

Risk and return analysis of selected stocks in the Indian automobile industry on the national stock exchange

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Abstract: The Indian automobile industry has experienced substantial growth, driven by rising domestic demand, urbanization, and technological advancements, positioning India as a significant global manufacturing hub. The industry has also embraced the shift towards electric vehicles (EVs), particularly in the two-wheeler and three-wheeler segments, spurred by government initiatives like the Faster Adoption of Manufacturing of Electric Vehicles in India (FAME) and the Production Linked Incentive (PLI) schemes. This study explores the risk-return dynamics of selected publicly listed Indian automobile companies, analyzing their equity performance between 2017 and 2023. By evaluating market, financial, operational, and regulatory risks, the research aims to offer insights into the investment potential of these companies. The study investigates how systematic and unsystematic risks influence investment decisions, with a focus on prominent companies such as Maruti Suzuki, Mahindra & Mahindra, Tata Motors, Hindustan Motors, and Ashok Leyland. Using statistical tools like mean, standard deviation, variance, and beta, the analysis provides a comprehensive understanding of the volatility, return potential, and overall risk profile of the companies. Results suggest a direct correlation between higher risk and higher returns, with Ashok Leyland emerging as a top performer, while Maruti Suzuki demonstrated more stable returns. The study also provides recommendations for investors, emphasizing the importance of diversification and long-term analysis. Despite its limitations, the research contributes valuable insights for investors looking to navigate the evolving Indian automobile sector.

Keywords: Financial markets, Stock price, Risk return analysis, Automobile industry, Capital asset pricing Model, systematic risk, Stock performance, Financial.

JEL Classification: G1; G10; G110; G12; G32.

1. Introduction

The Indian automobile industry is experiencing rapid growth, driven by increasing domestic demand, rising incomes, and urbanization. India has become a global manufacturing hub, attracting international automakers due to its cost-competitive labour and production capabilities. The sector is also embracing technological advancements, including automation and AI, enhancing vehicle safety and efficiency. A significant push towards electric vehicles (EVs) has spurred innovation and investment, especially in the electric two-wheeler and three-wheeler segments. Strong government support through initiatives like the FAME and PLI schemes has further boosted the industry's growth (Prakash & Jadav, 2022). Additionally, India's strong export market and the automobile sector's role as a major job creator underline its importance to the national economy. Together, these factors position the Indian automobile industry for a bright future as a key player in the global automotive landscape (Erumban, 2019).

The India Automobile Industry, ranked as the third-largest auto market in 2023 with a strong presence of both domestic and international original equipment manufacturers (OEMs). The industry

demonstrates robust performance in exports and domestic demand, with two-wheelers and passenger cars being particularly popular. Notably, two-wheelers accounted for 74% of domestic demand in FY23. Despite intense competition in every segment, a few market leaders dominate (SIMA, 2023). The Table 1 presents Domestic Automobile Sales Trends from 2017-18 to 2022-23 show significant fluctuations across vehicle categories on the account of COVID-19 pandemic. Passenger vehicles experienced a steady decline from 2018-19 to 2020-21 due to economic slowdown and pandemic disruptions but rebounded strongly to 38,90,114 units in 2022-23. Commercial vehicles followed a similar trend, dropping sharply in 2020-21 but recovering to 9,62,468 units by 2022-23. Three-wheeler sales saw a drastic dip during the pandemic but nearly doubled from 2021-22 to 2022-23, though still below pre-pandemic levels. Two-wheelers, the largest category, peaked in 2018-19, experienced a significant decline during the pandemic, and have shown signs of recovery, reaching 1,58,62,087 units in 2022-23, though still below pre-pandemic highs. The total sales figures across all categories peaked at 2,62,66,179 units in 2018-19, dipped sharply in 2020-21 to 1,86,20,233 units, and have since recovered to 2,12,04,162 units in 2022-23, highlighting a post-pandemic rebound in the automobile market.

Table 1.
Domestic automobile sales trends.

Category	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Passenger vehicles	32,88,581	33,77,389	27,73,519	27,11,457	30,69,523	38,90,114
Commercial vehicles	8,56,916	10,07,311	7,17,593	5,68,559	7,16,566	9,62,468
Three wheelers	6,35,698	7,01,005	6,37,065	2,19,446	2,61,385	4,88,768
Two wheelers	2,02,00,117	2,11,79,847	1,74,16,432	1,51,20,783	1,35,70,008	1,58,62,087
Quadracycles	0	627	942	-12	124	725
Grand total	2,49,81,312	2,62,66,179	2,15,45,551	1,86,20,233	1,76,17,606	2,12,04,162

Source: SIMA, 2023.

From an investor's perspective, auto stocks in India present strong growth potential, driven by rising demand for passenger vehicles and the shift towards electric vehicles (EVs). The sector is further boosted by the government's favourable initiatives, like the PLI scheme. However, due to the cyclical nature of the industry, investors must take into account economic factors that could influence demand. Nevertheless, investing in the Indian automobile industry offers a blend of risks and returns. While the sector has shown substantial growth potential, particularly with the shift towards electric vehicles, it also faces significant risks, such as regulatory changes, technological disruptions, and economic cycles. Investors can make well-informed choices that match their financial objectives by analyzing these factors and conducting a detailed risk-return assessment (Dai et.al, 2021). Investing in securities inherently carries a degree of uncertainty, which can vary from high to low. The level of this risk is influenced by several elements, such as the type of equity shares and the industry in which the company operates. Therefore, prior to making any investment decision, it is crucial for investors to thoroughly analyze the equity in terms of its associated risks and potential returns (Sullivan & Mackenzie, 2017).

1.1. Significance of the Study

This study concentrates on examining the equity of specific automobile companies listed on the Indian securities market. By exploring the risk and investment features of these companies, it seeks to deliver a detailed insight into their investment potential. The study aims to offer valuable insights by examining the risk-return relationship, helping investors evaluate the potential profits and losses tied to investing in these equities. This research intends to explore the investment opportunities and risk factors within the Indian automobile sector from financial 2017-18 to 2022-2023, focusing on five key companies selected based on market share and revenue. The study will assess different types of risks—market, financial, operational, and regulatory—and their influence on the financial performance of companies and their investment decisions. The study will also explore investment strategies, including

capital allocation and portfolio diversification, to understand the factors influencing investment decisions. Using a comparative approach, it will assess the differences in risk management and investment outcomes among the companies.

By conducting this study in a focused manner on the specific subset of automobile companies listed in the Indian securities market, the research aims to contribute to the existing body of knowledge in the field of investment analysis. This research will provide a valuable reference for investors, researchers, and market participants keen on grasping the risk and investment dynamics in the Indian automobile sector.

1.2. Objectives of the Study

The primary objective of the study is to explore and analyze the various factors that contribute to the risk and investment profiles of the selected companies, including market conditions, industry dynamics, and company-specific factors. The secondary objectives are as follows:

1. To understand the trends in automobile sector and to gain a complete understanding of the risks, investment, returns pattern associated with the selected companies in the automobile sector.
2. To determine the systematic risk of the selected companies in the automobile sector, aiding in the assessment of their vulnerability to market fluctuations.
3. To identify the most profitable company among the selected companies for investment purposes, taking into account risk and investment parameters.

2. Review of Literature

2.1. Literature on Risks in Equity Investment

Equity investments while often the most rewarding in terms of returns, involve various risks that investors must be aware of before entering the market (Gitaman et al, 2015). These risks include market or economy risk, which is influenced by broader economic factors such as government policies, inflation, and consumer confidence, affecting all asset classes. Industry risk arises from challenges within a specific industry, potentially impacting all companies in that sector. Management risk stems from poor decision-making by a company's leadership, which can adversely affect stock performance (Chairani & Siregar, 2021). Business risk relates to uncertainties surrounding a company's operations and its ability to generate profits, while financial risk is linked to a company's financial structure, especially its reliance on debt (Peterdy, 2023). Exchange rate risk affects companies operating in foreign markets, as currency fluctuations can impact profitability, and inflation risk, or purchasing power risk, occurs when inflation reduces the real value of returns (Alenezi, 2015). Interest rate risk refers to fluctuations in interest rates that primarily impact fixed-income securities (Jha, 2011).

Systematic risk relates to macroeconomic factors that affect the overall economy, including inflation, interest rates, and market volatility, which cannot be eliminated through diversification (Muiruri, 2014). In contrast, unsystematic risk is unique to a particular company or industry and can be reduced by diversifying across various asset classes (Ahmmed & Siddique (2022). The risk and return trade-off is a fundamental concept in financial analysis, where higher potential returns are associated with greater risk (Frazier & Liu 2016). Investors must balance their desire for return with their tolerance for risk, recognizing that decisions involving higher risk should offer greater expected returns (Ainia & Lutfi, 2019). Additionally, government action risk, such as unexpected policy changes or interest rate adjustments on government securities, can affect returns regardless of an investor's strategy, further emphasizing the importance of understanding these risks when making investment decisions (Grundl & Gal, 2017).

Systematic risk is typically evaluated using Beta, which measures a stock's volatility relative to the overall market. A Beta of 1 indicates that the stock moves in tandem with the market, whereas a Beta greater than 1 signifies higher volatility, and a Beta less than 1 indicates lower volatility (Kenton, 2024). For example, a stock with a beta of 0.70 is expected to move 70% of the market's fluctuations, while a beta of 1.30 suggests it may move 30% more than the market (Kenton, 2024). Although beta helps investors gauge risk based on their tolerance, it can sometimes be confusing due to varying values from

different sources. It's essential to recognize that Beta relies on historical data, making it more applicable for short-term evaluations than for long-term forecasts. (Kenton, 2024).

Beta is a crucial element of the Capital Asset Pricing Model (CAPM), which is employed to determine the cost of equity. A higher Beta results in an increased cost of capital, thereby decreasing the present value of future cash flows (Rossi, 2016). This concept is central to understanding the risk/return trade-off in finance, where investors balance potential returns against risk. The CAPM helps quantify this trade-off by linking a stock's required return to its beta. Additionally, it highlights the role of business and financial risk in equity analysis, as well as how portfolio diversification can mitigate risk (Andriotto & Teti (2014).

A return, or financial return, denotes the profit or loss generated from an investment over a defined period, typically expressed as a percentage of the initial investment (Barry & Robison, 2014). Volatility, indicating the variation in returns, is commonly used to assess risk, with higher volatility implying greater risk. Volatility is typically measured through standard deviation or variance (Adrian & Rosenberg, 2008). Risk in investments refers to the chance that actual returns may differ from expectations, potentially leading to loss. It is divided into systematic and unsystematic risk (Muiruri, 2014). Typically, low-risk investments provide modest returns, whereas higher-risk investments present the opportunity for larger returns.

2.2. Relevant literature

The analysis of risk and return in the Indian automobile industry has been the subject of numerous empirical studies that seek to investigate the complexities associated with stock market investments in this sector. The automobile industry is recognized as one of the key contributors to India's economy, significantly impacting GDP and tax revenues. These studies analyze the relationship between risk and return for major automobile companies listed on the National Stock Exchange.

A study conducted by Subbalakshmi (2023) highlights key statistics, such as the valuation of the automobile industry at over \$100 billion, its contribution to 2.3% of India's GDP, and its pivotal role in contributing to 8% of the nation's exports. These figures provide the reader with an in-depth understanding of the sector's impact on the Indian economy. This backdrop sets the stage for the study's core objective—evaluating the equity shares of selected automobile companies listed on the National Stock Exchange (NSE). Pavithra and Hamsalakshmi (2022) investigate the risk-return characteristics of selected automobile companies from 2009 to 2019. The companies analyzed include Bajaj Auto, TVS Motors, Mahindra & Mahindra, Maruti Suzuki, Tata Motors, Eicher Motors, and Ashok Leyland. The study reveals that Eicher Motors and TVS Motors offer the highest returns with the least risk, making them the most attractive for investment among the listed companies. Narayanan et.al (2012), explores the risk-investment profile of Ashok Leyland, Bajaj Auto, and Eicher Motors using statistical tools such as mean, variance, standard deviation, and beta. The research highlights a notable connection between risk and investment, stressing the importance for investors to thoroughly evaluate the risk-return trade-off prior to making investment decisions. A recent studies by Vyas (2022) and Vijayvergiya (2023) notes that COVID-19 has influenced investment behavior, emphasizing risk management while pursuing returns. Analysis of the auto, pharma, and IT sectors shows the Automobile sector leads the returns.

Sowbarnika, and Jayanthi (2019) examines the stock performance of various Indian automobile companies over five years, analyzing trends in stock prices and providing insights into the current situation of equity investments in the sector. The research highlights the performance of companies like Honda, Mahindra & Mahindra, and Bajaj Auto, offering valuable information to investors. Vanaja and Nishok (2020) examine the risk-return relationship of five selected stocks in the Indian automobile industry over a five-year period (2015–2019). By employing tools such as beta, standard deviations, and correlation coefficients, the study illustrates the balance that investors need to achieve between risk and return when evaluating investments in this sector.

Florin Aliu (2017) examines risk and risk-return tradeoffs in the Czech automotive industry from 2005 to 2014. It finds that auto suppliers have the lowest risk and highest diversification benefits, while manufacturers face greater risk. Combining both portfolios reduces overall risk, offering valuable

insights for optimizing portfolio performance through strategic diversification. Balaji et.al (2018) analyzes the risk and returns of five Indian automobile companies—Tata Motors, Ashok Leyland, Eicher Motors, Force Motor, and SML Isuzu—using data from January 1, 2012, to March 31, 2017. Through risk assessments and graphical analysis, it provides insights into the performance of these firms, contributing to investment understanding in the automobile sector. The risk and return analysis of the Indian automobile industry focuses on evaluating the investment potential of major companies listed on the National Stock Exchange. Several studies have examined the risk-return relationship for companies like Bajaj Auto, TVS Motors, Mahindra & Mahindra, Maruti Suzuki, Tata Motors, Eicher Motors, and Ashok Leyland.

3. Research Methodology

The research methodology utilized in this study adopts a scientific approach to systematically tackle the research problem. It involves a theoretical analysis of the methods applied within the field of study to ensure accurate and reliable findings.

3.1. Data Collection

The study will employ both primary and secondary data collection methods to facilitate a thorough analysis. Primary data will be gathered through personal discussions with authorized clerks and members of Bonanza Portfolio. This direct interaction will provide firsthand insights from key individuals involved with the organization. Secondary data will be sourced from various platforms, including internet searches, books, government departments, websites, and libraries. These secondary sources will offer additional context and support to the primary data, enriching the study's findings. By combining both data collection methods, the study aims to present a well-rounded and thorough investigation into the research topic.

3.2. Sample Design

The study focuses on analyzing share price changes among five selected Indian prominent automobile companies listed on NSE indexes such as Maruti Suzuk, Mahindra & Mahindra, Hindustan Motors, Tata Motors, and Ashok Leyland (NSE India, 2023). These companies are significant players in the Indian automobile industry, and the analysis examines their investment potential by taking into account factors such as market dynamics, industry trends, financial performance, and regulatory influences. This sample size has been chosen to ensure a balanced, manageable scope for in-depth analysis while capturing a representative cross-section of the industry. Out of 15 automobile NSE Automobile indexed companies, 8 are Automobile manufacturers and 7 are automobile components manufacturers, out of these, 5 automobile manufacturing companies are drawn for the sample. By concentrating on these companies, the study aims to gain insights into their risk and investment characteristics, considering the overall market dynamics and performance of the Indian automobile sector. This approach will enable targeted comparisons and evaluations, providing meaningful insights into trends and variations within the industry.

3.3. Statistical Analysis Used

The study employs various statistical tools to analyze the risk and investment dynamics within the selected Indian automobile companies. The mean will be used to determine the average performance of share prices over the specified period. The standard deviation will help measure the dispersion of share prices, indicating the degree of volatility. Variance will be calculated to assess the variability of share price changes, providing further insight into the risk associated with the investments. The coefficient of variation will be utilized to compare the relative risk of the companies, as it expresses the standard deviation as a percentage of the mean. Lastly, the analysis of systematic risk will focus on assessing the market risk inherent to the selected companies, helping to understand how their share prices correlate with market movements. Together, these statistical tools will facilitate a comprehensive examination of the risk-return profile in the Indian automobile industry.

Table 2.
Formulas used in study.

Sl.No	Calculation	Formula
1	Return	$= \frac{\text{Current week price} - \text{Previous week price}}{\text{Previous week Price}}$
2	Average Return	Sum of all close price/no. of values
3	Differences (D)	Returns – Average return
5	Variance	$= \frac{\sum D^2}{(n-1)}$
6	Standard Deviation=Risk	$= \sqrt{\text{Variance}}$
7	Coefficient of variation	Risk/Return
8	Systematic Risk (β)	$= \frac{\sum d1 * d2}{d2^2}$

4. Data Analysis and Interpretation

4.1. Risk and Return Analysis for Selected Automobile Stocks:

4.1.1. Maruti Suzuki (Refer to Annexure 1)

$$\begin{aligned} \text{Variance} &= \frac{5302.726}{(262-1)} = 20.3169 \\ \text{Standard Deviation} &= \sqrt{20.3169} \\ \text{Risk} &= 4.5074 \\ \text{Coefficient of variation} &= 4.5074 / 0.14252 = 31.6264 \end{aligned}$$

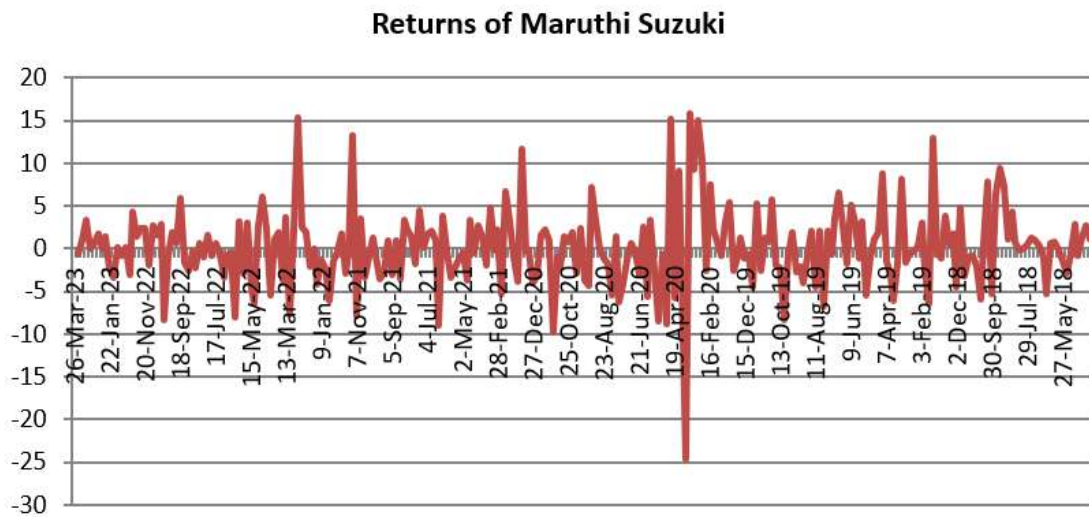


Figure 1.
Returns of Maruthi Suzuki during 2018-2023.

Maruthi Suzuki provided a return of 0.14252, indicating modest gains or losses per unit of investment. With a risk value of 4.5074 and a coefficient of variance of 31.6264, there is a moderate level of risk associated with investing in Maruti Suzuki compared to the average returns. Investors should consider this volatility and risk when making investment decisions in Maruti Suzuki. The Figure 1 illustrates the returns of Maruthi Suzuki security over a five-year period from 2018 to 2023, highlighting notable volatility. The variance of 20.3169 indicates a moderate level of dispersion or variability in the returns. Starting at Rs. 9206.20 on April 1, 2018, the price of the security experienced fluctuations throughout the period. It reached its highest value of Rs. 9,492.55 in October 2022 before declining to a low of Rs. 8,292.15 on March 26, 2023.

4.1.2. Mahindra & Mahindra (Refer to Annexure 2)

$$\begin{aligned}\text{Variance} &= \frac{6540.85}{(262-1)} = 25.06073 \\ \text{Standard Deviation} &= \sqrt{25.06073} \\ \text{Risk} &= 5.006069\end{aligned}$$

$$\text{Coefficient of variation} = 5.006069 / -0.0315 = -158.92$$

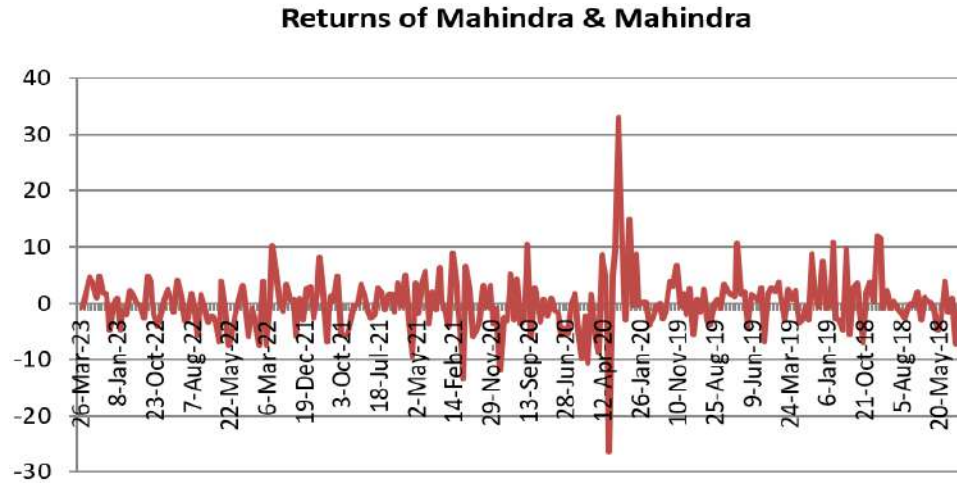


Figure 2.
Returns of Mahindra & Mahindra during 2018-2023.

In Figure 2, the security returns of Mahindra & Mahindra Motors are depicted over a five-year period from 2018 to 2023, revealing significant volatility with a variance of 25.06073. The initial price of the security on April 1, 2018, was Rs. 771.95. Over the course of the five years, the price experienced fluctuations, reaching its highest value of Rs. 1388 in January 2023, before declining to a low of Rs. 1158.70 on March 26, 2023. The average returns of -0.0315 indicate that, on average, the security had negative returns during this period. With a risk value of 5.006069 and a coefficient of variance of -158.92, there is a significant degree of risk linked to investing in Mahindra & Mahindra Motors, which could result in considerable losses. Investors should thoroughly assess the volatility and risk factors prior to making investment decisions regarding this security.

4.1.3. Hindustan Motors (Refer to Annexure 3)

$$\begin{aligned}\text{Variance} &= \frac{18940.85}{(262-1)} = 72.56711 \\ \text{Standard Deviation} &= \sqrt{72.56711} \\ \text{Risk} &= 8.518633\end{aligned}$$

$$\text{Coefficient of variation} = 8.518633 / 0.21014 = 40.5379$$

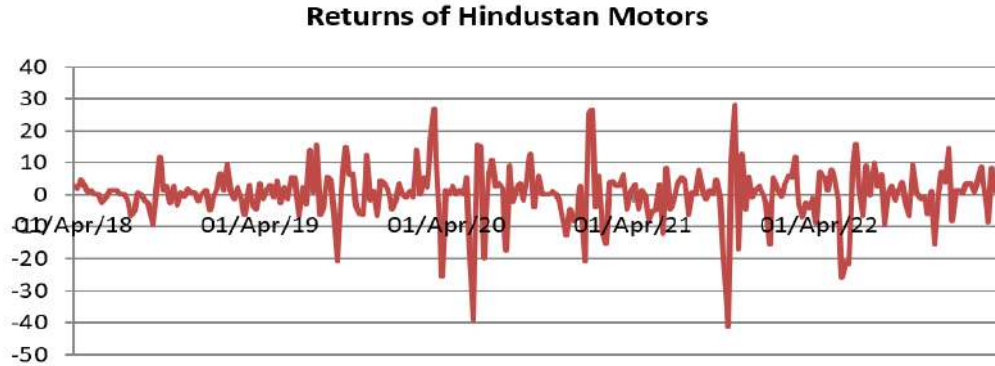


Figure 3.
Returns of Hindustan motors during 2018-2023.

The security returns of Hindustan Motors over the five-year period from 2018 to 2023 exhibited significant volatility, as depicted in Figure 3. The variance of 72.56711 signifies a substantial level of dispersion or variability in the returns. The security's price began at Rs. 8 on April 1, 2018, and experienced fluctuations over time. It reached its highest value of Rs. 23.15 in June 2022 before declining to a low of Rs. 12.9 on March 26, 2023. On average, the security provided a return of 0.21014, suggesting modest gains or losses per unit of investment. However, the high variance and risk value of 8.518633 indicate a considerable level of uncertainty and volatility in the security's returns. The coefficient of variance, at 40.5379, underscores the relatively high level of risk compared to the average returns. Investors should be aware of these characteristics and carefully assess the potential risks before making investment decisions in Hindustan Motors.

4.1.4. Tata Motors (Refer to Annexure 4)

$$\text{Variance} = \frac{12393.30}{(262-1)} = 47.48379$$

$$\text{Standard Deviation} = \sqrt{47.4837}$$

$$\text{Risk} = 6.890848$$

$$\text{Coefficient of variation} = 6.890848 / 0.18747 = 36.7571$$

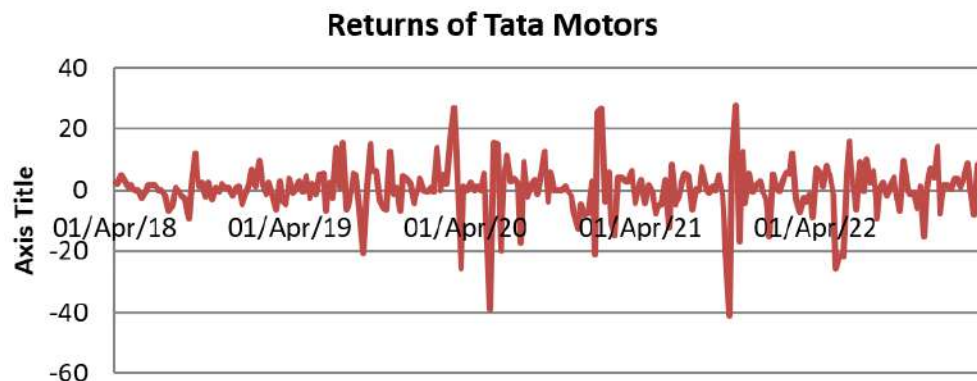


Figure 4.
Returns of Tata Motors during 2018-2023.

Figure 4 illustrates the security returns of Tata Motors over a five-year period from 2018 to 2023, demonstrating significant volatility with a variance of 47.48379. At the beginning of the period, on April 1, 2018, the security was valued at Rs. 364.1. Subsequently, the price experienced fluctuations, peaking at Rs. 509.9 in January 2022 before declining to its lowest point of Rs. 420.8 on March 26, 2023. The average returns of 0.18747 indicate that, on average, the security had positive returns during this period. However, with a risk value of 6.890848 and a coefficient of variance of 36.7571, there is a notable level of risk associated with investing in Tata Motors. This suggests that investors should exercise caution and carefully assess the volatility and risk factors before making investment decisions involving this security.

4.1.5. Ashok Leyland (Refer to Annexure 5)

$$\text{Variance} = \frac{10974.5}{(262-1)} = 42.04804$$

$$\text{Standard Deviation} = \sqrt{42.04803703}$$

$$\text{Risk} = 6.484446$$

$$\text{Coefficient of variation} = 6.484446 / 0.21772 = 29.7834$$

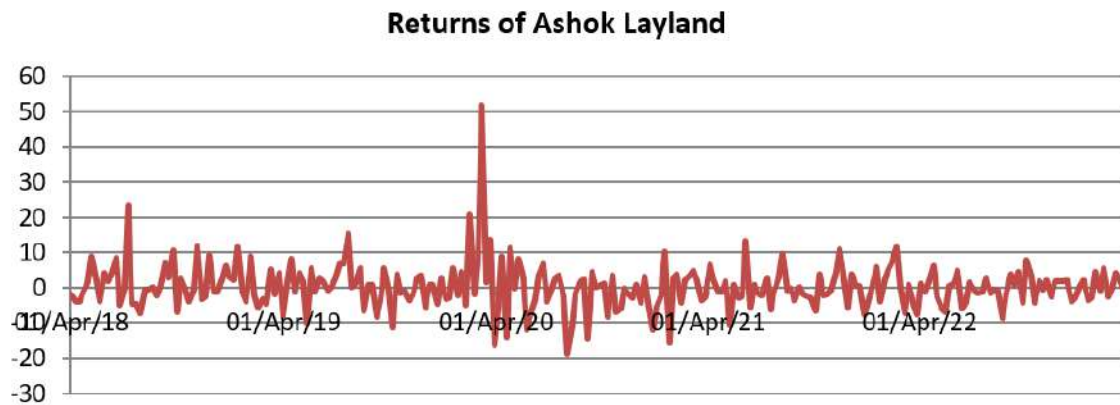


Figure 5.
Returns of Ashok Layland during 2018-2023.

The average returns of 0.21772 indicate that, on average, the security yielded positive returns during this time frame. However, it is remarkable that the security has a risk value of 6.484446 and a coefficient of variation of 29.7834, suggesting a moderate level of risk associated with investing in Ashok Leyland. Investors should carefully consider the volatility and risk factors before making investment decisions related to this security. The graph labelled 5 represents the security returns of Ashok Leyland over a span of five years from 2018 to 2023, revealing significant volatility with a variance of 42.04804. On April 1, 2018, the security was priced at Rs. 146.45. Throughout the period, it experienced fluctuations, reaching its peak value of Rs. 166.55 in September 2022 before declining to its lowest point of Rs. 139.2 on March 26, 2023.

4.1.6. Nifty Auto Index (Refer to Annexure 6)

$$\text{Variance} = \frac{3374.2}{(262-1)} = 12.87869$$

$$\text{Standard Deviation} = \sqrt{12.87869}$$

$$\text{Risk} = 3.588689$$

The data for the Nifty Auto Index reveals important insights into its return characteristics. The calculated variance of 12.87869 indicates a moderate degree of dispersion in the index's returns, suggesting that they do not fluctuate excessively around the mean. This is further clarified by the standard deviation, which is approximately 3.59. This figure represents the average deviation of returns from the mean, helping investors gauge the potential risk associated with investing in the Nifty Auto Index. The risk value, also 3.588689, aligns with the standard deviation and quantifies the uncertainty in expected returns. On the whole this data indicates this data shows that the Nifty Auto Index has moderate variability and risk, which investors should consider in their investment decisions.

4.2. Comparative Risk & Return Analysis of Selected Automobile Stocks

The following Table 3 presents a comparison of various automobile sector stocks based on their return, risk, variance, and coefficient of variation. Starting with Maruti Suzuki, it has shown a positive return of 0.14252, indicating a profit during the specified period. The risk associated with this stock is 4.5074, suggesting a moderate level of volatility. The variance, which measures the dispersion of returns, is 20.3169. The coefficient of variation, which accounts for risk relative to the average return, is 31.6264. Overall, Maruti Suzuki demonstrates a relatively stable performance with a reasonable level of risk.

Table 3.
Comparative Analysis of Risk and Return of selected automobile stocks.

S.no	Company name	Return	Risk	Variance	Co-efficient of variation
1	Maruti Suzuki	0.14252	4.5074	20.3169	31.6264
2	Mahindra & Mahindra	-0.0315	5.00607	25.0607	-158.920
3	Hindustan Motors	0.21014	8.51863	72.5671	40.5379
4	Tata Motors	0.18747	6.89085	47.4838	36.7571
5	Ashok Leyland	0.21772	6.48445	42.0480	29.7834

Mahindra & Mahindra, on the other hand, has experienced a negative return of -0.0315, implying a loss during the given timeframe. This stock exhibits a higher level of risk with a value of 5.00607. The variance is 25.0607, indicating a wider range of returns. The coefficient of variation is negative (-158.920), suggesting a high degree of risk compared to the average return. Investors should be cautious with this stock due to its negative returns and higher risk profile. Hindustan Motors has achieved a positive return of 0.21014, indicating a profit. However, it is associated with a higher risk level of 8.51863, making it a more volatile option. The variance is significantly higher at 72.5671, indicating a wider range of returns and increased uncertainty. The coefficient of variation is 40.5379, suggesting a relatively high risk compared to the average return. Investors considering Hindustan Motors should be prepared for higher volatility and potential fluctuations in returns.

Tata Motors has delivered a positive return of 0.18747, signalling profitability. It exhibits a moderate level of risk with a value of 6.89085. The variance is 47.4838, suggesting a wider dispersion of returns compared to some other stocks. The coefficient of variation is 36.7571, indicating a moderate level of risk relative to the average return. Investors should carefully assess the risk-return trade-off when considering Tata Motors. Ashok Leyland has shown a positive return of 0.21772, indicating profitability. It demonstrates a moderate level of risk with a value of 6.48445. The variance is 42.048, suggesting a moderate dispersion of returns. The coefficient of variation is 29.7834, indicating a moderate level of risk relative to the average return. Ashok Leyland appears to offer a reasonable risk-return balance compared to other stocks in the automobile sector.

4.3. Systematic Risk Analyses for Selected Automobile Stocks

Systematic risk, or Beta (β), measures a stock's sensitivity to overall market movements, especially in relation to a benchmark index like NIFTY. Systematic risk measures the sensitivity of an individual stock's returns to overall market movements. A beta value greater than 1 indicates that the stock is

expected to be more volatile compared to the broader market. A beta value below 1 suggests that the stock is expected to be less volatile compared to the broader market.

4.3.1. Systematic risk of Maruti Suzuki with NIFTY (Refer to Annexure 7)

$$\begin{aligned}\text{Systematic Risk } (\beta) &= \sum d_1 * d_2 / d_2^2 \\ &= 1.079236\end{aligned}$$

For Maruti Suzuki, the systematic risk is calculated to be 1.079236. This value suggests that Maruti Suzuki's stock is slightly more volatile than the overall market. A Beta of 1 indicates that the stock's price generally moves in sync with the market. Since Maruti Suzuki's β is >1 , indicates that the stock is expected to have relatively larger price fluctuations compared to the benchmark index. Investors should be aware of this higher level of systematic risk associated with Maruti Suzuki and consider it when making investment decisions.

4.3.2. Systematic risk of Mahindra & Mahindra with NIFTY (Refer to Annexure 8)

$$\begin{aligned}\text{Systematic Risk } (\beta) &= \sum d_1 * d_2 / d_2^2 \\ &= 1.079236\end{aligned}$$

The calculation of systematic risk (β) for Mahindra & Mahindra in relation to NIFTY resulted in a value of 1.079236. In this case, Mahindra & Mahindra has a Beta of 1.079236, indicating that its returns are expected to move in line with the market, but with slightly greater volatility. Investors should consider this when evaluating the risk and potential returns of investing in Mahindra & Mahindra, as its performance will be more significantly affected by market conditions.

4.3.3. Systematic risk of Hindustan Motors with NIFTY (Refer to Annexure 9)

$$\begin{aligned}\text{Systematic Risk } (\beta) &= \sum d_1 * d_2 / d_2^2 \\ &= 0.707391\end{aligned}$$

The calculation of systematic risk, represented by beta (β), for Hindustan Motor in relation to NIFTY yielded a value of 0.707391, indicating that its returns are likely to exhibit less volatility in relation to the NIFTY index. This implies that Hindustan Motor's performance may be relatively more stable and less influenced by overall market movements. Investors should consider this lower level of systematic risk when evaluating the potential risk and returns associated with investing in Hindustan.

4.3.4. Systematic risk of Tata Motors with NIFTY (Refer to Annexure 10)

$$\begin{aligned}\text{Systematic Risk } (\beta) &= \sum d_1 * d_2 / d_2^2 \\ &= 1.391991\end{aligned}$$

The calculation of systematic risk (β) for Tata Motors in relation to NIFTY was 1.391991. The Beta value indicating that its returns are likely to exhibit higher volatility in relation to the NIFTY index. This suggests that Tata Motors' performance may be influenced to a greater extent by overall market movements, and investors should consider this higher level of systematic risk when evaluating the potential risk and returns associated with investing in Tata Motors.

4.3.5. Systematic risk of Ashok Leyland with NIFTY (Refer to Annexure 11)

$$\begin{aligned}\text{Systematic Risk } (\beta) &= \sum d_1 * d_2 / d_2^2 \\ &= 1.289308\end{aligned}$$

The calculation of systematic risk, Ashok Layland in relation to NIFTY resulted in a value of 1.289308. Systematic risk, also known as market risk, measures the extent to which a stock's returns are influenced by overall market movements. Ashok Layland has a beta of 1.289308, suggesting that its returns are likely to exhibit higher volatility compared to the NIFTY index. Investors should consider this higher level of systematic risk when evaluating the potential risk and reward associated with investing in Ashok Layland. It implies that changes in the NIFTY index are likely to have a significant impact on Ashok Layland's stock price, and investors should be aware of this when making investment decisions.

4.4. Comparative Analysis of Systematic Risk of Selected Companies

The systematic risk values provide insights into how the selected companies' stock returns are influenced by overall market movements. Companies with lower systematic risk are generally considered more stable, while those with higher systematic risk are more susceptible to market volatility. The Table 4 presents a comparison of the systematic risk (β) of selected companies. Systematic risk measures the sensitivity of a company's stock returns to overall market movements. Maruti Suzuki has a systematic risk of 1.079, suggesting that its stock returns are relatively less sensitive to market fluctuations than the average market. This implies that Maruti Suzuki's stock is relatively stable and less susceptible to systematic market risks. On the other hand, Mahindra & Mahindra has a systematic risk of 1.122, indicating that its stock returns are more responsive to market movements compared to Maruti Suzuki. Investors should be aware that changes in broader market conditions may have a more significant impact on Mahindra & Mahindra's stock performance.

Table 4.
Comparative analysis of systematic risk of selected automobile stocks.

S.no	Company name	Systematic risk(β)
1	Maruti Suzuki	1.079236018
2	Mahindra & Mahindra	1.122096840
3	Hindustan Motors	0.707391173
4	Tata Motors	1.391990648
5	Ashok Leyland	1.289308496

Hindustan Motors exhibits a lower systematic risk of 0.707, suggesting that its stock returns are less affected by market fluctuations and are relatively more stable compared to the overall market. This makes Hindustan Motors' stock less influenced by systematic risks. In contrast, Tata Motors has a higher systematic risk of 1.392, indicating that its stock returns are highly sensitive to market movements. This means that changes in the broader market can significantly impact Tata Motors' performance, making it more exposed to market volatility. Ashok Leyland, with a systematic risk of 1.289, falls in between, showing moderate sensitivity to market fluctuations, and indicating a balanced level of exposure to systematic risks. Hence, the investors can use this information to assess the potential risk associated with investing in these companies and make informed decisions based on their risk tolerance and investment objectives.

5. Findings & Recommendations

5.1. Findings

During the study, several facts have been identified regarding the comparison of the five automobile stocks over a 5-year period (2017-18 to 2022-23) in relation to the NIFTY Auto index and among themselves:

1. All five automobile stocks have higher returns and risks compared to the NIFTY Auto index. This suggests that these companies are generating higher returns by taking on more risk than the overall market.
2. Analyzing the 5-year price data, it is observed that Ashok Leyland has earned the highest returns (21.772), followed by Hindustan Motors (21.014) and Tata Motors (18.747). On the other hand, Maruti Suzuki has the lowest returns among all the stocks.
3. Among the 5 automobile stocks, Hindustan Motors exhibits the highest level of risk, while Maruti Suzuki has the lowest risk.
4. Surprisingly, despite having higher risk, Maruti Suzuki manages to generate more returns compared to Tata Motors, which is riskier than Maruti Suzuki. This suggests that Maruti Suzuki has been able to deliver better returns while maintaining a comparatively lower level of risk.

5. Mahindra & Mahindra has experienced negative returns and is riskier than the other stocks in the analysis. This indicates that investors would need to accept higher levels of risk in order to potentially earn returns from this particular stock.
6. The systematic risk, represented by β (beta), is a measure of how sensitive a stock's returns are to overall market movements. Maruti Suzuki has a systematic risk of 1.079236018, Mahindra & Mahindra has a risk of 1.12209684, Hindustan Motors has a risk of 0.707391173, Tata Motors has a risk of 1.391990648, and Ashok Leyland has a risk of 1.289308496.

These findings offer essential insights into the risk and investment characteristics of the five automobile stocks. Investors can leverage this information to evaluate the performance and risk profiles of these stocks, enabling them to make well-informed decisions aligned with their investment goals and risk tolerance. It's crucial to recognize that while attractive returns are appealing, they typically come with higher risks. Therefore, each investor should thoughtfully assess the risk-reward balance before proceeding with their investment choices.

5.2. Recommendations

Based on the risk and investment analysis, the following suggestions can be made to investors regarding investing in specific stocks:

1. Considering the overall performance of the automobile sector, investors may consider allocating a majority of their holdings to the automobile sector. This suggests that the sector as a whole is performing well, indicating potential opportunities for investors.
2. Mahindra and Mahindra has been identified as riskier than the market. Therefore, risk-averse investors are advised to exercise caution when investing in this stock, as it carries higher risk compared to the overall market. Investors with a lower risk tolerance may consider diversifying their investments across other stocks with relatively lower risk.
3. It is important not to solely judge the performance of a stock based on the observed 5-year price data. Instead, investors should consider the stock's performance since its inception to gain a more comprehensive understanding. This long-term perspective will provide a more accurate assessment of the stock's performance and potential for future growth.
4. Hindustan Motors has a systematic risk (β) below 1, indicating lower volatility compared to the other stocks. This suggests that the price fluctuations of Hindustan Motors are relatively less compared to the overall market. Investors seeking a more stable investment option may consider including Hindustan Motors in their portfolio.
5. Stocks with systematic risk (β) falling between 1 and 2 have higher fluctuations. Investors need to thoroughly assess the risk-return trade-off before investing in these companies. While these stocks may present opportunities for greater returns, they also entail a higher level of risk. Therefore, it's essential for investors to conduct in-depth research and evaluate their risk tolerance before making investment decisions related to these stocks.

Thus, it is crucial for investors to conduct their own research, analyze the risk and investment profiles of individual stocks, and align their investment decisions with their financial goals, risk tolerance, and investment horizon. Diversification and seeking professional advice from financial advisors can also help in managing risks effectively and optimizing investment portfolios. Therefore, investors should consider the return, risk, variance, and coefficient of variation when evaluating these automobile stocks. Each stock has its own unique performance and risk profile, and investors should carefully analyze these factors to make informed investment decisions based on their risk appetite and investment objectives.

5.3. Limitations of the Study

The study has several limitations that need to be considered. Firstly, it focuses exclusively on the Indian market, meaning the findings may not be applicable to other global markets. The unique regulatory frameworks, economic conditions, and cultural factors in India could influence the results differently compared to other regions. Secondly, the research is primarily designed to analyze automobile stocks from an investor's perspective. This narrow focus may not capture other important

dimensions, such as investor behaviour, broader industry trends, or the operational aspects of automobile companies. Lastly, the study is confined to a sample of five automobile companies over a five-year period i.e., 2017-18 to 2022-23 which may not fully represent the entire Indian automobile industry. The limited scope in terms of both the sample size and time frame may not provide a comprehensive view of the sector's dynamics or long-term trends. These limitations offer valuable context for interpreting the study's findings and suggest potential avenues for future research.

During the period under study, the National Stock Exchange (NSE) witnessed several significant declines, causing market turbulence and investor apprehension. These declines were driven by various factors, including the introduction of long-term capital gains tax, global economic recession concerns, and the outbreak of the COVID-19 pandemic. The NSE experienced notable drops in February and March 2018, following the Finance Minister's proposal for the capital gains tax. The impact of the COVID-19 pandemic became apparent in early 2020, with sharp declines in February and March, resulting from global tensions and the declaration of a pandemic by the World Health Organization. The Nifty index reached its lowest levels since 2016, and the market suffered significant weekly losses reminiscent of the 2008 financial crisis. These events highlight the vulnerability of the NSE to global economic conditions and the influence of major events on market performance.

6. Conclusion

The Automobile Industry in India holds a prominent position on the global stage, being one of the largest and fastest-growing sectors. With substantial capital requirements, most industries in India raise funds through share issuances. Investors seek reasonable returns while minimizing risk in comparison to the market's overall risk and investment profile. The study's findings highlight the diverse risk and return profiles of five key automobile stocks in comparison to the NIFTY Auto Index over a five-year period (2017-18 to 2022-23). All analyzed stocks exhibit higher returns and risks than the NIFTY Auto Index, indicating that these companies achieve greater returns by assuming more risk. Ashok Leyland and Hindustan Motors lead in returns, while Mahindra & Mahindra stands out with negative returns and higher risk, signalling caution for risk-averse investors. Maruti Suzuki, despite its moderate risk, delivers solid returns, outperforming Tata Motors, which carries higher risk. These findings reinforce the notion of a direct relationship between risk and return, where higher risk investments tend to yield higher returns. Thus, investors should consider these risk-return dynamics when making investment decisions in the automobile industry.

6.1. Disclaimer

The literature review, data analysis, table and graphs, findings, and recommendations contained in this study are provided strictly for academic and theoretical purposes. They are not intended to serve as financial or investment advice. This material is designed to enhance academic literature, particularly in the areas of risk and return analysis and to illustrate CAPM concepts for educational use by research students. Any use of this data for investment purposes is strictly at the user's own risk. The authors, their affiliated institutions, and the publishers assume no responsibility or liability for any financial decisions made based on this information.

Funding:

The INTI International University, Malaysia, is sponsoring the Open Access charges as the paper aligns with the United Nations' Sustainable Development Goals.

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References

- [1] Adrian, T., & Rosenberg, J. (2008). Stock returns and volatility: Pricing the short-run and long-run components of market risk. *The Journal of Finance*, 63(6), 2997-3030.

- [2] Ahmmed, S., & Siddique, S. (2022). Efficient Diversification Strategies: Mitigating Unsystematic Risk with DS-30 Stocks. *Journal of Fareast International University*, 5(1), 1-10.
- [3] Ainia, N. S. N., & Lutfi, L. (2019). The influence of risk perception, risk tolerance, overconfidence, and loss aversion towards investment decision making. *Journal of Economics, Business, & Accountancy Ventura*, 21(3), 401-413.
- [4] Alenezi, M. (2015). The impact of exchange rate, interest rate and oil price fluctuations on stock returns of GCC listed companies.
- [5] Aliu, F., Pavelkova, D., & Dehning, B. (2017). Portfolio risk-return analysis: The case of the automotive industry in the Czech Republic. *Journal of International Studies*.
- [6] Andriotto, M., & Teti, E. (2014). Beyond CAPM: an innovative factor model to optimize the risk and return trade-off. *Journal of Business Economics and Management*, 15(4), 615-630.
- [7] Balaji, C., Kusuma, G. D., & Kumar, B. R. (2018). Risk and return analysis of equity shares of selected companies in automobile industry. *Asian Journal of Multi-Disciplinary Research*, 4(2), 37-42.
- [8] Barry, P. J., & Robison, L. J. (2014). Economic rates of return and investment analysis. *The engineering economist*, 59(3), 231-236.
- [9] Chairani, C., & Siregar, S. V. (2021). The effect of enterprise risk management on financial performance and firm value: the role of environmental, social and governance performance. *Meditari Accountancy Research*, 29(3), 647-670.
- [10] Dai, Z., Kang, J., & Wen, F. (2021). Predicting stock returns: a risk measurement perspective. *International Review of Financial Analysis*, 74, 101676.
- [11] Erumban, A. A., Das, D. K., Aggarwal, S., & Das, P. C. (2019). Structural change and economic growth in India. *Structural Change and Economic Dynamics*, 51, 186-202.
- [12] Frazier, D. T., & Liu, X. (2016). A new approach to risk-return trade-off dynamics via decomposition. *Journal of Economic Dynamics and Control*, 62, 43-55.
- [13] Gitman, L. J., Joehnk, M. D., Smart, S., & Juchau, R. H. (2015). *Fundamentals of investing*. Pearson higher education AU.
- [14] Grundl, H., & Gal, J. (2017). The evolution of insurer portfolio investment strategies for long-term investing. *OECD Journal: Financial Market Trends*, 2016(2), 1-55.
- [15] Here is the citation in APA 7th edition format:
- [16] Jha, S. (2011). *Interest rate markets: A practical approach to fixed income* (Vol. 501). John Wiley & Sons.
- [17] Kenton, W. (2024, July 11). *What beta means for investors*. Investopedia. <https://www.investopedia.com/terms/b/beta.asp#:~:text=A%20Beta%20of%201.0%20for,moved%201.5%25%2C%20on%20average.>
- [18] Madhavedi, S., & Bojja, S. (2022). The Effect of Dividend Payouts and Non-Payouts on the Share Price and Market Capitalization: An Empirical Study of Selected Indian Companies. *Indian Journal of Research in Capital Markets* • October-December, 9.
- [19] Mathur, S. (2024, September 12). *Top highly volatile stocks in India for intraday trading*. Smallcase. <https://www.smallcase.com/collections/high-volatile-stocks/>
- [20] Muiruri, P. M. (2014). Effects of estimating systematic risk in equity stocks in the Nairobi Securities Exchange (NSE)(An Empirical review of systematic risks estimation).
- [21] Muiruri, P. M. (2014). Effects of estimating systematic risk in equity stocks in the Nairobi Securities Exchange (NSE)(An Empirical review of systematic risks estimation).
- [22] Narayanan, B., Xavier, J. C., & Arivazhagan, M. (2012). Risk and return analysis of automobile and oil & gas sectors—a study. *Asian Journal of Research in Business Economics and Management*, 2(8), 30-48.
- [23] NSE India (2023), <https://www.niftyindices.com/indices/equity/sectoral-indices/nifty-auto>
- [24] Pavitra, H., & Hamsalakshmi. (2022). An empirical study on risk and return of automobile industry in Indian stock market. *International Journal of Creative Research Thoughts (IJCRT)*, 10(5). <https://doi.org/ISSN:2320-2882>
- [25] Peterdy, K. (2023, October 4). *Business risk*. Corporate Finance Institute. <https://corporatefinanceinstitute.com/resources/career-map/sell-side/risk-management/business-risk/#:~:text=Business%20risk%20is%20the%20threat,debt%20in%20its%20capital%20structure.>
- [26] Prakash, M. J., & Jadhav, S. S. (2022). A study of Automobile industry in India. *Innovative Research Thoughts*, 8(1), 95-99.
- [27] Rao, D. T., Mandia, J., & Anand, A. (2012). Risk-return analysis of sectorial portfolios of stocks. *Economics, Management and Financial Markets*, 7(3), 108.
- [28] Rossi, M. (2016). The capital asset pricing model: a critical literature review. *Global Business and Economics Review*, 18(5), 604-617.
- [29] SIMA (2023). *Society of Indian Automobile Manufactures*. (n.d). <https://www.siam.in/statistics.aspx?mpgid=8&pgidtrail=13>
- [30] Sowbarnika, S., & Jayanthi, M. (2019). A Study on Financial Performance of State Bank of India. *Paripex-Indian Journal of Research*, 8(1), 56-59.
- [31] Subbalakshmi, M. (2023). Equity Analysis of Selected Indian Automobile Companies. *IUP Journal of Management Research*, 22(4), 22-37.
- [32] Sullivan, R., & Mackenzie, C. (Eds.). (2017). *Responsible investment*. Routledge.
- [33] Thappa, S., & Padung, O. (2023). An Analysis on Risk Return Relationship of Automobile Company's Stock in Indian Equity Market. *SOUTH INDIA JOURNAL OF SOCIAL SCIENCES*, 21(2 Dec), 1-16.

- [34] Vanaja, D. V., & Nishok, P. J. (2020). Risk and return analysis of selected stocks in Indian automobile sector. *International Journal of Advance Research and Innovative Ideas in Education*, 6(4), 23-36.
- [35] Vyas, R. (2022). *Risk-Return Tradeoff of Selected Automobile, Pharmaceutical, and Information Technology Sector's Mutual Funds*. In S. Jain, A. Thomas, A. K. Gupta, R. Vyas, & A. Jain (Eds.), *Challenges, Opportunities, and Innovation for Sustainable Future*.
- [36] Vijayvergiya, A., Choudhary, A., & Vyas, R. (2023). Risk and Return Analysis of Selected Auto, Pharma and IT Sector Companies during The Years 2019-2022. *Prestige International Journal of Management and Research*, 16(2), 46-54.

Annexure 1.
Stock price & returns of Maruti Suzuki.

Date	Close Price	Returns	Avg Returns	Difference (D)	D*D
26-Mar-23	8,292.15				
19-Mar-23	8,242.90	-0.5939	0.14252	-0.7365	0.54237
12-Mar-23	8,316.85	0.89714	0.14252	0.75461	0.56944
5-Mar-23	8,601.55	3.42317	0.14252	3.28065	10.7627
26-Feb-23	8,601.25	-0.0035	0.14252	-0.146	0.02132
19-Feb-23	8,660.50	0.68885	0.14252	0.54633	0.29848
12-Feb-23	8,807.75	1.70025	0.14252	1.55773	2.42651
5-Feb-23	8,811.35	0.04087	0.14252	-0.1016	0.01033
29-Jan-23	8,942.30	1.48615	0.14252	1.34363	1.80534
22-Jan-23	8,737.50	-2.2902	0.14252	-2.4328	5.91833
15-Jan-23	8,439.80	-3.4072	0.14252	-3.5497	12.6002
8-Jan-23	8,453.40	0.16114	0.14252	0.01862	0.00035
1-Jan-23	8,383.05	-0.8322	0.14252	-0.9747	0.9501
25-Dec-22	8,394.60	0.13778	0.14252	-0.0047	2.3E-05
18-Dec-22	8,141.60	-3.0138	0.14252	-3.1564	9.96264
11-Dec-22	8,485.80	4.22767	0.14252	4.08515	16.6884
4-Dec-22	8,613.35	1.5031	0.14252	1.36058	1.85117
27-Nov-22	8,815.85	2.351	0.14252	2.20848	4.87738
20-Nov-22	9,019.50	2.31004	0.14252	2.16752	4.69815
13-Nov-22	8,848.05	-1.9009	0.14252	-2.0434	4.1755
6-Nov-22	9,087.55	2.70681	0.14252	2.56429	6.57557
30-Oct-22	9,229.50	1.56203	0.14252	1.4195	2.01499
23-Oct-22	9,492.55	2.8501	0.14252	2.70758	7.33098
16-Oct-22	8,703.30	-8.3144	0.14252	-8.4569	71.5198
9-Oct-22	8,617.30	-0.9881	0.14252	-1.1307	1.27838
2-Oct-22	8,779.10	1.87762	0.14252	1.7351	3.01056
25-Sep-22	8,828.15	0.55871	0.14252	0.41619	0.17321
18-Sep-22	9,343.45	5.83701	0.14252	5.69449	32.4272
11-Sep-22	9,189.65	-1.6461	0.14252	-1.7886	3.19907
4-Sep-22	8,946.00	-2.6514	0.14252	-2.7939	7.80574
28-Aug-22	8,919.60	-0.2951	0.14252	-0.4376	0.19152
21-Aug-22	8,720.60	-2.231	0.14252	-2.3736	5.63381
14-Aug-22	8,778.95	0.66911	0.14252	0.52658	0.27729
7-Aug-22	8,699.20	-0.9084	0.14252	-1.0509	1.10449
31-Jul-22	8,841.20	1.63233	0.14252	1.48981	2.21954
24-Jul-22	8,773.55	-0.7652	0.14252	-0.9077	0.8239
17-Jul-22	8,830.95	0.65424	0.14252	0.51172	0.26185
10-Jul-22	8,778.05	-0.599	0.14252	-0.7416	0.5499
3-Jul-22	8,475.95	-3.4415	0.14252	-3.5841	12.8455
26-Jun-22	8,402.60	-0.8654	0.14252	-1.0079	1.01589
19-Jun-22	8,363.20	-0.4689	0.14252	-0.6114	0.37384
12-Jun-22	7,688.15	-8.0717	0.14252	-8.2142	67.473
5-Jun-22	7,935.10	3.21209	0.14252	3.06956	9.42222
29-May-22	7,705.05	-2.8991	0.14252	-3.0417	9.25174
22-May-22	7,942.95	3.08759	0.14252	2.94506	8.67339
15-May-22	7,586.60	-4.4864	0.14252	-4.6289	21.4266
8-May-22	7,101.95	-6.3882	0.14252	-6.5308	42.6508

1-May-22	7,279.25	2.4965	0.14252	2.35397	5.5412
24-Apr-22	7,717.80	6.02466	0.14252	5.88214	34.5995
17-Apr-22	7,904.50	2.41908	0.14252	2.27656	5.18273
10-Apr-22	7,469.50	-5.5032	0.14252	-5.6457	31.8741
3-Apr-22	7,557.95	1.18415	0.14252	1.04163	1.08498
27-Mar-22	7,700.05	1.88014	0.14252	1.73762	3.01931
20-Mar-22	7,415.45	-3.6961	0.14252	-3.8386	14.7349
13-Mar-22	7,693.00	3.74286	0.14252	3.60034	12.9624
6-Mar-22	7,102.55	-7.6752	0.14252	-7.8177	61.1162
27-Feb-22	7,247.30	2.038	0.14252	1.89548	3.59284
20-Feb-22	8,356.10	15.2995	0.14252	15.157	229.734
13-Feb-22	8,569.10	2.54904	0.14252	2.40651	5.79131
6-Feb-22	8,737.15	1.96112	0.14252	1.81859	3.30728
30-Jan-22	8,550.55	-2.1357	0.14252	-2.2782	5.19034
23-Jan-22	8,550.95	0.00468	0.14252	-0.1378	0.019
16-Jan-22	8,189.60	-4.2258	0.14252	-4.3684	19.0826
9-Jan-22	8,084.20	-1.287	0.14252	-1.4295	2.04353
2-Jan-22	7,906.00	-2.2043	0.14252	-2.3468	5.50758
26-Dec-21	7,426.45	-6.0656	0.14252	-6.2082	38.5414
19-Dec-21	7,317.10	-1.4724	0.14252	-1.615	2.6081
12-Dec-21	7,296.60	-0.2802	0.14252	-0.4227	0.17867
5-Dec-21	7,425.65	1.76863	0.14252	1.62611	2.64423
28-Nov-21	7,208.70	-2.9216	0.14252	-3.0642	9.38903
21-Nov-21	7,170.50	-0.5299	0.14252	-0.6724	0.45217
14-Nov-21	8,117.15	13.202	0.14252	13.0595	170.55
7-Nov-21	7,479.85	-7.8513	0.14252	-7.9938	63.9008
31-Oct-21	7,747.40	3.57694	0.14252	3.43442	11.7952
24-Oct-21	7,482.40	-3.4205	0.14252	-3.563	12.6951
17-Oct-21	7,408.90	-0.9823	0.14252	-1.1248	1.26524
10-Oct-21	7,496.90	1.18776	0.14252	1.04524	1.09252
3-Oct-21	7,430.00	-0.8924	0.14252	-1.0349	1.071
26-Sep-21	7,162.30	-3.603	0.14252	-3.7455	14.0286
19-Sep-21	6,952.25	-2.9327	0.14252	-3.0752	9.4571
12-Sep-21	7,014.45	0.89467	0.14252	0.75215	0.56573
5-Sep-21	6,802.25	-3.0252	0.14252	-3.1677	10.0344
29-Aug-21	6,863.10	0.89456	0.14252	0.75203	0.56556
22-Aug-21	6,624.85	-3.4715	0.14252	-3.614	13.0609
15-Aug-21	6,850.90	3.41215	0.14252	3.26963	10.6905
8-Aug-21	7,002.20	2.20847	0.14252	2.06595	4.26813
1-Aug-21	7,100.80	1.40813	0.14252	1.26561	1.60176
25-Jul-21	6,977.70	-1.7336	0.14252	-1.8761	3.51986
18-Jul-21	7,293.85	4.53086	0.14252	4.38834	19.2575
11-Jul-21	7,303.55	0.13299	0.14252	-0.0095	9.1E-05
4-Jul-21	7,425.70	1.67247	0.14252	1.52995	2.34075
27-Jun-21	7,573.85	1.9951	0.14252	1.85258	3.43204
20-Jun-21	7,649.00	0.99223	0.14252	0.84971	0.722
13-Jun-21	6,959.35	-9.0162	0.14252	-9.1587	83.8824
6-Jun-21	7,223.80	3.79992	0.14252	3.6574	13.3766
30-May-21	7,214.70	-0.126	0.14252	-0.2685	0.07209
23-May-21	6,970.00	-3.3917	0.14252	-3.5342	12.4906

16-May-21	6,814.65	-2.2288	0.14252	-2.3714	5.62335
9-May-21	6,736.40	-1.1483	0.14252	-1.2908	1.66612
2-May-21	6,703.05	-0.4951	0.14252	-0.6376	0.40653
25-Apr-21	6,455.65	-3.6909	0.14252	-3.8334	14.6948
18-Apr-21	6,676.10	3.41484	0.14252	3.27232	10.708
11-Apr-21	6,648.10	-0.4194	0.14252	-0.5619	0.31576
4-Apr-21	6,827.10	2.6925	0.14252	2.54998	6.50238
28-Mar-21	6,923.90	1.41788	0.14252	1.27536	1.62653
21-Mar-21	6,784.45	-2.014	0.14252	-2.1566	4.65076
14-Mar-21	7,113.55	4.8508	0.14252	4.70828	22.1679
7-Mar-21	7,096.20	-0.2439	0.14252	-0.3864	0.14932
28-Feb-21	7,249.00	2.15327	0.14252	2.01074	4.04308
21-Feb-21	6,866.15	-5.2814	0.14252	-5.4239	29.4191
14-Feb-21	7,323.00	6.65366	0.14252	6.51113	42.3949
7-Feb-21	7,568.50	3.35245	0.14252	3.20993	10.3036
31-Jan-21	7,494.15	-0.9824	0.14252	-1.1249	1.26536
24-Jan-21	7,206.65	-3.8363	0.14252	-3.9788	15.8312
17-Jan-21	8,048.85	11.6864	0.14252	11.5439	133.262
10-Jan-21	8,024.75	-0.2994	0.14252	-0.4419	0.19531
3-Jan-21	8,014.90	-0.1227	0.14252	-0.2653	0.07037
27-Dec-20	7,691.30	-4.0375	0.14252	-4.18	17.4724
20-Dec-20	7,446.05	-3.1887	0.14252	-3.3312	11.0968
13-Dec-20	7,559.75	1.52698	0.14252	1.38446	1.91673
6-Dec-20	7,733.55	2.29902	0.14252	2.15649	4.65047
29-Nov-20	7,803.15	0.89997	0.14252	0.75745	0.57373
22-Nov-20	7,035.80	-9.8338	0.14252	-9.9764	99.528
15-Nov-20	6,965.85	-0.9942	0.14252	-1.1367	1.29214
8-Nov-20	6,809.25	-2.2481	0.14252	-2.3906	5.71513
1-Nov-20	6,907.60	1.44436	0.14252	1.30184	1.69478
25-Oct-20	6,965.15	0.83314	0.14252	0.69062	0.47695
18-Oct-20	7,103.25	1.98273	0.14252	1.84021	3.38636
11-Oct-20	6,894.90	-2.9332	0.14252	-3.0757	9.45985
4-Oct-20	7,062.40	2.42933	0.14252	2.28681	5.2295
27-Sep-20	6,796.30	-3.7678	0.14252	-3.9104	15.2909
20-Sep-20	6,497.70	-4.3936	0.14252	-4.5361	20.5761
13-Sep-20	6,964.75	7.18793	0.14252	7.04541	49.6377
6-Sep-20	7,193.60	3.28583	0.14252	3.14331	9.88039
30-Aug-20	7,190.10	-0.0487	0.14252	-0.1912	0.03655
23-Aug-20	7,104.10	-1.1961	0.14252	-1.3386	1.79188
16-Aug-20	6,973.00	-1.8454	0.14252	-1.9879	3.95189
9-Aug-20	6,588.20	-5.5184	0.14252	-5.661	32.0464
2-Aug-20	6,679.00	1.37822	0.14252	1.2357	1.52695
26-Jul-20	6,262.75	-6.2322	0.14252	-6.3747	40.6374
19-Jul-20	6,000.70	-4.1843	0.14252	-4.3268	18.7211
12-Jul-20	5,919.50	-1.3532	0.14252	-1.4957	2.23711
5-Jul-20	5,955.65	0.61069	0.14252	0.46817	0.21918
28-Jun-20	5,932.10	-0.3954	0.14252	-0.5379	0.28939
21-Jun-20	5,754.90	-2.9871	0.14252	-3.1297	9.79478
14-Jun-20	5,897.35	2.47528	0.14252	2.33276	5.44177
7-Jun-20	5,561.75	-5.6907	0.14252	-5.8332	34.0264

31-May-20	5,746.20	3.3164	0.14252	3.17388	10.0735
24-May-20	5,610.80	-2.3563	0.14252	-2.4989	6.24431
17-May-20	5,134.30	-8.4926	0.14252	-8.6351	74.5645
10-May-20	5,100.40	-0.6603	0.14252	-0.8028	0.64447
3-May-20	4,654.15	-8.7493	0.14252	-8.8918	79.0648
26-Apr-20	5,358.80	15.1403	0.14252	14.9977	224.932
19-Apr-20	5,045.65	-5.8437	0.14252	-5.9862	35.8344
12-Apr-20	5,505.00	9.10388	0.14252	8.96136	80.306
5-Apr-20	5,326.65	-3.2398	0.14252	-3.3823	11.44
29-Mar-20	4,011.50	-24.69	0.14252	-24.833	616.654
22-Mar-20	4,646.10	15.8195	0.14252	15.677	245.768
15-Mar-20	5,079.20	9.3218	0.14252	9.17927	84.2591
8-Mar-20	5,838.60	14.9512	0.14252	14.8087	219.296
1-Mar-20	6,445.95	10.4023	0.14252	10.2598	105.263
23-Feb-20	6,283.10	-2.5264	0.14252	-2.6689	7.12311
16-Feb-20	6,757.60	7.552	0.14252	7.40948	54.9004
9-Feb-20	6,913.80	2.31147	0.14252	2.16895	4.70434
2-Feb-20	6,971.75	0.83818	0.14252	0.69566	0.48394
26-Jan-20	6,913.50	-0.8355	0.14252	-0.978	0.95656
19-Jan-20	7,128.45	3.10913	0.14252	2.96661	8.80078
12-Jan-20	7,520.15	5.49488	0.14252	5.35236	28.6478
5-Jan-20	7,330.50	-2.5219	0.14252	-2.6644	7.0991
29-Dec-19	7,254.25	-1.0402	0.14252	-1.1827	1.39877
22-Dec-19	7,344.90	1.24961	0.14252	1.10709	1.22565
15-Dec-19	7,261.50	-1.1355	0.14252	-1.278	1.6333
8-Dec-19	7,214.95	-0.6411	0.14252	-0.7836	0.61399
1-Dec-19	6,886.70	-4.5496	0.14252	-4.6921	22.0158
24-Nov-19	7,245.85	5.21512	0.14252	5.0726	25.7313
17-Nov-19	7,060.45	-2.5587	0.14252	-2.7012	7.29664
10-Nov-19	7,147.20	1.22868	0.14252	1.08615	1.17973
3-Nov-19	7,200.55	0.74645	0.14252	0.60392	0.36472
27-Oct-19	7,618.65	5.8065	0.14252	5.66398	32.0806
20-Oct-19	7,471.15	-1.936	0.14252	-2.0786	4.32042
13-Oct-19	7,302.30	-2.26	0.14252	-2.4025	5.77225
6-Oct-19	6,698.90	-8.2631	0.14252	-8.4057	70.6553
29-Sep-19	6,649.60	-0.7359	0.14252	-0.8785	0.7717
22-Sep-19	6,773.70	1.86628	0.14252	1.72375	2.97133
15-Sep-19	6,591.95	-2.6832	0.14252	-2.8257	7.98455
8-Sep-19	6,450.30	-2.1488	0.14252	-2.2914	5.25031
1-Sep-19	6,186.95	-4.0828	0.14252	-4.2253	17.853
25-Aug-19	6,123.75	-1.0215	0.14252	-1.164	1.35496
18-Aug-19	6,254.35	2.13268	0.14252	1.99016	3.96073
11-Aug-19	5,975.05	-4.4657	0.14252	-4.6082	21.2356
4-Aug-19	6,099.90	2.08952	0.14252	1.947	3.79081
28-Jul-19	5,689.35	-6.7304	0.14252	-6.873	47.2376
21-Jul-19	5,805.65	2.04417	0.14252	1.90165	3.61626
14-Jul-19	5,769.10	-0.6296	0.14252	-0.7721	0.59611
7-Jul-19	5,971.45	3.50748	0.14252	3.36496	11.3229
30-Jun-19	6,360.00	6.50679	0.14252	6.36427	40.504
23-Jun-19	6,534.65	2.74607	0.14252	2.60355	6.77845

16-Jun-19	6,417.25	-1.7966	0.14252	-1.9391	3.76011
9-Jun-19	6,747.40	5.14473	0.14252	5.0022	25.022
2-Jun-19	6,948.25	2.9767	0.14252	2.83418	8.03257
26-May-19	6,869.85	-1.1283	0.14252	-1.2709	1.6151
19-May-19	7,093.15	3.25043	0.14252	3.10791	9.65912
12-May-19	6,706.85	-5.4461	0.14252	-5.5886	31.2327
5-May-19	6,631.60	-1.122	0.14252	-1.2645	1.59899
28-Apr-19	6,710.00	1.18222	0.14252	1.0397	1.08097
21-Apr-19	6,842.85	1.97988	0.14252	1.83736	3.37588
14-Apr-19	7,447.45	8.8355	0.14252	8.69298	75.5678
7-Apr-19	7,342.85	-1.4045	0.14252	-1.547	2.3933
31-Mar-19	7,107.70	-3.2024	0.14252	-3.345	11.1887
24-Mar-19	6,672.55	-6.1222	0.14252	-6.2648	39.2472
17-Mar-19	6,552.70	-1.7962	0.14252	-1.9387	3.75851
10-Mar-19	7,084.00	8.10811	0.14252	7.96559	63.4505
3-Mar-19	6,967.70	-1.6417	0.14252	-1.7843	3.18355
24-Feb-19	6,935.15	-0.4672	0.14252	-0.6097	0.37171
17-Feb-19	6,912.40	-0.328	0.14252	-0.4706	0.22143
10-Feb-19	6,930.05	0.25534	0.14252	0.11282	0.01273
3-Feb-19	7,134.25	2.94659	0.14252	2.80406	7.86278
27-Jan-19	6,962.30	-2.4102	0.14252	-2.5527	6.51642
20-Jan-19	6,513.40	-6.4476	0.14252	-6.5901	43.4295
13-Jan-19	7,357.95	12.9663	0.14252	12.8238	164.45
6-Jan-19	7,320.50	-0.509	0.14252	-0.6515	0.42445
30-Dec-18	7,234.50	-1.1748	0.14252	-1.3173	1.7353
23-Dec-18	7,505.55	3.74663	0.14252	3.60411	12.9896
16-Dec-18	7,536.30	0.4097	0.14252	0.26717	0.07138
9-Dec-18	7,662.15	1.66992	0.14252	1.52739	2.33293
2-Dec-18	7,313.95	-4.5444	0.14252	-4.6869	21.9674
25-Nov-18	7,661.60	4.75325	0.14252	4.61072	21.2588
18-Nov-18	7,411.10	-3.2696	0.14252	-3.4121	11.6423
11-Nov-18	7,341.20	-0.9432	0.14252	-1.0857	1.17875
4-Nov-18	7,283.50	-0.786	0.14252	-0.9285	0.86211
28-Oct-18	7,135.45	-2.0327	0.14252	-2.1752	4.73149
21-Oct-18	6,717.30	-5.8602	0.14252	-6.0027	36.0324
14-Oct-18	6,756.45	0.58282	0.14252	0.4403	0.19386
7-Oct-18	7,287.20	7.85546	0.14252	7.71293	59.4893
30-Sep-18	6,904.35	-5.2537	0.14252	-5.3963	29.1196
23-Sep-18	7,347.95	6.42494	0.14252	6.28241	39.4687
16-Sep-18	8,040.15	9.42031	0.14252	9.27779	86.0774
9-Sep-18	8,626.70	7.29526	0.14252	7.15274	51.1617
2-Sep-18	8,719.20	1.07225	0.14252	0.92973	0.8644
26-Aug-18	9,096.40	4.32608	0.14252	4.18356	17.5022
19-Aug-18	9,163.80	0.74095	0.14252	0.59843	0.35812
12-Aug-18	9,152.10	-0.1277	0.14252	-0.2702	0.07301
5-Aug-18	9,148.25	-0.0421	0.14252	-0.1846	0.03407
29-Jul-18	9,187.00	0.42358	0.14252	0.28106	0.07899
22-Jul-18	9,310.40	1.3432	0.14252	1.20068	1.44163
15-Jul-18	9,398.95	0.95109	0.14252	0.80856	0.65378
8-Jul-18	9,431.05	0.34153	0.14252	0.199	0.0396

1-Jul-18	9,317.50	-1.204	0.14252	-1.3465	1.81313
24-Jun-18	8,825.60	-5.2793	0.14252	-5.4218	29.3963
17-Jun-18	8,874.90	0.5586	0.14252	0.41608	0.17312
10-Jun-18	8,951.60	0.86424	0.14252	0.72171	0.52087
3-Jun-18	8,932.45	-0.2139	0.14252	-0.3565	0.12706
27-May-18	8,808.85	-1.3837	0.14252	-1.5262	2.32941
20-May-18	8,548.15	-2.9595	0.14252	-3.102	9.62269
13-May-18	8,510.95	-0.4352	0.14252	-0.5777	0.33374
6-May-18	8,750.30	2.81226	0.14252	2.66974	7.12749
29-Apr-18	8,678.20	-0.824	0.14252	-0.9665	0.93411
22-Apr-18	8,783.35	1.21166	0.14252	1.06913	1.14305
15-Apr-18	9,025.00	2.75123	0.14252	2.60871	6.80534
8-Apr-18	9,123.95	1.0964	0.14252	0.95388	0.90988
1-Apr-18	9,206.20	0.90147	0.14252	0.75895	0.57601
	Total Returns	0.14252			$\sum D^2=5$ 302.72

Annexure 2.

Stock Price & Returns of Mahindra & Mahindra.

Date	Close price	Returns	Avg returns	Difference (D)	D*D
26-Mar-23	1,158.70				
19-Mar-23	1,150.80	-0.6818	-0.0315	-0.6503	0.42287
12-Mar-23	1,171.50	1.79875	-0.0315	1.83026	3.34987
5-Mar-23	1,226.70	4.71191	-0.0315	4.74342	22.5001
26-Feb-23	1,268.60	3.41567	-0.0315	3.44718	11.8831
19-Feb-23	1,280.20	0.91439	-0.0315	0.94591	0.89475
12-Feb-23	1,341.50	4.78831	-0.0315	4.81983	23.2308
5-Feb-23	1,365.45	1.78531	-0.0315	1.81683	3.30087
29-Jan-23	1,388.00	1.65147	-0.0315	1.68299	2.83244
22-Jan-23	1,320.20	-4.8847	-0.0315	-4.8532	23.5537
15-Jan-23	1,314.75	-0.4128	-0.0315	-0.3813	0.14539
8-Jan-23	1,328.15	1.01921	-0.0315	1.05072	1.10401
1-Jan-23	1,264.90	-4.7623	-0.0315	-4.7307	22.38
25-Dec-22	1,249.20	-1.2412	-0.0315	-1.2097	1.46335
18-Dec-22	1,224.60	-1.9693	-0.0315	-1.9377	3.75485
11-Dec-22	1,251.60	2.2048	-0.0315	2.23632	5.00112
4-Dec-22	1,265.40	1.10259	-0.0315	1.1341	1.28619
27-Nov-22	1,264.60	-0.0632	-0.0315	-0.0317	0.00101
20-Nov-22	1,260.80	-0.3005	-0.0315	-0.269	0.07235
13-Nov-22	1,227.15	-2.6689	-0.0315	-2.6374	6.95601
6-Nov-22	1,287.10	4.8853	-0.0315	4.91682	24.1751
30-Oct-22	1,338.30	3.97793	-0.0315	4.00945	16.0757
23-Oct-22	1,311.65	-1.9913	-0.0315	-1.9598	3.84088
16-Oct-22	1,256.75	-4.1856	-0.0315	-4.1541	17.2561
9-Oct-22	1,230.30	-2.1046	-0.0315	-2.0731	4.29782

2-Oct-22	1,238.85	0.69495	-0.0315	0.72647	0.52776
25-Sep-22	1,268.20	2.36913	-0.0315	2.40065	5.76311
18-Sep-22	1,272.30	0.32329	-0.0315	0.35481	0.12589
11-Sep-22	1,250.10	-1.7449	-0.0315	-1.7134	2.93559
4-Sep-22	1,301.25	4.09167	-0.0315	4.12319	17.0007
28-Aug-22	1,315.95	1.12968	-0.0315	1.1612	1.34838
21-Aug-22	1,274.65	-3.1384	-0.0315	-3.1069	9.65284
14-Aug-22	1,239.40	-2.7655	-0.0315	-2.7339	7.47448
7-Aug-22	1,259.45	1.61772	-0.0315	1.64923	2.71997
31-Jul-22	1,235.90	-1.8699	-0.0315	-1.8383	3.37952
24-Jul-22	1,164.45	-5.7812	-0.0315	-5.7497	33.059
17-Jul-22	1,181.10	1.42986	-0.0315	1.46138	2.13562
10-Jul-22	1,172.50	-0.7281	-0.0315	-0.6966	0.48528
3-Jul-22	1,133.60	-3.3177	-0.0315	-3.2862	10.799
26-Jun-22	1,107.35	-2.3156	-0.0315	-2.2841	5.21718
19-Jun-22	1,072.05	-3.1878	-0.0315	-3.1563	9.96207
12-Jun-22	997.65	-6.94	-0.0315	-6.9085	47.7268
5-Jun-22	1,036.50	3.89415	-0.0315	3.92567	15.4109
29-May-22	1,028.65	-0.7574	-0.0315	-0.7258	0.52684
22-May-22	952.85	-7.3689	-0.0315	-7.3374	53.8369
15-May-22	903.8	-5.1477	-0.0315	-5.1162	26.1755
8-May-22	889.5	-1.5822	-0.0315	-1.5507	2.40465
1-May-22	893.85	0.48904	-0.0315	0.52055	0.27098
24-Apr-22	922.1	3.16049	-0.0315	3.192	10.1889
17-Apr-22	920.65	-0.1572	-0.0315	-0.1257	0.01581
10-Apr-22	866.1	-5.9252	-0.0315	-5.8936	34.7351
3-Apr-22	857.4	-1.0045	-0.0315	-0.973	0.9467
27-Mar-22	826.55	-3.5981	-0.0315	-3.5666	12.7204
20-Mar-22	764.75	-7.4769	-0.0315	-7.4453	55.4332
13-Mar-22	794.4	3.87708	-0.0315	3.9086	15.2772
6-Mar-22	734.8	-7.5025	-0.0315	-7.471	55.8159
27-Feb-22	732.3	-0.3402	-0.0315	-0.3087	0.0953
20-Feb-22	807.6	10.2827	-0.0315	10.3142	106.382
13-Feb-22	852	5.49777	-0.0315	5.52929	30.573
6-Feb-22	853.65	0.19366	-0.0315	0.22518	0.05071
30-Jan-22	841.7	-1.3999	-0.0315	-1.3684	1.8724
23-Jan-22	869.65	3.32066	-0.0315	3.35218	11.2371
16-Jan-22	875.2	0.63819	-0.0315	0.6697	0.4485
9-Jan-22	881.2	0.68556	-0.0315	0.71707	0.51419
2-Jan-22	829	-5.9237	-0.0315	-5.8922	34.7183
26-Dec-21	837.15	0.98311	-0.0315	1.01463	1.02947
19-Dec-21	812.65	-2.9266	-0.0315	-2.8951	8.38149
12-Dec-21	834.6	2.70104	-0.0315	2.73256	7.46686
5-Dec-21	859.7	3.00743	-0.0315	3.03894	9.23518
28-Nov-21	836.95	-2.6463	-0.0315	-2.6148	6.83695
21-Nov-21	853.75	2.00729	-0.0315	2.0388	4.15672
14-Nov-21	923.7	8.19327	-0.0315	8.22478	67.647
7-Nov-21	937.8	1.52647	-0.0315	1.55799	2.42732
31-Oct-21	872.85	-6.9258	-0.0315	-6.8943	47.5309
24-Oct-21	884.25	1.30607	-0.0315	1.33758	1.78913

17-Oct-21	887.85	0.40712	-0.0315	0.43864	0.19241
10-Oct-21	931.4	4.90511	-0.0315	4.93662	24.3703
3-Oct-21	877.8	-5.7548	-0.0315	-5.7233	32.7557
26-Sep-21	827.85	-5.6904	-0.0315	-5.6588	32.0225
19-Sep-21	779.45	-5.8465	-0.0315	-5.815	33.8137
12-Sep-21	754.15	-3.2459	-0.0315	-3.2144	10.3321
5-Sep-21	750.75	-0.4508	-0.0315	-0.4193	0.17583
29-Aug-21	749.9	-0.1132	-0.0315	-0.0817	0.00668
22-Aug-21	775.15	3.36712	-0.0315	3.39863	11.5507
15-Aug-21	785.65	1.35458	-0.0315	1.38609	1.92125
8-Aug-21	778.65	-0.891	-0.0315	-0.8595	0.73868
1-Aug-21	758.25	-2.6199	-0.0315	-2.5884	6.69983
25-Jul-21	743.1	-1.998	-0.0315	-1.9665	3.86715
18-Jul-21	764.2	2.83946	-0.0315	2.87097	8.24248
11-Jul-21	779.8	2.04135	-0.0315	2.07287	4.29677
4-Jul-21	771.55	-1.058	-0.0315	-1.0264	1.05359
27-Jun-21	782.6	1.43218	-0.0315	1.4637	2.14241
20-Jun-21	794.25	1.48863	-0.0315	1.52014	2.31084
13-Jun-21	781.55	-1.599	-0.0315	-1.5675	2.45698
6-Jun-21	809	3.51225	-0.0315	3.54377	12.5583
30-May-21	804.6	-0.5439	-0.0315	-0.5124	0.26252
23-May-21	845.85	5.12677	-0.0315	5.15829	26.6079
16-May-21	818.95	-3.1802	-0.0315	-3.1487	9.91442
9-May-21	741.5	-9.4572	-0.0315	-9.4257	88.8441
2-May-21	767.4	3.49292	-0.0315	3.52444	12.4216
25-Apr-21	752.55	-1.9351	-0.0315	-1.9036	3.62365
18-Apr-21	777.9	3.36855	-0.0315	3.40006	11.5604
11-Apr-21	821.65	5.62412	-0.0315	5.65563	31.9862
4-Apr-21	791.15	-3.712	-0.0315	-3.6805	13.5463
28-Mar-21	807.6	2.07925	-0.0315	2.11077	4.45534
21-Mar-21	799.35	-1.0215	-0.0315	-0.99	0.98016
14-Mar-21	850.3	6.37393	-0.0315	6.40544	41.0297
7-Mar-21	855.8	0.64683	-0.0315	0.67835	0.46015
28-Feb-21	840.4	-1.7995	-0.0315	-1.768	3.12572
21-Feb-21	806.4	-4.0457	-0.0315	-4.0142	16.1136
14-Feb-21	879.25	9.03398	-0.0315	9.06549	82.1832
7-Feb-21	908.55	3.33239	-0.0315	3.3639	11.3158
31-Jan-21	865.5	-4.7383	-0.0315	-4.7068	22.154
24-Jan-21	749.6	-13.391	-0.0315	-13.36	178.479
17-Jan-21	798.4	6.51014	-0.0315	6.54165	42.7932
10-Jan-21	819.65	2.66157	-0.0315	2.69309	7.25273
3-Jan-21	770.5	-5.9965	-0.0315	-5.9649	35.5806
27-Dec-20	732.45	-4.9384	-0.0315	-4.9068	24.077
20-Dec-20	710.9	-2.9422	-0.0315	-2.9107	8.47197
13-Dec-20	733.6	3.19314	-0.0315	3.22465	10.3984
6-Dec-20	727.55	-0.8247	-0.0315	-0.7932	0.62914
29-Nov-20	750.55	3.16129	-0.0315	3.19281	10.194
22-Nov-20	722	-3.8039	-0.0315	-3.7724	14.2307
15-Nov-20	715.6	-0.8864	-0.0315	-0.8549	0.73087
8-Nov-20	629.85	-11.983	-0.0315	-11.951	142.837

1-Nov-20	613.6	-2.58	-0.0315	-2.5485	6.49467
25-Oct-20	594	-3.1943	-0.0315	-3.1627	10.003
18-Oct-20	625.15	5.24411	-0.0315	5.27562	27.8322
11-Oct-20	606.65	-2.9593	-0.0315	-2.9278	8.57186
4-Oct-20	633.2	4.37649	-0.0315	4.40801	19.4305
27-Sep-20	610.15	-3.6402	-0.0315	-3.6087	13.0229
20-Sep-20	592.3	-2.9255	-0.0315	-2.894	8.3752
13-Sep-20	654.15	10.4423	-0.0315	10.4739	109.702
6-Sep-20	614.25	-6.0995	-0.0315	-6.068	36.8207
30-Aug-20	632	2.8897	-0.0315	2.92122	8.53352
23-Aug-20	631.4	-0.0949	-0.0315	-0.0634	0.00402
16-Aug-20	609.8	-3.421	-0.0315	-3.3895	11.4884
9-Aug-20	614.45	0.76255	-0.0315	0.79406	0.63053
2-Aug-20	600.45	-2.2785	-0.0315	-2.2469	5.04876
26-Jul-20	606.45	0.99925	-0.0315	1.03077	1.06248
19-Jul-20	598.7	-1.2779	-0.0315	-1.2464	1.55355
12-Jul-20	588.8	-1.6536	-0.0315	-1.6221	2.6311
5-Jul-20	554.85	-5.766	-0.0315	-5.7344	32.8839
28-Jun-20	530.5	-4.3886	-0.0315	-4.3571	18.984
21-Jun-20	501.4	-5.4854	-0.0315	-5.4539	29.7448
14-Jun-20	500.05	-0.2692	-0.0315	-0.2377	0.05652
7-Jun-20	508.45	1.67983	-0.0315	1.71135	2.92871
31-May-20	484.2	-4.7694	-0.0315	-4.7379	22.4475
24-May-20	436.35	-9.8823	-0.0315	-9.8508	97.0376
17-May-20	426.35	-2.2917	-0.0315	-2.2602	5.10861
10-May-20	381.3	-10.566	-0.0315	-10.535	110.985
3-May-20	386.7	1.41621	-0.0315	1.44772	2.0959
26-Apr-20	366.65	-5.1849	-0.0315	-5.1534	26.5573
19-Apr-20	334.3	-8.8231	-0.0315	-8.7916	77.2924
12-Apr-20	363.2	8.64493	-0.0315	8.67645	75.2807
5-Apr-20	381.4	5.01101	-0.0315	5.04253	25.4271
29-Mar-20	280.7	-26.403	-0.0315	-26.371	695.441
22-Mar-20	294.5	4.91628	-0.0315	4.9478	24.4807
15-Mar-20	322.6	9.5416	-0.0315	9.57311	91.6445
8-Mar-20	428.85	32.9355	-0.0315	32.967	1086.83
1-Mar-20	471	9.82861	-0.0315	9.86013	97.2221
23-Feb-20	457.05	-2.9618	-0.0315	-2.9303	8.58647
16-Feb-20	524.85	14.8343	-0.0315	14.8658	220.991
9-Feb-20	523	-0.3525	-0.0315	-0.321	0.10302
2-Feb-20	569.1	8.81453	-0.0315	8.84605	78.2526
26-Jan-20	567.15	-0.3426	-0.0315	-0.3111	0.0968
19-Jan-20	567.75	0.10579	-0.0315	0.13731	0.01885
12-Jan-20	569.3	0.27301	-0.0315	0.30452	0.09273
5-Jan-20	546.6	-3.9874	-0.0315	-3.9558	15.6486
29-Dec-19	532.75	-2.5338	-0.0315	-2.5023	6.26165
22-Dec-19	530.15	-0.488	-0.0315	-0.4565	0.20841
15-Dec-19	530.6	0.08488	-0.0315	0.1164	0.01355
8-Dec-19	516.2	-2.7139	-0.0315	-2.6824	7.19523
1-Dec-19	510.2	-1.1623	-0.0315	-1.1308	1.27876
24-Nov-19	530.55	3.98863	-0.0315	4.02015	16.1616

17-Nov-19	546	2.91207	-0.0315	2.94359	8.66471
10-Nov-19	583.05	6.78571	-0.0315	6.81723	46.4746
3-Nov-19	580	-0.5231	-0.0315	-0.4916	0.24167
27-Oct-19	589.75	1.68103	-0.0315	1.71255	2.93283
20-Oct-19	577.7	-2.0432	-0.0315	-2.0117	4.04703
13-Oct-19	593.3	2.70036	-0.0315	2.73188	7.46316
6-Oct-19	560.1	-5.5958	-0.0315	-5.5643	30.9615
29-Sep-19	564.25	0.74094	-0.0315	0.77245	0.59669
22-Sep-19	555.1	-1.6216	-0.0315	-1.5901	2.52844
15-Sep-19	568.9	2.48604	-0.0315	2.51755	6.33808
8-Sep-19	551.25	-3.1025	-0.0315	-3.071	9.43081
1-Sep-19	529.5	-3.9456	-0.0315	-3.9141	15.3199
25-Aug-19	528.8	-0.1322	-0.0315	-0.1007	0.01014
18-Aug-19	533.25	0.84153	-0.0315	0.87304	0.76221
11-Aug-19	527.85	-1.0127	-0.0315	-0.9811	0.96264
4-Aug-19	545.55	3.35323	-0.0315	3.38474	11.4565
28-Jul-19	556.45	1.99798	-0.0315	2.0295	4.11887
21-Jul-19	564.45	1.43769	-0.0315	1.4692	2.15855
14-Jul-19	571.3	1.21357	-0.0315	1.24509	1.55024
7-Jul-19	631.9	10.6074	-0.0315	10.6389	113.186
30-Jun-19	642.05	1.60627	-0.0315	1.63778	2.68233
23-Jun-19	655.35	2.07149	-0.0315	2.10301	4.42263
16-Jun-19	627.45	-4.2573	-0.0315	-4.2258	17.857
9-Jun-19	637.25	1.56188	-0.0315	1.59339	2.5389
2-Jun-19	644.05	1.06709	-0.0315	1.0986	1.20692
26-May-19	647.05	0.4658	-0.0315	0.49732	0.24733
19-May-19	665.45	2.84368	-0.0315	2.87519	8.26672
12-May-19	619.65	-6.8826	-0.0315	-6.851	46.9368
5-May-19	628.75	1.46857	-0.0315	1.50009	2.25026
28-Apr-19	645.8	2.71173	-0.0315	2.74325	7.5254
21-Apr-19	659.45	2.11366	-0.0315	2.14517	4.60177
14-Apr-19	684.65	3.82137	-0.0315	3.85288	14.8447
7-Apr-19	678.2	-0.9421	-0.0315	-0.9106	0.82914
31-Mar-19	658.2	-2.949	-0.0315	-2.9175	8.51161
24-Mar-19	673.9	2.38529	-0.0315	2.41681	5.84097
17-Mar-19	678.8	0.72711	-0.0315	0.75863	0.57551
10-Mar-19	694.6	2.32764	-0.0315	2.35915	5.5656
3-Mar-19	670.15	-3.52	-0.0315	-3.4885	12.1696
24-Feb-19	649.7	-3.0516	-0.0315	-3.02	9.12064
17-Feb-19	646.6	-0.4771	-0.0315	-0.4456	0.19858
10-Feb-19	627.55	-2.9462	-0.0315	-2.9147	8.49527
3-Feb-19	682.1	8.69253	-0.0315	8.72405	76.1091
27-Jan-19	688.4	0.92362	-0.0315	0.95513	0.91228
20-Jan-19	683.5	-0.7118	-0.0315	-0.6803	0.46278
13-Jan-19	734.95	7.52743	-0.0315	7.55895	57.1377
6-Jan-19	727.9	-0.9592	-0.0315	-0.9277	0.86069
30-Dec-18	725.6	-0.316	-0.0315	-0.2845	0.08092
23-Dec-18	803.55	10.7428	-0.0315	10.7743	116.087
16-Dec-18	781.15	-2.7876	-0.0315	-2.7561	7.59616
9-Dec-18	757.25	-3.0596	-0.0315	-3.0281	9.16924

2-Dec-18	721.1	-4.7739	-0.0315	-4.7423	22.4898
25-Nov-18	790.9	9.67966	-0.0315	9.71117	94.3069
18-Nov-18	746.1	-5.6644	-0.0315	-5.6329	31.7298
11-Nov-18	767.6	2.88165	-0.0315	2.91317	8.48654
4-Nov-18	795.25	3.60214	-0.0315	3.63365	13.2034
28-Oct-18	783.55	-1.4712	-0.0315	-1.4397	2.07279
21-Oct-18	728.2	-7.064	-0.0315	-7.0325	49.4559
14-Oct-18	741.2	1.78522	-0.0315	1.81674	3.30054
7-Oct-18	768.5	3.68322	-0.0315	3.71473	13.7992
30-Sep-18	769.55	0.13663	-0.0315	0.16815	0.02827
23-Sep-18	860.95	11.8771	-0.0315	11.9086	141.814
16-Sep-18	959.9	11.4931	-0.0315	11.5246	132.817
9-Sep-18	951.9	-0.8334	-0.0315	-0.8019	0.64305
2-Sep-18	973.7	2.29016	-0.0315	2.32167	5.39016
26-Aug-18	965.3	-0.8627	-0.0315	-0.8312	0.69085
19-Aug-18	968.3	0.31078	-0.0315	0.3423	0.11717
12-Aug-18	961.5	-0.7023	-0.0315	-0.6707	0.4499
5-Aug-18	945.95	-1.6173	-0.0315	-1.5857	2.5146
29-Jul-18	920.65	-2.6746	-0.0315	-2.643	6.98568
22-Jul-18	909.85	-1.1731	-0.0315	-1.1416	1.30318
15-Jul-18	909.75	-0.011	-0.0315	0.02053	0.00042
8-Jul-18	906.7	-0.3353	-0.0315	-0.3037	0.09226
1-Jul-18	924.95	2.01279	-0.0315	2.04431	4.1792
24-Jun-18	897.7	-2.9461	-0.0315	-2.9146	8.49483
17-Jun-18	908.2	1.16966	-0.0315	1.20117	1.44281
10-Jun-18	909.45	0.13763	-0.0315	0.16915	0.02861
3-Jun-18	911.65	0.2419	-0.0315	0.27342	0.07476
27-May-18	901.6	-1.1024	-0.0315	-1.0709	1.14679
20-May-18	857.7	-4.8691	-0.0315	-4.8376	23.4024
13-May-18	836	-2.53	-0.0315	-2.4985	6.24253
6-May-18	869.1	3.95933	-0.0315	3.99085	15.9269
29-Apr-18	854.3	-1.7029	-0.0315	-1.6714	2.79356
22-Apr-18	862.7	0.98326	-0.0315	1.01478	1.02977
15-Apr-18	799.5	-7.3258	-0.0315	-7.2943	53.2071
8-Apr-18	789.6	-1.2383	-0.0315	-1.2068	1.45626
1-Apr-18	771.95	-2.2353	-0.0315	-2.2038	4.8567
	Total returns	-0.0315			$\Sigma D^2=6540.85$

Annexure 3.

Stock price & returns of Hindustan motors.

Date	Close Price	returns	Avg Returns	Difference	D*D
26-Mar-23	12.9				
19-Mar-23	13.65	5.81395	0.21014	5.60382	31.4028
12-Mar-23	13.8	1.0989	0.21014	0.88877	0.78991

5-Mar-23	14.95	8.33333	0.21014	8.1232	65.9864
26-Feb-23	13.7	-8.3612	0.21014	-8.5713	73.4679
19-Feb-23	13.8	0.72993	0.21014	0.51979	0.27018
12-Feb-23	15	8.69565	0.21014	8.48552	72.004
5-Feb-23	15.6	4	0.21014	3.78986	14.3631
29-Jan-23	15.7	0.64103	0.21014	0.43089	0.18567
22-Jan-23	16.25	3.50318	0.21014	3.29305	10.8442
15-Jan-23	16.8	3.38462	0.21014	3.17448	10.0773
8-Jan-23	16.85	0.29762	0.21014	0.08748	0.00765
1-Jan-23	17.1	1.48368	0.21014	1.27354	1.62192
25-Dec-22	17.35	1.46199	0.21014	1.25185	1.56714
18-Dec-22	15.95	-8.0692	0.21014	-8.2793	68.5468
11-Dec-22	18.25	14.4201	0.21014	14.2099	201.922
4-Dec-22	18.95	3.83562	0.21014	3.62548	13.1441
27-Nov-22	20.3	7.12401	0.21014	6.91388	47.8017
20-Nov-22	20.3	0	0.21014	-0.2101	0.04416
13-Nov-22	17.15	-15.517	0.21014	-15.727	247.35
6-Nov-22	17.35	1.16618	0.21014	0.95605	0.91402
30-Oct-22	16.3	-6.0519	0.21014	-6.262	39.2127
23-Oct-22	16.15	-0.9202	0.21014	-1.1304	1.27776
16-Oct-22	15.9	-1.548	0.21014	-1.7581	3.091
9-Oct-22	16	0.62893	0.21014	0.4188	0.17539
2-Oct-22	17.5	9.375	0.21014	9.16486	83.9948
25-Sep-22	16.35	-6.5714	0.21014	-6.7816	45.9896
18-Sep-22	15.9	-2.7523	0.21014	-2.9624	8.77598
11-Sep-22	16.5	3.77358	0.21014	3.56345	12.6982
4-Sep-22	16.75	1.51515	0.21014	1.30502	1.70307
28-Aug-22	16.45	-1.791	0.21014	-2.0012	4.00472
21-Aug-22	16.85	2.43161	0.21014	2.22148	4.93496
14-Aug-22	16.95	0.59347	0.21014	0.38334	0.14695
7-Aug-22	15.35	-9.4395	0.21014	-9.6497	93.116
31-Jul-22	16.3	6.18893	0.21014	5.97879	35.7459
24-Jul-22	16.7	2.45399	0.21014	2.24385	5.03488
17-Jul-22	18.35	9.88024	0.21014	9.6701	93.5109
10-Jul-22	18.3	-0.2725	0.21014	-0.4826	0.23292
3-Jul-22	19.95	9.01639	0.21014	8.80626	77.5502
26-Jun-22	18.65	-6.5163	0.21014	-6.7264	45.2448
19-Jun-22	18.9	1.34048	0.21014	1.13035	1.27769
12-Jun-22	21.9	15.873	0.21014	15.6629	245.326
5-Jun-22	23.15	5.70776	0.21014	5.49763	30.2239
29-May-22	18.15	-21.598	0.21014	-21.808	475.607
22-May-22	14.3	-21.212	0.21014	-21.422	458.913
15-May-22	10.6	-25.874	0.21014	-26.084	680.389
8-May-22	10.4	-1.8868	0.21014	-2.0969	4.3971
1-May-22	10.9	4.80769	0.21014	4.59756	21.1375
24-Apr-22	11.75	7.79817	0.21014	7.58803	57.5782
17-Apr-22	11.9	1.2766	0.21014	1.06646	1.13734
10-Apr-22	12.55	5.46218	0.21014	5.25205	27.584
3-Apr-22	13.45	7.17131	0.21014	6.96118	48.458
27-Mar-22	12.25	-8.9219	0.21014	-9.1321	83.3947

20-Mar-22	12.1	-1.2245	0.21014	-1.4346	2.05815
13-Mar-22	11.6	-4.1322	0.21014	-4.3424	18.8561
6-Mar-22	11.3	-2.5862	0.21014	-2.7963	7.81953
27-Feb-22	10.5	-7.0796	0.21014	-7.2898	53.1409
20-Feb-22	10.15	-3.3333	0.21014	-3.5435	12.5562
13-Feb-22	11.35	11.8227	0.21014	11.6125	134.851
6-Feb-22	11.95	5.28634	0.21014	5.07621	25.7679
30-Jan-22	12.65	5.85774	0.21014	5.64761	31.8954
23-Jan-22	13.05	3.16206	0.21014	2.95192	8.71383
16-Jan-22	13	-0.3831	0.21014	-0.5933	0.35198
9-Jan-22	13.2	1.53846	0.21014	1.32833	1.76445
2-Jan-22	13.9	5.30303	0.21014	5.0929	25.9376
26-Dec-21	11.75	-15.468	0.21014	-15.678	245.792
19-Dec-21	11.4	-2.9787	0.21014	-3.1889	10.1688
12-Dec-21	11.4	0	0.21014	-0.2101	0.04416
5-Dec-21	11.7	2.63158	0.21014	2.42144	5.86339
28-Nov-21	11.9	1.7094	0.21014	1.49927	2.2478
21-Nov-21	11.8	-0.8403	0.21014	-1.0505	1.10349
14-Nov-21	12.45	5.50847	0.21014	5.29834	28.0724
7-Nov-21	11.9	-4.4177	0.21014	-4.6278	21.4166
31-Oct-21	13.4	12.605	0.21014	12.3949	153.634
24-Oct-21	11.1	-17.164	0.21014	-17.374	301.867
17-Oct-21	14.2	27.9279	0.21014	27.7178	768.276
10-Oct-21	15.75	10.9155	0.21014	10.7054	114.605
3-Oct-21	9.25	-41.27	0.21014	-41.48	1720.59
26-Sep-21	7.4	-20	0.21014	-20.21	408.45
19-Sep-21	7.35	-0.6757	0.21014	-0.8858	0.78466
12-Sep-21	7.7	4.7619	0.21014	4.55177	20.7186
5-Sep-21	7.7	0	0.21014	-0.2101	0.04416
29-Aug-21	7.8	1.2987	0.21014	1.08857	1.18498
22-Aug-21	7.7	-1.2821	0.21014	-1.4922	2.22662
15-Aug-21	7.85	1.94805	0.21014	1.73792	3.02036
8-Aug-21	8.45	7.64331	0.21014	7.43318	55.2521
1-Aug-21	8.45	0	0.21014	-0.2101	0.04416
25-Jul-21	8.5	0.59172	0.21014	0.38158	0.1456
18-Jul-21	7.95	-6.4706	0.21014	-6.6807	44.6321
11-Jul-21	8.3	4.40252	0.21014	4.19238	17.5761
4-Jul-21	8.75	5.42169	0.21014	5.21155	27.1603
27-Jun-21	9	2.85714	0.21014	2.64701	7.00665
20-Jun-21	8.75	-2.7778	0.21014	-2.9879	8.92762
13-Jun-21	8.35	-4.5714	0.21014	-4.7816	22.8634
6-Jun-21	9.05	8.38323	0.21014	8.1731	66.7995
30-May-21	7.95	-12.155	0.21014	-12.365	152.889
23-May-21	8.2	3.14465	0.21014	2.93452	8.6114
16-May-21	7.8	-4.878	0.21014	-5.0882	25.8896
9-May-21	7.4	-5.1282	0.21014	-5.3383	28.4979
2-May-21	6.8	-8.1081	0.21014	-8.3182	69.1932
25-Apr-21	6.75	-0.7353	0.21014	-0.9454	0.89384
18-Apr-21	6.85	1.48148	0.21014	1.27135	1.61632
11-Apr-21	6.55	-4.3796	0.21014	-4.5897	21.0653

4-Apr-21	6.75	3.05344	0.21014	2.8433	8.08436
28-Mar-21	6.8	0.74074	0.21014	0.53061	0.28154
21-Mar-21	6.5	-4.4118	0.21014	-4.6219	21.362
14-Mar-21	6.9	6.15385	0.21014	5.94371	35.3277
7-Mar-21	7.1	2.89855	0.21014	2.68842	7.22758
28-Feb-21	7.3	2.8169	0.21014	2.60677	6.79523
21-Feb-21	7.6	4.10959	0.21014	3.89945	15.2057
14-Feb-21	7.9	3.94737	0.21014	3.73723	13.9669
7-Feb-21	6.7	-15.19	0.21014	-15.4	237.16
31-Jan-21	5.95	-11.194	0.21014	-11.404	130.055
24-Jan-21	6.3	5.88235	0.21014	5.67222	32.1741
17-Jan-21	6.05	-3.9683	0.21014	-4.1784	17.4589
10-Jan-21	7.65	26.4463	0.21014	26.2361	688.335
3-Jan-21	9.6	25.4902	0.21014	25.2801	639.081
27-Dec-20	7.6	-20.833	0.21014	-21.043	442.828
20-Dec-20	7.8	2.63158	0.21014	2.42144	5.86339
13-Dec-20	7.2	-7.6923	0.21014	-7.9024	62.4486
6-Dec-20	6.6	-8.3333	0.21014	-8.5435	72.9909
29-Nov-20	6.3	-4.5455	0.21014	-4.7556	22.6156
22-Nov-20	5.5	-12.698	0.21014	-12.909	166.631
15-Nov-20	5.05	-8.1818	0.21014	-8.392	70.4249
8-Nov-20	4.95	-1.9802	0.21014	-2.1903	4.79756
1-Nov-20	4.95	0	0.21014	-0.2101	0.04416
25-Oct-20	5	1.0101	0.21014	0.79997	0.63995
18-Oct-20	5	0	0.21014	-0.2101	0.04416
11-Oct-20	5	0	0.21014	-0.2101	0.04416
4-Oct-20	5	0	0.21014	-0.2101	0.04416
27-Sep-20	5.3	6	0.21014	5.78986	33.5225
20-Sep-20	5.1	-3.7736	0.21014	-3.9837	15.87
13-Sep-20	5.75	12.7451	0.21014	12.535	157.125
6-Sep-20	6.05	5.21739	0.21014	5.00726	25.0726
30-Aug-20	5.95	-1.6529	0.21014	-1.863	3.47087
23-Aug-20	6.15	3.36134	0.21014	3.15121	9.93012
16-Aug-20	6.25	1.62602	0.21014	1.41588	2.00472
9-Aug-20	6.1	-2.4	0.21014	-2.6101	6.8128
2-Aug-20	6.65	9.01639	0.21014	8.80626	77.5502
26-Jul-20	5.5	-17.293	0.21014	-17.503	306.368
19-Jul-20	5.6	1.81818	0.21014	1.60805	2.58581
12-Jul-20	5.8	3.57143	0.21014	3.36129	11.2983
5-Jul-20	5.95	2.58621	0.21014	2.37607	5.64572
28-Jun-20	6.6	10.9244	0.21014	10.7142	114.795
21-Jun-20	7.05	6.81818	0.21014	6.60805	43.6663
14-Jun-20	5.65	-19.858	0.21014	-20.068	402.736
7-Jun-20	6.5	15.0442	0.21014	14.8341	220.051
31-May-20	7.5	15.3846	0.21014	15.1745	230.265
24-May-20	4.55	-39.333	0.21014	-39.543	1563.69
17-May-20	3.7	-18.681	0.21014	-18.891	356.887
10-May-20	3.9	5.40541	0.21014	5.19527	26.9908
3-May-20	3.9	0	0.21014	-0.2101	0.04416
26-Apr-20	3.95	1.28205	0.21014	1.07192	1.149

19-Apr-20	3.95	0	0.21014	-0.2101	0.04416
12-Apr-20	4.05	2.53165	0.21014	2.32151	5.38941
5-Apr-20	4.05	0	0.21014	-0.2101	0.04416
29-Mar-20	4.1	1.23457	0.21014	1.02443	1.04946
22-Mar-20	3.05	-25.61	0.21014	-25.82	666.667
15-Mar-20	3.15	3.27869	0.21014	3.06855	9.41602
8-Mar-20	4	26.9841	0.21014	26.774	716.847
1-Mar-20	4.65	16.25	0.21014	16.0399	257.277
23-Feb-20	4.75	2.15054	0.21014	1.9404	3.76516
16-Feb-20	5	5.26316	0.21014	5.05302	25.533
9-Feb-20	5	0	0.21014	-0.2101	0.04416
2-Feb-20	5.7	14	0.21014	13.7899	190.16
26-Jan-20	5.65	-0.8772	0.21014	-1.0873	1.18228
19-Jan-20	5.7	0.88496	0.21014	0.67482	0.45538
12-Jan-20	5.65	-0.8772	0.21014	-1.0873	1.18228
5-Jan-20	5.65	0	0.21014	-0.2101	0.04416
29-Dec-19	5.85	3.53982	0.21014	3.32969	11.0868
22-Dec-19	5.75	-1.7094	0.21014	-1.9195	3.68462
15-Dec-19	5.5	-4.3478	0.21014	-4.558	20.775
8-Dec-19	5.6	1.81818	0.21014	1.60805	2.58581
1-Dec-19	5.8	3.57143	0.21014	3.36129	11.2983
24-Nov-19	6.05	4.31034	0.21014	4.10021	16.8117
17-Nov-19	5.65	-6.6116	0.21014	-6.8217	46.5357
10-Nov-19	5.7	0.88496	0.21014	0.67482	0.45538
3-Nov-19	5.6	-1.7544	0.21014	-1.9645	3.85934
27-Oct-19	6.3	12.5	0.21014	12.2899	151.041
20-Oct-19	5.9	-6.3492	0.21014	-6.5593	43.025
13-Oct-19	5.55	-5.9322	0.21014	-6.1423	37.7283
6-Oct-19	5.35	-3.6036	0.21014	-3.8137	14.5446
29-Sep-19	5.7	6.54206	0.21014	6.33192	40.0932
22-Sep-19	6.05	6.14035	0.21014	5.93022	35.1675
15-Sep-19	6.95	14.876	0.21014	14.6659	215.089
8-Sep-19	7	0.71942	0.21014	0.50929	0.25938
1-Sep-19	5.55	-20.714	0.21014	-20.924	437.831
25-Aug-19	5.2	-6.3063	0.21014	-6.5164	42.464
18-Aug-19	5.45	4.80769	0.21014	4.59756	21.1375
11-Aug-19	5.75	5.50459	0.21014	5.29445	28.0312
4-Aug-19	5.55	-3.4783	0.21014	-3.6884	13.6043
28-Jul-19	5.2	-6.3063	0.21014	-6.5164	42.464
21-Jul-19	6	15.3846	0.21014	15.1745	230.265
14-Jul-19	6.05	0.83333	0.21014	0.6232	0.38838
7-Jul-19	6.9	14.0496	0.21014	13.8395	191.53
30-Jun-19	6.7	-2.8986	0.21014	-3.1087	9.66393
23-Jun-19	6.85	2.23881	0.21014	2.02867	4.11551
16-Jun-19	6.4	-6.5693	0.21014	-6.7795	45.9613
9-Jun-19	6.75	5.46875	0.21014	5.25861	27.653
2-Jun-19	7.1	5.18519	0.21014	4.97505	24.7511
26-May-19	7	-1.4085	0.21014	-1.6186	2.61982
19-May-19	7.15	2.14286	0.21014	1.93272	3.73541
12-May-19	6.95	-2.7972	0.21014	-3.0073	9.04408

5-May-19	7.25	4.31655	0.21014	4.10641	16.8626
28-Apr-19	7.2	-0.6897	0.21014	-0.8998	0.80962
21-Apr-19	7.4	2.77778	0.21014	2.56764	6.59279
14-Apr-19	7.5	1.35135	0.21014	1.14122	1.30237
7-Apr-19	7.4	-1.3333	0.21014	-1.5435	2.38229
31-Mar-19	7.65	3.37838	0.21014	3.16824	10.0378
24-Mar-19	7.3	-4.5752	0.21014	-4.7853	22.8991
17-Mar-19	7.05	-3.4247	0.21014	-3.6348	13.2117
10-Mar-19	7.25	2.83688	0.21014	2.62674	6.89979
3-Mar-19	6.8	-6.2069	0.21014	-6.417	41.1783
24-Feb-19	6.7	-1.4706	0.21014	-1.6807	2.82483
17-Feb-19	6.85	2.23881	0.21014	2.02867	4.11551
10-Feb-19	6.75	-1.4599	0.21014	-1.67	2.78886
3-Feb-19	6.85	1.48148	0.21014	1.27135	1.61632
27-Jan-19	7.5	9.48905	0.21014	9.27892	86.0983
20-Jan-19	7.6	1.33333	0.21014	1.1232	1.26157
13-Jan-19	8.1	6.57895	0.21014	6.36881	40.5618
6-Jan-19	8.25	1.85185	0.21014	1.64172	2.69523
30-Dec-18	8.15	-1.2121	0.21014	-1.4223	2.02281
23-Dec-18	7.75	-4.908	0.21014	-5.1181	26.1951
16-Dec-18	7.85	1.29032	0.21014	1.08019	1.16681
9-Dec-18	7.9	0.63694	0.21014	0.42681	0.18216
2-Dec-18	7.75	-1.8987	0.21014	-2.1089	4.44733
25-Nov-18	7.8	0.64516	0.21014	0.43503	0.18925
18-Nov-18	7.85	0.64103	0.21014	0.43089	0.18567
11-Nov-18	8	1.91083	0.21014	1.70069	2.89236
4-Nov-18	7.95	-0.625	0.21014	-0.8351	0.69745
28-Oct-18	8	0.62893	0.21014	0.4188	0.17539
21-Oct-18	7.75	-3.125	0.21014	-3.3351	11.1231
14-Oct-18	7.95	2.58065	0.21014	2.37051	5.61932
7-Oct-18	7.75	-2.5157	0.21014	-2.7259	7.4303
30-Sep-18	7.95	2.58065	0.21014	2.37051	5.61932
23-Sep-18	8.05	1.25786	0.21014	1.04773	1.09773
16-Sep-18	9	11.8012	0.21014	11.5911	134.354
9-Sep-18	9.1	1.11111	0.21014	0.90098	0.81176
2-Sep-18	8.25	-9.3407	0.21014	-9.5508	91.2177
26-Aug-18	8	-3.0303	0.21014	-3.2404	10.5004
19-Aug-18	7.85	-1.875	0.21014	-2.0851	4.34779
12-Aug-18	7.85	0	0.21014	-0.2101	0.04416
5-Aug-18	7.9	0.63694	0.21014	0.42681	0.18216
29-Jul-18	7.5	-5.0633	0.21014	-5.2734	27.809
22-Jul-18	7	-6.6667	0.21014	-6.8768	47.2904
15-Jul-18	6.9	-1.4286	0.21014	-1.6387	2.68536
8-Jul-18	6.9	0	0.21014	-0.2101	0.04416
1-Jul-18	6.9	0	0.21014	-0.2101	0.04416
24-Jun-18	7	1.44928	0.21014	1.23914	1.53547
17-Jun-18	7.1	1.42857	0.21014	1.21844	1.48459
10-Jun-18	7.2	1.40845	0.21014	1.19832	1.43596
3-Jun-18	7.15	-0.6944	0.21014	-0.9046	0.81826
27-May-18	6.95	-2.7972	0.21014	-3.0073	9.04408

20-May-18	6.95	0	0.21014	-0.2101	0.04416
13-May-18	6.95	0	0.21014	-0.2101	0.04416
6-May-18	7.05	1.43885	0.21014	1.22871	1.50974
29-Apr-18	7.1	0.70922	0.21014	0.49908	0.24909
22-Apr-18	7.3	2.8169	0.21014	2.60677	6.79523
15-Apr-18	7.65	4.79452	0.21014	4.58439	21.0166
8-Apr-18	7.8	1.96078	0.21014	1.75065	3.06477
1-Apr-18	8	2.5641	0.21014	2.35397	5.54116
	Total Returns	0.21014			$\sum D^2=18940$

Annexure 4.

Stock price & returns of tata motors.

Date	Close price	Returns	Avg returns	Difference	D*D
26-Mar-23	420.8				
19-Mar-23	416.5	-1.0219	0.18747	-1.2093	1.4625
12-Mar-23	419	0.60024	0.18747	0.41277	0.17038
5-Mar-23	435.85	4.02148	0.18747	3.834	14.6996
26-Feb-23	428	-1.8011	0.18747	-1.9886	3.95434
19-Feb-23	427.75	-0.0584	0.18747	-0.2459	0.06046
12-Feb-23	439.9	2.84044	0.18747	2.65297	7.03825
5-Feb-23	445.85	1.35258	0.18747	1.16511	1.35747
29-Jan-23	445.45	-0.0897	0.18747	-0.2772	0.07683
22-Jan-23	445.6	0.03367	0.18747	-0.1538	0.02365
15-Jan-23	403.15	-9.5265	0.18747	-9.714	94.3609
8-Jan-23	411.5	2.07119	0.18747	1.88371	3.54838
1-Jan-23	382	-7.1689	0.18747	-7.3564	54.1162
25-Dec-22	387.95	1.55759	0.18747	1.37012	1.87722
18-Dec-22	378.35	-2.4745	0.18747	-2.662	7.08635
11-Dec-22	421.6	11.4312	0.18747	11.2437	126.422
4-Dec-22	413.3	-1.9687	0.18747	-2.1562	4.64905
27-Nov-22	435.4	5.34721	0.18747	5.15973	26.6228
20-Nov-22	433.2	-0.5053	0.18747	-0.6928	0.47991
13-Nov-22	423.8	-2.1699	0.18747	-2.3574	5.55721
6-Nov-22	423.5	-0.0708	0.18747	-0.2583	0.0667
30-Oct-22	425.35	0.43684	0.18747	0.24936	0.06218
23-Oct-22	409.9	-3.6323	0.18747	-3.8198	14.5907
16-Oct-22	398.05	-2.8909	0.18747	-3.0784	9.47669
9-Oct-22	396.25	-0.4522	0.18747	-0.6397	0.40919
2-Oct-22	412.15	4.01262	0.18747	3.82514	14.6317
25-Sep-22	404.6	-1.8319	0.18747	-2.0193	4.0777
18-Sep-22	423.1	4.57242	0.18747	4.38494	19.2277
11-Sep-22	432.5	2.2217	0.18747	2.03422	4.13806
4-Sep-22	445.9	3.09827	0.18747	2.91079	8.47271
28-Aug-22	461.75	3.55461	0.18747	3.36713	11.3376

21-Aug-22	465.05	0.71467	0.18747	0.5272	0.27794
14-Aug-22	471	1.27943	0.18747	1.09196	1.19237
7-Aug-22	477.55	1.39066	0.18747	1.20318	1.44765
31-Jul-22	465.25	-2.5756	0.18747	-2.7631	7.63484
24-Jul-22	449.6	-3.3638	0.18747	-3.5513	12.6114
17-Jul-22	454.9	1.17883	0.18747	0.99135	0.98278
10-Jul-22	440.2	-3.2315	0.18747	-3.419	11.6892
3-Jul-22	441.55	0.30668	0.18747	0.1192	0.01421
26-Jun-22	412.7	-6.5338	0.18747	-6.7213	45.1756
19-Jun-22	409.3	-0.8238	0.18747	-1.0113	1.02276
12-Jun-22	388.95	-4.9719	0.18747	-5.1594	26.6192
5-Jun-22	428.05	10.0527	0.18747	9.86523	97.3228
29-May-22	431.9	0.89943	0.18747	0.71195	0.50688
22-May-22	429.6	-0.5325	0.18747	-0.72	0.51841
15-May-22	418	-2.7002	0.18747	-2.8877	8.33859
8-May-22	404.3	-3.2775	0.18747	-3.465	12.0061
1-May-22	408.55	1.0512	0.18747	0.86372	0.74602
24-Apr-22	437.6	7.11051	0.18747	6.92304	47.9285
17-Apr-22	438.85	0.28565	0.18747	0.09817	0.00964
10-Apr-22	431.05	-1.7774	0.18747	-1.9648	3.86063
3-Apr-22	452.05	4.87182	0.18747	4.68435	21.9431
27-Mar-22	441.15	-2.4112	0.18747	-2.5987	6.75331
20-Mar-22	432.1	-2.0515	0.18747	-2.2389	5.01281
13-Mar-22	433.8	0.39343	0.18747	0.20595	0.04242
6-Mar-22	418.15	-3.6077	0.18747	-3.7951	14.403
27-Feb-22	417.25	-0.2152	0.18747	-0.4027	0.16217
20-Feb-22	459.75	10.1857	0.18747	9.99827	99.9653
13-Feb-22	493.15	7.26482	0.18747	7.07734	50.0888
6-Feb-22	498.85	1.15583	0.18747	0.96836	0.93772
30-Jan-22	500.6	0.35081	0.18747	0.16333	0.02668
23-Jan-22	497.3	-0.6592	0.18747	-0.8467	0.71687
16-Jan-22	501.85	0.91494	0.18747	0.72747	0.52921
9-Jan-22	509.9	1.60406	0.18747	1.41659	2.00673
2-Jan-22	490.6	-3.7851	0.18747	-3.9725	15.781
26-Dec-21	482.4	-1.6714	0.18747	-1.8589	3.4555
19-Dec-21	467.6	-3.068	0.18747	-3.2555	10.5981
12-Dec-21	470.2	0.55603	0.18747	0.36856	0.13583
5-Dec-21	494.45	5.15738	0.18747	4.96991	24.7
28-Nov-21	480.1	-2.9022	0.18747	-3.0897	9.54618
21-Nov-21	460.2	-4.145	0.18747	-4.3324	18.7701
14-Nov-21	509.7	10.7562	0.18747	10.5687	111.698
7-Nov-21	507.05	-0.5199	0.18747	-0.7074	0.5004
31-Nov-21	489.7	-3.4218	0.18747	-3.6092	13.0265
24-Oct-21	483.7	-1.2252	0.18747	-1.4127	1.99576
17-Oct-21	490.9	1.48853	0.18747	1.30105	1.69273
10-Oct-21	497.6	1.36484	0.18747	1.17737	1.38619
3-Oct-21	382.95	-23.041	0.18747	-23.228	539.543
26-Sep-21	333.3	-12.965	0.18747	-13.153	172.991
19-Sep-21	317.95	-4.6055	0.18747	-4.7929	22.9722
12-Sep-21	308.6	-2.9407	0.18747	-3.1282	9.78556

5-Sep-21	298.95	-3.127	0.18747	-3.3145	10.9859
29-Aug-21	295.55	-1.1373	0.18747	-1.3248	1.75507
22-Aug-21	285.75	-3.3159	0.18747	-3.5033	12.2733
15-Aug-21	283.1	-0.9274	0.18747	-1.1149	1.24291
8-Aug-21	307.25	8.53055	0.18747	8.34308	69.607
1-Aug-21	300.05	-2.3434	0.18747	-2.5308	6.40517
Jul 25, 21	293.95	-2.033	0.18747	-2.2205	4.93048
18-Jul-21	295.55	0.54431	0.18747	0.35684	0.12733
11-Jul-21	311.25	5.31213	0.18747	5.12466	26.2621
4-Jul-21	306.3	-1.5904	0.18747	-1.7778	3.1607
27-Jun-21	344.9	12.602	0.18747	12.4145	154.121
20-Jun-21	339.65	-1.5222	0.18747	-1.7097	2.92292
13-Jun-21	337.4	-0.6624	0.18747	-0.8499	0.72237
6-Jun-21	350.75	3.95673	0.18747	3.76925	14.2073
30-May-21	334.95	-4.5046	0.18747	-4.6921	22.0159
23-May-21	318.75	-4.8365	0.18747	-5.024	25.2408
16-May-21	313.1	-1.7725	0.18747	-1.96	3.84169
9-May-21	312.25	-0.2715	0.18747	-0.459	0.21064
2-May-21	302.75	-3.0424	0.18747	-3.2299	10.4323
25-Apr-21	293.85	-2.9397	0.18747	-3.1272	9.77934
18-Apr-21	294	0.05105	0.18747	-0.1364	0.01861
11-Apr-21	310	5.44218	0.18747	5.2547	27.6119
4-Apr-21	318.2	2.64516	0.18747	2.45769	6.04022
28-Mar-21	307.75	-3.2841	0.18747	-3.4716	12.0518
21-Mar-21	296.4	-3.6881	0.18747	-3.8755	15.0198
14-Mar-21	308.95	4.23414	0.18747	4.04667	16.3755
7-Mar-21	317.55	2.78362	0.18747	2.59615	6.73998
28-Feb-21	325.15	2.39332	0.18747	2.20585	4.86577
21-Feb-21	322.95	-0.6766	0.18747	-0.8641	0.74664
14-Feb-21	311.85	-3.4371	0.18747	-3.6245	13.1373
7-Feb-21	325.4	4.34504	0.18747	4.15756	17.2853
31-Jan-21	315.9	-2.9195	0.18747	-3.107	9.65319
24-Jan-21	262.7	-16.841	0.18747	-17.028	289.961
17-Jan-21	289.35	10.1447	0.18747	9.95718	99.1454
10-Jan-21	260.3	-10.04	0.18747	-10.227	104.596
3-Jan-21	198.15	-23.876	0.18747	-24.064	579.065
27-Dec-20	186.5	-5.8794	0.18747	-6.0669	36.8068
20-Dec-20	175.95	-5.6568	0.18747	-5.8443	34.156
13-Dec-20	180.55	2.61438	0.18747	2.4269	5.88986
6-Dec-20	178.85	-0.9416	0.18747	-1.129	1.27474
29-Nov-20	184.15	2.96338	0.18747	2.7759	7.70563
22-Nov-20	180.35	-2.0635	0.18747	-2.251	5.06705
15-Nov-20	169.1	-6.2379	0.18747	-6.4253	41.2851
8-Nov-20	146.35	-13.454	0.18747	-13.641	186.078
1-Nov-20	139	-5.0222	0.18747	-5.2097	27.1408
25-Oct-20	132.65	-4.5683	0.18747	-4.7558	22.6178
18-Oct-20	137	3.27931	0.18747	3.09183	9.55942
11-Oct-20	127.75	-6.7518	0.18747	-6.9393	48.1539
4-Oct-20	138.45	8.37573	0.18747	8.18826	67.0476
27-Sep-20	133.5	-3.5753	0.18747	-3.7628	14.1585

20-Sep-20	127.25	-4.6816	0.18747	-4.8691	23.7084
13-Sep-20	147.9	16.2279	0.18747	16.0404	257.295
6-Sep-20	144.3	-2.4341	0.18747	-2.6216	6.87253
30-Aug-20	147.8	2.4255	0.18747	2.23803	5.00877
23-Aug-20	142.8	-3.3829	0.18747	-3.5704	12.7479
16-Aug-20	120.9	-15.336	0.18747	-15.524	240.982
9-Aug-20	124.6	3.06038	0.18747	2.87291	8.25359
2-Aug-20	119.1	-4.4141	0.18747	-4.6016	21.1747
26-Jul-20	104.65	-12.133	0.18747	-12.32	151.786
19-Jul-20	103.75	-0.86	0.18747	-1.0475	1.09722
12-Jul-20	106.4	2.55422	0.18747	2.36674	5.60147
5-Jul-20	107.6	1.12782	0.18747	0.94034	0.88425
28-Jun-20	103.45	-3.8569	0.18747	-4.0444	16.3568
21-Jun-20	101.4	-1.9816	0.18747	-2.1691	4.70503
Jun 14, 20	102.5	1.08481	0.18747	0.89734	0.80522
7-Jun-20	105.3	2.73171	0.18747	2.54423	6.47312
31-May-20	110.75	5.17569	0.18747	4.98821	24.8823
24-May-20	87	-21.445	0.18747	-21.632	467.951
17-May-20	82.8	-4.8276	0.18747	-5.0151	25.1508
10-May-20	84.35	1.87198	0.18747	1.68451	2.83756
3-May-20	81.05	-3.9123	0.18747	-4.0997	16.8079
26-Apr-20	93.25	15.0524	0.18747	14.865	220.967
19-Apr-20	74.2	-20.429	0.18747	-20.616	425.037
12-Apr-20	76.85	3.57143	0.18747	3.38395	11.4511
5-Apr-20	74.6	-2.9278	0.18747	-3.1153	9.70482
29-Mar-20	65.3	-12.466	0.18747	-12.654	160.123
22-Mar-20	70.7	8.26953	0.18747	8.08205	65.3195
15-Mar-20	77.3	9.33522	0.18747	9.14774	83.6812
8-Mar-20	89.75	16.1061	0.18747	15.9186	253.402
1-Mar-20	114.2	27.2423	0.18747	27.0549	731.966
23-Feb-20	128.95	12.9159	0.18747	12.7285	162.014
16-Feb-20	158.5	22.9159	0.18747	22.7284	516.579
9-Feb-20	169.1	6.6877	0.18747	6.50022	42.2529
2-Feb-20	173.6	2.66115	0.18747	2.47367	6.11906
26-Jan-20	176.6	1.72811	0.18747	1.54064	2.37356
19-Jan-20	186.5	5.60589	0.18747	5.41841	29.3592
12-Jan-20	197.3	5.79088	0.18747	5.60341	31.3982
5-Jan-20	196.35	-0.4815	0.18747	-0.669	0.44753
29-Dec-19	191.1	-2.6738	0.18747	-2.8613	8.18687
22-Dec-19	176.15	-7.8231	0.18747	-8.0106	64.1698
15-Dec-19	175.95	-0.1135	0.18747	-0.301	0.09061
8-Dec-19	176.7	0.42626	0.18747	0.23878	0.05702
1-Dec-19	161.5	-8.6022	0.18747	-8.7896	77.2575
24-Nov-19	161.5	0	0.18747	-0.1875	0.03515
17-Nov-19	162.35	0.52632	0.18747	0.33884	0.11481
10-Nov-19	168.55	3.81891	0.18747	3.63144	13.1873
3-Nov-19	169.05	0.29665	0.18747	0.10917	0.01192
27-Oct-19	175.05	3.54925	0.18747	3.36177	11.3015
20-Oct-19	126.85	-27.535	0.18747	-27.722	768.535
13-Oct-19	136.85	7.88333	0.18747	7.69585	59.2261

6-Oct-19	121.3	-11.363	0.18747	-11.55	133.409
29-Sep-19	119.65	-1.3603	0.18747	-1.5477	2.39549
22-Sep-19	119.9	0.20894	0.18747	0.02147	0.00046
15-Sep-19	133.25	11.1343	0.18747	10.9468	119.833
8-Sep-19	129.55	-2.7767	0.18747	-2.9642	8.78654
1-Sep-19	121.25	-6.4068	0.18747	-6.5943	43.4844
25-Aug-19	116.7	-3.7526	0.18747	-3.9401	15.524
18-Aug-19	111.05	-4.8415	0.18747	-5.0289	25.2903
11-Aug-19	121.35	9.2751	0.18747	9.08763	82.585
4-Aug-19	122.05	0.57684	0.18747	0.38937	0.15161
28-Jul-19	130.7	7.08726	0.18747	6.89978	47.607
21-Jul-19	147.15	12.5861	0.18747	12.3986	153.725
14-Jul-19	154.85	5.23276	0.18747	5.04528	25.4549
7-Jul-19	159.3	2.87375	0.18747	2.68627	7.21607
30-Jun-19	160.2	0.56497	0.18747	0.3775	0.1425
23-Jun-19	162.55	1.46692	0.18747	1.27944	1.63697
16-Jun-19	158.9	-2.2455	0.18747	-2.4329	5.91919
9-Jun-19	164.2	3.33543	0.18747	3.14796	9.90963
2-Jun-19	169.5	3.22777	0.18747	3.0403	9.2434
26-May-19	172.6	1.82891	0.18747	1.64143	2.6943
19-May-19	182.3	5.61993	0.18747	5.43246	29.5116
12-May-19	176.85	-2.9896	0.18747	-3.1771	10.0937
5-May-19	185.9	5.11733	0.18747	4.92986	24.3035
28-Apr-19	209.45	12.6681	0.18747	12.4806	155.766
21-Apr-19	215.6	2.93626	0.18747	2.74879	7.55583
14-Apr-19	236.25	9.57792	0.18747	9.39045	88.1805
7-Apr-19	215.95	-8.5926	0.18747	-8.7801	77.0896
31-Mar-19	205.15	-5.0012	0.18747	-5.1886	26.9219
24-Mar-19	174.25	-15.062	0.18747	-15.25	232.551
17-Mar-19	175.4	0.65997	0.18747	0.4725	0.22325
10-Mar-19	180	2.62258	0.18747	2.4351	5.92972
3-Mar-19	181.2	0.66667	0.18747	0.47919	0.22962
24-Feb-19	180.3	-0.4967	0.18747	-0.6842	0.46808
17-Feb-19	174.3	-3.3278	0.18747	-3.5153	12.3571
10-Feb-19	161.65	-7.2576	0.18747	-7.4451	55.4292
3-Feb-19	150.7	-6.7739	0.18747	-6.9614	48.4607
27-Jan-19	181.65	20.5375	0.18747	20.35	414.123
20-Jan-19	173.25	-4.6243	0.18747	-4.8118	23.153
13-Jan-19	183.3	5.80087	0.18747	5.61339	31.5102
6-Jan-19	180.3	-1.6367	0.18747	-1.8241	3.32747
30-Dec-18	170.95	-5.1858	0.18747	-5.3733	28.8721
23-Dec-18	170.85	-0.0585	0.18747	-0.246	0.0605
16-Dec-18	176.25	3.16067	0.18747	2.97319	8.83987
9-Dec-18	166.95	-5.2766	0.18747	-5.4641	29.8561
2-Dec-18	162.4	-2.7254	0.18747	-2.9128	8.48465
25-Nov-18	171.95	5.88054	0.18747	5.69307	32.411
18-Nov-18	182.55	6.16458	0.18747	5.97711	35.7258
11-Nov-18	179.9	-1.4517	0.18747	-1.6391	2.68675
4-Nov-18	195.25	8.53252	0.18747	8.34504	69.6397
28-Oct-18	190.3	-2.5352	0.18747	-2.7227	7.41302

21-Oct-18	168.5	-11.456	0.18747	-11.643	135.561
14-Oct-18	174.7	3.67953	0.18747	3.49205	12.1944
7-Oct-18	183.75	5.18031	0.18747	4.99283	24.9284
30-Sep-18	216.25	17.6871	0.18747	17.4996	306.236
23-Sep-18	223.7	3.44509	0.18747	3.25761	10.612
16-Sep-18	250.35	11.9133	0.18747	11.7258	137.494
9-Sep-18	266.6	6.49091	0.18747	6.30344	39.7333
2-Sep-18	277.4	4.05101	0.18747	3.86354	14.9269
26-Aug-18	267.5	-3.5689	0.18747	-3.7563	14.11
19-Aug-18	255.5	-4.486	0.18747	-4.6735	21.8412
12-Aug-18	258.25	1.07632	0.18747	0.88885	0.79005
5-Aug-18	250.1	-3.1559	0.18747	-3.3433	11.1779
29-Jul-18	258.45	3.33866	0.18747	3.15119	9.93
22-Jul-18	268.15	3.75314	0.18747	3.56567	12.714
15-Jul-18	253.4	-5.5007	0.18747	-5.6881	32.3548
8-Jul-18	263.6	4.02526	0.18747	3.83778	14.7286
1-Jul-18	270.85	2.75038	0.18747	2.5629	6.56848
24-Jun-18	269.3	-0.5723	0.18747	-0.7597	0.57722
17-Jun-18	308	14.3706	0.18747	14.1831	201.161
10-Jun-18	302.95	-1.6396	0.18747	-1.8271	3.33824
3-Jun-18	309.95	2.31061	0.18747	2.12314	4.50771
27-May-18	287.2	-7.3399	0.18747	-7.5274	56.6613
20-May-18	294.15	2.41992	0.18747	2.23244	4.9838
13-May-18	304.6	3.55261	0.18747	3.36513	11.3241
6-May-18	330.8	8.60144	0.18747	8.41397	70.7949
29-Apr-18	334.4	1.08827	0.18747	0.9008	0.81143
22-Apr-18	336.9	0.74761	0.18747	0.56013	0.31375
15-Apr-18	336	-0.2671	0.18747	-0.4546	0.20668
8-Apr-18	357.05	6.26488	0.18747	6.07741	36.9349
1-Apr-18	364.1	1.97451	0.18747	1.78704	3.19351
	Total returns	0.18747			$\sum D^2=12393.3$

Annexure 5.
Stock Price & Returns of Ashok Leyland.

Date	Close price	Returns	Avg returns	Difference	D*D
26-Mar-23	139.2				
19-Mar-23	137.65	-1.1135	0.21772	-1.3312	1.77215
12-Mar-23	139.5	1.34399	0.21772	1.12627	1.26849
5-Mar-23	145.4	4.22939	0.21772	4.01167	16.0935
26-Feb-23	145.05	-0.2407	0.21772	-0.4584	0.21016
19-Feb-23	141.3	-2.5853	0.21772	-2.803	7.85699
12-Feb-23	148.9	5.37863	0.21772	5.16091	26.635
5-Feb-23	147.35	-1.041	0.21772	-1.2587	1.58429
29-Jan-23	153.9	4.4452	0.21772	4.22748	17.8716
22-Jan-23	149.35	-2.9565	0.21772	-3.1742	10.0754

15-Jan-23	144.05	-3.5487	0.21772	-3.7664	14.186
8-Jan-23	147.05	2.08261	0.21772	1.86489	3.47783
1-Jan-23	147.75	0.47603	0.21772	0.25831	0.06672
25-Dec-22	143.4	-2.9442	0.21772	-3.1619	9.99748
18-Dec-22	137.85	-3.8703	0.21772	-4.088	16.7118
11-Dec-22	141	2.28509	0.21772	2.06738	4.27404
4-Dec-22	143.65	1.87943	0.21772	1.66172	2.7613
27-Nov-22	146.05	1.67073	0.21772	1.45301	2.11124
20-Nov-22	148.75	1.84868	0.21772	1.63097	2.66005
13-Nov-22	144.8	-2.6555	0.21772	-2.8732	8.25516
6-Nov-22	147.75	2.03729	0.21772	1.81958	3.31086
30-Oct-22	146.7	-0.7107	0.21772	-0.9284	0.86188
23-Oct-22	149.15	1.67007	0.21772	1.45236	2.10934
16-Oct-22	143	-4.1234	0.21772	-4.3411	18.845
9-Oct-22	148	3.4965	0.21772	3.27879	10.7504
2-Oct-22	159.65	7.87162	0.21772	7.6539	58.5823
25-Sep-22	152.65	-4.3846	0.21772	-4.6023	21.1812
18-Sep-22	159.3	4.35637	0.21772	4.13865	17.1285
11-Sep-22	160.45	0.72191	0.21772	0.50419	0.25421
4-Sep-22	166.55	3.80181	0.21772	3.58409	12.8457
28-Aug-22	163.65	-1.7412	0.21772	-1.9589	3.83743
21-Aug-22	149.5	-8.6465	0.21772	-8.8642	78.5744
14-Aug-22	148	-1.0033	0.21772	-1.2211	1.49099
7-Aug-22	147.15	-0.5743	0.21772	-0.792	0.62733
31-Jul-22	144.95	-1.4951	0.21772	-1.7128	2.93365
24-Jul-22	149	2.79407	0.21772	2.57635	6.63758
17-Jul-22	147.2	-1.2081	0.21772	-1.4258	2.03282
10-Jul-22	144.95	-1.5285	0.21772	-1.7462	3.04939
3-Jul-22	144.1	-0.5864	0.21772	-0.8041	0.64662
26-Jun-22	146.3	1.52672	0.21772	1.309	1.71348
19-Jun-22	140	-4.3062	0.21772	-4.5239	20.466
12-Jun-22	131.5	-6.0714	0.21772	-6.2891	39.5534
5-Jun-22	137.85	4.8289	0.21772	4.61118	21.263
29-May-22	139.5	1.19695	0.21772	0.97924	0.9589
22-May-22	140.3	0.57348	0.21772	0.35576	0.12657
15-May-22	130.35	-7.0919	0.21772	-7.3097	53.4312
8-May-22	122.6	-5.9455	0.21772	-6.1632	37.9856
1-May-22	119.55	-2.4878	0.21772	-2.7055	7.31963
24-Apr-22	127.1	6.31535	0.21772	6.09763	37.1811
17-Apr-22	129.1	1.57356	0.21772	1.35585	1.83832
10-Apr-22	127.65	-1.1232	0.21772	-1.3409	1.79795
3-Apr-22	129.15	1.17509	0.21772	0.95737	0.91656
27-Mar-22	119.15	-7.7429	0.21772	-7.9607	63.372
20-Mar-22	113.55	-4.7	0.21772	-4.9177	24.1835
13-Mar-22	114.45	0.7926	0.21772	0.57489	0.33049
6-Mar-22	105.9	-7.4705	0.21772	-7.6882	59.1089
27-Feb-22	105.85	-0.0472	0.21772	-0.2649	0.07019
20-Feb-22	118	11.4785	0.21772	11.2608	126.805
13-Feb-22	126.5	7.20339	0.21772	6.98567	48.7996
6-Feb-22	133	5.13834	0.21772	4.92062	24.2125

30-Jan-22	136.2	2.40602	0.21772	2.1883	4.78865
23-Jan-22	130.75	-4.0015	0.21772	-4.2192	17.8015
16-Jan-22	138.3	5.77438	0.21772	5.55666	30.8765
9-Jan-22	137.75	-0.3977	0.21772	-0.6154	0.37872
2-Jan-22	132.4	-3.8838	0.21772	-4.1016	16.8228
26-Dec-21	122.45	-7.5151	0.21772	-7.7328	59.7965
19-Dec-21	122.85	0.32666	0.21772	0.10895	0.01187
12-Dec-21	123.2	0.2849	0.21772	0.06718	0.00451
5-Dec-21	127.9	3.81494	0.21772	3.59722	12.94
28-Nov-21	120.65	-5.6685	0.21772	-5.8862	34.6474
21-Nov-21	125.65	4.14422	0.21772	3.9265	15.4174
14-Nov-21	139.4	10.9431	0.21772	10.7254	115.034
7-Nov-21	145.7	4.51937	0.21772	4.30165	18.5042
31-Oct-21	144.95	-0.5148	0.21772	-0.7325	0.53652
24-Oct-21	142.4	-1.7592	0.21772	-1.9769	3.90831
17-Oct-21	139.2	-2.2472	0.21772	-2.4649	6.07577
10-Oct-21	144.75	3.98707	0.21772	3.76935	14.208
3-Oct-21	134.9	-6.8048	0.21772	-7.0226	49.3162
26-Sep-21	130.75	-3.0764	0.21772	-3.2941	10.8509
19-Sep-21	127.4	-2.5621	0.21772	-2.7799	7.72761
12-Sep-21	125.15	-1.7661	0.21772	-1.9838	3.93549
5-Sep-21	125.3	0.11986	0.21772	-0.0979	0.00958
29-Aug-21	120.6	-3.751	0.21772	-3.9687	15.7507
22-Aug-21	120.25	-0.2902	0.21772	-0.5079	0.258
15-Aug-21	119	-1.0395	0.21772	-1.2572	1.5806
8-Aug-21	130.3	9.4958	0.21772	9.27808	86.0828
1-Aug-21	134.15	2.95472	0.21772	2.737	7.49119
25-Jul-21	132.8	-1.0063	0.21772	-1.2241	1.49831
18-Jul-21	124.3	-6.4006	0.21772	-6.6183	43.8022
11-Jul-21	127.85	2.85599	0.21772	2.63828	6.9605
4-Jul-21	124.9	-2.3074	0.21772	-2.5251	6.37617
27-Jun-21	122.45	-1.9616	0.21772	-2.1793	4.74929
20-Jun-21	123.4	0.77583	0.21772	0.55811	0.31149
13-Jun-21	116.45	-5.6321	0.21772	-5.8498	34.2202
6-Jun-21	131.85	13.2246	0.21772	13.0068	169.178
30-May-21	128.4	-2.6166	0.21772	-2.8343	8.03341
23-May-21	124.6	-2.9595	0.21772	-3.1772	10.0947
16-May-21	125.45	0.68218	0.21772	0.46447	0.21573
9-May-21	112.1	-10.642	0.21772	-10.859	117.927
2-May-21	114.25	1.91793	0.21772	1.70021	2.89073
25-Apr-21	112.7	-1.3567	0.21772	-1.5744	2.47871
18-Apr-21	111.3	-1.2422	0.21772	-1.46	2.13146
11-Apr-21	113.65	2.11141	0.21772	1.89369	3.58608
4-Apr-21	121.2	6.6432	0.21772	6.42549	41.2869
28-Mar-21	118.15	-2.5165	0.21772	-2.7342	7.47595
21-Mar-21	114.05	-3.4702	0.21772	-3.6879	13.6005
14-Mar-21	116.3	1.97282	0.21772	1.7551	3.08038
7-Mar-21	122.05	4.94411	0.21772	4.72639	22.3388
28-Feb-21	126.2	3.40025	0.21772	3.18253	10.1285
21-Feb-21	128.85	2.09984	0.21772	1.88212	3.54239

14-Feb-21	123.4	-4.2297	0.21772	-4.4474	19.7797
7-Feb-21	128.25	3.93031	0.21772	3.71259	13.7833
31-Jan-21	131.65	2.65107	0.21772	2.43336	5.92122
24-Jan-21	110.8	-15.837	0.21772	-16.055	257.768
17-Jan-21	122.25	10.3339	0.21772	10.1162	102.338
10-Jan-21	119.6	-2.1677	0.21772	-2.3854	5.69016
3-Jan-21	112.8	-5.6856	0.21772	-5.9033	34.8494
27-Dec-20	99.1	-12.145	0.21772	-12.363	152.846
20-Dec-20	95.25	-3.885	0.21772	-4.1027	16.832
13-Dec-20	98.25	3.14961	0.21772	2.93189	8.59598
6-Dec-20	94.1	-4.2239	0.21772	-4.4416	19.7281
29-Nov-20	94.8	0.74389	0.21772	0.52617	0.27686
22-Nov-20	92.15	-2.7954	0.21772	-3.0131	9.07862
15-Nov-20	90.8	-1.465	0.21772	-1.6827	2.83155
8-Nov-20	90.55	-0.2753	0.21772	-0.493	0.2431
1-Nov-20	85	-6.1292	0.21772	-6.3469	40.2835
25-Oct-20	78.95	-7.1176	0.21772	-7.3354	53.8076
18-Oct-20	81.8	3.60988	0.21772	3.39216	11.5068
11-Oct-20	75	-8.313	0.21772	-8.5307	72.7724
4-Oct-20	75.85	1.13333	0.21772	0.91562	0.83835
27-Sep-20	76.25	0.52736	0.21772	0.30964	0.09588
20-Sep-20	76.3	0.06557	0.21772	-0.1521	0.02315
13-Sep-20	79.7	4.45609	0.21772	4.23838	17.9638
6-Sep-20	68.15	-14.492	0.21772	-14.71	216.371
30-Aug-20	69.8	2.42113	0.21772	2.20341	4.85503
23-Aug-20	70.5	1.00287	0.21772	0.78515	0.61646
16-Aug-20	69.35	-1.6312	0.21772	-1.8489	3.41851
9-Aug-20	61.6	-11.175	0.21772	-11.393	129.799
2-Aug-20	49.95	-18.912	0.21772	-19.13	365.959
26-Jul-20	48.65	-2.6026	0.21772	-2.8203	7.9542
19-Jul-20	50.4	3.59712	0.21772	3.37941	11.4204
12-Jul-20	51.75	2.67857	0.21772	2.46085	6.0558
5-Jul-20	51.15	-1.1594	0.21772	-1.3771	1.89651
28-Jun-20	49.1	-4.0078	0.21772	-4.2255	17.8552
21-Jun-20	52.45	6.82281	0.21772	6.60509	43.6273
14-Jun-20	54.35	3.6225	0.21772	3.40478	11.5925
7-Jun-20	52.35	-3.6799	0.21772	-3.8976	15.191
31-May-20	48.35	-7.6409	0.21772	-7.8586	61.7575
24-May-20	42.45	-12.203	0.21772	-12.42	154.266
17-May-20	43.6	2.70907	0.21772	2.49135	6.20684
10-May-20	47.15	8.1422	0.21772	7.92448	62.7975
3-May-20	47.05	-0.2121	0.21772	-0.4298	0.18473
26-Apr-20	52.35	11.2646	0.21772	11.0469	122.034
19-Apr-20	44.95	-14.136	0.21772	-14.353	206.018
12-Apr-20	48.9	8.78754	0.21772	8.56982	73.4419
5-Apr-20	45.65	-6.6462	0.21772	-6.8639	47.1136
29-Mar-20	38.15	-16.429	0.21772	-16.647	277.125
22-Mar-20	43.3	13.4993	0.21772	13.2816	176.402
15-Mar-20	43.95	1.50115	0.21772	1.28344	1.64721
8-Mar-20	66.7	51.7634	0.21772	51.5457	2656.95

1-Mar-20	71.2	6.74663	0.21772	6.52891	42.6267
23-Feb-20	69.9	-1.8258	0.21772	-2.0436	4.17614
16-Feb-20	84.3	20.6009	0.21772	20.3831	415.472
9-Feb-20	80.25	-4.8043	0.21772	-5.022	25.2204
2-Feb-20	83.75	4.36137	0.21772	4.14365	17.1699
26-Jan-20	81.95	-2.1493	0.21772	-2.367	5.60255
19-Jan-20	86.5	5.55217	0.21772	5.33445	28.4563
12-Jan-20	84	-2.8902	0.21772	-3.1079	9.65898
5-Jan-20	81.35	-3.1548	0.21772	-3.3725	11.3736
29-Dec-19	83.7	2.88875	0.21772	2.67104	7.13443
22-Dec-19	79.7	-4.779	0.21772	-4.9967	24.9669
15-Dec-19	80.4	0.87829	0.21772	0.66058	0.43636
8-Dec-19	80.95	0.68408	0.21772	0.46636	0.21749
1-Dec-19	76.5	-5.4972	0.21772	-5.7149	32.6605
24-Nov-19	79.15	3.46405	0.21772	3.24634	10.5387
17-Nov-19	81.35	2.77953	0.21772	2.56182	6.5629
10-Nov-19	79.5	-2.2741	0.21772	-2.4918	6.20927
3-Nov-19	76.55	-3.7107	0.21772	-3.9284	15.4324
27-Oct-19	75.95	-0.7838	0.21772	-1.0015	1.00304
20-Oct-19	74.7	-1.6458	0.21772	-1.8635	3.47277
13-Oct-19	77.5	3.74833	0.21772	3.53061	12.4652
6-Oct-19	68.65	-11.419	0.21772	-11.637	135.421
29-Sep-19	68.05	-0.874	0.21772	-1.0917	1.19184
22-Sep-19	71.9	5.6576	0.21772	5.43989	29.5924
15-Sep-19	69.2	-3.7552	0.21772	-3.9729	15.7842
8-Sep-19	63.45	-8.3092	0.21772	-8.527	72.7091
1-Sep-19	63.9	0.70922	0.21772	0.4915	0.24158
25-Aug-19	64.45	0.86072	0.21772	0.643	0.41345
18-Aug-19	60.25	-6.5167	0.21772	-6.7344	45.3521
11-Aug-19	63.65	5.64315	0.21772	5.42544	29.4354
4-Aug-19	64.3	1.02121	0.21772	0.80349	0.6456
28-Jul-19	64.4	0.15552	0.21772	-0.0622	0.00387
21-Jul-19	74.2	15.2174	0.21772	14.9997	224.99
14-Jul-19	79.35	6.9407	0.21772	6.72298	45.1985
7-Jul-19	84.9	6.99433	0.21772	6.77661	45.9225
30-Jun-19	87.05	2.53239	0.21772	2.31467	5.35772
23-Jun-19	87.25	0.22975	0.21772	0.01204	0.00014
16-Jun-19	86.5	-0.8596	0.21772	-1.0773	1.16061
9-Jun-19	87.65	1.32948	0.21772	1.11176	1.23602
2-Jun-19	90	2.68112	0.21772	2.4634	6.06835
26-May-19	88.85	-1.2778	0.21772	-1.4955	2.2365
19-May-19	93.8	5.57119	0.21772	5.35347	28.6596
12-May-19	84.5	-9.9147	0.21772	-10.132	102.666
5-May-19	85.9	1.6568	0.21772	1.43909	2.07097
28-Apr-19	89.6	4.30733	0.21772	4.08962	16.725
21-Apr-19	88.5	-1.2277	0.21772	-1.4454	2.08917
14-Apr-19	95.75	8.19209	0.21772	7.97437	63.5906
7-Apr-19	95.65	-0.1044	0.21772	-0.3222	0.10378
31-Mar-19	87.75	-8.2593	0.21772	-8.477	71.8595
24-Mar-19	91.3	4.04558	0.21772	3.82787	14.6526

17-Mar-19	89.6	-1.862	0.21772	-2.0797	4.3252
10-Mar-19	94.1	5.02232	0.21772	4.8046	23.0842
3-Mar-19	89.65	-4.729	0.21772	-4.9467	24.4701
24-Feb-19	86.6	-3.4021	0.21772	-3.6198	13.1032
17-Feb-19	81.85	-5.485	0.21772	-5.7027	32.5208
10-Feb-19	79.95	-2.3213	0.21772	-2.539	6.44671
3-Feb-19	87.05	8.88055	0.21772	8.66283	75.0447
27-Jan-19	83.55	-4.0207	0.21772	-4.2384	17.964
20-Jan-19	82.6	-1.137	0.21772	-1.3548	1.83538
13-Jan-19	92.3	11.7433	0.21772	11.5256	132.84
6-Jan-19	94.3	2.16685	0.21772	1.94913	3.79911
30-Dec-18	96.8	2.65111	0.21772	2.4334	5.92142
23-Dec-18	102.75	6.14669	0.21772	5.92898	35.1528
16-Dec-18	105.35	2.53041	0.21772	2.3127	5.34857
9-Dec-18	104.05	-1.234	0.21772	-1.4517	2.10743
2-Dec-18	102.9	-1.1052	0.21772	-1.323	1.75021
25-Nov-18	112.35	9.18367	0.21772	8.96596	80.3884
18-Nov-18	109.3	-2.7147	0.21772	-2.9324	8.59925
11-Nov-18	105.55	-3.4309	0.21772	-3.6486	13.3126
4-Nov-18	118.25	12.0322	0.21772	11.8145	139.582
28-Oct-18	117.7	-0.4651	0.21772	-0.6828	0.46626
21-Oct-18	113.15	-3.8658	0.21772	-4.0835	16.6748
14-Oct-18	112.5	-0.5745	0.21772	-0.7922	0.62754
7-Oct-18	115.8	2.93333	0.21772	2.71562	7.37457
30-Sep-18	107.75	-6.9516	0.21772	-7.1694	51.3997
23-Sep-18	119.1	10.5336	0.21772	10.3159	106.418
16-Sep-18	122.3	2.68682	0.21772	2.4691	6.09646
9-Sep-18	131.25	7.31807	0.21772	7.10035	50.415
2-Sep-18	132	0.57143	0.21772	0.35371	0.12511
26-Aug-18	129.05	-2.2348	0.21772	-2.4526	6.01508
19-Aug-18	129.2	0.11623	0.21772	-0.1015	0.0103
12-Aug-18	128.35	-0.6579	0.21772	-0.8756	0.7667
5-Aug-18	127.55	-0.6233	0.21772	-0.841	0.7073
29-Jul-18	118.2	-7.3305	0.21772	-7.5482	56.975
22-Jul-18	112.85	-4.5262	0.21772	-4.7439	22.505
15-Jul-18	107.45	-4.7851	0.21772	-5.0028	25.0283
8-Jul-18	132.5	23.3132	0.21772	23.0955	533.4
1-Jul-18	132.3	-0.1509	0.21772	-0.3687	0.13591
24-Jun-18	125.8	-4.9131	0.21772	-5.1308	26.325
17-Jun-18	136.4	8.42607	0.21772	8.20836	67.3771
10-Jun-18	142.25	4.28886	0.21772	4.07114	16.5742
3-Jun-18	145	1.93322	0.21772	1.7155	2.94294
27-May-18	150.85	4.03448	0.21772	3.81677	14.5677
20-May-18	145.1	-3.8117	0.21772	-4.0295	16.2365
13-May-18	148.4	2.27429	0.21772	2.05658	4.22951
6-May-18	161.85	9.06334	0.21772	8.84563	78.2451
29-Apr-18	163.95	1.2975	0.21772	1.07978	1.16593
22-Apr-18	162	-1.1894	0.21772	-1.4071	1.97994
15-Apr-18	155.55	-3.9815	0.21772	-4.1992	17.6333
8-Apr-18	149.4	-3.9537	0.21772	-4.1714	17.4008

1-Apr-18	146.45	-1.9746	0.21772	-2.1923	4.8061
	Total Returns	0.21772			$\sum D^2=10974.5$

Annexure 6.

Stock price & returns of nifty auto index.

Date	Close price	Returns	Avg returns	Difference	D*D
3/26/2023	12,243.80				
3/19/2023	12,113.40	-1.065	0.0389	-1.104	1.2186
3/12/2023	12,245.95	1.0942	0.0389	1.0554	1.1138
3/5/2023	12,741.60	4.0475	0.0389	4.0086	16.069
2/26/2023	12,787.05	0.3567	0.0389	0.3178	0.101
2/19/2023	12,869.10	0.6417	0.0389	0.6028	0.3634
2/12/2023	13,140.00	2.105	0.0389	2.0662	4.2691
2/5/2023	13,235.05	0.7234	0.0389	0.6845	0.4685
1/29/2023	13,377.95	1.0797	0.0389	1.0408	1.0833
1/22/2023	13,089.70	-2.155	0.0389	-2.194	4.8116
1/15/2023	12,691.70	-3.041	0.0389	-3.079	9.4829
1/8/2023	12,832.40	1.1086	0.0389	1.0697	1.1443
1/1/2023	12,627.80	-1.594	0.0389	-1.633	2.6676
12/25/2022	12,611.70	-0.127	0.0389	-0.166	0.0277
12/18/2022	12,236.00	-2.979	0.0389	-3.018	9.1074
12/11/2022	12,775.25	4.4071	0.0389	4.3682	19.081
12/4/2022	12,869.40	0.737	0.0389	0.6981	0.4873
11/27/2022	13,046.35	1.375	0.0389	1.3361	1.7851
11/20/2022	12,958.00	-0.677	0.0389	-0.716	0.5128
11/13/2022	12,774.90	-1.413	0.0389	-1.452	2.108
11/6/2022	13,040.90	2.0822	0.0389	2.0433	4.1752
10/30/2022	13,271.70	1.7698	0.0389	1.7309	2.9962
10/23/2022	13,190.90	-0.609	0.0389	-0.648	0.4195
10/16/2022	12,695.65	-3.754	0.0389	-3.793	14.39
10/9/2022	12,478.25	-1.712	0.0389	-1.751	3.0669
10/2/2022	12,761.95	2.2736	0.0389	2.2347	4.9938
9/25/2022	12,699.30	-0.491	0.0389	-0.53	0.2807
9/18/2022	13,093.50	3.1041	0.0389	3.0652	9.3957
9/11/2022	12,954.45	-1.062	0.0389	-1.101	1.2119
9/4/2022	13,219.60	2.0468	0.0389	2.0079	4.0317
8/28/2022	13,220.65	0.0079	0.0389	-0.031	0.001
8/21/2022	12,929.15	-2.205	0.0389	-2.244	5.0344
8/14/2022	12,946.45	0.1338	0.0389	0.0949	0.009
8/7/2022	12,923.75	-0.175	0.0389	-0.214	0.0459
7/31/2022	12,804.35	-0.924	0.0389	-0.963	0.9269
7/24/2022	12,543.20	-2.04	0.0389	-2.078	4.3198

7/17/2022	12,634.20	0.7255	0.0389	0.6866	0.4714
7/10/2022	12,361.65	-2.157	0.0389	-2.196	4.8229
7/3/2022	12,124.60	-1.918	0.0389	-1.956	3.8279
6/26/2022	11,711.95	-3.403	0.0389	-3.442	11.849
6/19/2022	11,583.25	-1.099	0.0389	-1.138	1.2945
6/12/2022	10,830.90	-6.495	0.0389	-6.534	42.694
6/5/2022	11,394.00	5.199	0.0389	5.1601	26.627
5/29/2022	11,282.15	-0.982	0.0389	-1.021	1.0415
5/22/2022	11,270.25	-0.105	0.0389	-0.144	0.0208
5/15/2022	10,914.60	-3.156	0.0389	-3.195	10.205
5/8/2022	10,412.35	-4.602	0.0389	-4.641	21.534
5/1/2022	10,518.45	1.019	0.0389	0.9801	0.9606
4/24/2022	11,078.10	5.3207	0.0389	5.2818	27.897
4/17/2022	11,028.15	-0.451	0.0389	-0.49	0.2399
4/10/2022	10,698.30	-2.991	0.0389	-3.03	9.18
4/3/2022	10,894.30	1.8321	0.0389	1.7932	3.2155
3/27/2022	10,676.85	-1.996	0.0389	-2.035	4.1407
3/20/2022	10,354.15	-3.022	0.0389	-3.061	9.3716
3/13/2022	10,576.00	2.1426	0.0389	2.1037	4.4258
3/6/2022	9,979.70	-5.638	0.0389	-5.677	32.23
2/27/2022	9,896.65	-0.832	0.0389	-0.871	0.7587
2/20/2022	10,895.30	10.091	0.0389	10.052	101.04
2/13/2022	11,420.45	4.82	0.0389	4.7811	22.859
2/6/2022	11,552.90	1.1598	0.0389	1.1209	1.2564
1/30/2022	11,560.60	0.0666	0.0389	0.0278	0.0008
1/23/2022	11,493.40	-0.581	0.0389	-0.62	0.3846
1/16/2022	11,561.75	0.5947	0.0389	0.5558	0.3089
1/9/2022	11,643.05	0.7032	0.0389	0.6643	0.4413
1/2/2022	11,290.90	-3.025	0.0389	-3.063	9.3846
12/26/2021	10,936.90	-3.135	0.0389	-3.174	10.075
12/19/2021	10,620.75	-2.891	0.0389	-2.93	8.5822
12/12/2021	10,678.65	0.5452	0.0389	0.5063	0.2563
12/5/2021	11,080.05	3.7589	0.0389	3.72	13.839
11/28/2021	10,788.75	-2.629	0.0389	-2.668	7.1178
11/21/2021	10,759.60	-0.27	0.0389	-0.309	0.0955
11/14/2021	11,747.45	9.1811	0.0389	9.1422	83.58
11/7/2021	11,706.50	-0.349	0.0389	-0.387	0.1501
10/31/2021	11,569.80	-1.168	0.0389	-1.207	1.4559
10/24/2021	11,297.45	-2.354	0.0389	-2.393	5.7257
10/17/2021	11,433.95	1.2082	0.0389	1.1694	1.3674
10/10/2021	11,800.30	3.2041	0.0389	3.1652	10.018
10/3/2021	11,079.35	-6.11	0.0389	-6.148	37.804
9/26/2021	10,596.95	-4.354	0.0389	-4.393	19.298
9/19/2021	10,429.05	-1.584	0.0389	-1.623	2.6351
9/12/2021	10,351.45	-0.744	0.0389	-0.783	0.613
9/5/2021	10,112.60	-2.307	0.0389	-2.346	5.505
8/29/2021	10,124.75	0.1201	0.0389	0.0813	0.0066
8/22/2021	9,793.85	-3.268	0.0389	-3.307	10.937
8/15/2021	9,904.70	1.1318	0.0389	1.093	1.1946
8/8/2021	10,178.30	2.7623	0.0389	2.7235	7.4172

8/1/2021	10,249.50	0.6995	0.0389	0.6607	0.4365
7/25/2021	10,048.50	-1.961	0.0389	-2	3.9998
7/18/2021	10,201.35	1.5211	0.0389	1.4823	2.1971
7/11/2021	10,428.45	2.2262	0.0389	2.1873	4.7843
7/4/2021	10,420.30	-0.078	0.0389	-0.117	0.0137
6/27/2021	10,685.50	2.545	0.0389	2.5062	6.2808
6/20/2021	10,706.80	0.1993	0.0389	0.1605	0.0257
6/13/2021	10,443.75	-2.457	0.0389	-2.496	6.2286
6/6/2021	10,765.50	3.0808	0.0389	3.0419	9.2533
5/30/2021	10,735.75	-0.276	0.0389	-0.315	0.0994
5/23/2021	10,510.25	-2.1	0.0389	-2.139	4.5767
5/16/2021	10,312.40	-1.882	0.0389	-1.921	3.6915
5/9/2021	9,810.45	-4.867	0.0389	-4.906	24.072
5/2/2021	9,819.45	0.0917	0.0389	0.0529	0.0028
4/25/2021	9,640.85	-1.819	0.0389	-1.858	3.4511
4/18/2021	9,596.95	-0.455	0.0389	-0.494	0.2443
4/11/2021	9,808.95	2.209	0.0389	2.1702	4.7096
4/4/2021	9,922.95	1.1622	0.0389	1.1233	1.2619
3/28/2021	10,022.60	1.0042	0.0389	0.9654	0.9319
3/21/2021	9,771.50	-2.505	0.0389	-2.544	6.473
3/14/2021	10,186.50	4.247	0.0389	4.2082	17.709
3/7/2021	10,383.90	1.9379	0.0389	1.899	3.6061
2/28/2021	10,524.40	1.3531	0.0389	1.3142	1.7271
2/21/2021	10,169.90	-3.368	0.0389	-3.407	11.609
2/14/2021	10,540.35	3.6426	0.0389	3.6037	12.987
2/7/2021	10,912.25	3.5283	0.0389	3.4895	12.176
1/31/2021	10,723.95	-1.726	0.0389	-1.764	3.1133
1/24/2021	9,813.15	-8.493	0.0389	-8.532	72.795
1/17/2021	10,515.85	7.1608	0.0389	7.1219	50.722
1/10/2021	10,178.30	-3.21	0.0389	-3.249	10.555
1/3/2021	9,741.25	-4.294	0.0389	-4.333	18.773
12/27/2020	9,272.50	-4.812	0.0389	-4.851	23.531
12/20/2020	8,978.05	-3.176	0.0389	-3.214	10.332
12/13/2020	9,168.65	2.123	0.0389	2.0841	4.3434
12/6/2020	9,188.95	0.2214	0.0389	0.1825	0.0333
11/29/2020	9,302.20	1.2325	0.0389	1.1936	1.4246
11/22/2020	8,891.60	-4.414	0.0389	-4.453	19.828
11/15/2020	8,684.75	-2.326	0.0389	-2.365	5.5943
11/8/2020	8,308.90	-4.328	0.0389	-4.367	19.067
11/1/2020	8,006.10	-3.644	0.0389	-3.683	13.566
10/25/2020	7,758.40	-3.094	0.0389	-3.133	9.8142
10/18/2020	8,094.60	4.3334	0.0389	4.2945	18.443
10/11/2020	7,959.45	-1.67	0.0389	-1.709	2.919
10/4/2020	8,163.50	2.5636	0.0389	2.5247	6.3743
9/27/2020	7,966.10	-2.418	0.0389	-2.457	6.0366
9/20/2020	7,669.50	-3.723	0.0389	-3.762	14.154
9/13/2020	8,161.70	6.4176	0.0389	6.3788	40.689
9/6/2020	7,956.80	-2.511	0.0389	-2.549	6.4993
8/30/2020	7,996.55	0.4996	0.0389	0.4607	0.2122
8/23/2020	8,111.85	1.4419	0.0389	1.403	1.9684

8/16/2020	7,934.70	-2.184	0.0389	-2.223	4.9405
8/9/2020	7,677.65	-3.24	0.0389	-3.278	10.748
8/2/2020	7,554.45	-1.605	0.0389	-1.644	2.7012
7/26/2020	7,279.75	-3.636	0.0389	-3.675	13.507
7/19/2020	7,218.65	-0.839	0.0389	-0.878	0.7712
7/12/2020	7,137.30	-1.127	0.0389	-1.166	1.3591
7/5/2020	7,041.10	-1.348	0.0389	-1.387	1.923
6/28/2020	6,971.05	-0.995	0.0389	-1.034	1.0686
6/21/2020	6,731.45	-3.437	0.0389	-3.476	12.082
6/14/2020	6,634.50	-1.44	0.0389	-1.479	2.1878
6/7/2020	6,559.40	-1.132	0.0389	-1.171	1.3709
5/31/2020	6,628.75	1.0573	0.0389	1.0184	1.0371
5/24/2020	6,218.80	-6.184	0.0389	-6.223	38.729
5/17/2020	5,767.00	-7.265	0.0389	-7.304	53.348
5/10/2020	5,745.70	-0.369	0.0389	-0.408	0.1666
5/3/2020	5,447.75	-5.186	0.0389	-5.224	27.295
4/26/2020	5,901.40	8.3273	0.0389	8.2884	68.698
4/19/2020	5,377.25	-8.882	0.0389	-8.921	79.578
4/12/2020	5,668.90	5.4238	0.0389	5.3849	28.997
4/5/2020	5,568.45	-1.772	0.0389	-1.811	3.2791
3/29/2020	4,517.75	-18.87	0.0389	-18.91	357.5
3/22/2020	4,938.70	9.3177	0.0389	9.2788	86.096
3/15/2020	5,370.15	8.7361	0.0389	8.6972	75.642
3/8/2020	6,182.00	15.118	0.0389	15.079	227.37
3/1/2020	6,895.00	11.533	0.0389	11.495	132.13
2/23/2020	6,903.95	0.1298	0.0389	0.0909	0.0083
2/16/2020	7,697.90	11.5	0.0389	11.461	131.36
2/9/2020	7,822.20	1.6147	0.0389	1.5759	2.4833
2/2/2020	8,064.60	3.0989	0.0389	3.06	9.3636
1/26/2020	8,086.55	0.2722	0.0389	0.2333	0.0544
1/19/2020	8,274.85	2.3286	0.0389	2.2897	5.2427
1/12/2020	8,427.60	1.846	0.0389	1.8071	3.2655
1/5/2020	8,225.50	-2.398	0.0389	-2.437	5.9387
12/29/2019	8,168.15	-0.697	0.0389	-0.736	0.5418
12/22/2019	8,205.90	0.4622	0.0389	0.4233	0.1792
12/15/2019	8,133.55	-0.882	0.0389	-0.921	0.8474
12/8/2019	8,069.70	-0.785	0.0389	-0.824	0.6788
12/1/2019	7,806.60	-3.26	0.0389	-3.299	10.885
11/24/2019	8,086.00	3.579	0.0389	3.5402	12.533
11/17/2019	8,034.95	-0.631	0.0389	-0.67	0.4492
11/10/2019	8,153.90	1.4804	0.0389	1.4415	2.078
11/3/2019	8,169.65	0.1932	0.0389	0.1543	0.0238
10/27/2019	8,392.90	2.7327	0.0389	2.6938	7.2566
10/20/2019	7,986.35	-4.844	0.0389	-4.883	23.842
10/13/2019	7,964.75	-0.27	0.0389	-0.309	0.0957
10/6/2019	7,397.05	-7.128	0.0389	-7.167	51.359
9/29/2019	7,404.90	0.1061	0.0389	0.0673	0.0045
9/22/2019	7,554.25	2.0169	0.0389	1.978	3.9126
9/15/2019	7,605.85	0.6831	0.0389	0.6442	0.415
9/8/2019	7,360.60	-3.224	0.0389	-3.263	10.65

9/1/2019	7,102.45	-3.507	0.0389	-3.546	12.575
8/25/2019	7,009.30	-1.312	0.0389	-1.35	1.8236
8/18/2019	6,988.35	-0.299	0.0389	-0.338	0.1141
8/11/2019	6,998.45	0.1445	0.0389	0.1057	0.0112
8/4/2019	7,137.40	1.9854	0.0389	1.9466	3.7891
7/28/2019	6,933.75	-2.853	0.0389	-2.892	8.3645
7/21/2019	7,161.50	3.2847	0.0389	3.2458	10.535
7/14/2019	7,192.75	0.4364	0.0389	0.3975	0.158
7/7/2019	7,653.65	6.4078	0.0389	6.369	40.564
6/30/2019	7,849.10	2.5537	0.0389	2.5148	6.3243
6/23/2019	7,928.05	1.0058	0.0389	0.967	0.935
6/16/2019	7,868.25	-0.754	0.0389	-0.793	0.6291
6/9/2019	8,031.60	2.0761	0.0389	2.0372	4.1502
6/2/2019	8,192.00	1.9971	0.0389	1.9582	3.8347
5/26/2019	8,175.50	-0.201	0.0389	-0.24	0.0577
5/19/2019	8,460.25	3.483	0.0389	3.4441	11.862
5/12/2019	8,085.75	-4.427	0.0389	-4.465	19.94
5/5/2019	8,093.20	0.0921	0.0389	0.0533	0.0028
4/28/2019	8,381.45	3.5616	0.0389	3.5228	12.41
4/21/2019	8,493.80	1.3405	0.0389	1.3016	1.6941
4/14/2019	8,972.65	5.6376	0.0389	5.5988	31.346
4/7/2019	8,777.45	-2.175	0.0389	-2.214	4.9034
3/31/2019	8,564.60	-2.425	0.0389	-2.464	6.0705
3/24/2019	8,335.35	-2.677	0.0389	-2.716	7.3744
3/17/2019	8,336.60	0.015	0.0389	-0.024	0.0006
3/10/2019	8,748.05	4.9355	0.0389	4.8966	23.977
3/3/2019	8,582.60	-1.891	0.0389	-1.93	3.7255
2/24/2019	8,413.65	-1.969	0.0389	-2.007	4.0296
2/17/2019	8,278.95	-1.601	0.0389	-1.64	2.6891
2/10/2019	8,132.55	-1.768	0.0389	-1.807	3.266
2/3/2019	8,420.35	3.5389	0.0389	3.5	12.25
1/27/2019	8,441.25	0.2482	0.0389	0.2093	0.0438
1/20/2019	8,259.80	-2.15	0.0389	-2.188	4.7893
1/13/2019	8,844.80	7.0825	0.0389	7.0436	49.613
1/6/2019	8,862.35	0.1984	0.0389	0.1595	0.0255
12/30/2018	8,809.35	-0.598	0.0389	-0.637	0.4057
12/23/2018	9,223.80	4.7047	0.0389	4.6658	21.77
12/16/2018	9,337.25	1.23	0.0389	1.1911	1.4187
12/9/2018	9,271.50	-0.704	0.0389	-0.743	0.5521
12/2/2018	8,869.80	-4.333	0.0389	-4.372	19.11
11/25/2018	9,270.20	4.5142	0.0389	4.4753	20.029
11/18/2018	9,062.65	-2.239	0.0389	-2.278	5.1882
11/11/2018	9,112.35	0.5484	0.0389	0.5095	0.2596
11/4/2018	9,277.75	1.8151	0.0389	1.7762	3.1551
10/28/2018	9,180.20	-1.051	0.0389	-1.09	1.1888
10/21/2018	8,578.05	-6.559	0.0389	-6.598	43.535
10/14/2018	8,690.25	1.308	0.0389	1.2691	1.6107
10/7/2018	9,084.45	4.5361	0.0389	4.4972	20.225
9/30/2018	8,915.10	-1.864	0.0389	-1.903	3.6216
9/23/2018	9,590.25	7.5731	0.0389	7.5342	56.765

9/16/2018	10,407.40	8.5206	0.0389	8.4818	71.94
9/9/2018	10,826.70	4.0289	0.0389	3.99	15.92
9/2/2018	11,036.65	1.9392	0.0389	1.9003	3.6112
8/26/2018	11,009.25	-0.248	0.0389	-0.287	0.0824
8/19/2018	10,903.00	-0.965	0.0389	-1.004	1.008
8/12/2018	10,878.70	-0.223	0.0389	-0.262	0.0685
8/5/2018	10,839.45	-0.361	0.0389	-0.4	0.1597
7/29/2018	10,775.30	-0.592	0.0389	-0.631	0.3978
7/22/2018	10,874.80	0.9234	0.0389	0.8845	0.7824
7/15/2018	10,752.70	-1.123	0.0389	-1.162	1.3494
7/8/2018	11,003.05	2.3283	0.0389	2.2894	5.2413
7/1/2018	11,067.85	0.5889	0.0389	0.5501	0.3026
6/24/2018	10,709.05	-3.242	0.0389	-3.281	10.763
6/17/2018	11,088.50	3.5433	0.0389	3.5044	12.281
6/10/2018	11,173.05	0.7625	0.0389	0.7236	0.5236
6/3/2018	11,226.10	0.4748	0.0389	0.4359	0.19
5/27/2018	11,076.55	-1.332	0.0389	-1.371	1.8797
5/20/2018	10,883.00	-1.747	0.0389	-1.786	3.1907
5/13/2018	10,962.75	0.7328	0.0389	0.6939	0.4815
5/6/2018	11,373.20	3.744	0.0389	3.7052	13.728
4/29/2018	11,323.70	-0.435	0.0389	-0.474	0.2248
4/22/2018	11,581.80	2.2793	0.0389	2.2404	5.0195
4/15/2018	11,440.10	-1.223	0.0389	-1.262	1.5935
4/8/2018	11,465.30	0.2203	0.0389	0.1814	0.0329
4/1/2018	11,444.15	-0.184	0.0389	-0.223	0.0499
Total Returns		0.0389			$\sum D^2=3374.2$

Annexure 7.
Systematic risk of Maruti Suzuki with NIFTY.

Date	Maruti Suzuki difference(d1)	NIFTY difference (d2)	NIFTY D2*D2	d1*d2
3/26/2023				
3/19/2023	-0.7365	-1.1039	1.2186	0.81298
3/12/2023	0.75461	1.05537	1.11381	0.7964
3/5/2023	3.28065	4.00859	16.0688	13.1508
2/26/2023	-0.146	0.31783	0.10102	-0.0464
2/19/2023	0.54633	0.60279	0.36336	0.32932
2/12/2023	1.55773	2.06617	4.26906	3.21853
2/5/2023	-0.1016	0.68449	0.46853	-0.0696
1/29/2023	1.34363	1.04084	1.08334	1.3985
1/22/2023	-2.4328	-2.1935	4.81161	5.33635
1/15/2023	-3.5497	-3.0794	9.4829	10.931
1/8/2023	0.01862	1.06973	1.14431	0.01992
1/1/2023	-0.9747	-1.6333	2.66758	1.59201
12/25/2022	-0.0047	-0.1664	0.02768	0.00079

12/18/2022	-3.1564	-3.0179	9.10743	9.52544
12/11/2022	4.08515	4.36821	19.0812	17.8448
12/4/2022	1.36058	0.6981	0.48734	0.94982
11/27/2022	2.20848	1.33609	1.78515	2.95074
11/20/2022	2.16752	-0.7161	0.51276	-1.5521
11/13/2022	-2.0434	-1.4519	2.10801	2.96682
11/6/2022	2.56429	2.04334	4.17522	5.2397
10/30/2022	1.4195	1.73094	2.99617	2.45708
10/23/2022	2.70758	-0.6477	0.4195	-1.7537
10/16/2022	-8.4569	-3.7934	14.3895	32.0802
10/9/2022	-1.1307	-1.7513	3.06695	1.98008
10/2/2022	1.7351	2.23468	4.99381	3.87739
9/25/2022	0.41619	-0.5298	0.28067	-0.2205
9/18/2022	5.69449	3.06524	9.39567	17.4549
9/11/2022	-1.7886	-1.1008	1.21187	1.96898
9/4/2022	-2.7939	2.00791	4.03172	-5.6099
8/28/2022	-0.4376	-0.0309	0.00096	0.01354
8/21/2022	-2.3736	-2.2438	5.03444	5.3257
8/14/2022	0.52658	0.09493	0.00901	0.04999
8/7/2022	-1.0509	-0.2142	0.04589	0.22512
7/31/2022	1.48981	-0.9628	0.92689	-1.4343
7/24/2022	-0.9077	-2.0784	4.3198	1.88656
7/17/2022	0.51172	0.68662	0.47145	0.35135
7/10/2022	-0.7416	-2.1961	4.82291	1.62853
7/3/2022	-3.5841	-1.9565	3.82788	7.0122
6/26/2022	-1.0079	-3.4423	11.8493	3.46952
6/19/2022	-0.6114	-1.1378	1.29448	0.69565
6/12/2022	-8.2142	-6.534	42.6935	53.6718
6/5/2022	3.06956	5.16014	26.6271	15.8394
5/29/2022	-3.0417	-1.0205	1.04148	3.10411
5/22/2022	2.94506	-0.1443	0.02084	-0.4251
5/15/2022	-4.6289	-3.1945	10.205	14.7871
5/8/2022	-6.5308	-4.6405	21.5343	30.306
5/1/2022	2.35397	0.98011	0.96062	2.30715
4/24/2022	5.88214	5.28178	27.8972	31.0681
4/17/2022	2.27656	-0.4898	0.23987	-1.115
4/10/2022	-5.6457	-3.0299	9.18002	17.1057
4/3/2022	1.04163	1.79319	3.21555	1.86784
3/27/2022	1.73762	-2.0349	4.1407	-3.5358
3/20/2022	-3.8386	-3.0613	9.37155	11.7511
3/13/2022	3.60034	2.10375	4.42575	7.5742
3/6/2022	-7.8177	-5.6771	32.2296	44.3818
2/27/2022	1.89548	-0.8711	0.75875	-1.6511
2/20/2022	15.157	10.0519	101.041	152.357
2/13/2022	2.40651	4.7811	22.8589	11.5058
2/6/2022	1.81859	1.12089	1.25639	2.03844
1/30/2022	-2.2782	0.02778	0.00077	-0.0633
1/23/2022	-0.1378	-0.6202	0.38459	0.08549
1/16/2022	-4.3684	0.55582	0.30893	-2.428
1/9/2022	-1.4295	0.66431	0.44131	-0.9496

1/2/2022	-2.3468	-3.0634	9.38456	7.18931
12/26/2021	-6.2082	-3.1741	10.0752	19.7056
12/19/2021	-1.615	-2.9295	8.58224	4.73111
12/12/2021	-0.4227	0.50629	0.25633	-0.214
12/5/2021	1.62611	3.72003	13.8386	6.04917
11/28/2021	-3.0642	-2.6679	7.11781	8.17492
11/21/2021	-0.6724	-0.3091	0.09552	0.20782
11/14/2021	13.0595	9.14223	83.5804	119.393
11/7/2021	-7.9938	-0.3875	0.15012	3.09727
10/31/2021	3.43442	-1.2066	1.45588	-4.144
10/24/2021	-3.563	-2.3928	5.72571	8.52577
10/17/2021	-1.1248	1.16936	1.36741	-1.3153
10/10/2021	1.04524	3.16518	10.0184	3.30837
10/3/2021	-1.0349	-6.1485	37.8036	6.36299
9/26/2021	-3.7455	-4.3929	19.2977	16.4536
9/19/2021	-3.0752	-1.6233	2.63507	4.99201
9/12/2021	0.75215	-0.7829	0.61301	-0.5889
9/5/2021	-3.1677	-2.3463	5.50502	7.43232
8/29/2021	0.75203	0.08127	0.00661	0.06112
8/22/2021	-3.614	-3.3071	10.9369	11.9518
8/15/2021	3.26963	1.09296	1.19456	3.57358
8/8/2021	2.06595	2.72345	7.41719	5.62651
8/1/2021	1.26561	0.66065	0.43646	0.83613
7/25/2021	-1.8761	-1.9999	3.99977	3.75216
7/18/2021	4.38834	1.48225	2.19707	6.50462
7/11/2021	-0.0095	2.1873	4.7843	-0.0209
7/4/2021	1.52995	-0.117	0.01369	-0.179
6/27/2021	1.85258	2.50616	6.28084	4.64285
6/20/2021	0.84971	0.16046	0.02575	0.13635
6/13/2021	-9.1587	-2.4957	6.22863	22.8577
6/6/2021	3.6574	3.04192	9.25326	11.1255
5/30/2021	-0.2685	-0.3152	0.09936	0.08463
5/23/2021	-3.5342	-2.1393	4.57674	7.56084
5/16/2021	-2.3714	-1.9213	3.69147	4.55614
5/9/2021	-1.2908	-4.9063	24.0719	6.33299
5/2/2021	-0.6376	0.05287	0.00279	-0.0337
4/25/2021	-3.8334	-1.8577	3.45109	7.12131
4/18/2021	3.27232	-0.4942	0.24426	-1.6173
4/11/2021	-0.5619	2.17016	4.70961	-1.2195
4/4/2021	2.54998	1.12333	1.26187	2.86447
3/28/2021	1.27536	0.96537	0.93193	1.23118
3/21/2021	-2.1566	-2.5442	6.47301	5.48675
3/14/2021	4.70828	4.20817	17.7087	19.8132
3/7/2021	-0.3864	1.89899	3.60615	-0.7338
2/28/2021	2.01074	1.31418	1.72708	2.64248
2/21/2021	-5.4239	-3.4072	11.6093	18.4806
2/14/2021	6.51113	3.60374	12.9869	23.4644
2/7/2021	3.20993	3.48947	12.1764	11.201
1/31/2021	-1.1249	-1.7645	3.11331	1.98481
1/24/2021	-3.9788	-8.532	72.7952	33.9476

1/17/2021	11.5439	7.12193	50.7218	82.2149
1/10/2021	-0.4419	-3.2488	10.5546	1.43578
1/3/2021	-0.2653	-4.3328	18.7733	1.14936
12/27/2020	-4.18	-4.8509	23.5311	20.2767
12/20/2020	-3.3312	-3.2144	10.3323	10.7078
12/13/2020	1.38446	2.08408	4.3434	2.88533
12/6/2020	2.15649	0.18253	0.03332	0.39363
11/29/2020	0.75745	1.19359	1.42465	0.90408
11/22/2020	-9.9764	-4.4529	19.8282	44.4236
11/15/2020	-1.1367	-2.3652	5.59429	2.68861
11/8/2020	-2.3906	-4.3666	19.067	10.4389
11/1/2020	1.30184	-3.6832	13.5656	-4.7949
10/25/2020	0.69062	-3.1328	9.81421	-2.1635
10/18/2020	1.84021	4.2945	18.4427	7.90275
10/11/2020	-3.0757	-1.7085	2.91899	5.25482
10/4/2020	2.28681	2.52475	6.37435	5.77361
9/27/2020	-3.9104	-2.457	6.03662	9.60758
9/20/2020	-4.5361	-3.7621	14.1538	17.0655
9/13/2020	7.04541	6.37876	40.6885	44.9409
9/6/2020	3.14331	-2.5494	6.49933	-8.0135
8/30/2020	-0.1912	0.4607	0.21224	-0.0881
8/23/2020	-1.3386	1.403	1.96841	-1.8781
8/16/2020	-1.9879	-2.2227	4.94046	4.41861
8/9/2020	-5.661	-3.2784	10.7482	18.5591
8/2/2020	1.2357	-1.6435	2.70119	-2.0309
7/26/2020	-6.3747	-3.6751	13.5067	23.4281
7/19/2020	-4.3268	-0.8782	0.77121	3.79973
7/12/2020	-1.4957	-1.1658	1.35912	1.74371
7/5/2020	0.46817	-1.3867	1.923	-0.6492
6/28/2020	-0.5379	-1.0337	1.06863	0.5561
6/21/2020	-3.1297	-3.4759	12.0822	10.8785
6/14/2020	2.33276	-1.4791	2.18782	-3.4504
6/7/2020	-5.8332	-1.1708	1.37085	6.82973
5/31/2020	3.17388	1.01839	1.03712	3.23224
5/24/2020	-2.4989	-6.2233	38.7294	15.5512
5/17/2020	-8.6351	-7.3039	53.3475	63.0701
5/10/2020	-0.8028	-0.4082	0.16664	0.32771
5/3/2020	-8.8918	-5.2245	27.2953	46.4553
4/26/2020	14.9977	8.28842	68.6979	124.307
4/19/2020	-5.9862	-8.9207	79.5782	53.4007
4/12/2020	8.96136	5.3849	28.9972	48.2561
4/5/2020	-3.3823	-1.8108	3.27907	6.12475
3/29/2020	-24.833	-18.908	357.5	469.525
3/22/2020	15.677	9.27882	86.0965	145.464
3/15/2020	9.17927	8.69723	75.6418	79.8343
3/8/2020	14.8087	15.079	227.375	223.299
3/1/2020	10.2598	11.4946	132.126	117.932
2/23/2020	-2.6689	0.09093	0.00827	-0.2427
2/16/2020	7.40948	11.4611	131.356	84.9206
2/9/2020	2.16895	1.57585	2.48331	3.41795

2/2/2020	0.69566	3.06	9.3636	2.12871
1/26/2020	-0.978	0.2333	0.05443	-0.2282
1/19/2020	2.96661	2.28969	5.24266	6.79261
1/12/2020	5.35236	1.80708	3.26555	9.67216
1/5/2020	-2.6644	-2.4369	5.9387	6.49303
12/29/2019	-1.1827	-0.7361	0.54184	0.87058
12/22/2019	1.10709	0.42329	0.17917	0.46862
12/15/2019	-1.278	-0.9206	0.84742	1.17647
12/8/2019	-0.7836	-0.8239	0.6788	0.64558
12/1/2019	-4.6921	-3.2992	10.8848	15.4803
11/24/2019	5.0726	3.54015	12.5327	17.9578
11/17/2019	-2.7012	-0.6702	0.44918	1.81039
11/10/2019	1.08615	1.44153	2.07802	1.56573
11/3/2019	0.60392	0.15429	0.0238	0.09318
10/27/2019	5.66398	2.6938	7.25657	15.2576
10/20/2019	-2.0786	-4.8828	23.8422	10.1493
10/13/2019	-2.4025	-0.3093	0.09569	0.74319
10/6/2019	-8.4057	-7.1665	51.3591	60.2395
9/29/2019	-0.8785	0.06725	0.00452	-0.0591
9/22/2019	1.72375	1.97804	3.91262	3.40965
9/15/2019	-2.8257	0.64419	0.41498	-1.8203
9/8/2019	-2.2914	-3.2634	10.6495	7.47753
9/1/2019	-4.2253	-3.5461	12.5745	14.9831
8/25/2019	-1.164	-1.3504	1.82356	1.57189
8/18/2019	1.99016	-0.3378	0.11408	-0.6722
8/11/2019	-4.6082	0.10565	0.01116	-0.4869
8/4/2019	1.947	1.94657	3.78912	3.78997
7/28/2019	-6.873	-2.8922	8.36455	19.8777
7/21/2019	1.90165	3.24579	10.5351	6.17234
7/14/2019	-0.7721	0.39749	0.158	-0.3069
7/7/2019	3.36496	6.36897	40.5638	21.4313
6/30/2019	6.36427	2.51481	6.32427	16.0049
6/23/2019	2.60355	0.96698	0.93504	2.51757
6/16/2019	-1.9391	-0.7932	0.6291	1.53801
6/9/2019	5.0022	2.03719	4.15015	10.1905
6/2/2019	2.83418	1.95824	3.8347	5.55
5/26/2019	-1.2709	-0.2403	0.05774	0.30537
5/19/2019	3.10791	3.44409	11.8618	10.7039
5/12/2019	-5.5886	-4.4655	19.9403	24.9557
5/5/2019	-1.2645	0.05326	0.00284	-0.0674
4/28/2019	1.0397	3.52276	12.4098	3.6626
4/21/2019	1.83736	1.30159	1.69413	2.39148
4/14/2019	8.69298	5.59877	31.3462	48.67
4/7/2019	-1.547	-2.2144	4.90345	3.4257
3/31/2019	-3.345	-2.4638	6.07049	8.24143
3/24/2019	-6.2648	-2.7156	7.37442	17.0125
3/17/2019	-1.9387	-0.0239	0.00057	0.04629
3/10/2019	7.96559	4.89659	23.9766	39.0042
3/3/2019	-1.7843	-1.9302	3.72548	3.44387
2/24/2019	-0.6097	-2.0074	4.02962	1.22386

2/17/2019	-0.4706	-1.6398	2.68908	0.77165
2/10/2019	0.11282	-1.8072	3.26602	-0.2039
2/3/2019	2.80406	3.49999	12.25	9.81421
1/27/2019	-2.5527	0.20934	0.04382	-0.5344
1/20/2019	-6.5901	-2.1884	4.78925	14.422
1/13/2019	12.8238	7.04362	49.6126	90.3262
1/6/2019	-0.6515	0.15955	0.02546	-0.1039
12/30/2018	-1.3173	-0.6369	0.40565	0.839
12/23/2018	3.60411	4.66579	21.7696	16.816
12/16/2018	0.26717	1.1911	1.41871	0.31823
12/9/2018	1.52739	-0.743	0.55211	-1.1349
12/2/2018	-4.6869	-4.3715	19.1101	20.489
11/25/2018	4.61072	4.47532	20.0285	20.6345
11/18/2018	-3.4121	-2.2778	5.18822	7.77191
11/11/2018	-1.0857	0.50953	0.25962	-0.5532
11/4/2018	-0.9285	1.77625	3.15505	-1.6492
10/28/2018	-2.1752	-1.0903	1.18878	2.37165
10/21/2018	-6.0027	-6.5981	43.5349	39.6064
10/14/2018	0.4403	1.26912	1.61066	0.55879
10/7/2018	7.71293	4.49725	20.2252	34.687
9/30/2018	-5.3963	-1.903	3.62159	10.2693
9/23/2018	6.28241	7.53423	56.7647	47.3332
9/16/2018	9.27779	8.48176	71.9403	78.692
9/9/2018	7.15274	3.98999	15.92	28.5394
9/2/2018	0.92973	1.90031	3.6112	1.76678
8/26/2018	4.18356	-0.2871	0.08245	-1.2013
8/19/2018	0.59843	-1.004	1.00796	-0.6008
8/12/2018	-0.2702	-0.2617	0.06851	0.07072
8/5/2018	-0.1846	-0.3997	0.15974	0.07377
7/29/2018	0.28106	-0.6307	0.39777	-0.1773
7/22/2018	1.20068	0.88454	0.7824	1.06204
7/15/2018	0.80856	-1.1617	1.34943	-0.9393
7/8/2018	0.199	2.28938	5.24126	0.4556
7/1/2018	-1.3465	0.55006	0.30256	-0.7407
6/24/2018	-5.4218	-3.2807	10.763	17.7874
6/17/2018	0.41608	3.50439	12.2808	1.45811
6/10/2018	0.72171	0.72363	0.52364	0.52225
6/3/2018	-0.3565	0.43593	0.19004	-0.1554
5/27/2018	-1.5262	-1.371	1.87974	2.09253
5/20/2018	-3.102	-1.7863	3.19072	5.54105
5/13/2018	-0.5777	0.69392	0.48153	-0.4009
5/6/2018	2.66974	3.70517	13.7283	9.89183
4/29/2018	-0.9665	-0.4741	0.22478	0.45822
4/22/2018	1.06913	2.24042	5.01947	2.39531
4/15/2018	2.60871	-1.2623	1.59351	-3.2931
4/8/2018	0.95388	0.18141	0.03291	0.17304
4/1/2018	0.75895	-0.2233	0.04988	-0.1695
			3374.22	3641.58

Annexure 8.
Systematic risk of Mahindra & Mahindra with NIFTY.

Date	Mahindra difference (d1)	NIFTY difference (d2)	D2*D2	d1*d2
3/26/2023				
3/19/2023	-0.6503	-1.1039	1.2186	0.71785
3/12/2023	1.83026	1.05537	1.11381	1.93161
3/5/2023	4.74342	4.00859	16.0688	19.0144
2/26/2023	3.44718	0.31783	0.10102	1.09563
2/19/2023	0.94591	0.60279	0.36336	0.57019
2/12/2023	4.81983	2.06617	4.26906	9.95859
2/5/2023	1.81683	0.68449	0.46853	1.2436
1/29/2023	1.68299	1.04084	1.08334	1.75171
1/22/2023	-4.8532	-2.1935	4.81161	10.6457
1/15/2023	-0.3813	-3.0794	9.4829	1.17419
1/8/2023	1.05072	1.06973	1.14431	1.12398
1/1/2023	-4.7307	-1.6333	2.66758	7.72661
12/25/2022	-1.2097	-0.1664	0.02768	0.20125
12/18/2022	-1.9377	-3.0179	9.10743	5.84783
12/11/2022	2.23632	4.36821	19.0812	9.76869
12/4/2022	1.1341	0.6981	0.48734	0.79172
11/27/2022	-0.0317	1.33609	1.78515	-0.0424
11/20/2022	-0.269	-0.7161	0.51276	0.19261
11/13/2022	-2.6374	-1.4519	2.10801	3.82927
11/6/2022	4.91682	2.04334	4.17522	10.0467
10/30/2022	4.00945	1.73094	2.99617	6.94013
10/23/2022	-1.9598	-0.6477	0.4195	1.26935
10/16/2022	-4.1541	-3.7934	14.3895	15.7578
10/9/2022	-2.0731	-1.7513	3.06695	3.63059
10/2/2022	0.72647	2.23468	4.99381	1.62343
9/25/2022	2.40065	-0.5298	0.28067	-1.2718
9/18/2022	0.35481	3.06524	9.39567	1.08757
9/11/2022	-1.7134	-1.1008	1.21187	1.88615
9/4/2022	4.12319	2.00791	4.03172	8.27901
8/28/2022	1.1612	-0.0309	0.00096	-0.0359
8/21/2022	-3.1069	-2.2438	5.03444	6.97113
8/14/2022	-2.7339	0.09493	0.00901	-0.2595
8/7/2022	1.64923	-0.2142	0.04589	-0.3533
7/31/2022	-1.8383	-0.9628	0.92689	1.76987
7/24/2022	-5.7497	-2.0784	4.3198	11.9502
7/17/2022	1.46138	0.68662	0.47145	1.00341
7/10/2022	-0.6966	-2.1961	4.82291	1.52985
7/3/2022	-3.2862	-1.9565	3.82788	6.4294
6/26/2022	-2.2841	-3.4423	11.8493	7.86257
6/19/2022	-3.1563	-1.1378	1.29448	3.59105
6/12/2022	-6.9085	-6.534	42.6935	45.1401
6/5/2022	3.92567	5.16014	26.6271	20.257

5/29/2022	-0.7258	-1.0205	1.04148	0.74074
5/22/2022	-7.3374	-0.1443	0.02084	1.05914
5/15/2022	-5.1162	-3.1945	10.205	16.3438
5/8/2022	-1.5507	-4.6405	21.5343	7.196
5/1/2022	0.52055	0.98011	0.96062	0.5102
4/24/2022	3.192	5.28178	27.8972	16.8594
4/17/2022	-0.1257	-0.4898	0.23987	0.06158
4/10/2022	-5.8936	-3.0299	9.18002	17.8569
4/3/2022	-0.973	1.79319	3.21555	-1.7448
3/27/2022	-3.5666	-2.0349	4.1407	7.25751
3/20/2022	-7.4453	-3.0613	9.37155	22.7924
3/13/2022	3.9086	2.10375	4.42575	8.2227
3/6/2022	-7.471	-5.6771	32.2296	42.4137
2/27/2022	-0.3087	-0.8711	0.75875	0.26891
2/20/2022	10.3142	10.0519	101.041	103.677
2/13/2022	5.52929	4.7811	22.8589	26.4361
2/6/2022	0.22518	1.12089	1.25639	0.2524
1/30/2022	-1.3684	0.02778	0.00077	-0.038
1/23/2022	3.35218	-0.6202	0.38459	-2.0789
1/16/2022	0.6697	0.55582	0.30893	0.37223
1/9/2022	0.71707	0.66431	0.44131	0.47636
1/2/2022	-5.8922	-3.0634	9.38456	18.0504
12/26/2021	1.01463	-3.1741	10.0752	-3.2206
12/19/2021	-2.8951	-2.9295	8.58224	8.48127
12/12/2021	2.73256	0.50629	0.25633	1.38346
12/5/2021	3.03894	3.72003	13.8386	11.305
11/28/2021	-2.6148	-2.6679	7.11781	6.97597
11/21/2021	2.0388	-0.3091	0.09552	-0.6301
11/14/2021	8.22478	9.14223	83.5804	75.1928
11/7/2021	1.55799	-0.3875	0.15012	-0.6037
10/31/2021	-6.8943	-1.2066	1.45588	8.31862
10/24/2021	1.33758	-2.3928	5.72571	-3.2006
10/17/2021	0.43864	1.16936	1.36741	0.51293
10/10/2021	4.93662	3.16518	10.0184	15.6253
10/3/2021	-5.7233	-6.1485	37.8036	35.1893
9/26/2021	-5.6588	-4.3929	19.2977	24.8589
9/19/2021	-5.815	-1.6233	2.63507	9.43936
9/12/2021	-3.2144	-0.7829	0.61301	2.51668
9/5/2021	-0.4193	-2.3463	5.50502	0.98385
8/29/2021	-0.0817	0.08127	0.00661	-0.0066
8/22/2021	3.39863	-3.3071	10.9369	-11.24
8/15/2021	1.38609	1.09296	1.19456	1.51494
8/8/2021	-0.8595	2.72345	7.41719	-2.3407
8/1/2021	-2.5884	0.66065	0.43646	-1.71
7/25/2021	-1.9665	-1.9999	3.99977	3.9329
7/18/2021	2.87097	1.48225	2.19707	4.2555
7/11/2021	2.07287	2.1873	4.7843	4.53399
7/4/2021	-1.0264	-0.117	0.01369	0.12012
6/27/2021	1.4637	2.50616	6.28084	3.66826
6/20/2021	1.52014	0.16046	0.02575	0.24393

6/13/2021	-1.5675	-2.4957	6.22863	3.91199
6/6/2021	3.54377	3.04192	9.25326	10.7798
5/30/2021	-0.5124	-0.3152	0.09936	0.16151
5/23/2021	5.15829	-2.1393	4.57674	-11.035
5/16/2021	-3.1487	-1.9213	3.69147	6.04969
5/9/2021	-9.4257	-4.9063	24.0719	46.2455
5/2/2021	3.52444	0.05287	0.00279	0.18632
4/25/2021	-1.9036	-1.8577	3.45109	3.53632
4/18/2021	3.40006	-0.4942	0.24426	-1.6804
4/11/2021	5.65563	2.17016	4.70961	12.2736
4/4/2021	-3.6805	1.12333	1.26187	-4.1345
3/28/2021	2.11077	0.96537	0.93193	2.03766
3/21/2021	-0.99	-2.5442	6.47301	2.51884
3/14/2021	6.40544	4.20817	17.7087	26.9552
3/7/2021	0.67835	1.89899	3.60615	1.28817
2/28/2021	-1.768	1.31418	1.72708	-2.3234
2/21/2021	-4.0142	-3.4072	11.6093	13.6772
2/14/2021	9.06549	3.60374	12.9869	32.6697
2/7/2021	3.3639	3.48947	12.1764	11.7382
1/31/2021	-4.7068	-1.7645	3.11331	8.30495
1/24/2021	-13.36	-8.532	72.7952	113.984
1/17/2021	6.54165	7.12193	50.7218	46.5892
1/10/2021	2.69309	-3.2488	10.5546	-8.7493
1/3/2021	-5.9649	-4.3328	18.7733	25.845
12/27/2020	-4.9068	-4.8509	23.5311	23.8025
12/20/2020	-2.9107	-3.2144	10.3323	9.35602
12/13/2020	3.22465	2.08408	4.3434	6.72044
12/6/2020	-0.7932	0.18253	0.03332	-0.1448
11/29/2020	3.19281	1.19359	1.42465	3.81089
11/22/2020	-3.7724	-4.4529	19.8282	16.7979
11/15/2020	-0.8549	-2.3652	5.59429	2.02206
11/8/2020	-11.951	-4.3666	19.067	52.1868
11/1/2020	-2.5485	-3.6832	13.5656	9.38639
10/25/2020	-3.1627	-3.1328	9.81421	9.90814
10/18/2020	5.27562	4.2945	18.4427	22.6561
10/11/2020	-2.9278	-1.7085	2.91899	5.00211
10/4/2020	4.40801	2.52475	6.37435	11.1291
9/27/2020	-3.6087	-2.457	6.03662	8.86647
9/20/2020	-2.894	-3.7621	14.1538	10.8876
9/13/2020	10.4739	6.37876	40.6885	66.8102
9/6/2020	-6.068	-2.5494	6.49933	15.4696
8/30/2020	2.92122	0.4607	0.21224	1.34581
8/23/2020	-0.0634	1.403	1.96841	-0.089
8/16/2020	-3.3895	-2.2227	4.94046	7.53379
8/9/2020	0.79406	-3.2784	10.7482	-2.6033
8/2/2020	-2.2469	-1.6435	2.70119	3.69292
7/26/2020	1.03077	-3.6751	13.5067	-3.7882
7/19/2020	-1.2464	-0.8782	0.77121	1.09458
7/12/2020	-1.6221	-1.1658	1.35912	1.89103
7/5/2020	-5.7344	-1.3867	1.923	7.95208

6/28/2020	-4.3571	-1.0337	1.06863	4.50409
6/21/2020	-5.4539	-3.4759	12.0822	18.9574
6/14/2020	-0.2377	-1.4791	2.18782	0.35163
6/7/2020	1.71135	-1.1708	1.37085	-2.0037
5/31/2020	-4.7379	1.01839	1.03712	-4.825
5/24/2020	-9.8508	-6.2233	38.7294	61.3042
5/17/2020	-2.2602	-7.3039	53.3475	16.5085
5/10/2020	-10.535	-0.4082	0.16664	4.30052
5/3/2020	1.44772	-5.2245	27.2953	-7.5636
4/26/2020	-5.1534	8.28842	68.6979	-42.713
4/19/2020	-8.7916	-8.9207	79.5782	78.427
4/12/2020	8.67645	5.3849	28.9972	46.7218
4/5/2020	5.04253	-1.8108	3.27907	-9.1311
3/29/2020	-26.371	-18.908	357.5	498.618
3/22/2020	4.9478	9.27882	86.0965	45.9097
3/15/2020	9.57311	8.69723	75.6418	83.2596
3/8/2020	32.967	15.079	227.375	497.109
3/1/2020	9.86013	11.4946	132.126	113.338
2/23/2020	-2.9303	0.09093	0.00827	-0.2665
2/16/2020	14.8658	11.4611	131.356	170.378
2/9/2020	-0.321	1.57585	2.48331	-0.5058
2/2/2020	8.84605	3.06	9.3636	27.0689
1/26/2020	-0.3111	0.2333	0.05443	-0.0726
1/19/2020	0.13731	2.28969	5.24266	0.31439
1/12/2020	0.30452	1.80708	3.26555	0.5503
1/5/2020	-3.9558	-2.4369	5.9387	9.64016
12/29/2019	-2.5023	-0.7361	0.54184	1.84195
12/22/2019	-0.4565	0.42329	0.17917	-0.1932
12/15/2019	0.1164	-0.9206	0.84742	-0.1072
12/8/2019	-2.6824	-0.8239	0.6788	2.21
12/1/2019	-1.1308	-3.2992	10.8848	3.73083
11/24/2019	4.02015	3.54015	12.5327	14.2319
11/17/2019	2.94359	-0.6702	0.44918	-1.9728
11/10/2019	6.81723	1.44153	2.07802	9.82728
11/3/2019	-0.4916	0.15429	0.0238	-0.0758
10/27/2019	1.71255	2.6938	7.25657	4.61327
10/20/2019	-2.0117	-4.8828	23.8422	9.82294
10/13/2019	2.73188	-0.3093	0.09569	-0.8451
10/6/2019	-5.5643	-7.1665	51.3591	39.8767
9/29/2019	0.77245	0.06725	0.00452	0.05195
9/22/2019	-1.5901	1.97804	3.91262	-3.1453
9/15/2019	2.51755	0.64419	0.41498	1.62178
9/8/2019	-3.071	-3.2634	10.6495	10.0217
9/1/2019	-3.9141	-3.5461	12.5745	13.8795
8/25/2019	-0.1007	-1.3504	1.82356	0.13596
8/18/2019	0.87304	-0.3378	0.11408	-0.2949
8/11/2019	-0.9811	0.10565	0.01116	-0.1037
8/4/2019	3.38474	1.94657	3.78912	6.58863
7/28/2019	2.0295	-2.8922	8.36455	-5.8696
7/21/2019	1.4692	3.24579	10.5351	4.76871

7/14/2019	1.24509	0.39749	0.158	0.49491
7/7/2019	10.6389	6.36897	40.5638	67.7588
6/30/2019	1.63778	2.51481	6.32427	4.11871
6/23/2019	2.10301	0.96698	0.93504	2.03355
6/16/2019	-4.2258	-0.7932	0.6291	3.35168
6/9/2019	1.59339	2.03719	4.15015	3.24605
6/2/2019	1.0986	1.95824	3.8347	2.15132
5/26/2019	0.49732	-0.2403	0.05774	-0.1195
5/19/2019	2.87519	3.44409	11.8618	9.90243
5/12/2019	-6.851	-4.4655	19.9403	30.593
5/5/2019	1.50009	0.05326	0.00284	0.0799
4/28/2019	2.74325	3.52276	12.4098	9.66379
4/21/2019	2.14517	1.30159	1.69413	2.79213
4/14/2019	3.85288	5.59877	31.3462	21.5714
4/7/2019	-0.9106	-2.2144	4.90345	2.01634
3/31/2019	-2.9175	-2.4638	6.07049	7.18816
3/24/2019	2.41681	-2.7156	7.37442	-6.5631
3/17/2019	0.75863	-0.0239	0.00057	-0.0181
3/10/2019	2.35915	4.89659	23.9766	11.5518
3/3/2019	-3.4885	-1.9302	3.72548	6.73332
2/24/2019	-3.02	-2.0074	4.02962	6.0624
2/17/2019	-0.4456	-1.6398	2.68908	0.73076
2/10/2019	-2.9147	-1.8072	3.26602	5.26742
2/3/2019	8.72405	3.49999	12.25	30.5341
1/27/2019	0.95513	0.20934	0.04382	0.19994
1/20/2019	-0.6803	-2.1884	4.78925	1.48875
1/13/2019	7.55895	7.04362	49.6126	53.2424
1/6/2019	-0.9277	0.15955	0.02546	-0.148
12/30/2018	-0.2845	-0.6369	0.40565	0.18118
12/23/2018	10.7743	4.66579	21.7696	50.2708
12/16/2018	-2.7561	1.1911	1.41871	-3.2828
12/9/2018	-3.0281	-0.743	0.55211	2.24999
12/2/2018	-4.7423	-4.3715	19.1101	20.7311
11/25/2018	9.71117	4.47532	20.0285	43.4606
11/18/2018	-5.6329	-2.2778	5.18822	12.8305
11/11/2018	2.91317	0.50953	0.25962	1.48435
11/4/2018	3.63365	1.77625	3.15505	6.45426
10/28/2018	-1.4397	-1.0903	1.18878	1.56974
10/21/2018	-7.0325	-6.5981	43.5349	46.401
10/14/2018	1.81674	1.26912	1.61066	2.30566
10/7/2018	3.71473	4.49725	20.2252	16.7061
9/30/2018	0.16815	-1.903	3.62159	-0.32
9/23/2018	11.9086	7.53423	56.7647	89.7221
9/16/2018	11.5246	8.48176	71.9403	97.7492
9/9/2018	-0.8019	3.98999	15.92	-3.1996
9/2/2018	2.32167	1.90031	3.6112	4.41191
8/26/2018	-0.8312	-0.2871	0.08245	0.23866
8/19/2018	0.3423	-1.004	1.00796	-0.3437
8/12/2018	-0.6707	-0.2617	0.06851	0.17557
8/5/2018	-1.5857	-0.3997	0.15974	0.63378

7/29/2018	-2.643	-0.6307	0.39777	1.66695
7/22/2018	-1.1416	0.88454	0.7824	-1.0098
7/15/2018	0.02053	-1.1617	1.34943	-0.0238
7/8/2018	-0.3037	2.28938	5.24126	-0.6954
7/1/2018	2.04431	0.55006	0.30256	1.12448
6/24/2018	-2.9146	-3.2807	10.763	9.56188
6/17/2018	1.20117	3.50439	12.2808	4.20938
6/10/2018	0.16915	0.72363	0.52364	0.1224
6/3/2018	0.27342	0.43593	0.19004	0.11919
5/27/2018	-1.0709	-1.371	1.87974	1.46822
5/20/2018	-4.8376	-1.7863	3.19072	8.64121
5/13/2018	-2.4985	0.69392	0.48153	-1.7338
5/6/2018	3.99085	3.70517	13.7283	14.7868
4/29/2018	-1.6714	-0.4741	0.22478	0.79242
4/22/2018	1.01478	2.24042	5.01947	2.27352
4/15/2018	-7.2943	-1.2623	1.59351	9.20794
4/8/2018	-1.2068	0.18141	0.03291	-0.2189
4/1/2018	-2.2038	-0.2233	0.04988	0.4922
			3374.22	3786.2

Annexure 9.

Systematic risk of Hindustan Motors with NIFTY.

Date	Hindustan difference(d1)	NIFTY difference (d2)	D2*D2	d1*d2
3/26/2023				
3/19/2023	5.60382	-1.1039	1.2186	-6.1861
3/12/2023	0.88877	1.05537	1.11381	0.93798
3/5/2023	8.1232	4.00859	16.0688	32.5626
2/26/2023	-8.5713	0.31783	0.10102	-2.7243
2/19/2023	0.51979	0.60279	0.36336	0.31333
2/12/2023	8.48552	2.06617	4.26906	17.5325
2/5/2023	3.78986	0.68449	0.46853	2.59413
1/29/2023	0.43089	1.04084	1.08334	0.44849
1/22/2023	3.29305	-2.1935	4.81161	-7.2234
1/15/2023	3.17448	-3.0794	9.4829	-9.7756
1/8/2023	0.08748	1.06973	1.14431	0.09358
1/1/2023	1.27354	-1.6333	2.66758	-2.08
12/25/2022	1.25185	-0.1664	0.02768	-0.2083
12/18/2022	-8.2793	-3.0179	9.10743	24.9857
12/11/2022	14.2099	4.36821	19.0812	62.0719
12/4/2022	3.62548	0.6981	0.48734	2.53095
11/27/2022	6.91388	1.33609	1.78515	9.23759
11/20/2022	-0.2101	-0.7161	0.51276	0.15047
11/13/2022	-15.727	-1.4519	2.10801	22.8346
11/6/2022	0.95605	2.04334	4.17522	1.95352
10/30/2022	-6.262	1.73094	2.99617	-10.839

10/23/2022	-1.1304	-0.6477	0.4195	0.73213
10/16/2022	-1.7581	-3.7934	14.3895	6.66918
10/9/2022	0.4188	-1.7513	3.06695	-0.7334
10/2/2022	9.16486	2.23468	4.99381	20.4806
9/25/2022	-6.7816	-0.5298	0.28067	3.59277
9/18/2022	-2.9624	3.06524	9.39567	-9.0805
9/11/2022	3.56345	-1.1008	1.21187	-3.9228
9/4/2022	1.30502	2.00791	4.03172	2.62036
8/28/2022	-2.0012	-0.0309	0.00096	0.0619
8/21/2022	2.22148	-2.2438	5.03444	-4.9845
8/14/2022	0.38334	0.09493	0.00901	0.03639
8/7/2022	-9.6497	-0.2142	0.04589	2.06706
7/31/2022	5.97879	-0.9628	0.92689	-5.7561
7/24/2022	2.24385	-2.0784	4.3198	-4.6637
7/17/2022	9.6701	0.68662	0.47145	6.63969
7/10/2022	-0.4826	-2.1961	4.82291	1.05988
7/3/2022	8.80626	-1.9565	3.82788	-17.229
6/26/2022	-6.7264	-3.4423	11.8493	23.1543
6/19/2022	1.13035	-1.1378	1.29448	-1.2861
6/12/2022	15.6629	-6.534	42.6935	-102.34
6/5/2022	5.49763	5.16014	26.6271	28.3685
5/29/2022	-21.808	-1.0205	1.04148	22.2561
5/22/2022	-21.422	-0.1443	0.02084	3.09228
5/15/2022	-26.084	-3.1945	10.205	83.3268
5/8/2022	-2.0969	-4.6405	21.5343	9.73081
5/1/2022	4.59756	0.98011	0.96062	4.50611
4/24/2022	7.58803	5.28178	27.8972	40.0783
4/17/2022	1.06646	-0.4898	0.23987	-0.5223
4/10/2022	5.25205	-3.0299	9.18002	-15.913
4/3/2022	6.96118	1.79319	3.21555	12.4827
3/27/2022	-9.1321	-2.0349	4.1407	18.5826
3/20/2022	-1.4346	-3.0613	9.37155	4.39182
3/13/2022	-4.3424	2.10375	4.42575	-9.1352
3/6/2022	-2.7963	-5.6771	32.2296	15.8751
2/27/2022	-7.2898	-0.8711	0.75875	6.34985
2/20/2022	-3.5435	10.0519	101.041	-35.619
2/13/2022	11.6125	4.7811	22.8589	55.5206
2/6/2022	5.07621	1.12089	1.25639	5.68987
1/30/2022	5.64761	0.02778	0.00077	0.15688
1/23/2022	2.95192	-0.6202	0.38459	-1.8307
1/16/2022	-0.5933	0.55582	0.30893	-0.3298
1/9/2022	1.32833	0.66431	0.44131	0.88242
1/2/2022	5.0929	-3.0634	9.38456	-15.602
12/26/2021	-15.678	-3.1741	10.0752	49.7634
12/19/2021	-3.1889	-2.9295	8.58224	9.34191
12/12/2021	-0.2101	0.50629	0.25633	-0.1064
12/5/2021	2.42144	3.72003	13.8386	9.00784
11/28/2021	1.49927	-2.6679	7.11781	-3.9999
11/21/2021	-1.0505	-0.3091	0.09552	0.32466
11/14/2021	5.29834	9.14223	83.5804	48.4386

11/7/2021	-4.6278	-0.3875	0.15012	1.79308
10/31/2021	12.3949	-1.2066	1.45588	-14.956
10/24/2021	-17.374	-2.3928	5.72571	41.5741
10/17/2021	27.7178	1.16936	1.36741	32.4122
10/10/2021	10.7054	3.16518	10.0184	33.8844
10/3/2021	-41.48	-6.1485	37.8036	255.038
9/26/2021	-20.21	-4.3929	19.2977	88.7815
9/19/2021	-0.8858	-1.6233	2.63507	1.43793
9/12/2021	4.55177	-0.7829	0.61301	-3.5638
9/5/2021	-0.2101	-2.3463	5.50502	0.49304
8/29/2021	1.08857	0.08127	0.00661	0.08847
8/22/2021	-1.4922	-3.3071	10.9369	4.93481
8/15/2021	1.73792	1.09296	1.19456	1.89947
8/8/2021	7.43318	2.72345	7.41719	20.2439
8/1/2021	-0.2101	0.66065	0.43646	-0.1388
7/25/2021	0.38158	-1.9999	3.99977	-0.7631
7/18/2021	-6.6807	1.48225	2.19707	-9.9025
7/11/2021	4.19238	2.1873	4.7843	9.17001
7/4/2021	5.21155	-0.117	0.01369	-0.6099
6/27/2021	2.64701	2.50616	6.28084	6.63382
6/20/2021	-2.9879	0.16046	0.02575	-0.4794
6/13/2021	-4.7816	-2.4957	6.22863	11.9335
6/6/2021	8.1731	3.04192	9.25326	24.8619
5/30/2021	-12.365	-0.3152	0.09936	3.89762
5/23/2021	2.93452	-2.1393	4.57674	-6.2779
5/16/2021	-5.0882	-1.9213	3.69147	9.77603
5/9/2021	-5.3383	-4.9063	24.0719	26.1916
5/2/2021	-8.3182	0.05287	0.00279	-0.4398
4/25/2021	-0.9454	-1.8577	3.45109	1.75633
4/18/2021	1.27135	-0.4942	0.24426	-0.6283
4/11/2021	-4.5897	2.17016	4.70961	-9.9604
4/4/2021	2.8433	1.12333	1.26187	3.19397
3/28/2021	0.53061	0.96537	0.93193	0.51223
3/21/2021	-4.6219	-2.5442	6.47301	11.7591
3/14/2021	5.94371	4.20817	17.7087	25.0122
3/7/2021	2.68842	1.89899	3.60615	5.10527
2/28/2021	2.60677	1.31418	1.72708	3.42577
2/21/2021	3.89945	-3.4072	11.6093	-13.286
2/14/2021	3.73723	3.60374	12.9869	13.468
2/7/2021	-15.4	3.48947	12.1764	-53.738
1/31/2021	-11.404	-1.7645	3.11331	20.1221
1/24/2021	5.67222	-8.532	72.7952	-48.395
1/17/2021	-4.1784	7.12193	50.7218	-29.758
1/10/2021	26.2361	-3.2488	10.5546	-85.236
1/3/2021	25.2801	-4.3328	18.7733	-109.53
12/27/2020	-21.043	-4.8509	23.5311	102.079
12/20/2020	2.42144	-3.2144	10.3323	-7.7835
12/13/2020	-7.9024	2.08408	4.3434	-16.469
12/6/2020	-8.5435	0.18253	0.03332	-1.5595
11/29/2020	-4.7556	1.19359	1.42465	-5.6762

11/22/2020	-12.909	-4.4529	19.8282	57.4802
11/15/2020	-8.392	-2.3652	5.59429	19.8489
11/8/2020	-2.1903	-4.3666	19.067	9.56425
11/1/2020	-0.2101	-3.6832	13.5656	0.77396
10/25/2020	0.79997	-3.1328	9.81421	-2.5061
10/18/2020	-0.2101	4.2945	18.4427	-0.9024
10/11/2020	-0.2101	-1.7085	2.91899	0.35902
10/4/2020	-0.2101	2.52475	6.37435	-0.5305
9/27/2020	5.78986	-2.457	6.03662	-14.225
9/20/2020	-3.9837	-3.7621	14.1538	14.9874
9/13/2020	12.535	6.37876	40.6885	79.9575
9/6/2020	5.00726	-2.5494	6.49933	-12.765
8/30/2020	-1.863	0.4607	0.21224	-0.8583
8/23/2020	3.15121	1.403	1.96841	4.42114
8/16/2020	1.41588	-2.2227	4.94046	-3.1471
8/9/2020	-2.6101	-3.2784	10.7482	8.55717
8/2/2020	8.80626	-1.6435	2.70119	-14.473
7/26/2020	-17.503	-3.6751	13.5067	64.3273
7/19/2020	1.60805	-0.8782	0.77121	-1.4122
7/12/2020	3.36129	-1.1658	1.35912	-3.9186
7/5/2020	2.37607	-1.3867	1.923	-3.2949
6/28/2020	10.7142	-1.0337	1.06863	-11.076
6/21/2020	6.60805	-3.4759	12.0822	-22.969
6/14/2020	-20.068	-1.4791	2.18782	29.6835
6/7/2020	14.8341	-1.1708	1.37085	-17.368
5/31/2020	15.1745	1.01839	1.03712	15.4535
5/24/2020	-39.543	-6.2233	38.7294	246.091
5/17/2020	-18.891	-7.3039	53.3475	137.982
5/10/2020	5.19527	-0.4082	0.16664	-2.1208
5/3/2020	-0.2101	-5.2245	27.2953	1.09785
4/26/2020	1.07192	8.28842	68.6979	8.88449
4/19/2020	-0.2101	-8.9207	79.5782	1.87454
4/12/2020	2.32151	5.3849	28.9972	12.5011
4/5/2020	-0.2101	-1.8108	3.27907	0.38052
3/29/2020	1.02443	-18.908	357.5	-19.37
3/22/2020	-25.82	9.27882	86.0965	-239.58
3/15/2020	3.06855	8.69723	75.6418	26.6879
3/8/2020	26.774	15.079	227.375	403.724
3/1/2020	16.0399	11.4946	132.126	184.372
2/23/2020	1.9404	0.09093	0.00827	0.17644
2/16/2020	5.05302	11.4611	131.356	57.913
2/9/2020	-0.2101	1.57585	2.48331	-0.3311
2/2/2020	13.7899	3.06	9.3636	42.197
1/26/2020	-1.0873	0.2333	0.05443	-0.2537
1/19/2020	0.67482	2.28969	5.24266	1.54513
1/12/2020	-1.0873	1.80708	3.26555	-1.9649
1/5/2020	-0.2101	-2.4369	5.9387	0.51209
12/29/2019	3.32969	-0.7361	0.54184	-2.451
12/22/2019	-1.9195	0.42329	0.17917	-0.8125
12/15/2019	-4.558	-0.9206	0.84742	4.19585

12/8/2019	1.60805	-0.8239	0.6788	-1.3249
12/1/2019	3.36129	-3.2992	10.8848	-11.09
11/24/2019	4.10021	3.54015	12.5327	14.5154
11/17/2019	-6.8217	-0.6702	0.44918	4.57198
11/10/2019	0.67482	1.44153	2.07802	0.97278
11/3/2019	-1.9645	0.15429	0.0238	-0.3031
10/27/2019	12.2899	2.6938	7.25657	33.1065
10/20/2019	-6.5593	-4.8828	23.8422	32.0283
10/13/2019	-6.1423	-0.3093	0.09569	1.90003
10/6/2019	-3.8137	-7.1665	51.3591	27.3313
9/29/2019	6.33192	0.06725	0.00452	0.42583
9/22/2019	5.93022	1.97804	3.91262	11.7302
9/15/2019	14.6659	0.64419	0.41498	9.44758
9/8/2019	0.50929	-3.2634	10.6495	-1.662
9/1/2019	-20.924	-3.5461	12.5745	74.1992
8/25/2019	-6.5164	-1.3504	1.82356	8.79975
8/18/2019	4.59756	-0.3378	0.11408	-1.5529
8/11/2019	5.29445	0.10565	0.01116	0.55938
8/4/2019	-3.6884	1.94657	3.78912	-7.1797
7/28/2019	-6.5164	-2.8922	8.36455	18.8465
7/21/2019	15.1745	3.24579	10.5351	49.2531
7/14/2019	0.6232	0.39749	0.158	0.24771
7/7/2019	13.8395	6.36897	40.5638	88.143
6/30/2019	-3.1087	2.51481	6.32427	-7.8178
6/23/2019	2.02867	0.96698	0.93504	1.96167
6/16/2019	-6.7795	-0.7932	0.6291	5.37719
6/9/2019	5.25861	2.03719	4.15015	10.7128
6/2/2019	4.97505	1.95824	3.8347	9.74234
5/26/2019	-1.6186	-0.2403	0.05774	0.38893
5/19/2019	1.93272	3.44409	11.8618	6.65648
5/12/2019	-3.0073	-4.4655	19.9403	13.4291
5/5/2019	4.10641	0.05326	0.00284	0.21873
4/28/2019	-0.8998	3.52276	12.4098	-3.1697
4/21/2019	2.56764	1.30159	1.69413	3.34201
4/14/2019	1.14122	5.59877	31.3462	6.38941
4/7/2019	-1.5435	-2.2144	4.90345	3.41781
3/31/2019	3.16824	-2.4638	6.07049	-7.806
3/24/2019	-4.7853	-2.7156	7.37442	12.9949
3/17/2019	-3.6348	-0.0239	0.00057	0.08678
3/10/2019	2.62674	4.89659	23.9766	12.8621
3/3/2019	-6.417	-1.9302	3.72548	12.3858
2/24/2019	-1.6807	-2.0074	4.02962	3.37387
2/17/2019	2.02867	-1.6398	2.68908	-3.3267
2/10/2019	-1.67	-1.8072	3.26602	3.01803
2/3/2019	1.27135	3.49999	12.25	4.4497
1/27/2019	9.27892	0.20934	0.04382	1.94241
1/20/2019	1.1232	-2.1884	4.78925	-2.458
1/13/2019	6.36881	7.04362	49.6126	44.8595
1/6/2019	1.64172	0.15955	0.02546	0.26193
12/30/2018	-1.4223	-0.6369	0.40565	0.90585

12/23/2018	-5.1181	4.66579	21.7696	-23.88
12/16/2018	1.08019	1.1911	1.41871	1.28661
12/9/2018	0.42681	-0.743	0.55211	-0.3171
12/2/2018	-2.1089	-4.3715	19.1101	9.21893
11/25/2018	0.43503	4.47532	20.0285	1.94688
11/18/2018	0.43089	-2.2778	5.18822	-0.9815
11/11/2018	1.70069	0.50953	0.25962	0.86656
11/4/2018	-0.8351	1.77625	3.15505	-1.4834
10/28/2018	0.4188	-1.0903	1.18878	-0.4566
10/21/2018	-3.3351	-6.5981	43.5349	22.0055
10/14/2018	2.37051	1.26912	1.61066	3.00845
10/7/2018	-2.7259	4.49725	20.2252	-12.259
9/30/2018	2.37051	-1.903	3.62159	-4.5112
9/23/2018	1.04773	7.53423	56.7647	7.89382
9/16/2018	11.5911	8.48176	71.9403	98.313
9/9/2018	0.90098	3.98999	15.92	3.59489
9/2/2018	-9.5508	1.90031	3.6112	-18.15
8/26/2018	-3.2404	-0.2871	0.08245	0.93045
8/19/2018	-2.0851	-1.004	1.00796	2.09341
8/12/2018	-0.2101	-0.2617	0.06851	0.055
8/5/2018	0.42681	-0.3997	0.15974	-0.1706
7/29/2018	-5.2734	-0.6307	0.39777	3.32591
7/22/2018	-6.8768	0.88454	0.7824	-6.0828
7/15/2018	-1.6387	-1.1617	1.34943	1.90361
7/8/2018	-0.2101	2.28938	5.24126	-0.4811
7/1/2018	-0.2101	0.55006	0.30256	-0.1156
6/24/2018	1.23914	-3.2807	10.763	-4.0652
6/17/2018	1.21844	3.50439	12.2808	4.26988
6/10/2018	1.19832	0.72363	0.52364	0.86714
6/3/2018	-0.9046	0.43593	0.19004	-0.3943
5/27/2018	-3.0073	-1.371	1.87974	4.12317
5/20/2018	-0.2101	-1.7863	3.19072	0.37536
5/13/2018	-0.2101	0.69392	0.48153	-0.1458
5/6/2018	1.22871	3.70517	13.7283	4.55259
4/29/2018	0.49908	-0.4741	0.22478	-0.2366
4/22/2018	2.60677	2.24042	5.01947	5.84025
4/15/2018	4.58439	-1.2623	1.59351	-5.7871
4/8/2018	1.75065	0.18141	0.03291	0.31758
4/1/2018	2.35397	-0.2233	0.04988	-0.5257
			3374.22	2386.89

Annexure 10.

Systematic risk of Tata motors with NIFTY.

Date	Tata motors difference(d1)	NIFTY Difference (d2)	D2*D2	d1*d2
3/26/2023				

3/19/2023	-1.2093	-1.1039	1.2186	1.33499
3/12/2023	0.41277	1.05537	1.11381	0.43562
3/5/2023	3.834	4.00859	16.0688	15.3689
2/26/2023	-1.9886	0.31783	0.10102	-0.632
2/19/2023	-0.2459	0.60279	0.36336	-0.1482
2/12/2023	2.65297	2.06617	4.26906	5.48149
2/5/2023	1.16511	0.68449	0.46853	0.7975
1/29/2023	-0.2772	1.04084	1.08334	-0.2885
1/22/2023	-0.1538	-2.1935	4.81161	0.33737
1/15/2023	-9.714	-3.0794	9.4829	29.9135
1/8/2023	1.88371	1.06973	1.14431	2.01506
1/1/2023	-7.3564	-1.6333	2.66758	12.015
12/25/2022	1.37012	-0.1664	0.02768	-0.2279
12/18/2022	-2.662	-3.0179	9.10743	8.03358
12/11/2022	11.2437	4.36821	19.0812	49.115
12/4/2022	-2.1562	0.6981	0.48734	-1.5052
11/27/2022	5.15973	1.33609	1.78515	6.89389
11/20/2022	-0.6928	-0.7161	0.51276	0.49607
11/13/2022	-2.3574	-1.4519	2.10801	3.42267
11/6/2022	-0.2583	2.04334	4.17522	-0.5277
10/30/2022	0.24936	1.73094	2.99617	0.43163
10/23/2022	-3.8198	-0.6477	0.4195	2.47402
10/16/2022	-3.0784	-3.7934	14.3895	11.6776
10/9/2022	-0.6397	-1.7513	3.06695	1.12025
10/2/2022	3.82514	2.23468	4.99381	8.54799
9/25/2022	-2.0193	-0.5298	0.28067	1.06981
9/18/2022	4.38494	3.06524	9.39567	13.4409
9/11/2022	2.03422	-1.1008	1.21187	-2.2394
9/4/2022	2.91079	2.00791	4.03172	5.84462
8/28/2022	3.36713	-0.0309	0.00096	-0.1041
8/21/2022	0.5272	-2.2438	5.03444	-1.1829
8/14/2022	1.09196	0.09493	0.00901	0.10366
8/7/2022	1.20318	-0.2142	0.04589	-0.2577
7/31/2022	-2.7631	-0.9628	0.92689	2.6602
7/24/2022	-3.5513	-2.0784	4.3198	7.38098
7/17/2022	0.99135	0.68662	0.47145	0.68068
7/10/2022	-3.419	-2.1961	4.82291	7.50841
7/3/2022	0.1192	-1.9565	3.82788	-0.2332
6/26/2022	-6.7213	-3.4423	11.8493	23.1365
6/19/2022	-1.0113	-1.1378	1.29448	1.15063
6/12/2022	-5.1594	-6.534	42.6935	33.7115
6/5/2022	9.86523	5.16014	26.6271	50.906
5/29/2022	0.71195	-1.0205	1.04148	-0.7266
5/22/2022	-0.72	-0.1443	0.02084	0.10393
5/15/2022	-2.8877	-3.1945	10.205	9.22471
5/8/2022	-3.465	-4.6405	21.5343	16.0793
5/1/2022	0.86372	0.98011	0.96062	0.84655
4/24/2022	6.92304	5.28178	27.8972	36.566
4/17/2022	0.09817	-0.4898	0.23987	-0.0481
4/10/2022	-1.9648	-3.0299	9.18002	5.9532

4/3/2022	4.68435	1.79319	3.21555	8.39995
3/27/2022	-2.5987	-2.0349	4.1407	5.28804
3/20/2022	-2.2389	-3.0613	9.37155	6.85404
3/13/2022	0.20595	2.10375	4.42575	0.43327
3/6/2022	-3.7951	-5.6771	32.2296	21.5454
2/27/2022	-0.4027	-0.8711	0.75875	0.35078
2/20/2022	9.99827	10.0519	101.041	100.502
2/13/2022	7.07734	4.7811	22.8589	33.8375
2/6/2022	0.96836	1.12089	1.25639	1.08542
1/30/2022	0.16333	0.02778	0.00077	0.00454
1/23/2022	-0.8467	-0.6202	0.38459	0.52508
1/16/2022	0.72747	0.55582	0.30893	0.40434
1/9/2022	1.41659	0.66431	0.44131	0.94105
1/2/2022	-3.9725	-3.0634	9.38456	12.1695
12/26/2021	-1.8589	-3.1741	10.0752	5.9004
12/19/2021	-3.2555	-2.9295	8.58224	9.53704
12/12/2021	0.36856	0.50629	0.25633	0.1866
12/5/2021	4.96991	3.72003	13.8386	18.4882
11/28/2021	-3.0897	-2.6679	7.11781	8.24305
11/21/2021	-4.3324	-0.3091	0.09552	1.33899
11/14/2021	10.5687	9.14223	83.5804	96.6217
11/7/2021	-0.7074	-0.3875	0.15012	0.27408
10/31/2021	-3.6092	-1.2066	1.45588	4.35489
10/24/2021	-1.4127	-2.3928	5.72571	3.38041
10/17/2021	1.30105	1.16936	1.36741	1.5214
10/10/2021	1.17737	3.16518	10.0184	3.72658
10/3/2021	-23.228	-6.1485	37.8036	142.817
9/26/2021	-13.153	-4.3929	19.2977	57.7784
9/19/2021	-4.7929	-1.6233	2.63507	7.78033
9/12/2021	-3.1282	-0.7829	0.61301	2.44921
9/5/2021	-3.3145	-2.3463	5.50502	7.77674
8/29/2021	-1.3248	0.08127	0.00661	-0.1077
8/22/2021	-3.5033	-3.3071	10.9369	11.5859
8/15/2021	-1.1149	1.09296	1.19456	-1.2185
8/8/2021	8.34308	2.72345	7.41719	22.722
8/1/2021	-2.5308	0.66065	0.43646	-1.672
7/25/2021	-2.2205	-1.9999	3.99977	4.44081
7/18/2021	0.35684	1.48225	2.19707	0.52892
7/11/2021	5.12466	2.1873	4.7843	11.2092
7/4/2021	-1.7778	-0.117	0.01369	0.20805
6/27/2021	12.4145	2.50616	6.28084	31.1128
6/20/2021	-1.7097	0.16046	0.02575	-0.2743
6/13/2021	-0.8499	-2.4957	6.22863	2.12117
6/6/2021	3.76925	3.04192	9.25326	11.4658
5/30/2021	-4.6921	-0.3152	0.09936	1.47904
5/23/2021	-5.024	-2.1393	4.57674	10.748
5/16/2021	-1.96	-1.9213	3.69147	3.76583
5/9/2021	-0.459	-4.9063	24.0719	2.25177
5/2/2021	-3.2299	0.05287	0.00279	-0.1708
4/25/2021	-3.1272	-1.8577	3.45109	5.80942

4/18/2021	-0.1364	-0.4942	0.24426	0.06743
4/11/2021	5.2547	2.17016	4.70961	11.4036
4/4/2021	2.45769	1.12333	1.26187	2.7608
3/28/2021	-3.4716	0.96537	0.93193	-3.3513
3/21/2021	-3.8755	-2.5442	6.47301	9.86017
3/14/2021	4.04667	4.20817	17.7087	17.0291
3/7/2021	2.59615	1.89899	3.60615	4.93005
2/28/2021	2.20585	1.31418	1.72708	2.89889
2/21/2021	-0.8641	-3.4072	11.6093	2.94414
2/14/2021	-3.6245	3.60374	12.9869	-13.062
2/7/2021	4.15756	3.48947	12.1764	14.5077
1/31/2021	-3.107	-1.7645	3.11331	5.48209
1/24/2021	-17.028	-8.532	72.7952	145.285
1/17/2021	9.95718	7.12193	50.7218	70.9143
1/10/2021	-10.227	-3.2488	10.5546	33.2261
1/3/2021	-24.064	-4.3328	18.7733	104.264
12/27/2020	-6.0669	-4.8509	23.5311	29.4296
12/20/2020	-5.8443	-3.2144	10.3323	18.7859
12/13/2020	2.4269	2.08408	4.3434	5.05787
12/6/2020	-1.129	0.18253	0.03332	-0.2061
11/29/2020	2.7759	1.19359	1.42465	3.31328
11/22/2020	-2.251	-4.4529	19.8282	10.0235
11/15/2020	-6.4253	-2.3652	5.59429	15.1974
11/8/2020	-13.641	-4.3666	19.067	59.5647
11/1/2020	-5.2097	-3.6832	13.5656	19.1881
10/25/2020	-4.7558	-3.1328	9.81421	14.8989
10/18/2020	3.09183	4.2945	18.4427	13.2779
10/11/2020	-6.9393	-1.7085	2.91899	11.8558
10/4/2020	8.18826	2.52475	6.37435	20.6733
9/27/2020	-3.7628	-2.457	6.03662	9.24496
9/20/2020	-4.8691	-3.7621	14.1538	18.3184
9/13/2020	16.0404	6.37876	40.6885	102.318
9/6/2020	-2.6216	-2.5494	6.49933	6.68333
8/30/2020	2.23803	0.4607	0.21224	1.03106
8/23/2020	-3.5704	1.403	1.96841	-5.0093
8/16/2020	-15.524	-2.2227	4.94046	34.5046
8/9/2020	2.87291	-3.2784	10.7482	-9.4187
8/2/2020	-4.6016	-1.6435	2.70119	7.56287
7/26/2020	-12.32	-3.6751	13.5067	45.2782
7/19/2020	-1.0475	-0.8782	0.77121	0.91989
7/12/2020	2.36674	-1.1658	1.35912	-2.7592
7/5/2020	0.94034	-1.3867	1.923	-1.304
6/28/2020	-4.0444	-1.0337	1.06863	4.18083
6/21/2020	-2.1691	-3.4759	12.0822	7.5397
6/14/2020	0.89734	-1.4791	2.18782	-1.3273
6/7/2020	2.54423	-1.1708	1.37085	-2.9789
5/31/2020	4.98821	1.01839	1.03712	5.07994
5/24/2020	-21.632	-6.2233	38.7294	134.623
5/17/2020	-5.0151	-7.3039	53.3475	36.6297
5/10/2020	1.68451	-0.4082	0.16664	-0.6876

5/3/2020	-4.0997	-5.2245	27.2953	21.4191
4/26/2020	14.865	8.28842	68.6979	123.207
4/19/2020	-20.616	-8.9207	79.5782	183.912
4/12/2020	3.38395	5.3849	28.9972	18.2223
4/5/2020	-3.1153	-1.8108	3.27907	5.64117
3/29/2020	-12.654	-18.908	357.5	239.257
3/22/2020	8.08205	9.27882	86.0965	74.9919
3/15/2020	9.14774	8.69723	75.6418	79.5601
3/8/2020	15.9186	15.079	227.375	240.036
3/1/2020	27.0549	11.4946	132.126	310.985
2/23/2020	12.7285	0.09093	0.00827	1.15742
2/16/2020	22.7284	11.4611	131.356	260.492
2/9/2020	6.50022	1.57585	2.48331	10.2434
2/2/2020	2.47367	3.06	9.3636	7.56944
1/26/2020	1.54064	0.2333	0.05443	0.35944
1/19/2020	5.41841	2.28969	5.24266	12.4065
1/12/2020	5.60341	1.80708	3.26555	10.1258
1/5/2020	-0.669	-2.4369	5.9387	1.63026
12/29/2019	-2.8613	-0.7361	0.54184	2.10617
12/22/2019	-8.0106	0.42329	0.17917	-3.3908
12/15/2019	-0.301	-0.9206	0.84742	0.2771
12/8/2019	0.23878	-0.8239	0.6788	-0.1967
12/1/2019	-8.7896	-3.2992	10.8848	28.9989
11/24/2019	-0.1875	3.54015	12.5327	-0.6637
11/17/2019	0.33884	-0.6702	0.44918	-0.2271
11/10/2019	3.63144	1.44153	2.07802	5.23484
11/3/2019	0.10917	0.15429	0.0238	0.01684
10/27/2019	3.36177	2.6938	7.25657	9.05595
10/20/2019	-27.722	-4.8828	23.8422	135.365
10/13/2019	7.69585	-0.3093	0.09569	-2.3806
10/6/2019	-11.55	-7.1665	51.3591	82.7754
9/29/2019	-1.5477	0.06725	0.00452	-0.1041
9/22/2019	0.02147	1.97804	3.91262	0.04246
9/15/2019	10.9468	0.64419	0.41498	7.05179
9/8/2019	-2.9642	-3.2634	10.6495	9.6733
9/1/2019	-6.5943	-3.5461	12.5745	23.3837
8/25/2019	-3.9401	-1.3504	1.82356	5.32061
8/18/2019	-5.0289	-0.3378	0.11408	1.69858
8/11/2019	9.08763	0.10565	0.01116	0.96014
8/4/2019	0.38937	1.94657	3.78912	0.75793
7/28/2019	6.89978	-2.8922	8.36455	-19.955
7/21/2019	12.3986	3.24579	10.5351	40.2432
7/14/2019	5.04528	0.39749	0.158	2.00544
7/7/2019	2.68627	6.36897	40.5638	17.1088
6/30/2019	0.3775	2.51481	6.32427	0.94933
6/23/2019	1.27944	0.96698	0.93504	1.23719
6/16/2019	-2.4329	-0.7932	0.6291	1.9297
6/9/2019	3.14796	2.03719	4.15015	6.41299
6/2/2019	3.0403	1.95824	3.8347	5.95363
5/26/2019	1.64143	-0.2403	0.05774	-0.3944

5/19/2019	5.43246	3.44409	11.8618	18.7099
5/12/2019	-3.1771	-4.4655	19.9403	14.187
5/5/2019	4.92986	0.05326	0.00284	0.26259
4/28/2019	12.4806	3.52276	12.4098	43.9662
4/21/2019	2.74879	1.30159	1.69413	3.57779
4/14/2019	9.39045	5.59877	31.3462	52.5749
4/7/2019	-8.7801	-2.2144	4.90345	19.4423
3/31/2019	-5.1886	-2.4638	6.07049	12.7839
3/24/2019	-15.25	-2.7156	7.37442	41.4117
3/17/2019	0.4725	-0.0239	0.00057	-0.0113
3/10/2019	2.4351	4.89659	23.9766	11.9237
3/3/2019	0.47919	-1.9302	3.72548	-0.9249
2/24/2019	-0.6842	-2.0074	4.02962	1.37338
2/17/2019	-3.5153	-1.6398	2.68908	5.76448
2/10/2019	-7.4451	-1.8072	3.26602	13.4548
2/3/2019	-6.9614	3.49999	12.25	-24.365
1/27/2019	20.35	0.20934	0.04382	4.25999
1/20/2019	-4.8118	-2.1884	4.78925	10.5302
1/13/2019	5.61339	7.04362	49.6126	39.5386
1/6/2019	-1.8241	0.15955	0.02546	-0.291
12/30/2018	-5.3733	-0.6369	0.40565	3.42228
12/23/2018	-0.246	4.66579	21.7696	-1.1477
12/16/2018	2.97319	1.1911	1.41871	3.54136
12/9/2018	-5.4641	-0.743	0.55211	4.06003
12/2/2018	-2.9128	-4.3715	19.1101	12.7335
11/25/2018	5.69307	4.47532	20.0285	25.4783
11/18/2018	5.97711	-2.2778	5.18822	-13.614
11/11/2018	-1.6391	0.50953	0.25962	-0.8352
11/4/2018	8.34504	1.77625	3.15505	14.8229
10/28/2018	-2.7227	-1.0903	1.18878	2.96858
10/21/2018	-11.643	-6.5981	43.5349	76.8221
10/14/2018	3.49205	1.26912	1.61066	4.43182
10/7/2018	4.99283	4.49725	20.2252	22.454
9/30/2018	17.4996	-1.903	3.62159	-33.303
9/23/2018	3.25761	7.53423	56.7647	24.5436
9/16/2018	11.7258	8.48176	71.9403	99.4554
9/9/2018	6.30344	3.98999	15.92	25.1507
9/2/2018	3.86354	1.90031	3.6112	7.34194
8/26/2018	-3.7563	-0.2871	0.08245	1.07858
8/19/2018	-4.6735	-1.004	1.00796	4.69201
8/12/2018	0.88885	-0.2617	0.06851	-0.2327
8/5/2018	-3.3433	-0.3997	0.15974	1.33623
7/29/2018	3.15119	-0.6307	0.39777	-1.9874
7/22/2018	3.56567	0.88454	0.7824	3.15396
7/15/2018	-5.6881	-1.1617	1.34943	6.60762
7/8/2018	3.83778	2.28938	5.24126	8.78614
7/1/2018	2.5629	0.55006	0.30256	1.40974
6/24/2018	-0.7597	-3.2807	10.763	2.4925
6/17/2018	14.1831	3.50439	12.2808	49.7032
6/10/2018	-1.8271	0.72363	0.52364	-1.3221

6/3/2018	2.12314	0.43593	0.19004	0.92554
5/27/2018	-7.5274	-1.371	1.87974	10.3203
5/20/2018	2.23244	-1.7863	3.19072	-3.9877
5/13/2018	3.36513	0.69392	0.48153	2.33514
5/6/2018	8.41397	3.70517	13.7283	31.1752
4/29/2018	0.9008	-0.4741	0.22478	-0.4271
4/22/2018	0.56013	2.24042	5.01947	1.25493
4/15/2018	-0.4546	-1.2623	1.59351	0.57388
4/8/2018	6.07741	0.18141	0.03291	1.10247
4/1/2018	1.78704	-0.2233	0.04988	-0.3991
			3374.22	4696.88

Annexure 11.
Systematic risk of Ashok Leyland with NIFTY.

Date	Ashok leyland difference	NIFTY difference (d2)	D2*D2	d1*d2
3/26/2023				
3/19/2023	-1.3312	-1.1039	1.2186	1.46954
3/12/2023	1.12627	1.05537	1.11381	1.18863
3/5/2023	4.01167	4.00859	16.0688	16.0811
2/26/2023	-0.4584	0.31783	0.10102	-0.1457
2/19/2023	-2.803	0.60279	0.36336	-1.6896
2/12/2023	5.16091	2.06617	4.26906	10.6633
2/5/2023	-1.2587	0.68449	0.46853	-0.8616
1/29/2023	4.22748	1.04084	1.08334	4.40012
1/22/2023	-3.1742	-2.1935	4.81161	6.96269
1/15/2023	-3.7664	-3.0794	9.4829	11.5985
1/8/2023	1.86489	1.06973	1.14431	1.99492
1/1/2023	0.25831	-1.6333	2.66758	-0.4219
12/25/2022	-3.1619	-0.1664	0.02768	0.52604
12/18/2022	-4.088	-3.0179	9.10743	12.337
12/11/2022	2.06738	4.36821	19.0812	9.03072
12/4/2022	1.66172	0.6981	0.48734	1.16004
11/27/2022	1.45301	1.33609	1.78515	1.94136
11/20/2022	1.63097	-0.7161	0.51276	-1.1679
11/13/2022	-2.8732	-1.4519	2.10801	4.17157
11/6/2022	1.81958	2.04334	4.17522	3.718
10/30/2022	-0.9284	1.73094	2.99617	-1.607
10/23/2022	1.45236	-0.6477	0.4195	-0.9407
10/16/2022	-4.3411	-3.7934	14.3895	16.4673
10/9/2022	3.27879	-1.7513	3.06695	-5.742
10/2/2022	7.6539	2.23468	4.99381	17.1041
9/25/2022	-4.6023	-0.5298	0.28067	2.43823
9/18/2022	4.13865	3.06524	9.39567	12.6859
9/11/2022	0.50419	-1.1008	1.21187	-0.555
9/4/2022	3.58409	2.00791	4.03172	7.19655

8/28/2022	-1.9589	-0.0309	0.00096	0.06059
8/21/2022	-8.8642	-2.2438	5.03444	19.8891
8/14/2022	-1.2211	0.09493	0.00901	-0.1159
8/7/2022	-0.792	-0.2142	0.04589	0.16966
7/31/2022	-1.7128	-0.9628	0.92689	1.64899
7/24/2022	2.57635	-2.0784	4.3198	-5.3547
7/17/2022	-1.4258	0.68662	0.47145	-0.979
7/10/2022	-1.7462	-2.1961	4.82291	3.83496
7/3/2022	-0.8041	-1.9565	3.82788	1.57327
6/26/2022	1.309	-3.4423	11.8493	-4.506
6/19/2022	-4.5239	-1.1378	1.29448	5.14711
6/12/2022	-6.2891	-6.534	42.6935	41.0934
6/5/2022	4.61118	5.16014	26.6271	23.7943
5/29/2022	0.97924	-1.0205	1.04148	-0.9993
5/22/2022	0.35576	-0.1443	0.02084	-0.0514
5/15/2022	-7.3097	-3.1945	10.205	23.3509
5/8/2022	-6.1632	-4.6405	21.5343	28.6006
5/1/2022	-2.7055	0.98011	0.96062	-2.6517
4/24/2022	6.09763	5.28178	27.8972	32.2063
4/17/2022	1.35585	-0.4898	0.23987	-0.664
4/10/2022	-1.3409	-3.0299	9.18002	4.06266
4/3/2022	0.95737	1.79319	3.21555	1.71675
3/27/2022	-7.9607	-2.0349	4.1407	16.1989
3/20/2022	-4.9177	-3.0613	9.37155	15.0545
3/13/2022	0.57489	2.10375	4.42575	1.20941
3/6/2022	-7.6882	-5.6771	32.2296	43.6469
2/27/2022	-0.2649	-0.8711	0.75875	0.23077
2/20/2022	11.2608	10.0519	101.041	113.193
2/13/2022	6.98567	4.7811	22.8589	33.3992
2/6/2022	4.92062	1.12089	1.25639	5.51547
1/30/2022	2.1883	0.02778	0.00077	0.06079
1/23/2022	-4.2192	-0.6202	0.38459	2.61656
1/16/2022	5.55666	0.55582	0.30893	3.08849
1/9/2022	-0.6154	0.66431	0.44131	-0.4088
1/2/2022	-4.1016	-3.0634	9.38456	12.5648
12/26/2021	-7.7328	-3.1741	10.0752	24.5451
12/19/2021	0.10895	-2.9295	8.58224	-0.3192
12/12/2021	0.06718	0.50629	0.25633	0.03401
12/5/2021	3.59722	3.72003	13.8386	13.3818
11/28/2021	-5.8862	-2.6679	7.11781	15.7039
11/21/2021	3.9265	-0.3091	0.09552	-1.2135
11/14/2021	10.7254	9.14223	83.5804	98.0539
11/7/2021	4.30165	-0.3875	0.15012	-1.6667
10/31/2021	-0.7325	-1.2066	1.45588	0.8838
10/24/2021	-1.9769	-2.3928	5.72571	4.73052
10/17/2021	-2.4649	1.16936	1.36741	-2.8824
10/10/2021	3.76935	3.16518	10.0184	11.9307
10/3/2021	-7.0226	-6.1485	37.8036	43.1779
9/26/2021	-3.2941	-4.3929	19.2977	14.4706
9/19/2021	-2.7799	-1.6233	2.63507	4.51252

9/12/2021	-1.9838	-0.7829	0.61301	1.55322
9/5/2021	-0.0979	-2.3463	5.50502	0.22961
8/29/2021	-3.9687	0.08127	0.00661	-0.3226
8/22/2021	-0.5079	-3.3071	10.9369	1.67978
8/15/2021	-1.2572	1.09296	1.19456	-1.3741
8/8/2021	9.27808	2.72345	7.41719	25.2684
8/1/2021	2.737	0.66065	0.43646	1.80821
7/25/2021	-1.2241	-1.9999	3.99977	2.44804
7/18/2021	-6.6183	1.48225	2.19707	-9.81
7/11/2021	2.63828	2.1873	4.7843	5.77071
7/4/2021	-2.5251	-0.117	0.01369	0.2955
6/27/2021	-2.1793	2.50616	6.28084	-5.4616
6/20/2021	0.55811	0.16046	0.02575	0.08956
6/13/2021	-5.8498	-2.4957	6.22863	14.5995
6/6/2021	13.0068	3.04192	9.25326	39.5657
5/30/2021	-2.8343	-0.3152	0.09936	0.89343
5/23/2021	-3.1772	-2.1393	4.57674	6.79712
5/16/2021	0.46447	-1.9213	3.69147	-0.8924
5/9/2021	-10.859	-4.9063	24.0719	53.2797
5/2/2021	1.70021	0.05287	0.00279	0.08988
4/25/2021	-1.5744	-1.8577	3.45109	2.92476
4/18/2021	-1.46	-0.4942	0.24426	0.72155
4/11/2021	1.89369	2.17016	4.70961	4.10962
4/4/2021	6.42549	1.12333	1.26187	7.21795
3/28/2021	-2.7342	0.96537	0.93193	-2.6395
3/21/2021	-3.6879	-2.5442	6.47301	9.38275
3/14/2021	1.7551	4.20817	17.7087	7.38577
3/7/2021	4.72639	1.89899	3.60615	8.97536
2/28/2021	3.18253	1.31418	1.72708	4.18243
2/21/2021	1.88212	-3.4072	11.6093	-6.4128
2/14/2021	-4.4474	3.60374	12.9869	-16.027
2/7/2021	3.71259	3.48947	12.1764	12.955
1/31/2021	2.43336	-1.7645	3.11331	-4.2935
1/24/2021	-16.055	-8.532	72.7952	136.983
1/17/2021	10.1162	7.12193	50.7218	72.047
1/10/2021	-2.3854	-3.2488	10.5546	7.74968
1/3/2021	-5.9033	-4.3328	18.7733	25.578
12/27/2020	-12.363	-4.8509	23.5311	59.972
12/20/2020	-4.1027	-3.2144	10.3323	13.1876
12/13/2020	2.93189	2.08408	4.3434	6.1103
12/6/2020	-4.4416	0.18253	0.03332	-0.8108
11/29/2020	0.52617	1.19359	1.42465	0.62803
11/22/2020	-3.0131	-4.4529	19.8282	13.4169
11/15/2020	-1.6827	-2.3652	5.59429	3.98001
11/8/2020	-0.493	-4.3666	19.067	2.15293
11/1/2020	-6.3469	-3.6832	13.5656	23.3767
10/25/2020	-7.3354	-3.1328	9.81421	22.98
10/18/2020	3.39216	4.2945	18.4427	14.5676
10/11/2020	-8.5307	-1.7085	2.91899	14.5747
10/4/2020	0.91562	2.52475	6.37435	2.3117

9/27/2020	0.30964	-2.457	6.03662	-0.7608
9/20/2020	-0.1521	-3.7621	14.1538	0.57239
9/13/2020	4.23838	6.37876	40.6885	27.0356
9/6/2020	-14.71	-2.5494	6.49933	37.5002
8/30/2020	2.20341	0.4607	0.21224	1.01511
8/23/2020	0.78515	1.403	1.96841	1.10156
8/16/2020	-1.8489	-2.2227	4.94046	4.10963
8/9/2020	-11.393	-3.2784	10.7482	37.351
8/2/2020	-19.13	-1.6435	2.70119	31.4408
7/26/2020	-2.8203	-3.6751	13.5067	10.3651
7/19/2020	3.37941	-0.8782	0.77121	-2.9677
7/12/2020	2.46085	-1.1658	1.35912	-2.8689
7/5/2020	-1.3771	-1.3867	1.923	1.90971
6/28/2020	-4.2255	-1.0337	1.06863	4.36813
6/21/2020	6.60509	-3.4759	12.0822	-22.959
6/14/2020	3.40478	-1.4791	2.18782	-5.0361
6/7/2020	-3.8976	-1.1708	1.37085	4.56341
5/31/2020	-7.8586	1.01839	1.03712	-8.0031
5/24/2020	-12.42	-6.2233	38.7294	77.2959
5/17/2020	2.49135	-7.3039	53.3475	-18.197
5/10/2020	7.92448	-0.4082	0.16664	-3.2349
5/3/2020	-0.4298	-5.2245	27.2953	2.24552
4/26/2020	11.0469	8.28842	68.6979	91.5613
4/19/2020	-14.353	-8.9207	79.5782	128.041
4/12/2020	8.56982	5.3849	28.9972	46.1477
4/5/2020	-6.8639	-1.8108	3.27907	12.4294
3/29/2020	-16.647	-18.908	357.5	314.757
3/22/2020	13.2816	9.27882	86.0965	123.238
3/15/2020	1.28344	8.69723	75.6418	11.1624
3/8/2020	51.5457	15.079	227.375	777.255
3/1/2020	6.52891	11.4946	132.126	75.0473
2/23/2020	-2.0436	0.09093	0.00827	-0.1858
2/16/2020	20.3831	11.4611	131.356	233.613
2/9/2020	-5.022	1.57585	2.48331	-7.9139
2/2/2020	4.14365	3.06	9.3636	12.6796
1/26/2020	-2.367	0.2333	0.05443	-0.5522
1/19/2020	5.33445	2.28969	5.24266	12.2142
1/12/2020	-3.1079	1.80708	3.26555	-5.6162
1/5/2020	-3.3725	-2.4369	5.9387	8.21855
12/29/2019	2.67104	-0.7361	0.54184	-1.9661
12/22/2019	-4.9967	0.42329	0.17917	-2.115
12/15/2019	0.66058	-0.9206	0.84742	-0.6081
12/8/2019	0.46636	-0.8239	0.6788	-0.3842
12/1/2019	-5.7149	-3.2992	10.8848	18.8548
11/24/2019	3.24634	3.54015	12.5327	11.4925
11/17/2019	2.56182	-0.6702	0.44918	-1.717
11/10/2019	-2.4918	1.44153	2.07802	-3.5921
11/3/2019	-3.9284	0.15429	0.0238	-0.6061
10/27/2019	-1.0015	2.6938	7.25657	-2.6979
10/20/2019	-1.8635	-4.8828	23.8422	9.09937

10/13/2019	3.53061	-0.3093	0.09569	-1.0921
10/6/2019	-11.637	-7.1665	51.3591	83.3974
9/29/2019	-1.0917	0.06725	0.00452	-0.0734
9/22/2019	5.43989	1.97804	3.91262	10.7603
9/15/2019	-3.9729	0.64419	0.41498	-2.5593
9/8/2019	-8.527	-3.2634	10.6495	27.8266
9/1/2019	0.4915	-3.5461	12.5745	-1.7429
8/25/2019	0.643	-1.3504	1.82356	-0.8683
8/18/2019	-6.7344	-0.3378	0.11408	2.27462
8/11/2019	5.42544	0.10565	0.01116	0.57322
8/4/2019	0.80349	1.94657	3.78912	1.56405
7/28/2019	-0.0622	-2.8922	8.36455	0.17988
7/21/2019	14.9997	3.24579	10.5351	48.6857
7/14/2019	6.72298	0.39749	0.158	2.67231
7/7/2019	6.77661	6.36897	40.5638	43.16
6/30/2019	2.31467	2.51481	6.32427	5.82097
6/23/2019	0.01204	0.96698	0.93504	0.01164
6/16/2019	-1.0773	-0.7932	0.6291	0.85448
6/9/2019	1.11176	2.03719	4.15015	2.26488
6/2/2019	2.4634	1.95824	3.8347	4.82393
5/26/2019	-1.4955	-0.2403	0.05774	0.35935
5/19/2019	5.35347	3.44409	11.8618	18.4379
5/12/2019	-10.132	-4.4655	19.9403	45.2459
5/5/2019	1.43909	0.05326	0.00284	0.07665
4/28/2019	4.08962	3.52276	12.4098	14.4067
4/21/2019	-1.4454	1.30159	1.69413	-1.8813
4/14/2019	7.97437	5.59877	31.3462	44.6467
4/7/2019	-0.3222	-2.2144	4.90345	0.71337
3/31/2019	-8.477	-2.4638	6.07049	20.8859
3/24/2019	3.82787	-2.7156	7.37442	-10.395
3/17/2019	-2.0797	-0.0239	0.00057	0.04966
3/10/2019	4.8046	4.89659	23.9766	23.5262
3/3/2019	-4.9467	-1.9302	3.72548	9.54793
2/24/2019	-3.6198	-2.0074	4.02962	7.26642
2/17/2019	-5.7027	-1.6398	2.68908	9.35154
2/10/2019	-2.539	-1.8072	3.26602	4.58858
2/3/2019	8.66283	3.49999	12.25	30.3199
1/27/2019	-4.2384	0.20934	0.04382	-0.8872
1/20/2019	-1.3548	-2.1884	4.78925	2.96481
1/13/2019	11.5256	7.04362	49.6126	81.1822
1/6/2019	1.94913	0.15955	0.02546	0.31098
12/30/2018	2.4334	-0.6369	0.40565	-1.5498
12/23/2018	5.92898	4.66579	21.7696	27.6634
12/16/2018	2.3127	1.1911	1.41871	2.75465
12/9/2018	-1.4517	-0.743	0.55211	1.07867
12/2/2018	-1.323	-4.3715	19.1101	5.7833
11/25/2018	8.96596	4.47532	20.0285	40.1255
11/18/2018	-2.9324	-2.2778	5.18822	6.67943
11/11/2018	-3.6486	0.50953	0.25962	-1.8591
11/4/2018	11.8145	1.77625	3.15505	20.9855

10/28/2018	-0.6828	-1.0903	1.18878	0.7445
10/21/2018	-4.0835	-6.5981	43.5349	26.9432
10/14/2018	-0.7922	1.26912	1.61066	-1.0054
10/7/2018	2.71562	4.49725	20.2252	12.2128
9/30/2018	-7.1694	-1.903	3.62159	13.6436
9/23/2018	10.3159	7.53423	56.7647	77.7226
9/16/2018	2.4691	8.48176	71.9403	20.9423
9/9/2018	7.10035	3.98999	15.92	28.3304
9/2/2018	0.35371	1.90031	3.6112	0.67216
8/26/2018	-2.4526	-0.2871	0.08245	0.70422
8/19/2018	-0.1015	-1.004	1.00796	0.10189
8/12/2018	-0.8756	-0.2617	0.06851	0.22919
8/5/2018	-0.841	-0.3997	0.15974	0.33613
7/29/2018	-7.5482	-0.6307	0.39777	4.76058
7/22/2018	-4.7439	0.88454	0.7824	-4.1962
7/15/2018	-5.0028	-1.1617	1.34943	5.81155
7/8/2018	23.0955	2.28938	5.24126	52.8743
7/1/2018	-0.3687	0.55006	0.30256	-0.2028
6/24/2018	-5.1308	-3.2807	10.763	16.8326
6/17/2018	8.20836	3.50439	12.2808	28.7653
6/10/2018	4.07114	0.72363	0.52364	2.946
6/3/2018	1.7155	0.43593	0.19004	0.74784
5/27/2018	3.81677	-1.371	1.87974	-5.2329
5/20/2018	-4.0295	-1.7863	3.19072	7.19764
5/13/2018	2.05658	0.69392	0.48153	1.4271
5/6/2018	8.84563	3.70517	13.7283	32.7745
4/29/2018	1.07978	-0.4741	0.22478	-0.5119
4/22/2018	-1.4071	2.24042	5.01947	-3.1525
4/15/2018	-4.1992	-1.2623	1.59351	5.30083
4/8/2018	-4.1714	0.18141	0.03291	-0.7567
4/1/2018	-2.1923	-0.2233	0.04988	0.48963
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