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A STUDY ON INDIAN STOCK MARKET

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ABSTRACT
Risk and return analysis plays a vital role in financial decision-making, especially in stock market investments. The Indian stock market, driven by the Bombay Stock Exchange (BSE) and National Stock Exchange (NSE), significantly contributes to economic growth. This study examines the risk and returns of selected automobile sector stocks listed on BSE and NSE from 2014 to 2024. It evaluates company performance using total returns, standard deviation, beta, correlation, and covariance. The goal is to assess stock volatility and market sensitivity, helping investors choose stocks that align with their risk appetite and investment goals. This comparative analysis offers insights into stock stability and returns potential, supporting informed portfolio decisions.
KEYWORDS: *Stock Exchange, NSE, BSE, Automobile Sector, Risk and Return, Indian Financial Market.*

INTRODUCTION

A stock exchange serves as a centralized platform where stock brokers and traders engage in the buying and selling of financial instruments, including shares, bonds, and other securities. By listing their stocks on these exchanges, large companies can enhance the liquidity of their shares, making them more appealing to potential investors. Additionally, stock exchanges act as guarantors of settlement, ensuring secure and transparent transactions.

The primary function of a stock exchange is to facilitate the transfer of ownership of securities between buyers and sellers. This process requires both parties to agree on a price. Investors in the stock market range from individual traders to large financial institutions such as banks, insurance companies, pension funds, and hedge funds.

In India, the two major stock exchanges are the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). While some regional exchanges, such as the Bangalore Stock Exchange and Madras Stock Exchange, exist, they play a minimal role in the current market landscape. All trading activities in the Indian stock market are conducted through registered intermediaries known as stock brokers, and transactions are executed through electronic platforms.

REVIEW OF LITERATURE

Astha Agarwal (2016) "A Study on Stock Market Volatility Pattern of BSE and NSE in India"This paper investigates the volatility patterns of the BSE Sensex-50 and NSE Nifty-50 indices. Using statistical tools, the study analyzes the standard deviation and sample variance of both indices to understand their volatility in the short run. The results indicate that both indices exhibit significant volatility, with the BSE Sensex-50 showing slightly higher volatility compared to the NSE Nifty-50. However, the study focuses on a specific timeframe and may not reflect long-term volatility patterns.

Sarada Angaraju (2020), attempted a paper on risk and return analysis of selected banks in NSE Market. In this study he talks about the Indian financial sector is the back bone of the country economy development, the banking sector place a key role in empowerment of all areas. In the capital market equity market is playing economic development of nation but banking sector equity market have volatilityand less returns on investment in some of the banks and some of the banks have more volatility and capital loss in investment also.

Kumar, S., & Singh, M. (2019) "Risk and Return Analysis of Banking Stocks in NSE and BSE"This research analyzes the risk and return profiles of selected banking stocks listed on NSE and BSE over a 12-year period (2010-

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2021). The study concludes that NSE-listed banking stocks exhibit higher returns with corresponding higher risks compared to BSE.

Joshi, P., & Sharma, R. (2018) "Comparative Analysis of Market Performance: BSE vs. NSE" This study conducts a comparative analysis of BSE and NSE, focusing on trading volumes, market capitalization, and regulatory frameworks. The findings indicate that while BSE holds historical significance, NSE's innovative approaches have led to substantial growth in trading volumes.

OBJECTIVES

- To analyze the stock performance of selected automobile companies listed on NSE and BSE.
- To compare the risk and return of each selected stock based on statistical tools such as beta, standard deviation, covariance, and correlation.
- To study the relationship between individual stock returns and market returns of NSE and BSE.

RESEARCH METHODOLOGY

This study uses a structured research methodology to analyze the risk and return of selected automobile stocks listed on BSE and NSE over the period 2014–2024. It employs a comparative design using secondary data sourced from finance.yahoo.com and other reliable sources, focusing on key metrics like total returns, standard deviation, beta, correlation, and covariance. Six leading automobile companies three from each exchange were purposively selected based on turnover and performance. The analysis aims to assess market sensitivity and support informed investment decisions in the sector.

SAMPLE SIZE (Small Size)

Based on the turnover values, the 6 top leading companies which has growth in market standards, where selected taken for analysis purpose.

1. Maruti Suzuki India LTD 2.Mahindra and Mahindra Ltd 3.Tata Motors Ltd
4. Bajaj Auto Ltd 5. Eicher Motors Ltd 6. TVS Motor

TOOLS USED FOR ANALYSIS

BETA

The beta (β) of a stock is a measure of its volatility in returns compared to the overall market. It is utilized as a risk indicator and is an essential component of the Capital Asset Pricing Model. A corporation with a higher beta faces more risk and higher projected returns.

$$\beta = \frac{\text{cov}(r_i, r_m)}{VAR(r_m)}$$

- β =1 exactly as volatile as the market
- β >1 more volatile than the market
- β <1>0 less volatile than the market
- β =0 uncorrelated to the market
- β <0 negatively correlated to the market

CORRELATION COEFFICIENT(R)

1. The Correlation Coefficient value is between -1 and 1 and

$$\mathbf{R} = \frac{\mathbf{n(\Sigma xy) - (\sum x)(\sum y)}}{\sqrt{\mathbf{(n\sum x^2 - (\sum x)^2)\left(n\sum y^2 - ((\sum y)^2)\right)}}}$$

- 1 indicates a strong positive relationship.
- -1 indicates a strong negative relationship.
- A result of zero indicates no relationship at all.
- n is number of observation.

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COVARIANCE COEFFICIENT

The covariance coefficient measures the strength and direction of the linear relationship between two variables. A positive value indicates they move in the same direction, while a negative value indicates they move in opposite directions.

$$COV(X,Y) = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{n-1}$$

- x_i = data value of x
- y_i = data value of y
- $\bar{x}$ = mean of x
- $\bar{y}$ = mean of y
- n = number of data values.

TOTAL RETURNS

Total return represents the overall gain or loss of an investment over a specific period. If the total return is calculated as a point value, it can be converted to a percentage by multiplying by 100. A total return of (2.428) means the investment grew by (242.8%) over the study period.

This indicates that if an investor had invested ₹100 at the start, it would have grown to ₹342.80 by the end (₹100 initial + ₹242.80 gain).

The rate of return on an asset over a specific period is

$$R = \frac{(p_1 - p_0)}{p_0}$$

P_1 = Closing price, P_0 = Opening price

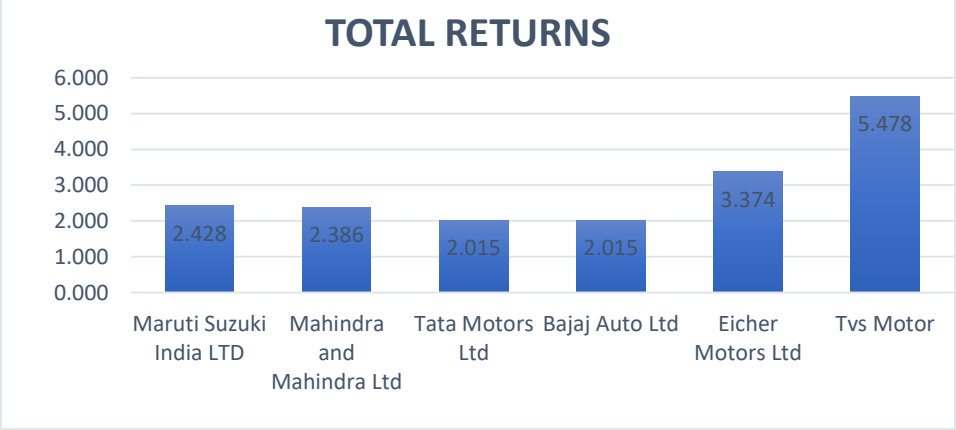
DATA ANALYSIS AND INTERPRETATION

RISK AND RETURN VARIATIONS OF AUTOMOBILE STOCKS LISTED IN NSE&BSE

COMPANY	TOTAL RETURNS FROM 2014 TO 2024	MEAN	S.D	BETA
NSE				
Maruti Suzuki India LTD	2.428	0.221	0.351	1.692
Mahindra and Mahindra Ltd	2.386	0.217	0.293	0.480
Tata Motors Ltd	2.015	0.183	0.616	2.851
BSE				
Bajaj Auto Ltd	2.015	0.173	0.274	0.913
Eicher Motors Ltd	3.374	0.307	0.594	2.874
Tvs Motor	5.478	0.498	0.794	4.817

TABLE 1: RELATIONSHIP TO RISK AND RETURNS ANALYSIS

CHART 1 : TOTAL RETURNS



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INTERPRETATION

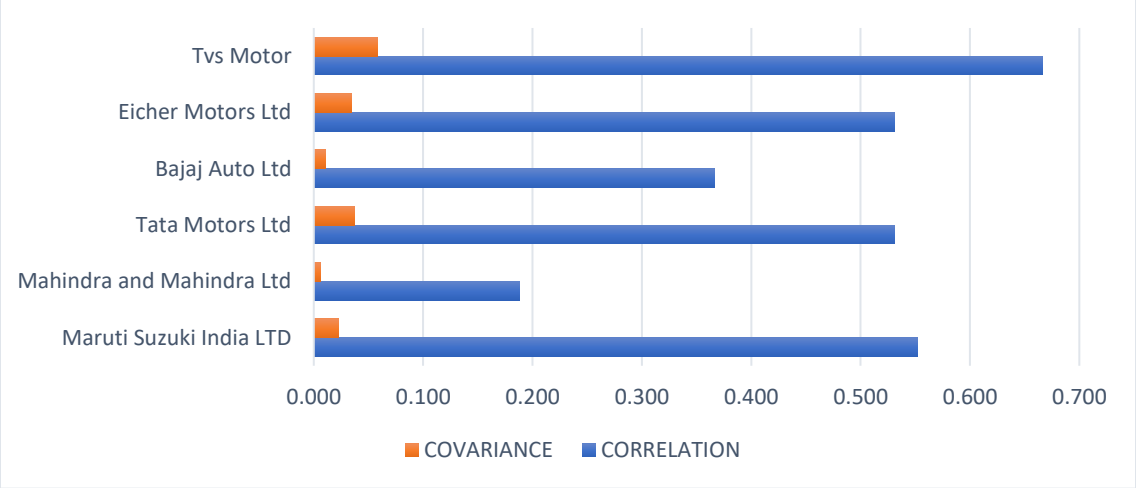
selected automobile companies on NSE and BSE showed positive returns, reflecting sector growth. Mahindra and Mahindra Ltd. had low market sensitivity (beta 0.480), making it ideal for low-risk investors. Maruti Suzuki India Ltd. offered moderate returns with higher volatility (beta 1.692). Tata Motors Ltd. had the highest beta (2.851), indicating high risk. On BSE, TVS Motor showed the highest returns and volatility (beta 4.817), followed by Eicher Motors (beta 2.874). Bajaj Auto presented balanced returns with moderate risk (beta 0.913). Hence, high-risk investors may choose for Maruti or Eicher, while risk-averse investors may prefer Mahindra or Bajaj Auto.

CORRELATION AND COVARIANCE OF THE SELECTED SIX AUTOMOBILE STOCKS LISTED IN BSE & NSE

TABLE 2: CORRELATION AND COVARIANCE ANALYSIS

COMPANY	CORRELATION	COVARIANCE
Maruti Suzuki India LTD	0.552	0.022
Mahindra and Mahindra Ltd	0.188	0.006
Tata Motors Ltd	0.531	0.037
Bajaj Auto Ltd	0.366	0.011
Eicher Motors Ltd	0.531	0.035
Tvs Motor	0.666	0.058

CHART 2 : CORRELATION AND COVARIANCE ANALYSIS



INTERPRETATION

The correlation and covariance analysis shows that all selected automobile stocks have a positive relationship with their respective market indices. TVS Motor has the highest correlation (0.666) and covariance (0.058), indicating strong responsiveness to market changes. Eicher Motors and Tata Motors also show moderate sensitivity with correlations of 0.531. Maruti Suzuki follows with a moderate correlation of 0.552. Bajaj Auto has a lower correlation (0.366), and Mahindra and Mahindra shows the weakest market relationship with a correlation of 0.188 and lowest covariance (0.006), indicating minimal sensitivity to market fluctuations.

FINDINGS

- The analysis of selected automobile companies over the period from 2014 to 2024 indicates that all firms achieved positive total returns, reflecting overall growth in the sector. Among NSE-listed companies, Mahindra and Mahindra Ltd. exhibited stable returns with a low beta of 0.480, suggesting lower risk and less sensitivity to market movements, making it suitable for conservative investors. Maruti Suzuki India Ltd. showed moderate average returns with a beta of 1.692, indicating higher volatility and market sensitivity.

Tata Motors Ltd., despite positive returns, had the highest beta value of 2.851, indicating high volatility and risk, suitable for high-risk investors.

- On the BSE, TVS Motor Company delivered the highest total and average returns but also recorded the highest beta of 4.817, highlighting its highly volatile nature. Eicher Motors Ltd. also showed strong performance with a beta of 2.874, indicating considerable risk. Bajaj Auto Ltd., with a moderate beta of 0.913 and steady returns, appeared to be a balanced option.
- In terms of correlation with market indices, TVS Motor showed the highest correlation (0.666) and covariance (0.058), indicating a strong positive relationship with the BSE index. Eicher Motors and Tata Motors also demonstrated moderate to strong correlations with their respective markets, both having a correlation coefficient of 0.531. Maruti Suzuki followed with a moderate correlation of 0.552. Bajaj Auto had a relatively low correlation of 0.366, while Mahindra and Mahindra Ltd. showed the weakest correlation at 0.188, indicating minimal relationship with market fluctuations.

CONCLUSIONS

After studying and comparing both the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE), it can be concluded that both serve as fundamental pillars of the Indian stock market. The market itself is inherently volatile, offering both risks and opportunities for investors. A thorough analysis of risk and return is essential in predicting future outcomes and making informed investment decisions. Based on data from 2014 to 2024, the study reveals that automobile stocks like TVS Motor and Eicher Motors have delivered high returns, albeit with high beta values indicating greater risk and market sensitivity. On the other hand, Mahindra & Mahindra and Bajaj Auto have shown moderate returns with lower beta values, making them more suitable for conservative investors. Beta plays a vital role in evaluating a stock's systematic risk, where higher beta suggests higher risk and potential reward, though it does not ensure proportional returns.

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