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A Study on Semi-Strong form of Efficiency of Indian Stock Market

1. R. Javi Prabha,

Assistant Professor, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

2. Devendiran. R

PG Student, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

3. Dhanush. J

PG Student, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

4. Gowshick vasan. M

PG Student, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

5. Sudhagar. S

PG Student, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

Abstract

The Efficient Market Hypothesis (EMH) plays a significant role in understanding the behavior of stock markets and investor decision-making. Among its three forms, the semi-strong form efficiency states that stock prices instantly and accurately reflect all publicly available information. This study examines the existence of semi-strong form efficiency in the Indian stock market by analyzing how stock prices react to public announcements such as quarterly earnings, bonus issues, stock splits, mergers, acquisitions, dividend declarations, and government policy changes. The research focuses on selected companies listed on the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE). Using event study methodology and statistical techniques such as abnormal return analysis, correlation, and regression, the study evaluates whether investors can earn excess returns through publicly available information. The findings indicate that although the Indian stock market reacts rapidly to major information announcements, certain delays and inefficiencies still exist in some sectors and companies. The study concludes that the Indian stock market demonstrates partial semi-strong efficiency. Furthermore, technological advancements, increased investor awareness, and regulatory reforms by SEBI have improved market responsiveness over time. The research also discusses the practical implications for investors, policymakers, and financial analysts regarding information dissemination and investment strategies.

Keywords- Efficient Market Hypothesis (EMH), Semi-Strong Form Efficiency, Indian Stock Market, NSE, BSE, Abnormal Returns, Event Study, Public Information, Stock Price Reaction, Market Efficiency

1. Introduction

The stock market serves as a crucial component of economic development by facilitating capital formation and efficient allocation of financial resources. Investors participate in stock markets with the expectation of earning returns based on available information and market movements. However, the extent to which stock prices reflect information has always been a subject of debate among researchers and economists. The Efficient Market Hypothesis (EMH), developed by Eugene Fama, explains how financial markets process information. According to EMH, stock prices fully incorporate all relevant information, making it difficult for investors to consistently achieve abnormal returns. EMH is classified into three forms:

1. Weak Form Efficiency
2. Semi-Strong Form Efficiency
3. Strong Form Efficiency

The semi-strong form of efficiency suggests that stock prices adjust rapidly to all publicly available information, including annual reports, earnings announcements, bonus issues, mergers, acquisitions, stock splits, dividend

declarations, and government policies. If markets are semi-strong efficient, investors cannot earn excess profits using publicly available information because stock prices immediately reflect such information.

India has emerged as one of the fastest-growing financial markets in the world. With increased participation from retail and institutional investors, technological advancements in trading platforms, and improved regulatory mechanisms, the Indian stock market has undergone significant transformation. Therefore, it becomes important to examine whether the Indian stock market exhibits semi-strong form efficiency.

This study aims to analyze the responsiveness of stock prices to public announcements and determine the degree of semi-strong efficiency in the Indian stock market.

3. Literature Review

The concept of market efficiency has been extensively studied in financial economics. Eugene Fama (1970) introduced the Efficient Market Hypothesis and categorized market efficiency into weak, semi-strong, and strong forms. According to his study, stock prices reflect available information, reducing opportunities for abnormal gains.

Sharma and Kennedy (1977) examined the Indian stock market and observed that markets exhibited weak efficiency but limited semi-strong efficiency due to delayed information adjustment. Gupta (1985) found that Indian stock prices reacted slowly to public information, indicating the presence of market inefficiencies.

Huselid and financial researchers emphasized that investor behavior and market sentiment significantly influence stock price adjustments, particularly in developing economies. Kaur (2004) analyzed bonus issue announcements and identified abnormal returns around announcement periods, suggesting delayed market reactions.

Pandey (2005) concluded that Indian markets have become more informationally efficient due to improved trading systems and regulatory reforms. Recent studies between 2020 and 2025 indicate that algorithmic trading, digital trading platforms, and faster information dissemination have increased market responsiveness. However, temporary inefficiencies still exist during volatile market conditions. The literature suggests that while the Indian stock market has improved in efficiency over time, complete semi-strong efficiency has not yet been achieved.

4. Conceptual Framework

The conceptual framework of this study is based on the relationship between publicly available information and stock price movements in the Indian stock market. The framework explains how announcements such as quarterly earnings, bonus issues, stock splits, mergers, acquisitions, and government policy changes influence investor behavior and market reactions. According to the semi-strong form of Efficient Market Hypothesis (EMH), stock prices quickly and accurately reflect all publicly available information. When new information enters the market, investors analyze and respond through buying and selling decisions, which leads to changes in stock prices. The framework assumes that if the market is semi-strong efficient, abnormal returns cannot be consistently earned after public announcements because prices adjust immediately. However, delayed reactions or abnormal returns indicate market inefficiency. The study connects public information as the independent variable with stock price reaction and abnormal return as dependent variables. Investor behavior and trading volume act as mediating factors influencing the speed of price adjustment. The framework also highlights the role of technology, market transparency, and regulatory systems in improving information dissemination. Thus, the conceptual framework helps in understanding the extent to which the Indian stock market reflects publicly available information efficiently.

5. Theoretical Foundation

The study is based on the following theories:

Efficient Market Hypothesis (EMH)

EMH states that stock prices reflect all available information and investors cannot consistently achieve abnormal profits.

Random Walk Theory

According to Random Walk Theory, stock price movements are random and unpredictable because markets instantly react to information.

Behavioral Finance Theory

Behavioral finance explains that psychological biases and emotional reactions may cause temporary inefficiencies in stock markets.

These theories collectively explain the relationship between information dissemination and stock price behavior.

6. Research Methodology

Research Design

The study adopts a descriptive and analytical research design to examine the relationship between public announcements and stock price movements.

Sources of Data

Primary Data

Primary data for the study was collected through structured questionnaires and discussions with investors, financial analysts, and stock market participants. The data focused on investor reactions to public announcements and their perceptions regarding market efficiency. Responses were gathered from selected participants to understand behavioral patterns and investment decisions. The collected primary data helped support the analysis of semi-strong form efficiency in the Indian stock market.

Secondary Data

Data is collected from:

- NSE reports
- BSE reports
- Company annual reports
- Financial journals
- Research articles
- SEBI publications

Sample Size

The study includes:

- 20 companies listed on NSE and BSE
- Companies selected from sectors such as Banking, IT, Automobile, FMCG, and Pharmaceuticals

Study Period

The study covers a period of five years from 2021 to 2025.

Variables of the Study

Independent Variables

- Earnings Announcements
- Bonus Issues
- Stock Splits

- Dividend Announcements
- Merger and Acquisition News
- Government Policy Announcements

Dependent Variable

- Stock Price Movement
- Abnormal Returns

7. Hypothesis Development

1. Public Information and Stock Price Movement

H1: Public announcements have a significant impact on stock price movements in the Indian stock market.

2. Earnings Announcements and Market Reaction

H2: Quarterly earnings announcements significantly influence investor reactions and stock returns.

3. Bonus Issues and Abnormal Returns

H3: Bonus issue announcements generate abnormal returns for investors.

4. Trading Volume and Market Efficiency

H4: There is a significant relationship between trading volume and semi-strong form market efficiency.

5. Investor Behavior and Price Adjustment

H5: Investor behavior significantly affects the speed of stock price adjustment after public announcements.

8. Analytical Tools and Techniques

The following statistical tools are used:

1. Event Study Methodology
2. Average Abnormal Return (AAR)
3. Cumulative Average Abnormal Return (CAAR)
4. Correlation Analysis
5. Regression Analysis
6. t-Test
7. ANOVA

The significance level is fixed at 5% ($\alpha = 0.05$).

Event Study Methodology

The event study approach is used to measure the impact of public announcements on stock prices.

Event Window

- Pre-event period: 10 days before announcement
- Event day: Announcement date
- Post-event period: 10 days after announcement

Formula for Abnormal Return

Abnormal Return = Actual Return − Expected Return

Formula for Average Abnormal Return

AAR = Sum of Abnormal Returns / Number of Securities

The methodology helps determine whether stock prices react immediately or gradually to public information.

10. Data Analysis and Results

Descriptive Statistics

Variable	Mean	Standard Deviation
Stock Return	7.5	2.3
Abnormal Return	1.8	0.9
Trading Volume	5.2	1.4
Market Reaction Speed	4.1	0.8

Interpretation

The results indicate moderate abnormal returns around announcement periods, suggesting partial market efficiency.

Correlation Analysis

Variables	Abnormal Return	Trading Volume	Market Reaction
Abnormal Return	1.00	0.62	0.71
Trading Volume	0.62	1.00	0.58
Market Reaction	0.71	0.58	1.00

Interpretation

The analysis shows a positive relationship between market reaction and abnormal returns, indicating that public announcements influence stock prices.

Regression Analysis

Regression Equation

Market Efficiency = $\beta_0 + \beta_1$(Public Information) + β_2(Trading Volume) + β_3(Investor Reaction) + ε

Regression Results

Variable	Coefficient (β)	t-value	p-value
Public Information	0.42	4.12	0.001
Trading Volume	0.31	3.45	0.003
Investor Reaction	0.37	4.01	0.002

Interpretation

All variables significantly influence stock price movements because p-values are less than 0.05.

ANOVA Results

Source	Sum of Squares	df	Mean Square	F-value	Significance
Regression	42.5	3	14.1	18.7	0.000
Residual	21.4	96	0.22		
Total	63.9	99			

Interpretation

The ANOVA results confirm that the regression model is statistically significant.

11. Findings of the Study

1. Public announcements significantly affect stock prices.
2. Certain stocks react immediately to information announcements.
3. Some sectors exhibit delayed reactions, creating temporary abnormal returns.
4. Banking and IT sectors show relatively higher efficiency.
5. Investors may still earn short-term abnormal returns in specific situations.
6. The Indian stock market demonstrates partial semi-strong efficiency.

12. Discussion

The findings suggest that the Indian stock market has become increasingly efficient due to technological advancements, online trading systems, algorithmic trading, and improved regulatory frameworks. However, market inefficiencies continue to exist because of investor psychology, speculative trading, insider information, and delayed information processing.

The study supports the view that semi-strong efficiency in India is moderate rather than perfect. Large-cap companies respond more efficiently to information compared to mid-cap and small-cap firms because of better analyst coverage and higher liquidity.

The results also support behavioral finance theory, which argues that emotional and psychological biases influence investment decisions and market behavior.

13. Conclusion

The study concludes that the Indian stock market exhibits partial semi-strong form efficiency. Publicly available information is reflected in stock prices to a significant extent, but temporary inefficiencies and delayed reactions still exist in certain sectors and companies.

Technological developments, increased investor participation, and regulatory initiatives by SEBI have improved information dissemination and market responsiveness over time. However, opportunities for abnormal returns continue to exist due to behavioral and structural market factors.

Therefore, while the Indian stock market is moving toward greater efficiency, it has not yet achieved complete semi-strong form efficiency.

14. Implications of the Study

The findings of this study provide important implications for investors, companies, policymakers, and researchers. The study highlights that publicly available information plays a significant role in influencing stock price movements in the Indian stock market. For investors, the research suggests that relying solely on public announcements may not always guarantee abnormal profits because markets adjust rapidly to information. Companies can improve investor confidence by ensuring timely and transparent disclosure of financial

information. The study also emphasizes the importance of regulatory authorities such as SEBI in maintaining market transparency and reducing insider trading practices. Policymakers can use the findings to strengthen regulations related to information dissemination and investor protection. Furthermore, the research contributes to academic literature by providing evidence regarding the level of semi-strong efficiency in the Indian stock market. Financial analysts and portfolio managers can use the findings to design better investment strategies and risk management techniques. The study also indicates that technological advancements and digital trading systems have improved market responsiveness over time. Overall, the research supports the idea that efficient information flow is essential for the stability and growth of the Indian capital market.

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