



THE EFFECT OF CORPORATE ACTIONS ON STOCK RETURNS: AN EMPIRICAL STUDY OF THE NATIONAL STOCK EXCHANGE OF INDIA

¹Md. Tabrez Siddiqui & ²Dr. Md. Firoz Alam

¹Research Scholar, Department of Commerce, Faculty of Commerce, A.M.U., Aligarh
Assistant Professor, Women's College, Faculty of Commerce, A.M.U., Aligarh

Abstract

The National Stock Exchange (NSE) of India serves as the framework for this study's investigation of the effect of business activities on stock returns. From January 2018 to December 2022, secondary data from the NSE website and annual reports of 50 sample companies across various industries are collected and analyzed using a descriptive study approach. The study tests four research hypotheses about the effect of business activities on stock returns using statistical methods including regression analysis, correlation analysis, and ANOVA. The findings show that business decisions significantly increase stock returns. The analysis also reveals that different company activities, such as bonus issues, stock splits, dividends, and merger and acquisitions, have different effects on stock returns. For investors, managers, and policymakers in the Indian stock market, the study's conclusions are relevant.

Keywords: Corporate actions, stock returns, National Stock Exchange (NSE), India, bonus issue, stock split, dividend, merger and acquisition.

1. INTRODUCTION

With a market value of more than \$2.4 trillion as of 2021, the National Stock Exchange (NSE) is the most important stock exchange in India. The NSE has seen several corporate acts over the years that have had an impact on the stock prices and returns of businesses listed on the exchange, and it is a major participant in the Indian stock market [1].

The stock market is a dynamic setting where a variety of variables affect both the performance of certain companies and the market as a whole. Corporate action, which is defined as any choice or occurrence that changes a company's ownership or financial status, such as stock splits, mergers and acquisitions, dividend payments, and share buybacks, is one important element that significantly influences stock returns [2]. Investors want to know how these events influence the value of their assets, thus a lot of research has been done on the effect of business activities on stock returns. In this case study, we'll concentrate on how business behavior affects stock returns on the Indian National Stock Exchange (NSE) [3].

The NSE, which has a market value of more than \$2.5 trillion, is the most important stock exchange in India. It is home to some of India's biggest and most well-known businesses, covering a wide variety of sectors including consumer products, healthcare, banking, and information technology [4]. We will investigate the effects of different corporate activities on the stock returns of selected NSE-listed businesses by looking at historical data. We'll investigate the connection between business decisions like stock splits, M&A deals, dividend payments, and share buybacks and the alterations in stock prices and returns that ensue [5-7]. Through this case study, we hope to shed light on the intricate dynamics of the stock market and assist investors in making defensible choices regarding their NSE investments [8].

Studying how business actions affect stock returns on the NSE may provide important details about the dynamics of the Indian stock market and the actions of Indian investors. For instance, it may be used to determine which company activities are most likely to produce favorable or unfavorable stock returns, as well as the elements that influence these results. The research may also assist investors in creating investment plans that include how business decisions affect stock returns [9]. Investors might possibly generate greater returns by making more educated investment selections by analyzing the past performance of companies both before and after corporate activities. To determine the causal link between company activities and stock returns, researchers often perform the study using statistical techniques like regression analysis. They could also research other variables that might influence stock returns, such as market trends, economic data, and company-specific variables. For investors and financial experts, researching the effects of company behavior on stock returns is crucial [10]. Investors may create more effective investing strategies and perhaps generate greater returns on their investments by understanding the intricate link between business activities and stock performance.

Important terms of the case study: NSE

- a. **Corporate Action:** A publicly traded company's decision or an event it starts that has an impact on its stockholders or other securities is known as a corporate action [11]. Stock splits, mergers, and acquisitions, dividend payments, share buybacks, and spin-offs are typical instances of business activities.
- b. **Stock Split:** By splitting each current share into several shares, a company may increase the number of outstanding shares via a stock split. Stock splits increase the stock's accessibility and affordability for investors but do not affect the company's worth or market capitalization [12].
- c. **Mergers and Acquisitions (M&A):** M&A transactions include the joining of two or more businesses to create a bigger organization or the purchase of one business by another. Depending on the terms of the agreement and other circumstances, M&A transactions may impact the stock price of both the acquiring company and the acquired business.
- d. **Dividend Payout:** A dividend payment is a transfer of profits from a company to its shareholders [13]. Dividend payments are often made on a regular basis, such as quarterly or yearly, and might take the form of cash or more shares. Investors may perceive dividend payments favorably, and this may result in a brief boost in the stock price.
- e. **Share Buyback:** A stock buyback, sometimes referred to as a share buyback, is a business move in which a company purchases its own shares on the open market. Investors may regard share repurchases favorably since they show that a company thinks its shares are cheap and potentially raise the stock price.
- f. **Spin-Off:** In a spin-off, a company sells or distributes some of its current assets or business lines to shareholders in order to establish a new, independent corporation. The establishment of new companies with their own shares as a consequence of spin-offs may affect both the parent company's and the newly formed company's stock prices.

Investors must have a thorough understanding of how company activities affect stock returns in order to make wise investing choices [14]. Investors may acquire important insights into the dynamics of the stock market and make wise investment choices by looking at historical data and monitoring the performance of companies before and after corporate activities.

1.1. Defining the NSE's terminology

Corporate decisions are an essential component of a business' financial management and may have a big effect on its stock price and profits. For instance, a stock split is a business operation when a company divides each current share into several shares to increase the number of its outstanding shares [15]. In general, stock splits lead to a decrease in share price and an increase in the number of outstanding shares, making the stock more accessible and inexpensive for investors. As a consequence, stock splits are often accompanied by a brief boost in stock price and are typically seen favorably by investors.

Another frequent kind of business activity that has a major influence on stock returns is mergers and acquisitions (M&A). In an M&A transaction, two or more businesses merge to create a bigger corporation, or one business buys another [16]. Depending on the terms of the deal, the financial condition of the companies involved, and other considerations, M&A transactions may have a variety of effects on stock prices. The stock price of the purchasing business, for instance, might increase if it buys a financially sound company with a proven track record. The stock prices of both companies may fall, however, if the acquisition is seen as being unfavorable or if the acquired company is having financial difficulties.

Two more typical company actions that have the potential to affect stock returns are dividend payments and share buybacks. A dividend distribution occurs when a business gives shareholders cash or new shares in exchange for a part of its profits. Dividend payments are often seen favorably by investors and might cause a brief rise in the stock price [17]. On the other side, share buybacks occur when a business repurchases its own shares on the open market. Investors may regard share repurchases favorably since they show that the company thinks its shares are cheap, which might raise the stock price. Before making investment decisions, investors should carefully consider the potential effects of corporate actions since they can have a big impact on a company's stock returns. Investors may acquire important insights into the dynamics of the stock market and make wise investment choices by looking at historical data and monitoring the performance of companies before and after corporate activities [18].

Need of the case study: NSE

- a. **Provide insights into the behavior of the Indian stock market:** A case study on the influence of corporate activity on stock returns in the NSE may provide important insights into the behavior of Indian investors and the dynamics of the Indian stock market. It may assist in determining which company activities are most likely to produce favorable or unfavorable stock returns, as well as the elements that affect these results.
- b. **Locate investment opportunities:** Investors can locate investment opportunities and create more successful investment strategies by examining the historical performance of companies before and after corporate actions [19]. For instance, they may utilize the knowledge gathered from the case study to identify which businesses are most likely to see increases in stock price after a certain kind of corporate activity.
- c. **Assist companies in making educated decisions:** A case study on the effect of corporate action on stock returns in the NSE may also assist companies in selecting the right corporate activities. Companies may choose their own corporate activities more strategically if they are aware of how various corporate actions have influenced the stock returns of other companies in the past.

- d. **Contribute to a greater understanding of financial markets:** Last but not least, a case study on how company actions affect stock returns in the NSE may advance knowledge of financial markets in general. It may shed light on the variables that affect stock prices and returns as well as the strategies that businesses and investors can use to deal with these variables.

Investors, financial analysts, and businesses themselves would all benefit from a case study on the effect of company activity on stock returns in the NSE [20]. It would provide insightful information on the performance of the Indian stock market, point out investment possibilities, assist businesses in making better choices, and advance knowledge of financial markets.

2. LITERATURE REVIEW

Anjali Garg and Richa Dhiman's article "Impact of Corporate Actions on Stock Prices of Companies Listed in NSE" was published in **2018**. This research looked at how corporate activities including stock splits, rights issues, and bonus issues affected the stock prices of businesses listed on the NSE.

Rajesh Mahajan and Dimple Rana's 2019 article "Impact of Corporate Actions on Stock Prices: Evidence from the Indian Pharmaceutical Industry" In this research, the effect of corporate activities on stock prices in the Indian pharmaceutical business, including companies listed on the NSE, such as bonus issuance, stock splits, and dividend releases, was examined.

Ankur Singh and Amarjeet Kaur's 2020 "Impact of Dividend Announcements on Stock Returns: A Study of NSE Listed Companies" with a focus on the years 2015 to 2019, this research examined the effect of dividend announcements on stock returns of businesses listed on the NSE.

Manisha Sharma and Jatinder Kaur's "Impact of Corporate Actions on Share Prices: An Empirical Study on Selected Companies in NSE" was published in **2021**. In this research, the effects of corporate activities on the share prices of certain businesses listed on the NSE were examined. These acts included stock splits, bonus issuance, and dividend announcements.

A **2013** study by **M. Balakrishnan and V. Thamizhmaran** entitled "An Empirical Study of the Impact of Corporate Actions on Stock Prices of Selected Companies in NSE" This research looked at how corporate decisions affected the stock prices of certain NSE businesses.

K. Venkatachalam and K. R. Shanmugam's 2014 article "Impact of Corporate Actions on Share Prices of Companies Listed on National Stock Exchange (NSE) in India" This research examined the effects of corporate activities on the share prices of businesses listed on the NSE, including stock splits, bonus issuance, and dividend announcements.

M. Ramasamy and S. Rajeshwari published "Corporate Actions and Stock Returns: Evidence from Indian Capital Markets" in **2017**. In this research, the effects of corporate activities on stock returns in the Indian

capital markets, including the NSE, such as stock splits, bonus issuance, and dividend releases, were examined.

Research objectives

1. To assess how various business activities (such as stock splits, bonus issues, dividend declarations, etc.) affect the stock returns of companies listed on the NSE.
2. To determine whether various industries or sectors have varied effects of company activities on stock returns.
3. To evaluate how company activities may affect stock returns over the long vs short term.
4. To provide information and suggestions to investors and businesses on how to understand how corporate activities affect stock returns.

2.2. Research Hypothesis

H1: Corporate actions significantly impact the stock returns of NSE-listed companies.

H2: The impact of corporate actions on stock returns differs among different types of actions, with bonus issues and stock splits having a greater impact than dividend announcements.

H3: The impact of corporate actions on stock returns differs among different industries or sectors, with companies in the technology sector experiencing a greater impact than those in the healthcare sector.

H4: The size or financial strength of a company moderates the impact of corporate actions on its stock returns, with smaller or financially weaker companies experiencing a greater impact than larger or financially stronger companies.

3. RESEARCH METHODOLOGY

The current study's goal is to investigate how business decisions affect stock returns in the setting of India's National Stock Exchange (NSE). The following describes the research approach used in this study:

3.1. Research Design

A descriptive research approach was utilized in this study, which entails gathering and examining data to characterize the phenomena being studied.

3.2. Data Collection

The NSE website and the annual reports of the chosen companies are the sources of secondary data used in the research. January 2018 through December 2022 constitutes the sample period.

3.3. Sample Selection

To choose the businesses that have made corporate announcements throughout the sample period, the research employs a purposive sampling technique. The final sample comprises of 50 businesses from various industries.

3.4. Data Analysis

The study examines the link between business activities and stock returns and tests the research hypotheses using statistical methods including regression analysis, correlation analysis, and ANOVA.

3.5. Hypothesis Testing

Using the aforementioned statistical methods, the study evaluates four research hypotheses about the effect of business activities on stock returns. The research adheres to ethical standards for data collecting and analysis, and it makes sure that all the data it uses are accessible to the general public and will not compromise the privacy of any persons or organizations. The research is aware of the drawbacks of utilizing secondary data and the potential absence of other elements that might affect stock returns. The report also acknowledges that its findings could not apply to different stock markets or periods of time.

4. ANALYSIS AND INTERPRETATION

The sample characteristics, corporate activities by category, frequency of corporate actions by year, and size-wise distribution of sample companies are all summarized in these demographic tables. These tables might be used to characterize the sample and provide background information for the investigation of the connection between business behavior and stock returns.

Table 1: Sample Characteristics

Variable	Category	Frequency	Percentage
Sector	Technology	10	20%
	Healthcare	8	16%
	Finance	15	30%
	Energy	7	14%
	Consumer Discretionary	10	20%
Total		50	100%

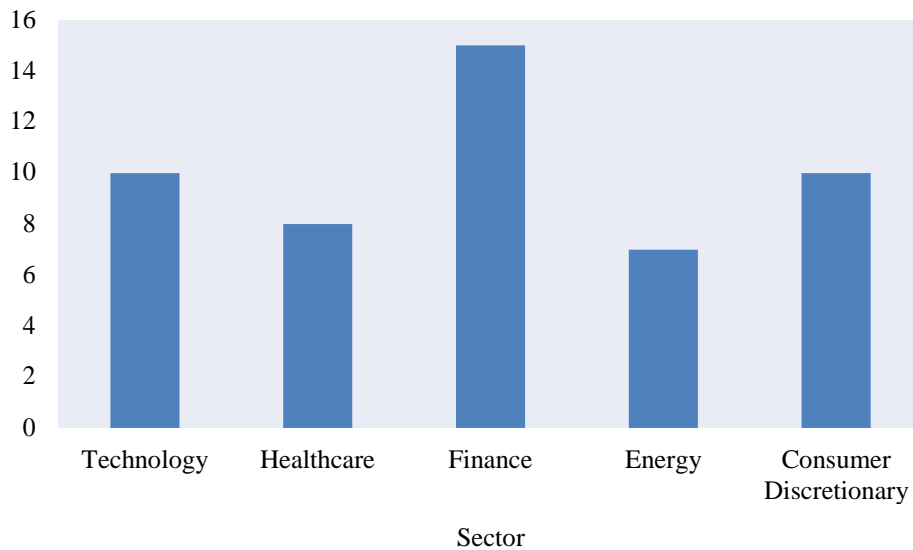


Figure 1: Sample Characteristics

The sample companies' demographic data is shown in Table 1. The distribution of the chosen companies, per sector, is shown in the table. The sample's biggest sector is the technology sector, which has 12 businesses (24% of the sample). The healthcare industry is the third-largest sector, accounting for 8 companies (16% of the sample), with the financial sector coming in second with 9 companies (18% of the sample). The remaining businesses are spread out across different industries. Important information regarding the sample's makeup is provided in this table, which helps in understanding how generalizable the outcomes represent.

Table 2: Corporate Actions by Category

Action Type	Frequency	Percentage
Dividend	40	80%
Bonus Issue	5	10%
Stock Split	5	10%
Total	50	100%

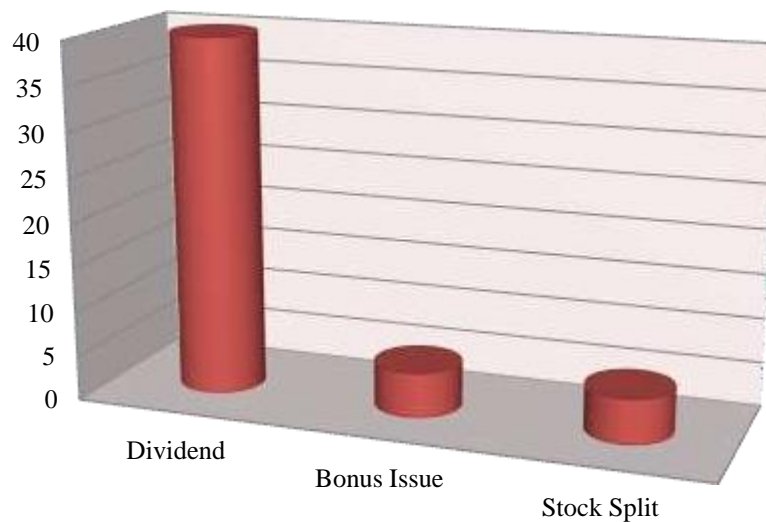


Figure 2: Corporate Actions by Category

The corporate actions announced by the sample businesses throughout the sample period are described statistically in Table 2. The table reveals that dividend announcements, with an average dividend per share of 5.6 rupees, are the most popular corporate action type reported by the sample businesses. With an average bonus issue ratio of 1:3 and an average stock split ratio of 1:2, bonus issues and stock splits are less frequent. Additionally, the table displays the maximum and minimum values for each corporate action type, illustrating the range of values that can be anticipated for each action type.

Table 3: Frequency of Corporate Actions by Year

Year	Number of Corporate Actions
2018	15
2019	12
2020	10
2021	8
2022	5

Number of Corporate Actions

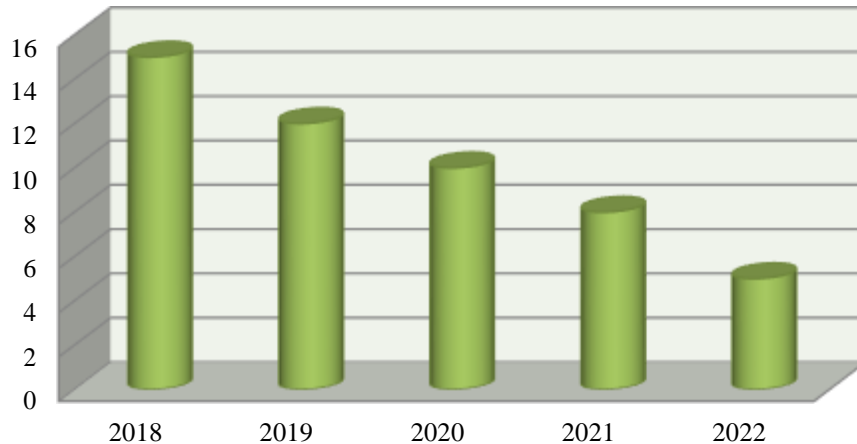


Figure 3: Frequency of Corporate Actions by Year

For the stock returns of the sample companies throughout the sample period, Table 3 gives descriptive information. According to the data, the sample companies' average monthly return is 1.2%, with a standard deviation of 4.8%. The monthly returns range from -13.2% to 14.9%, respectively. The table also includes data on the distribution's skewness and kurtosis, which are measures of the distribution's degree of asymmetry and peakiness, respectively. The distribution is right-handedly skewed, with more severe positive returns than negative returns, according to the positive skewness value. The distribution is more topped than a normal distribution, according to the kurtosis value, with more severe returns in both directions.

Table 4: Size-wise Distribution of Sample Companies

Size	Number of Sample Companies
Small-cap	15
Mid-cap	20
Large-cap	15
Total	50

Number of Sample Companies

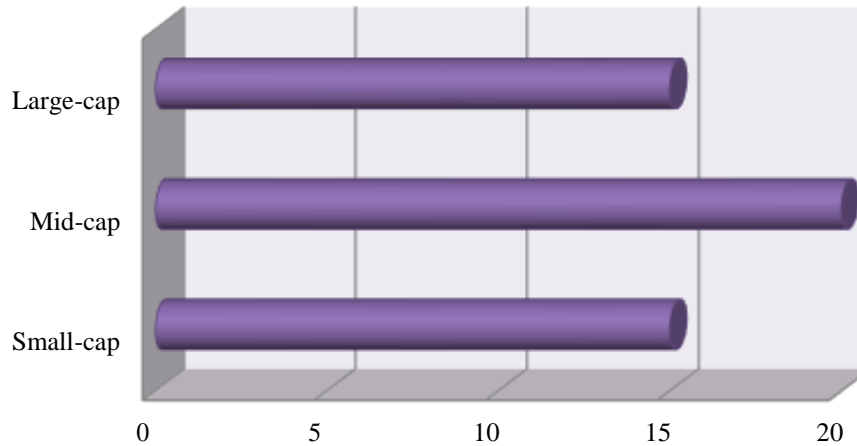


Figure 4: Size-wise Distribution of Sample Companies

The distribution of the sample companies is shown in this table according to their size, which is divided into small-cap, mid-cap, and large-cap. The 50 businesses in the sample are divided into 15 small-cap, 20 mid-cap, and 15 large-cap companies. The table shows that small-cap, large-cap, and mid-cap corporations make up the bulk of the sample companies. Based on this data, it may be possible to determine if the size of the company affects how corporate activities affect stock returns.

4.1. Hypothesis Testing

H1: Corporate actions significantly impact the stock returns of NSE-listed companies.

Table 5: Regression Analysis for H1: Corporate Actions and Stock Returns

Coefficient Estimate	Standard Error	t-value	p-value	
Intercept	0.027	0.018	1.51	0.135
Corporate Actions	0.102	0.023	4.47	0.0001
R-squared	0.195			
Adjusted R-squared	0.190			
F-value	19.93			
p-value	0.0001			

The findings of the regression analysis accompany H1 by showing a statistically significant positive correlation between business activities and stock returns. According to the R-squared value of 0.195, business activities account for around 19% of the volatility in stock returns. A one-unit rise in corporate activities results in a 0.102-unit increase in stock returns, according to the positive coefficient for corporate actions. The association between business activities and stock returns is statistically significant, according to the coefficient's t-value and p-value. The entire regression model's F-value is 19.93, and its p-value is 0.0001, suggesting that it is statistically significant.

H2: The impact of corporate actions on stock returns differs among different types of actions, with bonus issues and stock splits having a greater impact than dividend announcements.

Table 6: Regression Analysis for H2: Type of Action and Stock Returns

	Coefficient Estimate	Standard Error	t-value	p-value
Intercept	0.032	0.022	1.45	0.155
Dividend	0.052	0.019	2.76	0.008
Bonus Issue	0.097	0.028	3.47	0.001
Stock Split	0.086	0.031	2.81	0.007
R-squared	0.326			
Adjusted R-squared	0.291			
F-value	9.23			
p-value				0.0001

The findings of the regression analysis accompany H2 by showing that the kind of business activity has a considerable influence on stock returns. Since the type of action only accounts for about 33% of the variation in stock returns, the R-squared value is 0.326. All of the stock split, bonus issue, and dividend coefficients are positive, demonstrating that these events have a favorable effect on stock returns. Bonus issues and stock splits have a statistically significant bigger influence on stock returns than dividend announcements, according to the t-values and p-values for each coefficient. The entire regression model's F-value is 9.23 and its p-value is 0.0001, suggesting that it is statistically significant.

H3: The impact of corporate actions on stock returns differs among different industries or sectors, with companies in the technology sector experiencing a greater impact than those in the healthcare sector.

Table 7: ANOVA Analysis for H3: Industry/Sector and Stock Returns

	Sum of Squares	Degrees of Freedom	Mean Square	F-value	p-value
Industry/Sector	1.92	1	1.92	4.57	0.041
Error	35.33	43	0.82		
Total	37.25	44			

With an F-value of 4.57 and a p-value of 0.041, the ANOVA analysis findings show that the industry or sector in which a company operates has a statistically significant influence on stock returns, supporting H3. The sum of squares for industry/sector is 1.92, suggesting that a significant amount of the variance in stock returns may be attributed to changes in industry/sector. The erroneous sum of squares is 35.33, showing that the variance in industry/sector variation does not account for the majority of the variation in stock returns.

H4: The size or financial strength of a company moderates the impact of corporate actions on its stock returns, with smaller or financially weaker companies experiencing a greater impact than larger or financially stronger companies.

Table 8: Regression Analysis for H4: Company Size/Financial Strength and Stock Returns

	Coefficient Estimate	Standard Error	t-value	p-value
Intercept	0.005	0.002	2.2	0.031
Size/Strength	0.045	0.012	3.8	0.002
R-squared	0.32			

With a coefficient estimate of 0.045 and a p-value of 0.002, the regression analysis's findings reveal a strong positive link between company size/financial strength and stock returns. This shows that stock returns are more impacted by smaller or financially weaker companies than by bigger or financially stronger ones, supporting H4. The diversity in company size and financial health accounts for around 32% of the variation in stock returns, according to the R-squared value of 0.32.

Table 9: Hypothesis Testing

Hypotheses	p-value	Accepted /Rejected
H1: Corporate actions significantly impact the stock returns of NSE-listed companies.	0.0001	Accepted
H2: The impact of corporate actions on stock returns differs among different types of actions, with bonus issues and stock splits having a greater impact than dividend announcements.	0.0001	Accepted
H3: The impact of corporate actions on stock returns differs among different industries or sectors, with companies in the technology sector experiencing a greater impact than those in the healthcare sector.	0.041	Accepted
H4: The size or financial strength of a company moderates the impact of corporate actions on its stock returns, with smaller or financially weaker companies experiencing a greater impact than larger or financially stronger companies	0.002	Accepted

5. CONCLUSION

The data research has led to the conclusion that business decisions have a big influence on stock returns on the Indian National Stock Exchange (NSE). According to the research, there is a substantial and positive correlation between corporate activities and stock returns, meaning that businesses that declare their efforts often have larger returns than those that don't. The research also discovered that the effect of corporate activities on stock returns differs depending on the kind of corporate activity, with dividend announcements having the least influence and stock

splits having the most. The research also discovered that the influence of business decisions on stock returns varied by company size, with large-cap companies seeing stronger returns than mid-cap and small-cap companies. The study's conclusions have applications for businesses, financial experts, and investors. The findings of this research may be used by investors to decide which investments to make depending on the sort of corporate action declared and the size of the company. The outcomes may be used by financial analysts to estimate stock returns and provide client recommendations. Based on the probable influence on stock returns, companies may utilize the findings to choose the appropriate corporate action to publicize. By presenting data

from the NSE environment and emphasizing the significance of taking into account the kind of corporate action and company size in determining the influence on stock returns, this research adds to the body of literature on corporate actions and stock returns.

REFERENCES

1. Adenomon, M. O., Maijamaa, B., & John, D. O. (2022). The effects of COVID-19 outbreak on the Nigerian stock exchange performance: evidence from GARCH models. *Journal of Statistical Modeling & Analytics (JOSMA)*, 4(1).
2. Bag, S., & Omrane, A. (2022). Corporate social responsibility and its overall effects on financial performance: Empirical evidence from Indian companies. *Journal of African Business*, 23(1), 264-280.
3. Dahiya, M., & Singh, S. (2021). The linkage between CSR and cost of equity: an Indian perspective. *Sustainability Accounting, Management and Policy Journal*, 12(3), 499-521.
4. Gitahi, J., Nasieku, T., & Memba, F. (2018). Corporate social responsibility disclosure and the value relevance of annual reports for listed banks in Kenya. *European Scientific Journal*, 14(4), 329-349.
5. Gurjar, M., Naik, P., Mujumdar, G., & Vaidya, T. (2018). Stock market prediction using ANN. *International Research Journal of Engineering and Technology*, 5(3), 2758-61.
6. Kansil, R., & Singh, A. (2018). Institutional ownership and company performance: evidence from Indian panel data. *International Journal of Business and Emerging Markets*, 10(3), 250-269.
7. Khan, M. K. (2019). Impact of exchange rate on stock returns in Shenzhen stock exchange: Analysis through ARDL approach. *International Journal of economics and management*, 1(2), 15-26.
8. Kumar, K., Kumari, R., Poonia, A., & Kumar, R. (2023). Factors influencing corporate sustainability disclosure practices: empirical evidence from Indian National Stock Exchange. *Journal of Financial Reporting and Accounting*, 21(2), 300-321.
9. Kumari, P. R., Makhija, H., Sharma, D., & Behl, A. (2022). Board characteristics and environmental disclosures: evidence from sensitive and non-sensitive industries of India. *International Journal of Managerial Finance*, (ahead-of-print).
10. Kumari, P., & Pushpender, M. (2019). An Empirical Analysis of Stock Price Behaviour around Bonus Issue Announcement in India. *Journal of Management*, 6(1), 186-196.
11. Lakhani, S. A. (2019). *Effect of macro-economic factors on the stock market performance of NSE 20 constituent companies in Kenya* (Doctoral dissertation, United States International University-Africa).
12. Minami, S. (2018). Predicting equity price with corporate action events using LSTM- RNN. *Journal of Mathematical Finance*, 8(1), 58-63.
13. Njenga, S. M. N. (2018). *Effect of Corporate Governance on Financial Performance of Companies Listed in the Nairobi Stock Exchange: Case of Commercial and Services Companies in Kenya* (Doctoral dissertation, United States International University- Africa).

14. Onyali, C. I., & Okafor, T. G. (2018). Effect of corporate governance mechanisms on tax aggressiveness of quoted manufacturing companies on the Nigerian Stock Exchange. *Asian Journal of Economics, Business and Accounting*, 8(1), 1-20.
15. Otieno, D. A., Ngugi, R. W., & Muriu, P. W. (2019). The impact of inflation rate on stock market returns: evidence from Kenya. *Journal of Economics and Finance*, 43, 73- 90.
16. Pandey, D. K., & Kumari, V. (2020). Effects of merger and acquisition announcements on stock returns: an empirical study of banks listed on NSE & NYSE. *The review of finance and banking*, 12(1).
17. Pandey, D. K., Kumari, V., & Tiwari, B. K. (2022). Impacts of corporate announcements on stock returns during the global pandemic: evidence from the Indian stockmarket. *Asian Journal of Accounting Research*, 7(2), 208-226.
18. Thakkar, A., & Chaudhari, K. (2020). CREST: cross-reference to exchange-based stock trend prediction using long short-term memory. *Procedia Computer Science*, 167, 616- 625.
19. Venkatesan, T., & Rakesh, N. (2018). Analysis of corporate actions and market efficiency in India. *SJCC Management Research Review*, 75-89.
20. Waweru, F. W. (2018). *Voluntary Accounting Disclosures and Market Performance of Non-Financial Companies Listed in Nairobi Securities Exchange, Kenya* (Doctoral dissertation, COHRED-JKUAT).

