

# Equity Analysis of Automobile Industry in Indian Stock Market

B. KIRAN KUMAR REDDY

*Assistant Professor*

Department of Master of Business Administration  
Malla Reddy Engineering College (Autonomous)  
Maisammaguda, Secunderabad

PENDHOTA MARUTHI

Department of Master of Business Administration  
Malla Reddy Engineering College (Autonomous)  
Maisammaguda, Secunderabad

**Abstract**— Each investor craves for fair return on his/her investments, investors can obtain maximum return on investments in equity market which involves more risk as compared to other alternatives. Investors must be aware of the risk and return elements of those equity securities and the stock market. Equity analysis helps the investors to understand about risk and return elements associated with equity market and assists them in taking informed and rational investment decisions. In this background, a research has been organized to analyse the risk and return of selected equity stocks in the automobile sector of Indian stock market. The data is collected for a period of 5 years i.e., from 1st April 2016 to 31st March 2021. The study is based on secondary data (historical data), it compares the performance of each stock taking NIFTY 50 index and NIFTY AUTO index as benchmark. From the analysis, TVS motors and MARUTI SUZUKI have given highest return with moderate risk. TVS motors is the best company to invest, as it produced more returns and having moderate risk with less than one beta and high alpha value.

**Keywords**— Risk, Return, Equity securities, Nifty 50, Nifty Auto Index.

## I. INTRODUCTION

Equity analysis is an ex-ante evaluation of different investment avenues, the main aim is to evaluate investment worthiness of the equity shares that is to find out the risk and return of investment in such share. In financial terms, return is the amount which an investor actually earned on an investment during a certain period and risk is the chance or probability that a certain investment may or may not deliver the actual/expected returns. The relationship of risk and return is an underlying concept in financial analysis and also in every aspect of life. If the Individuals or investors want to maximize their benefit, they must consider the combined influence of return or benefit as well as risk or cost on investment. A research has been carried out to study, the equity shares of sampled companies of Automobile Industry in Indian stock market and provide a clear view on how to navigate through the stock market with a view to make moderate profits with moderate risk factor, governing the investments made by the investor. The automobile industry in India is the fifth-largest in the world and considered to be a fastest growing sector. Since, the demand for automobiles nowadays is directly connected to overall economic growth and personal incomes, industry growth will low if the economy weakens.

## II. NEED FOR THE STUDY

Indian automotive industry is one of the largest and most preferred sectors by the investors. FY2021 has been one of the toughest years in the history of the Indian automotive industry, with the outbreak of the COVID-19 pandemic putting a spanner in the works. The automobile industry, which was already facing headwinds of a slowing economy, was brought to a standstill. However, sales in Q4 of FY2021 were encouraging for the industry. So, as the Indian automotive industry gets down to strengthen its efforts of recovery even amidst rising concerns of a second wave of the COVID-19 pandemic, there is a likelihood of FY2022 emerging

as a much better year for the industry overall. In the past 3 decades, passenger vehicle volumes have grown by 15 times; the SUV 24 times; and the two-wheeler 12 times. These impressive growth numbers have pushed the global rank of the industry from 16th then to 5th now, poised to increase to 3rd in the current decade. Therefore, while making an investment in the automobile sector, a clear equity analysis is needed. This research on equity analysis of automobile industry in Indian stock market provides sufficient information for the potential investors in taking a rational and informed investment decision.

### III. REVIEW OF LITERATURE

1. *Bossaeet (2003)* contributed by testing CAPM in real market, that in spite of disequilibrium, one specific portfolio that remains continuously on the mean-variance efficient frontier, namely the risk aversion weighted endowment portfolio be defended as test of the CAPM. The paper investigated the empirical analysis of equilibration in experimental competitive market.
2. *Tang and Shum (2006)* studied the risk return relationship in the Hongkong stock market using the monthly return during 1986-1998. This study provides a new evidence that the beta is not significantly related to realized returns. The sign of their coefficient are different from what was expected from traditional finance theory. Hence it was concluded that other risk measures in addition to beta are also important in pricing risky assets.
3. *Krishna Reddy Chittedi (2008)* analysed the performance of the Sensex vs FIIs in Indian stock market and some of the most talked about movements of Sensex starting with the secondary market summary of each year. FIIs are a significant factor determining the liquidity and volatility in the stock market prices. After going through all the analysis regarding the stock market in last 2 years, we can say that stock market touched its peak at 21000 but then crashed badly. Though the Sensex is a barometer and after seeing such fluctuations one could be afraid of investing. So even after such downturns, we can be hopeful for a positive market.
4. *M. Thenmozhi and Abhijeet Chandra (2013)* examine the symmetric relationship between the India Volatility Index (India VIX)<sup>3</sup> and stock market returns, and demonstrate that Nifty returns are negatively related to the changes in the India VIX levels; in the case of high upward movements in the market, the returns on the two indices tend to move independently. Our analysis of timing strategy based on changes in the India VIX exhibits that switching to large-cap (mid-cap) portfolios when the India volatility index increases (decreases) by a certain percentage point can be useful in maintaining positive returns on a portfolio.
5. *T. Mallikarjunappa and Shaini Naveen (2016)* conducted a study on Comparative Analysis of Risk and Return with Reference to Stocks of CNX Bank Nifty. This study analyses the risk and returns in the banking sector. They compare the performance of the 12 listed banks in the Nifty Bank Index. The study also analyses the performance of banking stocks mainly to understand the required rate of return and risk of a particular stock based on different risk elements prevailing in the market and other economic factors.

### IV. OBJECTIVES OF THE STUDY

- To gain knowledge of the concept of risk return analysis
- To identify and examine the risk and return relationship of selected automobile companies in Indian stock market.
- To find out the relationship between nifty 50 index, nifty auto index and automobile companies.
- To provide valid suggestions for the investors, in order to take a rational decision while investing in the automobile industry.

## V. HYPOTHESIS

### Hypothesis 1

**H0:** There is no significant relationship between stock returns and NIFTY-50 returns.

**H1:** There is significant relationship between stock returns and NIFTY-50 returns.

### Hypothesis 2

**H0:** There is no significant relationship between stock returns and NIFTY AUTO returns.

**H1:** There is significant relationship between stock returns and NIFTY AUTO returns.

## VI. RESEARCH METHODOLOGY

The study is descriptive in nature, mostly focuses on the price movement of selected automobile companies in Indian stock market. The assumptions for conducting the equity analysis, is that the investors are risk averse and the investment returns follow a normal distribution. The data of daily and monthly share price are collected from the National Stock Exchange. The data is collected for a period of 5 years i.e., from 1st April 2016 to 31st March 2021.

## VII. SAMPLE DESIGN

A sample size of 8 automobile companies are selected from NIFTY Auto index as on 01/04/2021, which comprises 15 tradable, exchange listed companies. The index represents auto related sectors like Automobiles 4 wheelers, Automobiles 2 & 3 wheelers, Auto Ancillaries and Tyres. The companies are selected randomly based on the index weightage, excluding auto ancillaries and tyre companies.

They are

1. ASHOK LEYLAND LTD.
2. BAJAJ AUTO LTD.
3. EICHER MOTORS LTD.
4. HERO MOTORCOP LTD.
5. MAHINDRA & MAHINDRA LTD.
6. MARUTI SUZUKI INDIA LTD.
7. TATA MOTORS LTD.
8. TVS MOTOR COMPANY LTD.

## VIII. DATA COLLECTION

The study is based on secondary data (Historical data) collected from NSE website. Data is collected for a period of 5 years (i.e., from 1st April 2016 to 31st March 2021). In addition to that, the data has also been collected from newspaper, websites, journals, book reports by researchers and scholars.

## IX. TOOLS FOR DATA ANALYSIS

The data collected is analysed with the help of Microsoft Excel using various statistical tools. The following techniques are used for analysing the collected data.

- Mean
- Standard deviation

- Variance
- Co-efficient of variance
- Correlation
- Beta

#### X. LIMITATIONS OF THE STUDY

- The study focused on the market with the historical information.
- The study is conducted for a limited period of 5 years.
- While applying the tools transaction cost, impact cost etc, is not taken into consideration. So, it will reflect on the return calculated.
- Tools used for the analysis have their own limitations which may have an impact on the study.

#### XI. DATA ANALYSIS AND INTERPRETATION

This part of the research paper talk through the analysis of data and interpretation in terms of the mean return, the standard deviation of the return, variance of the return, the coefficient of variation of return, correlation coefficient of return of individual companies and that of market beta and alpha of the selected automobile companies.

TABLE I  
MEAN RETURN OF AUTOMOBILE COMPANIES

S. No	Name of the Company	Mean Return	
		Daily	Monthly
1	ASHOK LEYLAND LTD.	0.042%	1.051%
2	BAJAJ AUTO LTD.	0.048%	1.110%
3	EICHER MOTORS LTD.	-0.026%	-0.902%
4	HERO MOTORCOP LTD.	0.017%	0.509%
5	MAHINDRA & MAHINDRA LTD.	0.005%	-0.021%
6	MARUTI SUZUKI INDIA LTD.	0.069%	1.329%
7	TATA MOTORS LTD.	0.025%	0.887%
8	TVS MOTOR COMPANY LTD.	0.070%	1.529%

From the above table, mean return is calculated for the companies based on daily and monthly prices for a period of 5 years, TVS motor has highest mean return and EICHER motors has negative mean return.

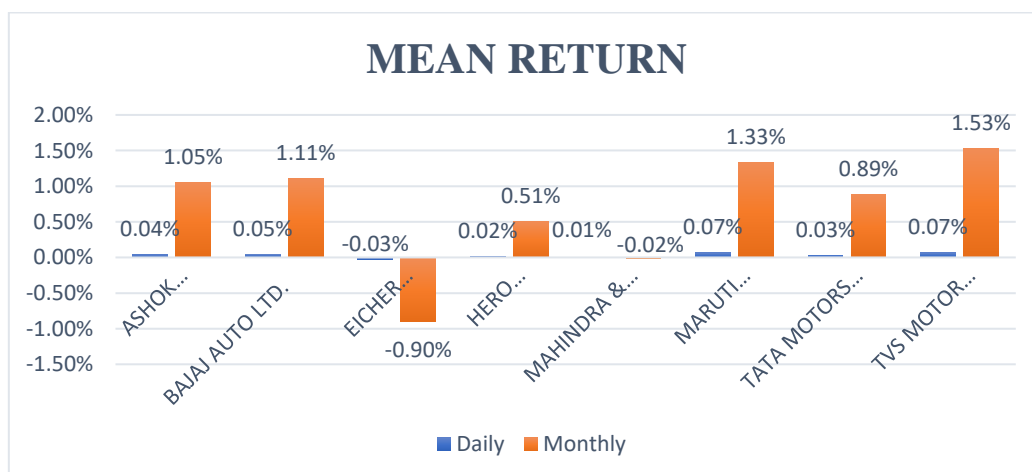


TABLE II  
STANDARD DEVIATION OF AUTOMOBILE COMPANIES

S. No	Name of the Company	Standard Deviation	
		Daily	Monthly
1	ASHOK LEYLAND LTD.	2.827%	12.487%
2	BAJAJ AUTO LTD.	1.673%	8.029%
3	EICHER MOTORS LTD.	3.340%	15.115%
4	HERO MOTORCOP LTD.	1.926%	8.559%
5	MAHINDRA & MAHINDRA LTD.	2.521%	12.052%
6	MARUTI SUZUKI INDIA LTD.	1.956%	9.171%
7	TATA MOTORS LTD.	2.965%	16.578%
8	TVS MOTOR COMPANY LTD.	2.117%	9.398%

From the above table, standard deviation is calculated for the companies based on daily and monthly prices for a period of 5 years, BAJAJ auto has lowest standard deviation and EICHER motors has the highest daily standard deviation and TATA motors has the highest monthly standard deviation. Standard deviation measures the risk of an investment.

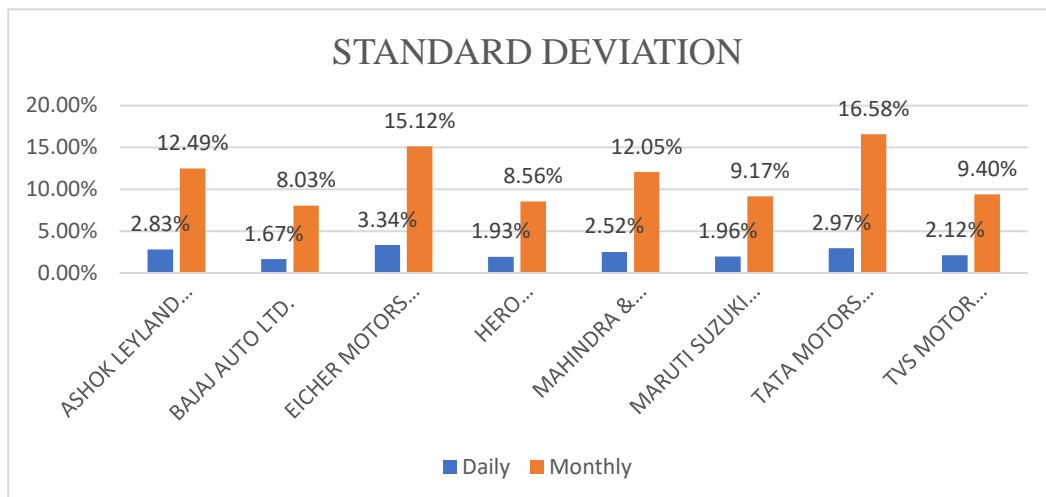


TABLE III  
VARIANCE OF AUTOMOBILE COMPANIES

S. No	Name of the Company	Variance	
		Daily	Monthly
1	ASHOK LEYLAND LTD.	0.00080	0.01559
2	BAJAJ AUTO LTD.	0.00028	0.00645
3	EICHER MOTORS LTD.	0.00112	0.02285
4	HERO MOTORCOP LTD.	0.00037	0.00732
5	MAHINDRA & MAHINDRA LTD.	0.00064	0.01453
6	MARUTI SUZUKI INDIA LTD.	0.00038	0.00841
7	TATA MOTORS LTD.	0.00088	0.02748
8	TVS MOTOR COMPANY LTD.	0.00045	0.00883

From the above table, variance is calculated for the companies for a period of 5 years, EICHER motors has the highest variance and BAJAJ motors has the lowest variance. Variance is also used for calculating or measuring the risk of an investment.

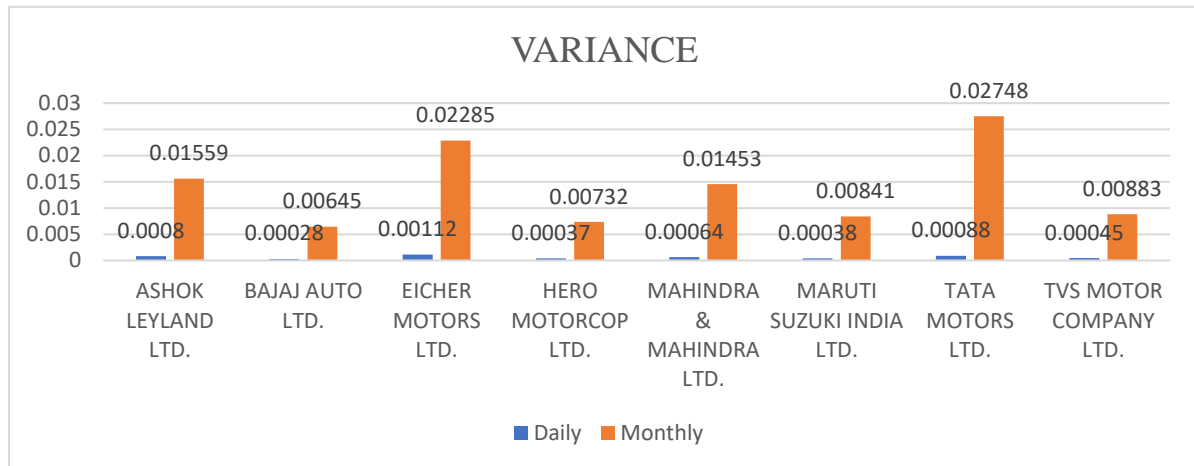


TABLE IV  
COEFFICIENT OF VARIATION(CV) OF AUTOMOBILE COMPANIES

S. No	Name of the Company	Coefficient of Variation	
		Daily	Monthly
1	ASHOK LEYLAND LTD.	6662.09	1187.55
2	BAJAJ AUTO LTD.	3508.79	723.07
3	EICHER MOTORS LTD.	-13077.16	-1675.60
4	HERO MOTORCOP LTD.	11051.01	1681.43
5	MAHINDRA & MAHINDRA LTD.	50810.05	-56298.71
6	MARUTI SUZUKI INDIA LTD.	2853.41	690.22
7	TATA MOTORS LTD.	11796.46	1868.96
8	TVS MOTOR COMPANY LTD.	3023.82	614.59

From the above table, coefficient of variation is calculated for the companies based on daily and monthly prices for a period of 5 years, EICHER motors has the lowest CV and M&M has the highest CV based on daily prices, M&M has the lowest CV and TATA motors has the highest CV based on monthly prices of the securities. CV measures the risk per unit of return.

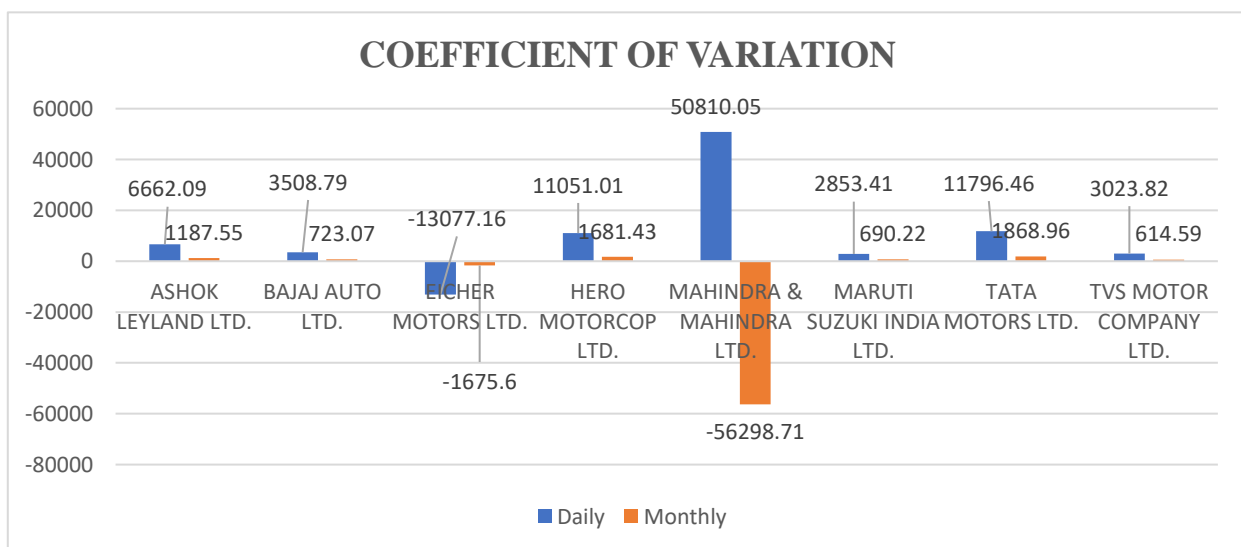


TABLE V  
CORRELATION COEFFICIENT OF AUTOMOBILE COMPANIES

S. No	Name of the Company	Correlation Coefficient	
		Nifty Auto	Nifty 50
1	ASHOK LEYLAND LTD.	59.54%	49.85%
2	BAJAJ AUTO LTD.	67.79%	57.33%
3	EICHER MOTORS LTD.	43.01%	33.27%
4	HERO MOTORCOP LTD.	70.52%	55.18%
5	MAHINDRA & MAHINDRA LTD.	60.76%	50.38%
6	MARUTI SUZUKI INDIA LTD.	83.83%	67.51%
7	TATA MOTORS LTD.	71.27%	56.15%
8	TVS MOTOR COMPANY LTD.	63.63%	50.39%

From the above table, correlation coefficient is calculated between the companies and indexes of both NIFTY AUTO and NIFTY 50 for a period of 5 years, the companies are positively correlated with the index of both NIFTY AUTO and NIFTY 50. MARUTI SUZUKI has the highest correlation with respect to both the indexes and EICHER motors has the lowest correlation.

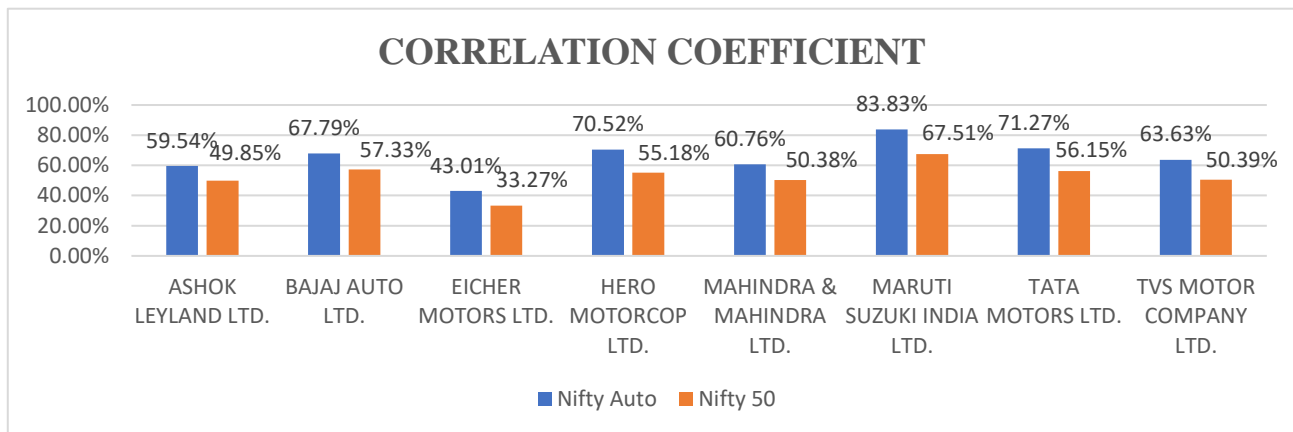


TABLE VI  
BETA AND ALPHA OF AUTOMOBILE COMPANIES

S. No	Name of the Company	Beta		Alpha	
		Nifty Auto	Nifty 50	Nifty Auto	Nifty 50
1	ASHOK LEYLAND LTD.	1.10	1.22	0.00011	-0.00030
2	BAJAJ AUTO LTD.	0.74	0.83	0.00027	-0.00001
3	EICHER MOTORS LTD.	0.94	0.97	-0.00052	-0.00082
4	HERO MOTORCOP LTD.	0.89	0.92	-0.00008	-0.00037
5	MAHINDRA & MAHINDRA LTD.	1.00	1.10	-0.00023	-0.00060
6	MARUTI SUZUKI INDIA LTD.	1.07	1.15	0.00038	0.00001
7	TATA MOTORS LTD.	1.38	1.45	-0.00014	-0.00060
8	TVS MOTOR COMPANY LTD.	0.88	0.93	0.00045	0.00016

From the above table, BETA and ALPHA is calculated between the companies and indexes of both NIFTY AUTO and NIFTY 50 for a period of 5 years, BETA measures the systematic risk, BAJAJ auto has the lowest beta and TATA motors has the highest beta value. ALPHA represent as the return indicator, EICHER motors has the lowest alpha value and TVS motors has the highest alpha value.

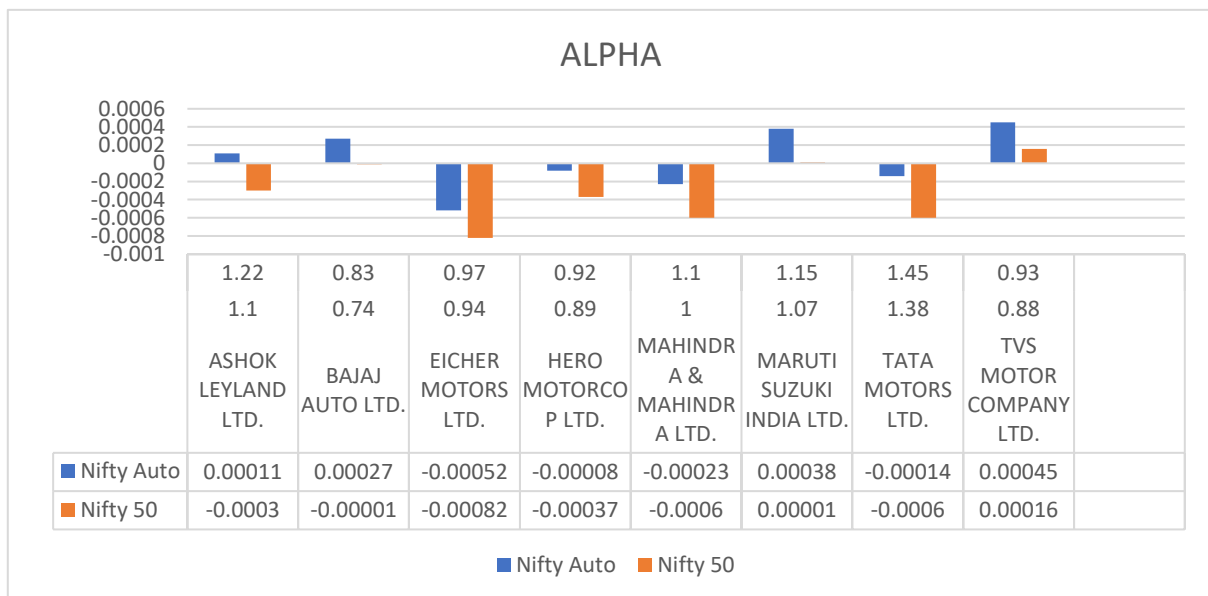
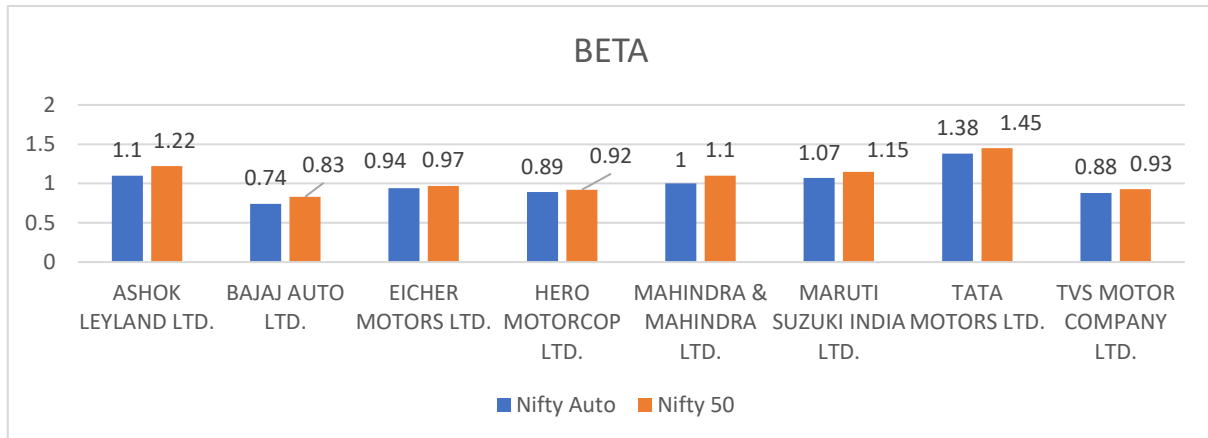


TABLE VII  
RETURN OF AUTOMOBILE COMPANIES

S. No	Name of the Company	Return	
		Daily	Monthly
1	ASHOK LEYLAND LTD.	2.9%	6.3%
2	BAJAJ AUTO LTD.	51.7%	47.3%
3	EICHER MOTORS LTD.	-86.5%	-87.0%
4	HERO MOTORCOP LTD.	-1.3%	0.6%
5	MAHINDRA & MAHINDRA LTD.	-33.5%	-40.2%
6	MARUTI SUZUKI INDIA LTD.	84.2%	80.8%
7	TATA MOTORS LTD.	-20.5%	-26.1%
8	TVS MOTOR COMPANY LTD.	80.3%	82.9%



From the above table, Return is calculated for the companies based on daily and monthly prices for a period of 5 years, EICHER motors has the lowest and negative returns in both cases and MARUTI SUZUKI and TVS motors has the highest return on the basis of daily and monthly prices respectively.

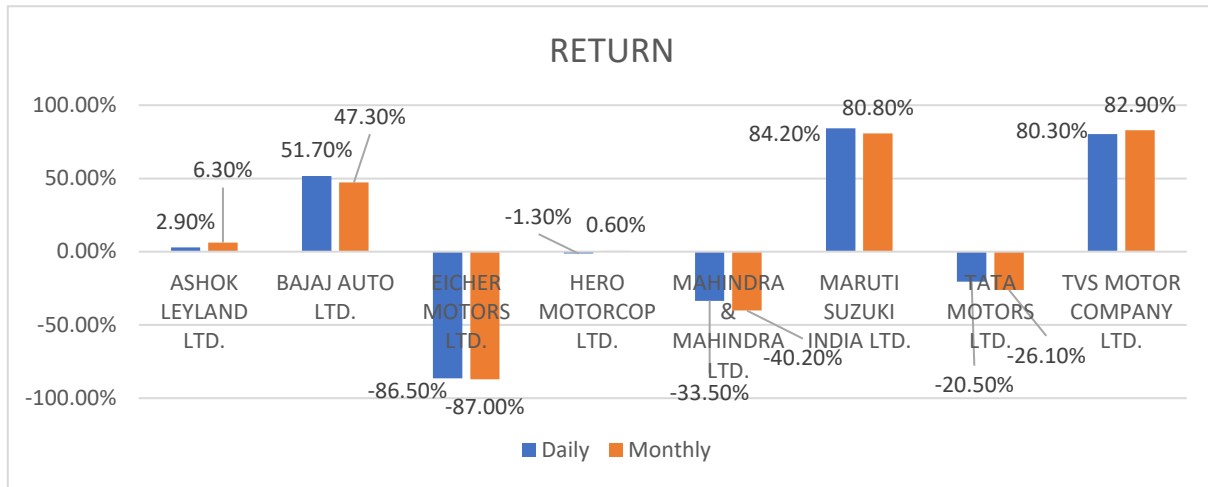


TABLE VII  
T-TEST(P-VALUE)

S. No	Name of the Company	P-VALUE	
		Nifty Auto	Nifty 50
1	ASHOK LEYLAND LTD.	0.83	0.82
2	BAJAJ AUTO LTD.	0.60	0.78
3	EICHER MOTORS LTD.	0.53	0.35
4	HERO MOTORCOP LTD.	0.78	0.37
5	MAHINDRA & MAHINDRA LTD.	0.68	0.39
6	MARUTI SUZUKI INDIA LTD.	0.19	0.81
7	TATA MOTORS LTD.	0.96	0.64
8	TVS MOTOR COMPANY LTD.	0.37	0.83

From the above table, the p-value is calculated using t-test, the p-values of the companies return with respect to both nifty auto index return and nifty 50 index return are more than the level of significance (0.05), hence the null hypothesis H0 is accepted in both cases. Therefore, there is no significant relationship between stock returns and NIFTY-50 returns and no significant relationship between stock returns and NIFTY AUTO returns.

## XII. FINDINGS

- During the study period, the daily mean return and monthly mean return of all the selected companies in the automobile sector is positive except for EICHER motors and M&M. Among all the companies, TVS motors (0.025%,0.887%) has the highest daily and monthly return.
- In terms of variance, standard deviation BAJAJ auto has the lowest risk and EICHER motors and TATA motors has the highest risk element. As per coefficient of variation EICHER motors and M&M (daily prices) has the lowest risk per unit of return and M&M (monthly prices), TATA motors has the highest risk per unit of return.

- The correlation coefficient between the daily and monthly return of selected automobile companies with the return of NIFTY AUTO index and NIFTY 50 index is highest for MARUTI SUZUKI and EICHER motors has the lowest correlation.
- BAJAJ auto has the lowest systematic risk (beta) and TATA motors has highest systematic risk. EICHER motors has the lowest Alpha value and TVS motors has highest Alpha value.
- TVS motors and MARUTI SUZUKI has the highest returns compared to other companies and EICHER motors has lowest negative returns.

### XIII. CONCLUSION

The purpose of the study is to analyse the equity securities of automobile sector in Indian stock market and make informed and rational investment decisions by considering the risk and return elements of the securities. This study helps the investor in identifying the performance of selected automobile companies for a given period. It can be concluded that stock with higher beta value and higher standard deviation is not preferred as it is exposed to higher market risk. This study helps the investor to evaluate the performance of selected automobile companies and to identify the best stock to invest. If the investors are ready to take higher risk, then the investors are suggested to invest in ASHOK LEYLAND, where the returns are moderate but risk is high. The investors who are looking for high returns are suggested to invest in TVS motors and MARUTI SUZUKI. The investors who are looking for low risk are suggested to invest in BAJAJ auto.

### REFERENCES

- [1] Harry Markowitz, Kenneth Blay: Risk-Return Analysis: The Theory and Practice of Rational Investing.
- [2] Narayanaswamy and R. Thirugnansoundari (2016) "a study on market securities"
- [3] DR. Shyam vashishtha and Rajesh Kumar (2011) "a study on equity volatility"
- [4] S. Nagarajan and K. Prabhakaran (2013), "A Study on Equity Analysis of Selected FMCG Companies Listed on NSE: International Journal of Management Focus.
- [5] Dr. S. Krishnaprabha and Mr. M Vijayakumar (2015), "A study on Risk and Return Analysis of Selected Stocks in India", International Journal of Scientific Research and Management, Vol. /3, Issue/4.
- [6] [www.nseindia.com](http://www.nseindia.com)
- [7] [www.investing.com](http://www.investing.com)
- [8] [www.investopedia.com](http://www.investopedia.com)
- [9] [Pawan Goenka writes: Done right, a \\$200 billion industry with exports of \\$50 billion by 2026 is not out of reach \(indianexpress.com\)](https://www.indianexpress.com)
- [10] [Indian auto industry shows resilience in Q4 FY2021 - Autocar India](https://www.autocarindia.com)