BSE Metal Stock Analysis: In-Depth Market Study

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Abstract:-

A stock trading is like a market place for stocks, where companies can sell their stocks to investors. Some stocks are sold directly between buyers and sellers, but most are traded on stock exchanges. India has a big and growing stock market. India's BSE and NSE, two of the world's fastest-growing emerging stock exchanges, have driven impressive market expansion. Technical analysis, a method of forecasting market behavior and future trends, is widely used in the Indian market. The metal industry plays a essential role in India's economy, driving infrastructure, manufacturing, and construction. The BSE Metal Index, comprising stocks of major metal producers and consumers, is a leading indicator of the sector's performance. The most important aim of this research paper focuses on analyzing the performance of selected metal stocks and predicting their future price actions. It also aims to decide whether the closing prices of these stocks are different from each other using statistical methods like trend analysis and ANOVA Test. The research design of this research paper is based on descriptive and analytical in nature. The study relies solely on published secondary data from the Bombay Stock Exchange.

Keywords:- Stock Market, BSE Metal stocks, Trend Value Analysis, ANOVA Test.

Introduction:-

The oldest and biggest stock exchange in Asia and India is the Bombay Stock Exchange, which was founded in 1875 and is situated on Dalal Street in Mumbai. In the 1850s, it started off as unofficial meetings beneath a banyan tree. It later changed its name to the Native Share and Stock Brokers' Association and moved into a permanent location on Dalal Street in 1874. Today, the BSE lists close to 6,000 companies and plays a vital role in India's capital markets, facilitating trading in various instruments like equities, currencies, debt, derivatives, and mutual funds. Additionally, it boasts a small-and-medium enterprises platform and offers clearing, settlement, and risk management services. Thus, the stock exchange functions as a sizable marketplace where investors can purchase and sell equity in companies to help them expand. In order to optimise profits and reduce losses, investors must strike the correct balance between risk and return. It's all about investing smart. Technical analysis assumes historical market and script performance can foresee future outcomes. It focuses on four key dimensions: price, volume, time, and breadth. Price, reflecting investor sentiment, is the primary indicator.

The BSE Metal sector is currently experiencing a bullish trend, reflected in its recent rise to 25,029.3 points. This bullish trend is fueled by factors like strong global metal demand, rising commodity prices, and increased infrastructure investments. Top performers include Coal India

(up 1.10%), JSW Steel (up 0.44%), Tata Steel (up 1.10%), Vedanta (up 0.90%), and Hindalco (up 0.44%). This presents an attractive opportunity for long-term investors with average risk tolerance, although awareness of potential risks like falling demand, geopolitical instability, economic slowdowns, and policy changes is crucial. Leading the charge are established players like Coal India, JSW Steel, Tata Steel, and Hindalco, each leveraging their strengths and capitalizing on current market trends, showcasing the sector's promising future for investors with the right risk appetite. The most important aim of this research paper is to uncover the secrets behind the price fluctuations of select metal stocks within the BSE's Metal sector over a five-year period (2018-2022). By examining past data through statistical methods like trend analysis and ANOVA, the study aims to recognize the key factors driving these price fluctuation and even predict future trends in the metals sector, opening the door to potential investment opportunities.

Review of Literature:-

Researchers Ajinkya Rajkar, Aayush Kumaria, Aniket Raut, and Nilima Kulkarni (2021) have investigated studies on the forecasting and evaluating the prices of stocks. The goal of the research has been to use stock movement patterns to forecast market developments. Methods of technical analysis like RSI, Bollinger Brands, moving averages, etc., and fundamental analysis tools like P/E ratios are used in the analysis. expected closing prices for T + 1 day are presented after the conclusion of the study, with the actual change and the expected day change differing just slightly.

The research on investors' Awareness of fundamental and technical analysis for investments in the securities market was examined by Jayalakshmi, R., and N. Lakshmi (2019). The goal of the research is to ascertain how much investors understand about the importance of fundamental and technical analysis while making investments in the securities markets. Z test and ANOVA were the instruments utilised. According to the study's findings, 61% of the respondents are younger. This implies that younger investors might not have the same level of attention to saving and investing as do their elders.

A Study on Forecasting of Security Prices using Relative Strength Index (RSI) Selected Companies in India was examined by H. Navitha Rani (2019). The study's goal is to examine the fundamentals of security forecasting as well as the costs associated with doing security forecasting. The Relative Strength Index, Mean, Standard Deviation, and ANOVA were the instruments utilised for this objective.

The behaviour of the stock prices of a few pharmaceutical companies on the Bombay Stock Exchange (BSE) was examined by Ms. Padma (2015). Her goal was to determine whether price fluctuations followed any patterns and whether statistical techniques like trend analysis and ANOVAs might be used to forecast future prices. The purpose of the study was to provide investors with better understanding of the market's tendencies and possible hazards prior to investing in these equities. With this information, they may be able to make wise financial choices and limit their exposure to risk.

Objectives of the study:-

- > To study the price movement of select stock in Metal sector of BSE India.
- To analyze selected industries and predict future share price trends using trend analysis.
- > To study past market data to identify trends in security prices.
- > To give suggestions to investors for taking proper trading decisions.

Research Methodology:-

This research study is descriptive in character and is accepted based on a forecast for the existing situation. The top 5 metals firms have been employed in this study to analyse price changes. The closing prices of the top 5 BSE companies in the metal categories have been used to analyse price changes. This work uses an analytical and descriptive research design. Secondary data served as the study's foundation. Five years, from January 2018 to December 2022, saw the collection of data for the analysis from the BSE website. MS Excel has been utilised to analyse and interpret the data that was gathered. Statistical procedures like trend value analysis and ANOVA will be employed. The selected stocks for analysis include:

- ➢ Coal India Ltd.
- ➢ JSW Steel Ltd.
- ➢ Tata Steel Ltd.
- Vedanta Ltd.
- ➢ Hindalco Ltd.

Tool Used:-

Trend Value Analysis:-

Trend analysis predicts future changes in price by analyzing past data. It assumes what happened before can offer clues about what's next, revealing if prices have risen, fallen, or stayed stagnant over time. Simple trend lines, often straight or slightly curved, highlight these overall trends, identifying charts that are clearly trending upwards (support and resistance levels align) or downwards. In the stock exchange, trend value analysis helps identify the general orientation and momentum of a stock's price movement. It uses historical data points (often closing prices) to fit a mathematical model, typically a trend line or regression curve. Investors can determine if a stock is trending upward, downward, or sideways, as well as the potential strength of that trend, by examining the model's slope and strength. This information can then be used to inform investment decisions, such as buying when a trend strengthens or selling when it weakens. It's crucial to keep in mind that trend value analysis isn't fool proof and should be combined with other forms of analysis for a more comprehensive understanding of market dynamics.

ANOVA test:-

An analysis of variance test uses a variance to test for mean differences in order to discover whether there is a statistically significant difference between two or more categorical groups. A one-way analysis of variance has one categorical independent variable and a normally distributed continuous dependent variable. Both the One-Way ANOVA and Independent Samples t-test can test the null hypothesis that two groups have identical means. However, ANOVA's power extends beyond. It can tackle three or more groups, revealing whether their means differ significantly. ANOVA analyzes the "between variance" - the variation between group means - and compares it to the "within variance" - the variation within each group. A large difference between these variances tells us the null hypothesis is likely false, meaning the group means are indeed different. But when these variances are close, the null hypothesis stands – there's no significant difference between the means.

Variance Ratio = Variance between the samples/ Variance within the samples

Hypothesis:-

 H_0 : u1=u2=u3=u4=u5 all the means are equal, difference is not significant.

H1: u1#u2#u3#u4#u5 the mean is not equal, difference is significant.

Decision Rule:-

Reject the null hypothesis if the observed F-value is statistically greater than the critical F-value. Accept the null hypothesis if the observed F-value is statistically less than the critical F-value.

Limitations of the study:-

- > The period of study consists of the 5- year data of selected stocks.
- > The research was carried out with secondary data.

Analysis and Interpretation:-





Figure 2: Showing Trend Value analysis







Figure 4: Showing Trend Value analysis







Anova Table:-

ANOVA						
Source of						
Variance	SS	Df	MS	F	P-value	F critical
Between						
Samples	522023.6884	4	130505.9221	3.148966105	0.036786716	2.866081402
Within						
Samples	828881.085	20	41444.05425			
Total	1350904.773	24				

Variance Ratio:- 3.15

Interpretation:-

On the basis of trend value analysis:-

Most of the chart patterns show a lot of variations in share price movements. Here we are using trend value analysis to know whether the value of shares are increasing in future or not. By analyzing charts we have observed that the trend values for JSW Steel Ltd., Vedanta Ltd., and Hindalco Ltd. are all positive. This suggests that analysts expect Coal India Ltd. and Tata Steel's revenue to decline in the coming years, while JSW Steel Ltd., Vedanta Ltd., and Hindalco Ltd.'s revenue is anticipated to increase..

On the basis of ANOVAs test:-

The one way analysis of Variance (ANOVA) is an inferential statistical test that allows testing if any of several means are different from each other. Here, we test hypothesis on 95% confidence level (meaning a 5% chance of being wrong). Where $V_1 = 4$ and $V_2 = 20$ and its table value is 2.87. In this case 3.15 (Observed Value) exceeded the 2.87(Critical Value), So we reject the null hypothesis that all the means are equal and difference is not significant.

Findings and Suggestions:-

Findings:

- Tata Steel Ltd.: Stands out with the highest original value in all years except 2018 and the most significant increase in original value from 2018 to 2022.
- JSW Steel Ltd.: Demonstrates steady growth in original value with the second-highest increase from 2018 to 2022.
- The p-value (0.0368) is less than the significance level of 0.05, which means we can reject the null hypothesis that the means of the groups are equal. This suggests that there is a statistically significant difference between the mean returns of the different investment options.
- ➤ The F-statistic (3.15) is higher than the F-critical value (2.87), which further supports the conclusion that there is a statistically significant difference between the mean returns of the different investment options.

Suggestions:

- JSW Steel Ltd. Steady growth and relatively lower volatility compared to Vedanta and Hindalco suggest it could be a good buy.
- Coal India Ltd. Potentially undervalued compared to its peers based on its trend value. Could be a good buy for value investors.
- Investors may want to consider investing in Tata Steel Ltd., as it has had the highest average annual revenue growth over the past 5 years.
- Investors may also want to consider investing in Hindalco Ltd., as it has a good track record of profitability and its average annual revenue has been increasing over the past few years.
- Investors should consider diversifying their portfolios across different investment options to reduce risk.

Conclusion:-

India's metal industry is booming. It's one of the strong places for stocks like Coal India or Tata Steel. But how do you understand which ones to buy? That's where "technical analysis" comes in. Technical analysis studying those mark to understand market trends and predict future price movements. This research paper has explored the potential of technical analysis as a tool to navigate these challenges and inform informed investment decisions within the Indian metals sector. Our analysis of five key companies (Coal India Ltd., JSW Steel Ltd., Tata Steel Ltd., Vedanta Ltd., and Hindalco Ltd.) demonstrated that technical analysis, when employed

diligently, can obtain valuable insights from past price patterns. These insights offer critical clues regarding short- and medium-term price trends, empowering investors to select potentially remunerative stocks and formulate prudent investment strategies.

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