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A STUDY ON THE ANALYSIS OF STOCK PRICE FLAKINESS IN A SELECTED NSE COMPANY

Mr. Arun Kumar KR[1], Dr. Narmadha[2]

IInd MBA- Business analytics, Department of Management Studies, VISTAS[1]

Assistant Professor of MBA Business Analytics, Department of Management Studies, VISTAS[2]

Abstract: The stock market is dynamic in nature, with several factors contributing to volatility in the prices of stocks. This research delves into the notion of stock price flakiness a term employed to refer to unpredictable and irregular fluctuations in stock values by examining a chosen company that is listed on the National Stock Exchange (NSE) of India. The aim is to determine the root causes and patterns of volatility influencing investor choice and market performance. Based on past stock price history, technical measures, and statistical methods like standard deviation, beta analysis, and moving averages, the research investigates the magnitude and character of price flakiness over a specified time period. The effect of macroeconomic factors, firm-specific news, and investor attitude on stock price behavior is also analyzed. The study endeavors to shed light on how transient anomalies diverge from long-run trends and influence risk management as well as investment decisions. The study of such fluctuations helps towards improved comprehension of market behavior as well as giving investors the mechanisms to predict and react to sporadic price patterns. The results of this study can assist in creating more stable financial models and enhance forecast accuracy in the equity markets.

Keywords: Technical Indicators, Price Instability, Stock Price Flakiness, Market Fluctuations, Stock Market Trends, Investment Strategies.

I. INTRODUCTION

Securities prices fluctuate daily in the stock markets. Price fluctuations are what are known as these ups and downs. Unbalanced supply and demand for a security cause price fluctuations. If requested a security's supply exceeds its demand, the price will begin to decline. Volatility, or the degree of risk associated with the magnitude of swings in the asset's value, is the relative rate of variation at which the price of a securities moves up and down. It implies that if a financial instrument's price volatility rises, so does the instrument's risk. There are occasions when people wonder why volatility matters. Although volatility does not indicate the direction of prices, it does indicate desperation in the prices, which aids in determining the risk of an instrument (the likelihood of a departure from expectations). Based on the risk associated with an instrument, investors can assess their risk tolerance and decide whether to allocate their excess funds to financial assets.

Many stock buyers and sellers come together to form the stock market. A stock, more usually referred to as shares, generally represents ownership claims on a corporation made by a certain person or group of persons. An effort to ascertain the future The term "stock market prediction" refers to the value of a stock market. The forecast should be reliable, accurate, and effective. The system should function in accordance with real-world situations and be optimally adapted to them. All the factors that could influence the stock's performance and value are also anticipated to be considered by the system. Participants in stock markets react differently to volatility. Some see it as a chance to start earning money, while others see it as a threat to their job. Changes in stock market volatility impact portfolio selection, but they also provide insight on the state of the economy. Increased volatility is a reflection of global uncertainty in the globalized world of today. Both internal and external macroeconomic actors may be responsible for the overall volatility of the stock market.

II. LITERATURE REVIEW

Debjiban Mukherjee (2007)

The study is witnessing heightened activities and is increasingly gaining importance. In the current context of globalization and the subsequent integration of the global markets this paper captures the trends, similarities and patterns in the activities and movements of the Indian Stock Market in comparison to its international counterparts. This study covers New York Stock Exchange (NYSE), Hong Kong Stock exchange (HSE), Tokyo Stock exchange (TSE).

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C. Boobalan (2014):
The Technical Analysis is the forecasting of future financial price movements based on an examination of past price movements. Technical analysis does not result in absolute predictions about the future with regard to forecasting. Instead, technical analysis can help investors anticipate what is "possible" to happen to prices over time. Technical analysis is study of predicting prices of securities for future the main aim of technical analysis is to generate returns by charter person decide when to enter and when to exit in the security.

Eunsuk Chong , Chulwoo Han(2017)
The study offer a systematic analysis of the use of deep learning networks for stock market analysis and prediction. Its ability to extract features from a large set of raw data without relying on prior knowledge of predictors makes deep learning potentially attractive for stock market prediction at high frequencies. Deep learning algorithms vary considerably in the choice of network structure, activation function, and other model parameters, and their performance is known to depend heavily on the method of data representation.

Haruna Isah (2019)
The Stock market prediction has always caught the attention of many analysts and researchers. Popular theories suggest that stock markets are essentially a random walk and it is a fool's game to try and predict them. Predicting stock prices is a challenging problem in itself because of the number of variables which are involved. In the short term, the market behaves like a voting machine but in the longer term, it acts like a weighing machine and hence there is scope for predicting the market movements for a longer timeframe.

Dattatray P. Gandhmal, K. Kumar (2019)
The Prediction of stock market trends is considered as an important task and is of great attention as predicting stock prices successfully may lead to attractive profits by making proper decisions. Stock market prediction is a major challenge owing to non-stationary, blaring, and chaotic data, and thus, the prediction becomes challenging among the investors to invest the money for making profits. Several techniques are devised in the existing techniques to predict the stock market trends.

Adebayo Felix Adekoya (2019)
The stock market is a key pivot in every growing and thriving economy, and every investment in the market is aimed at maximising profit and minimising associated risk. As a result, numerous studies have been conducted on the stock-market prediction using technical or fundamental analysis through various soft-computing techniques and algorithms. This study attempted to undertake a systematic and critical review of about one hundred and twenty-two (122) pertinent research works reported in academic journals over 11 years (2007–2018) in the area of stock market prediction using machine learning. The various techniques identified from these reports were clustered into three categories, namely technical and fundamental

A. Pomares-Quimbaya (2020)
Achieving accurate stock market models can provide investors with tools for making better data-based decisions. These models can help traders to reduce investment risk and select the most profitable stocks. Furthermore, creating advanced models enable the usage of non-traditional data like historical stock prices and news. There are several review articles about financial problems, including stock market analysis and forecast, currency exchange forecast, optimal portfolio selection, among others.

Rakesh Gupta(2017):
This study aims to investigate whether the stock market performance leads to economic growth or vice versa; study also examines short-run and long-run dynamics of the stock market. We use of monthly Index of Industrial Production (IIP) and quarterly Gross Domestic Production (GDP) data for the time span of April, 1996 to March, 2009. This provides rich data for the empirical analysis. We undertake; Unit root (ADF, PP and KPSS) tests, Granger Causality test, Engle-Granger Cointegration test and Error Correction Model.

Aparna Nayak (2015)
The Stock market process is full of uncertainty and is affected by many factors. Hence the Stock market prediction is one of the important exertions in finance and business. There are two types of analysis possible for prediction, technical and fundamental. In this paper both technical and fundamental analysis are considered. Technical analysis is done using historical data of stock prices by applying machine learning and fundamental analysis is done using social media data by applying sentiment analysis. Social media data has high impact today than ever, it can aide in predicting the trend of the stock market.

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P. Bak, M. Paczuski, M. Shubik (2014)
The Large variations in stock prices happen with sufficient frequency to raise doubts about existing models, which all fail to account for non-Gaussian statistics. We construct simple models of a stock market, and argue that the large variations may be due to a crowd effect, where agents imitate each other's behavior. The variations over different time scales can be related to each other in a systematic way, similar to the Levy stable distribution proposed by Mandelbrot to describe real market indices.

Amir H. Gandomi (2021):
The application of Artificial Intelligence (AI) to financial investment is a research area that has attracted extensive research attention since the 1990s, when there was an accelerated technological development and popularization of the personal computer. Since then, countless approaches have been proposed to deal with the problem of price prediction in the stock market. This paper presents a systematic review of the literature on Artificial Intelligence applied to investments in the stock market based on a sample of 2326 papers from the Scopus website between 1995 and 2019.

Fatima Dakalbab , Manar Abu Talib (2024):
The Artificial Intelligence (AI) approaches have been increasingly used in financial markets as technology advances. In this research paper, we conduct a Systematic Literature Review (SLR) that studies financial trading approaches through AI techniques. It reviews 143 research articles that implemented AI techniques in financial trading markets. Accordingly, it presents several findings and observations after reviewing the papers from the following perspectives: the financial trading market and the asset type.

Sang-Gyung Jun , Achla Marathe(2003):
The stock returns in emerging countries are positively correlated with aggregate market liquidity as measured by turnover ratio, trading value and the turnover–volatility multiple. The results hold in both cross-sectional and time-series analyses, and are quite robust even after we control for world market beta, market capitalization and price-to-book ratio. The positive correlation between stock returns and market liquidity in a time-series analysis is consistent with the findings in developed markets.

M. Ananthi & K. Vijayakumar (2021)
The study on Stock market data is a time-series data in which stock value varies depends on time. Prediction of the stock market is an endeavor to assess the future value of a company's stock rate which will increase the investor's profit. The accurate prediction of stock market analysis is still a challenging task. The proposed system predicts stock price of any company mentioned by the user for the next few days

Fama, E.F. (1965)
Eugene Fama's 1965 work on the Efficient Market Hypothesis (EMH) established the groundwork for explaining stock price behavior. According to him, stock prices are a mirror of all information and, therefore, price changes are due to random events or unexpected news. Based on EMH, past pattern or available information cannot be used to predict stock price movements, resulting in the random walk hypothesis. Although Fama's hypothesis has proven very important in describing stock price behavior, it fails to explain epochs of high volatility or flakiness where stocks move far beyond what would be regarded as random.

Shiller, R.J. (1981)
Robert Shiller's research concentrated on stock price volatility, specifically with respect to economic fundamentals. Shiller contended that stock prices are usually speculative-driven, rather than driven by rational expectations. Specifically, he discovered that investors overreact to news, leading to too much volatility. This is consistent with the theory of flakiness, in which prices move erratically, not necessarily by fundamentals. Shiller's research underscored the influence of psychological forces, like the mood of investors, on stock market movements, which become most evident during times of economic uncertainty or speculative mania.

Black, F. (1986)
Fischer Black's option pricing research brought volatility into prominence as a fundamental driver of stock price movement. His research proved that volatility could be incorporated into financial derivatives such as options. Black contended that market makers, in offering liquidity, unintentionally make a contribution to price volatility in underlying stocks. Such volatility events can cause short-term flakiness in stock prices, since frenetic buying and selling of options can spill over into the wider market and amplify price swings.

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Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998)
Daniel, Hirshleifer, and Subrahmanyam examined the effect of cognitive biases on the movement of the stock market. From their findings, it emerged that mental states such as overconfidence, herding, and overreactions to news can cause irrational price fluctuations in stocks. These factors are a major source of stock market flakiness, causing bubbles and crashes that are difficult to explain using standard financial theory. Their work laid the foundation for behavioral finance, which emphasizes irrationality as the underlying force that controls stock prices to push them up and down in unpredictable directions.

Malkiel, B.G. (2003)
The article of Burton Malkiel reaffirmed the notion that stock price movements usually result from a combination of rational and irrational factors. Although he continued to assert that markets in general are efficient, he also recognized the presence of anomalies, including unusual volatility and flakiness. Malkiel pointed out that when investors face greater uncertainty, they might be prone to overreaction to news or to panic selling, which results in unusual price movements fear.

Poterba, J.M., & Summers, L.H. (1988)
Poterba and Summers investigated the contribution of macroeconomic factors to stock price volatility. They contended that stock prices are greatly determined by interest rates, inflation, and economic growth. According to their research, economic uncertainty or recession causes higher market flakiness since investors make adjustments based on fluctuating economic indicators. Although they recognized the ability of the market to adapt to new information, they also understood that macroeconomic shocks can lead to extreme stock price fluctuations, adding to stock market volatility.

Campbell, J.Y., Lo, A.W., & MacKinlay, A.C. (1997)
Campbell, Lo, and MacKinlay's book presented a thorough survey of financial econometrics and stock price behavior. They concentrated on empirical patterns of volatility of stock prices, such as the contribution of historical price movements to the prediction of future volatility. They found through their research that short-run stock price fluctuations tend to be associated with market inefficiencies more than with purely fundamental events.

Barberis, N., Shleifer, A., & Vishny, R.W. (1998)
a model to describe how cognitive biases and investor sentiment influence stock prices. The authors emphasized the influence of psychological variables, e.g., optimism and fear, in inducing overreaction to news in financial markets, resulting in excessive stock price fluctuations. Based on their work, these types of movements are able to be a cause of the flakiness of stock prices, as investors' reactions to news events cause the changes in stock prices that are detached from underlying fundamentals.

Jegadeesh, N., & Titman, S. (1993)
The research by Jegadeesh and Titman into momentum investing proved that stocks tend to follow a trend, such that recent trends determine future direction. This momentum, coupled with market overreactions to news, can cause temporary price flakiness or instability. Their study had indicated that the momentum effect in stock prices can produce short-term price volatility as investors chase recently successful stocks, only to be corrected afterwards by the market and prompting price reversals.

Hong, H., & Stein, J.C. (2003)
Hong and Stein's work examined the phenomenon of information cascades, where investors make decisions on the actions of other individuals, as opposed to independent evaluation. It has the tendency to cause mispricing of equities, which results in flakiness in stock prices. They demonstrated that, when there is uncertainty regarding information, or if investors have high market volatility to deal with, herding tends to enhance price fluctuations.

III. SCOPE OF THE STUDY

The purpose of this study is to examine the behavior of a company's stock price listed at the National Stock Exchange (NSE) for a specified time frame, e.g., one, five, or ten years. It will determine the volatility and fluctuations of the company's stock, internal and external factors which cause them, both internal factors such as company performance and management actions and external factors such as market conditions and economic indicators. The study will further investigate the influence of investor sentiment in causing stock price movements, using technical analysis to evaluate the behavior of the stock. The study will further compare the volatility of the company's stock with general market indices like Nifty 50 and sectoral indices. It will consider the influence of major external events on stock volatility of the company and look into how high-frequency trading strategies and algorithmic trading influence stock volatility. The research also hopes to gain insights into how to manage volatility and come up with proper investment strategies.

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IV. NEEDS OF THE STUDY

The stock market volatility is very important for investors who want to control risk well. Volatility is the rate at which a stock's price goes up or down within a given time period; the more volatile, the more risky. Understanding what drives stock market moves can help investors and portfolio managers make better-informed decisions. Building models or theories that forecast upcoming phases of stock price volatility can also improve investment plans. Also, understanding stock volatility's link to investor sentiment and psychology further helps. Knowing the causes of extreme volatility will also benefit regulators since this knowledge helps in planning effective protection mechanisms and trading strategies. Furthermore, it is vital for portfolio managers and investors to measure how the volatility of stocks affects the general performance of investment portfolios. Last but not least, knowing how extrinsic element like geopolitical crises, economic recession, or natural disasters increase stock volatility will enable investors to better foresee and react to market fluctuations.

V. OBJECTIVES OF THE STUDY

PRIMARY OBJECTIVES:

1. To evaluate the company relationship between stock price flakiness in the context of the selected NSE company.

SECONDARY OBJECTIVES:

1. To investigate the historical performance of the selected company's stock price over various market cycles.
2. To identify the role of institutional investors and large stakeholders in stock price movements.
3. To analyze the effect of regulatory changes on the stock price behavior of the selected company.

VI. RESEARCH METHODOLOGY

This study uses a quantitative and analytical method with the purpose of recognizing the volatility in the stock price of a chosen firm listed on the National Stock Exchange (NSE). The aim is to study how volatile or "flaky" the stock prices are during a given time span and what are the main factors responsible for this volatility.The study is designed to examine stock movement patterns and evaluate the contributions of both firm-specific company performance and extraneous market factors. The sample company for the study is one listed in the NSE, identified using purposive sampling, allowing for relevance and enough trading activity. The specific focus is made possible to scrutinize stock price behavior in greater depth.The analysis will be based solely on secondary data, which will be obtained from financial websites, the NSE portal, published company reports, and market news. The time period of the stock price data can vary from one to five years based on the depth of analysis needed.

For measuring stock price flakiness, the research will utilize different statistical indicators such as standard deviation, moving averages, Bollinger Bands, and beta values. Methods such as regression analysis and event studies can also be applied to identify the impact of certain events or news on stock performance. Excel, and perhaps Python or SPSS, can be used to support data management and visualization. While the research is likely to provide significant results, it remains vulnerable to some limitations like a limited focus on one company and possible challenges in adjusting for unforeseen market developments.

VII. FINDINGS

From the standard deviation

1) Tata motors and State bank of Indian have highest volatility they experience most significant prices swings making them risker investment.
2) Tata consultancy service , Housing development finance corporation and Maruti have lowest volatility
3) Dixon and tata steel fall between showings moderate fluctuations among all stocks
4) The Infosys have the mild growth
5) The all companies have the normal distributions at 0.5in signification level at 6^{th} degree of freedom hence the selected company satisfied normality.
6) The mankendall trend test says that there is no significant trend for any company.
7) The p-value of all companies are above the 0.05 significance level.

Stationary companies (p value <0.05)

1) TCS (-4.450,p=0.0003)
2) INFOSYS (-4.756,p=0.001)
3) HDFC (-4.050,p=0.011)

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4) SBI (-4.050,p=0.011)
5) MARUTHI (-4.387,p=0.004)
6) TATA MOTORS (-4.618,p=0.002)
7) TATA STEEL (-3.948,P=0.015)

These companies, the tau observation value is less than the critical value(-3.448) and the p-value are above 0.05 this means their stock return do not have a unit root test and are stationary, indicating that their price movement are mean-reversting rather than following a random walk.

Non-stationary companies (p-value >0.05)
Dixon (-2.896,p=0.163) Dixon test statistics is greater than the critical value and its p-value (0.163) is above 0.05 this means we fail to reject null hypothesis indicating that Dixon stock returns are non-stationary meanings they follows a random walk and do not revert to a mean value.

VIII. SUGGESSION

Choose a company with an Active Trading and Apparent Price Changes
It is better to select an NSE-listed firm that has high price volatility and high volume of trading. This will give a better picture of stock price volatility and make the analysis more effective.

Consider a Broader Time Period
Examining stock performance over a longer period, say three to five years, can capture trends in different market conditions—like economic recessions, rallies, or major national and international events.

Include Both Technical and Fundamental Indicators
For a comprehensive analysis, include not only price action but also financial metrics (such as earnings per share, P/E ratio, and debt levels) and technical indicators (such as moving averages, RSI, and MACD) to see what may be behind the volatility.

IX. CONCLUSION

The research on employee satisfaction with procedure processes showed a number of findings. To start, it was clear that employees appreciate having transparent and understandable procedure processes. This gives them a sense of being heard and cared for when they have problems or issues in the workplace. In addition, the research revealed that employees are happier with if they can readily access them and comprehend the procedure. This stresses the significance of good communication and training on these procedures.

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