A STUDY ON RISK RETURN ANALYSIS OF SELECTED STOCKS IN AUTOMOBILE SECTOR

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ABSTRACT:

The automobile sector plays a significant role in the global economy, making it an attractive area for investors seeking potential opportunities. However, investing in stocks within this sector requires careful consideration of risk and return characteristics to make informed investment decisions. This study aims to conduct a comprehensive risk-return analysis of selected stocks in the automobile sector. The objective is to assess the potential risks and returns associated with investing in these stocks, thereby assisting investors in making informed investment decisions. The study analyses key financial indicators, such as beta, return on investment, and stock performance, to evaluate the risk and return profiles of the selected stocks. By examining these factors, the study provides valuable insights into the risk-return trade-off within the automobile sector and offers recommendations for investors seeking to maximize their investment returns while managing risks effectively.

Keywords:

Risk-return analysis, Automobile sector, Beta, Return on investment, Stock performance, Risk management, Investment decisions, Investor recommendations.

INTRODUCTION:

The automobile sector is a significant component of the global economy, contributing to employment, technological advancements, and economic growth. The performance of stocks within this sector is of great interest to investors and financial analysts due to its potential for generating substantial returns. However, investing in stocks always involves an element of risk, and understanding the relationship between risk and return is crucial for making informed investment decisions.

This study aims to conduct a comprehensive risk-return analysis of selected stocks in the automobile sector. By examining the historical performance and evaluating the associated risks, this research seeks to provide valuable insights into the investment potential of these stocks. Such an analysis can help investors identify attractive investment opportunities, manage risk effectively, and optimize their portfolios.

The selected stocks for this study will be drawn from a representative sample of companies operating in the automobile sector. These companies may include renowned automakers, parts manufacturers, or other relevant entities involved in the industry. By studying a diverse range of stocks, this analysis can capture the dynamics of different segments within the automobile sector and offer a holistic perspective.

WHAT IS BETA(β):

Low volatility investments are popular among investors. Because of the potential for more gain, other people are more ready to assume additional risk. Investors must not only understand their risk tolerance, but also understand which investments best suit their risk preferences. One can select equities that better fit their risk requirements by utilizing beta to gauge volatility. Extremely risk-averse investors should invest their money in securities with low betas, such as Treasury bills and utilities stocks. Higher beta equities may be chosen by investors who are willing to take more risk.

In Finance, the beta of a portfolio is a number describing the volatility of an asset in relation to the volatility of the benchmark that said asset is being compared to. This benchmark, which is often the entire financial market, is frequently calculated using representative indices such the S&P 500. If asset returns fluctuate independently of changes in the markets returns, it has a beta of zero. Positive beta indicates that the asset returns typically track those of the market, either by trending to be above or below their respective averages jointly, depending on the case. When an asset has a negative beta, its returns often move in the opposite direction of the market returns. One will tend to be above its average when the other is below its average.

The formula for calculating beta(β) value is:

$$\beta = \frac{(r_{im})(\sigma_i)(\sigma_m)}{\sigma m^2}$$

Where;

β: systematic risk

r_{im}: correlation coefficient

σ_i: standard deviation of individual stock

σ_m: standard deviation of market index

σm^2: variance of market index

Correlation coefficient:

$$r_{im} = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{n(\sum x^2) - (\sum x)^2} * \sqrt{n(\sum y^2) - (\sum y)^2}}$$

Standard deviation of individual stock:

$$\sigma_i = \sqrt{\frac{n(\sum y^2) - (\sum y)^2}{n^2}}$$

Standard deviation of market index:

$$\sigma_m = \sqrt{\frac{n(\sum x^2) - (\sum x)^2}{n^2}}$$

Variance of market index:

$$\sigma m^2 = \frac{n(\sum x^2) - (\sum x)^2}{n^2}$$

REVIEW OF LITERATURE AND RESEARCH METHODOLOGY:

Sonia Lobo and Ganesh Bhat (2021), analyzes the risk and return of selected stocks in Indian financial sector. The investor can use this to assess the risk-return relationship of various securities. With this context, a study is conducted to assess the risk-return trends of securities in the Indian financial services sector. They have analyzed monthly closing prices of five financial investment companies that are part of the Standard & Poor's BSE Finance Index for the period of January 2020 to July 2021, the risk and return of a sample group of companies that belong to the Indian Financial Services sector are analyzed to come up with a monthly return. Different statistical tools, including descriptive statistics, correlation, and beta, are used to achieve the goals. Additionally, a paired t-test is run to determine whether the hypothesis is valid.

Dr. V. Vanaja, P.J. Nishok (2020), The study tries to compare the risk and return of the stocks of a few chosen Indian automobile businesses. Many automakers have started investing in this industry to maintain the growing interest. The study also raises investor knowledge of the equities, encouraging them to purchase particular shares of the Indian automobile industry. The study is all about the risk and return analysis of selected five stocks in Indian Automobile Sector for a period of 5 years, covering from 2015-16 to 2019-20. This study uses tools such as beta and standard deviations, coefficient of correlation tools and provides a method for quantifying risk.

Dr. P. Subramanyam and DR. Nalla Bala Kalyan (2018), analyses the return and riskassessment of shares purchased in the second market of ten different companies for a period of one month. The tools and techniques used in this study are beta, expected returns and co-operationof diversity, this paper emphasizes the relationship between market volatility and script prices so it is different to see the pattern of price movements, but efforts have been made. using basic analysis and technical analysis. However, it has been suggested that these tools help investors to define trends to some degree. They also concluded with a study that February 2017 did not favor investment in infrastructure companies.

Dr. S. Gautami, Dr. Nalla Bala Kalyan (2018), This article's primary goal is to examine the changes in share prices of a few Indian corporations. Shares can be freely transferred on the stock exchange, and securities are continuously evaluated as well marketed and traded. The goal of the current study is to investigate the risk and

return analysis of a few Indian stocks. They have calculated the average returns, standard deviation, covariance, corelation coefficient, beta to find out the return and risk of the securities.

Dr. S. Krishna Prabha, Mr. M. Vijaykumar (2015), they have analysed various stocks from various industries to know which company is doing in each of the selected industries. According to risk and return analysis, high risk produces high returns while low risk produces low returns. Based on this theory, high risk produces low return in the banking and automotive industries while low risk produces high returns in the information technology, fast-moving consumer goods, and pharmaceutical industries. The companies are independent of market return and have a profitable return, and the alpha stock is positive.

Dr. P. Vikkraman, P. Varadaraja (2009), Any industry's risk and return analysis reveals the complexities involved with that specific industry. A thorough examination of the SE values reveals a clear understanding and aids in decision-making on the investment in SE priorities. As decisions regarding investment and financing are being made. This study only focused on few stocks in automobile industry. They have calculated the alpha(α), beta(β), expected return and risk probability of return. These calculations help the investors in making their investment decisions.

STATEMENT OF THE PROBLEM:

The investment made in any security involves a portion of the risk that may be too high or too low.But such risks depend on the nature of the equity share and the industry of which the company is a part and therefore making any sound investment decisions, it is advisable for investors to analyze risk and return that provides clear data on risk. aspects of restitution equality. This study was conducted to analyze the equity of selected Automobile companies listed in the Indian Stock Market.

OBJECTIVES OF THE STUDY:

- To study the risk and return involved in the investment of security in the market, specifically with the Indian automobile industry.
- To analyze the performance of stocks with benchmark indices for assessing the risk and return.
- To study the fluctuations in share prices of selected companies
- To give suggestions to the investors.

RESEARCH METHODOLOGY:

The systematic method or framework used to carry out scientific research is referred to as research methodology. The purpose of this study is to analyze the risk and return characteristics of selected stocks in the automobile sector. By conducting a comprehensive analysis, we aim to provide insights into the investment potential and performance of these stocks for investors in the financial market. The stocks included in the study are Tata Motors, Bajaj Auto, Maruti Suzuki, Hero Motor Corp, Eicher Motors, Mahindra &Mahindra, TVS Motors, and Ashok Leyland. The data is collected for the past five years. The main objective of the study is to measure the risk and return for the selected stocks by using various indicators such as stock volatility, beta, standard deviation, Correlation and Regression. These measures will help us assess the risk-adjusted performance of the selected stocks and compare their returns to market benchmarks. The data is collected from the sources like

financial databases and obtain the historical stock prices. It is important to ensure the accuracy and reliability of the data collected to maintain the validity of the analysis.

DATA ANALYSIS AND INTERPRETATION:

**Average Returns of Selected companies and Market index:**

Company	Average Returns
Tata	19.64842157
Bajaj Auto	5.378300875
Maruti	4.007109153
Hero Motor Corp	-5.087263998
Eicher	3.511553011
M&M	14.20372442
TVS	11.82211085
Ashok Leyland	13.77087258
Nifty	4.90601001

Average Returns of Selected companies and Market index:
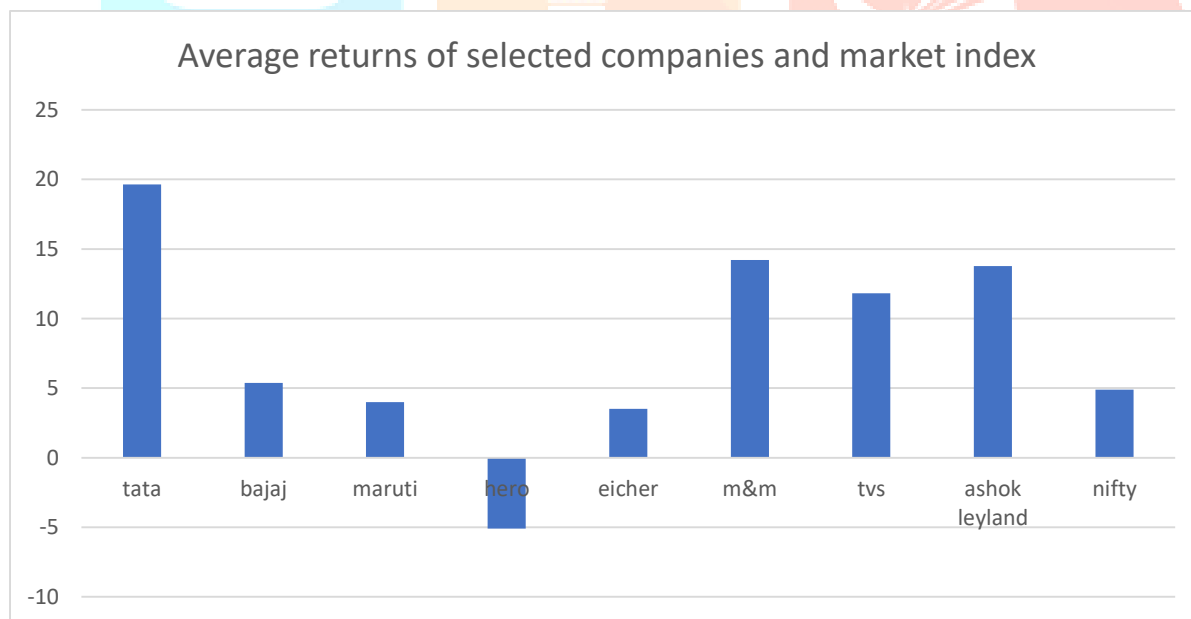
Standard Deviation of selected companies:

| COMPANY	standard deviation
Tata Motors	89.531
Bajaj Auto	14.434
Maruti	16.675
Hero Motor corp	11.991
Eicher	22.479
M&M	32.249
TVS	30.888
Ashok Leyland	47.688

Standard Deviation of selected companies:
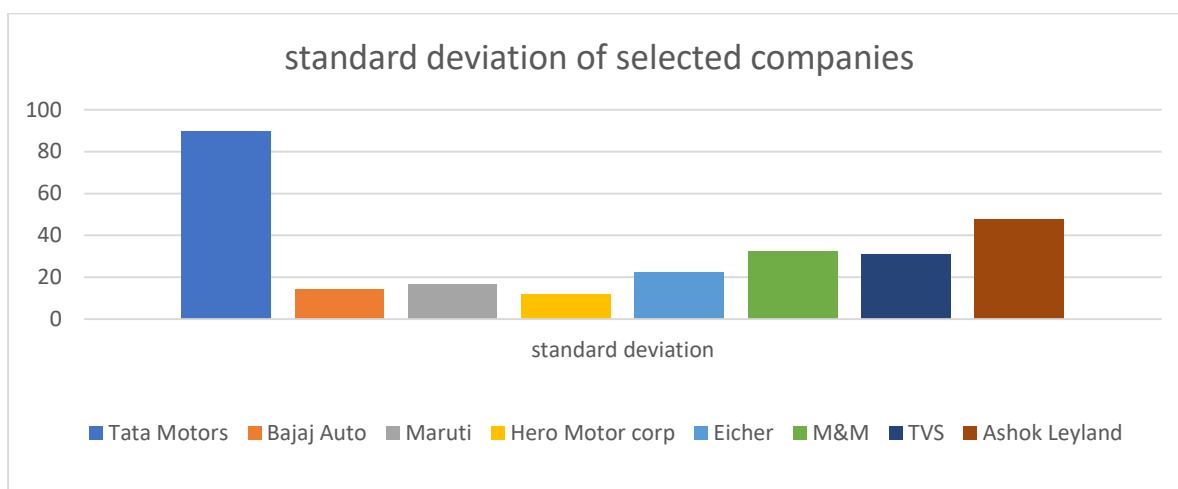
Interpretation:

The standard deviation measures the variability or dispersion of a set of values from their mean. In this context, the standard deviation values represent the volatility or risk associated with the stock prices or returns of each company. A higher standard deviation indicates a greater degree of variability or risk, while a lower standard deviation suggests a relatively more stable or less risky stock performance.

Based on the analysis, Tata Motors and Ashok Leyland are characterized by higher levels of volatility or risk, as they have the highest standard deviation values. On the other hand, Hero Motor Corp, Bajaj Auto, Maruti, Eicher, M&M, and TVS have comparatively lower standard deviation values, indicating relatively lower levels of volatility or risk in their stock prices or returns.

Correlation Coefficient of selected companies:

| COMPANY	Correlation Coefficient
Tata Motors	0.924
Bajaj Auto	0.727
Maruti	0.749
Hero Motor Corp	0.807
Eicher	0.973
M&M	0.919
TVS	0.949
Ashok Leyland	0.939

Correlation Coefficient of selected companies:
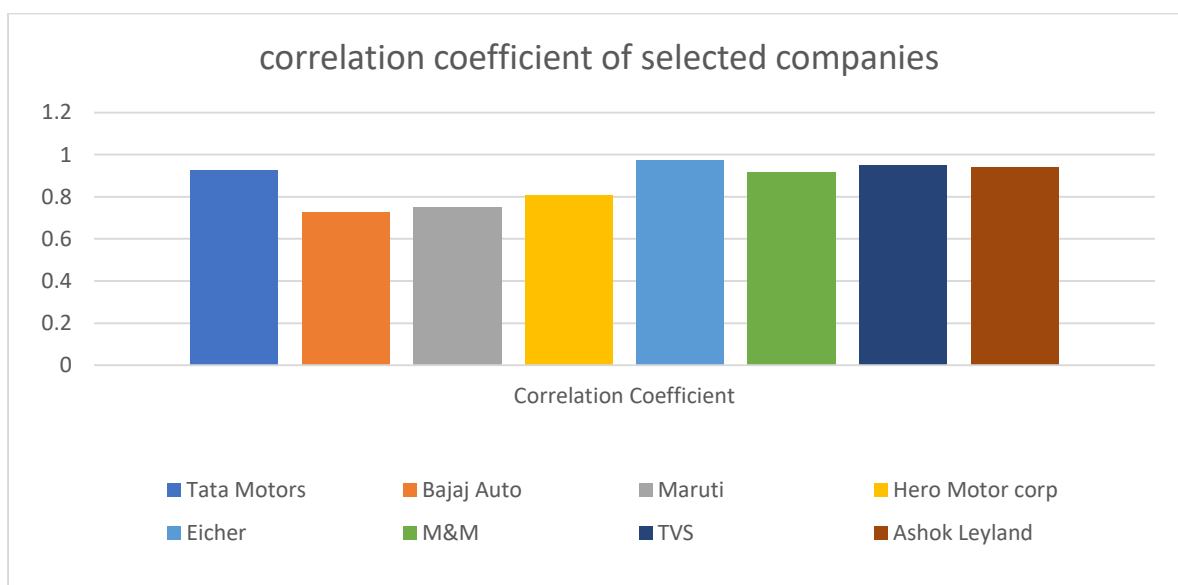
Interpretation:

A correlation coefficient value close to 1 suggests a strong positive linear relationship, indicating that the stock prices or returns of the companies tend to move together in a similar direction. On the other hand, a value close to -1 indicates a strong negative linear relationship, suggesting that the stock prices or returns move in opposite directions. A correlation coefficient value close to 0 implies a weak or no linear relationship.

Based on the analysis, these correlation values suggest that the stock prices or returns of these companies tend to move together in a similar direction, indicating some level of association or dependency between them.

Systematic Risk of Selected Companies:

COMPANIES	RISK
Tata Motors	3.257
Bajaj Auto	0.413
Maruti	0.492
Hero Motor Corp	0.381
Eicher	0.861
M&M	1.167
TVS	1.154
Ashok Leyland	1.763

Systematic Risk of Selected Companies:
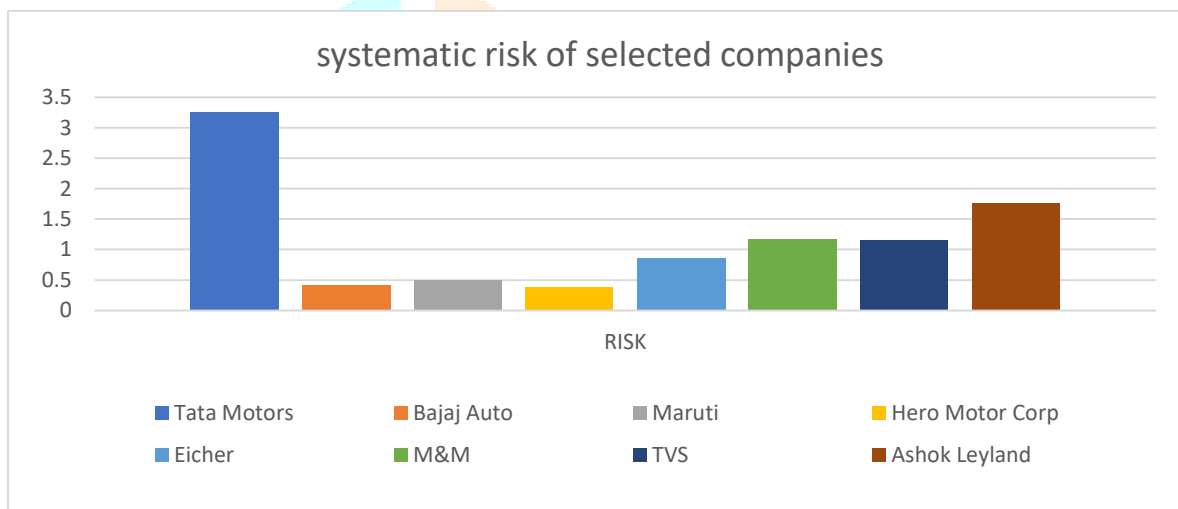
Interpretation:

These numbers represent the risk scores assigned to each company. A higher risk score indicates a relatively higher level of risk associated with the company, while a lower score suggests a lower level of risk. According to the above analysis, Tata Motors is considered to have higher levels of risk compared to the other companies listed. Bajaj Auto, Maruti, Hero Motor Corp, Eicher, M&M, TVS and Ashok Leyland have relatively lower risk scores, indicating a lower level of risk associated with their operations.

FINDINGS, SUGGESTIONS AND CONCLUSION:

Findings:

- Tata Motors has a 3.257 systemic risk. This gauges how closely Tata Motors' returns adhere to the broader market returns. With a greater beta, Tata Motors' stock is predicted to be more volatile than the market as a whole.

- The stock of Tata Motors exhibits a strong positive correlation with the Nifty index and carries a comparatively high systematic risk, demonstrating its reliance on broad market fluctuations.

- Bajaj Auto's systematic risk is 0.413. This assesses how sensitive the returns of Bajaj Auto are to those of the market as a whole. A lower beta means that the stock of Bajaj Auto is anticipated to be less volatile than the market as a whole.

- The Nifty index and Bajaj Auto's stock have a moderately positive connection, and Bajaj Auto's stock has a substantially lower systematic risk than the market as a whole. This suggests that Bajaj Auto's stock should have less volatility than the market as a whole.

- Maruti's systematic risk is 0.492. The sensitivity of Maruti's returns to the broader market returns is gauged by this. With a lower beta, Maruti's stock is predicted to be less erratic than the market as a whole.

- The Nifty index and Maruti's stock exhibit a strong positive association, and the latter has a lower systematic risk than the market as a whole. This suggests that Maruti's stock should have less volatility than the market as a whole.

- Hero Motor Corp.'s systematic risk is 0.380. The sensitivity of Hero Motor Corp.'s returns to general market returns is gauged by this. A lower beta means that the stock of Hero Motor Corp. is anticipated to be less volatile than the market as a whole.

- Hero Motor Corp.'s stock has a low systematic risk compared to the market as a whole and exhibits a strong positive correlation with the Nifty index. This suggests that Hero Motor Corp's stock should have less volatility than the market as a whole.

- According to both the regression approach and the correlation coefficient method, the systematic risk () of M&M is calculated to be 1.167. The fact that M&M's stock has a beta greater than 1, it shows that its stock price will likely be more volatile than the market as a whole.

- M&M has a larger systematic risk than the market as a whole and shows a strong positive association with the Nifty index.

- With a correlation coefficient of 0.949, TVS and the Nifty index show a significant positive link. TVS's systematic risk, as determined by, is 1.154, which shows that the stock has a higher volatility than the market as a whole.

- Ashok Leyland has a systematic risk (beta) of 1.763 based on the regression analysis, indicating its sensitivity to market movements.

- There is a strong positive correlation between the returns of Ashok Leyland and the Nifty index. The computed systematic risk suggests that Ashok Leyland's returns are significantly influenced by market movements as represented by the Nifty index.

Suggestions:

Based on the observations it is suggested that, Tata Motors' stock price is expected to be highly sensitive to changes in the overall market. Investors should closely monitor market trends and factors that impact the Nifty index as they will likely have a magnified effect on Tata Motors' stock.

Given the higher systematic risk associated with Tata Motors, it is important for investors to consider diversifying their portfolios. By spreading investments across different asset classes or industries, investors can reduce their exposure to the specific risks associated with companies like Tata Motors. The high systematic risk indicates that Tata Motors stock is more volatile compared to the overall market.

Bajaj Auto, Maruti, Hero Motor Corp, Eicher Motors has a lower systematic risk, it can be seen as a relatively safer investment compared to the overall market. However, it's important to diversify the investment portfolio to reduce unsystematic risk.

M&M, TVS Motors and Ashok Leyland are at a higher systematic risk than the market index. But they have lower risk compared to tata motors and Ashok Leyland. Investors should carefully consider their risk tolerance and investment goals in light of M&M, TVS Motors and Ashok Leyland's heightened systemic risk. By including more equities or asset classes, the investor should diversify their portfolio. Diversification spreads out the risk and lessens the effect of any one business or industry on the entire portfolio.

Conclusion:

In conclusion, the analysis of systematic risk for various automobile companies provides valuable insights for investors. Tata Motors exhibit higher systematic risk, indicating their stock prices are highly sensitive to market fluctuations. Investors interested in these companies should closely monitor market trends and factors impacting the Nifty index, as they can have a magnified effect on the stock prices of Tata Motors. Diversification is crucial for mitigating risk associated with these companies, and investors should consider spreading their investments across different asset classes or industries.

On the other hand, Bajaj Auto, Maruti, Hero Motor Corp, and Eicher Motors have lower systematic risk compared to the overall market. These companies can be seen as relatively safer investments, but it is still important to diversify the investment portfolio to reduce unsystematic risk.

M&M, TVS Motors and Ashok Leyland have higher systematic risk than the market index but lower risk compared to Tata Motors. Investors interested in these companies should carefully evaluate their risk tolerance and investment goals. Diversifying the portfolio by including more equities or asset classes can help mitigate the impact of their heightened systemic risk.

Overall, understanding systematic risk and diversification strategies are key considerations for investors in the automobile industry or any other sector. By analysing the relationship between individual stocks and the broader

market, investors can make more informed decisions to manage and mitigate risks associated with their investments.

Limitations of the Study:

- The study has been conducted purely to understand risk-return characteristics for investors.
- The study is limited to automobile sector and is restricted to only 8 companies.
- This is completely based on the secondary data collected from the website of NSE and broking consultancies. So, the findings of the study will be entirely depending on the accuracy of the data.

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