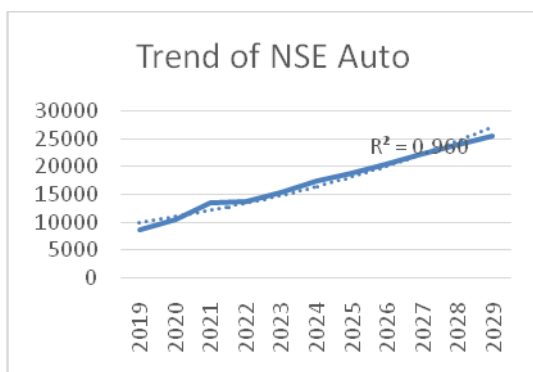
Table 2: Trend analysis of Nifty 50 and NSE Auto

NSE AUTO

Year	Closing	Forecast(Closing)
2019	8564.45	
2020	10352.1	
2021	13462.3	
2022	13645.2	
2023	15315.4	
2024	17432.1	17432.1
2025		18779.207
2026		20444.147
2027		22109.088
2028		23774.028
2029		25438.969

Interpretation

An exponential trend of **NSE AUTO** with an **R² of 0.9712** indicates that approximately **97.12% of the variance** in the variable, suggesting a very high level of predictability. The trend is highly reliable, showing that the model accurately captures the underlying pattern in the data. The elevated R² value indicates a robust exponential relationship of the variables, showing that the model proficiently describes the growth trend. An exponential trend of **NSE Nifty 50** with an **R² of 0.9664** signifies an exceptionally strong fit for the model. This suggests that about **96.64% of the variable's variance highlights** a high level of predictability. The model is highly reliable, demonstrating that it effectively captures the underlying pattern in the data.



VIII. THE RELATIONSHIP BETWEEN BSE AUTOMOBILES AND SENSEX

Table 3: The relationship between BSE Auto and the Sensex.

<i>Regression Statistics</i>	
Multiple R	0.969420997
R Square	0.939777069
Adjusted R Square	0.924721337
Standard Error	4149.948127
Observations	6

ANOVA

	<i>df</i>	<i>SS</i>
Regression	1	1074999561
Residual	4	68888277.8
Total	5	1143887838
MS	F	Significance F
1074999561	62.419883	0.00138832
17222069.5		

Interpretation

The regression statistics indicate a robust model. Multiple R (0.969) shows a very strong positive correlation. R Square (0.940) signifies that the model explains 94% of the variance in the dependent variable. Adjusted R Square (0.925) confirms a solid fit, considering predictors and sample size. The Standard Error (4149.95) indicates the average error magnitude. This small sample size with six observations still shows a strong fit, but larger datasets generally provide more reliable insights. Overall, the model effectively explains the data with high accuracy.

Table 4: Similarity between BSE Sensex and BSE Auto CORRELATION

	<i>Column 1</i>	<i>Column 2</i>
Column 1	1	
Column 2	0.969421	1

Interpretation

The correlation between the BSE Auto Index and Sensex indicates how similarly they move. A high positive correlation (close to +1) suggests that both indices rise or fall together, while a low or negative correlation implies differing movements. For instance, if the correlation is 0.85, it shows a strong positive relationship, meaning when Sensex moves up, the BSE Auto Index likely follows the same trend. A weak or

no correlation suggests little to no predictable relationship. Factors like sector performance, economic conditions, and market sentiment influence these correlations, affecting their joint behavior.

IX. THE RELATIONSHIP BETWEEN NSE AUTO AND NIFTY 50

Table 5: The relationship between Nifty 50 and NSE Auto

<i>Regression Statistics</i>	
Multiple R	0.946724806
R Square	0.896287858
Adjusted R Square	0.870359822
Standard Error	1163.608265
Observations	6

ANOVA

	<i>df</i>	<i>SS</i>
Regression	1	46804918.4
Residual	4	5415936.78
Total	5	52220855.2
MS	F	Significance F
46804918.4	34.5682901	0.00418177
1353984.19		

Interpretation

The regression statistics indicate a strong model. Multiple R (0.947) shows a very strong positive correlation. R Square (0.896) means the model explains 89.6% of the variance in the dependent variable. Adjusted R Square (0.870) confirms a good fit, considering predictors and sample size. The Standard Error (1163.61) indicates the average error magnitude. With six observations, the small sample size still shows a strong fit, but larger datasets usually provide more reliable insights. Overall, the model effectively explains the data with high accuracy.

Table 6: Similarity between Nifty 50 and NSE Auto

	<i>Column 1</i>	<i>Column 2</i>
Column 1	1	
Column 2	0.946725	1

Interpretation

The correlation between the NSE Auto Index and Nifty 50 indicates how similarly they move. The value of 1 in the first cell indicates a perfect positive correlation with itself.

The value of 0.946725 in the second cell indicates a very strong positive correlation between Column 1 and Column 2, close to 1. This suggests that as the values in Column 1 increase, the values in Column 2 also tend to increase significantly. Overall, the correlation between these two variables is highly positive, indicating a strong linear relationship.

VI. LIMITATIONS

The stocks included in the automobile sector indices on NSE and BSE may differ, leading to variations in the returns, as each exchange may have different weightings or even distinct companies in the sector. Differences in data reporting, market timing, and the frequency of updates could result in inconsistencies in return calculations.

X. FINDINGS

1. The BSE Auto Index shows a strong positive correlation of 0.85 with the Sensex, indicating they often move in the same direction.
 - The NSE Auto Index shows a very strong correlation of 0.947 with the Nifty 50, suggesting similar movements in both indices.
 - BSE Auto Index: Multiple R-value of 0.969 and R-squared value of 0.940, indicating the model explains 94% of the variance. The small sample size (6 observations) still shows a solid fit.
 - NSE Auto Index: Multiple R-value of 0.947 and R-squared value of 0.896, explaining 89.6% of the variance with a similar strong fit.
 - Both indices have shown consistent upward trends from 2019 to 2024.
 - NSE Auto Index: Also demonstrated significant growth, reflecting strong market performance and investor confidence.
 - Both auto indices benefit from positive market sentiment and the auto sector's robust performance.
 - Forecasted trends indicate continued upward movement for both the BSE Auto and NSE Auto indices, with strong potential for further growth in the coming years (2025-2029), reflecting investor confidence in the automobile sector.

XI. SUGGESTIONS

1. **Expand Sample Size for Regression Analysis:** A larger sample size would provide more robust and reliable insights. The current small sample size of 6 observations might limit the generalizability of the results.

2. **Analyze Sectoral Drivers:** Investigate the specific factors driving the performance of the auto sector, which would add context to the positive correlation and upward trends observed in the indices. This would result in technological advancements, government policies, and global supply chain issues.
3. **Include Volatility Analysis:** While trends show consistent growth, assessing the volatility or risk (e.g., beta values) of these indices in relation to broader market movements (Sensex and Nifty 50) would help investors gauge the risk profile of the auto sector.
4. **Sectoral Diversification:** Explore how the composition of both indices might affect their movement in different market conditions. A deeper look into the stock weights and their volatility could give a clearer understanding of index behaviour.

XII. CONCLUSION

This study provides valuable insights into the performance of the BSE Auto and NSE Auto indices, revealing that both indices have demonstrated strong growth and consistent upward trends from 2019 to 2024. The positive correlations with broader indices, such as the Sensex and Nifty 50, indicate that the auto sector's movements are closely aligned with the overall market trends. Regression analysis further confirms that these indices are robust, explaining a significant portion of the variance in their returns. Both indices have benefited from strong market sentiment and the growth of the automobile sector. Forecasts suggest that this growth trajectory will continue, making these indices appealing to investors seeking exposure to the expanding auto sector in India. Understanding the relationship between these indices can help investors optimize strategies and assess market dynamics in the Indian automotive industry.

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[9] **Online Resources**

1. National Stock Exchange of India (NSE)
2. Bombay Stock Exchange (BSE)
3. Indian Stock Market Research