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CAUSAL RELATIONSHIP OF KPI WITH STOCK MARKET RETURNS WITH REFERENCE TO NSE INDIA

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ABSTRACT

The present study focused to know the causal relationship of KPIs with the Stock Market returns of Index based stocks. The study considered the secondary data from National stock exchange India and applied the Johensen Co-integration test and Granger Causality Test. The study considered the few KPIs as independent variables and stock returns as dependent variable. The study concluded that it examined the causal relationship between key performance indicator (KPI) ratios and the financial performance of Nifty high market capital companies in India. The findings indicate that certain KPI ratios, namely PE, PBDITA, EPS, ROA, CR, and DER, have a Granger causal relationship with financial performance, while NPM, DPS, and ROE do not. Additionally, the results of the Johansen co-integration test suggest that the KPI ratios and financial performance are integrated with each other. Overall, the study provides valuable insights into the relationship between KPI ratios and the financial performance of Nifty high market capital companies and highlights the importance of considering these ratios in investment decision-making.

Keywords: Causal Relationship, Johensen Co-Integration, KPI, Large Cap Stocks, Returns Performance and Nifty Index

INTRODUCTION

KPIs are metrics used to evaluate a company's performance and effectiveness in achieving its strategic goals. KPIs can be financial or non-financial and are specific to each industry and company. Financial KPIs include revenue, profit margins, return on investment (ROI), and earnings per share (EPS). Non-financial KPIs include customer satisfaction, employee engagement, and brand recognition. KPIs provide a framework for monitoring and evaluating a company's performance over time and help identify improvement areas.

The stock market reflects a company's financial performance and is affected by various factors, including macroeconomic indicators, company-specific factors, and market sentiment. Macro indicators such as GDP growth, inflation, and interest rates significantly impact the stock market's performance. Company-specific factors such as revenue growth, profit margins, and return on investment (ROI) influence the stock market's performance. Market sentiment, which is the collective mood of investors, can significantly impact the stock market's performance. An optimistic view can lead to a bull market, while an opposing view can lead to a bear market.

Link between KPI and stock market performance:

KPIs are a widely used tool for assessing a company's performance, and many investors and analysts believe there is a link between a company's KPIs and its stock market performance. The rationale behind this belief is that a company's financial performance is ultimately reflected in its stock price. Therefore, if a company is performing well, its stock price is likely to rise; if it is performing poorly, its stock price is expected to fall.Several studies have investigated the relationship between KPIs and stock market performance, with mixed results. Some studies have found a significant positive correlation between certain KPIs and stock prices, while others have seen little or no correlation.In the context of the Indian stock market, there is a growing interest in understanding the relationship between KPIs and stock market returns. India's stock market, represented by the National Stock Exchange (NSE), is one of the fastest-growing and most active in the world, with a wide range of companies operating across various sectors.Given the significant role of the Indian stock market in the global economy and the increasing use of KPIs as a tool for evaluating company performance, it is essential to investigate whether there is a causal relationship between KPIs and stock market returns in the Indian context. Such research can provide valuable insights for investors and analysts seeking to make informed investment decisions in the Indian market.

Importance of the Causal Relationship between KPIs and Stock Market Returns

The importance of studying the causal relationship between KPIs and stock market returns must be considered. For investors, understanding this relationship can provide valuable insights into which KPIs are most important to consider when making investment decisions. By analysing the KPIs of a particular company and its historical association with stock market returns, investors can assess the company's future performance and make informed investment decisions.Similarly, for financial analysts, understanding the relationship between KPIs and stock market returns can aid in forecasting future stock prices. Analysts can use this information to make more accurate predictions of a company's future stock performance by identifying which KPIs have the most significant impact on stock market returns.

Moreover, policymakers can use insights from this research to develop policies that encourage the growth and development of specific economic sectors. For instance, policymakers can identify which KPIs are most critical for the growth of particular industries and focus their efforts on creating an enabling environment for those sectors to thrive.This study will contribute to the existing literature by shedding light on the causal relationship between KPIs and stock market returns in the Indian context. It will provide investors, analysts, and policymakers with valuable insights that can inform their decision-making and contribute to the growth and development of the Indian economy.

Thus the causal relationship between KPIs and stock market returns with reference to NSE India refers to the cause-and-effect relationship between the performance of a company, as measured by its KPIs, and its impact on the returns generated by its stock in the Indian stock market. In other words, it explores whether changes in KPIs of companies listed on NSE India can lead to significant changes in their stock market returns, and if so, in what direction and to what extent. This analysis helps investors, analysts, and policymakers better understand the drivers of stock market performance and make informed decisions regarding investment strategies and policies.

REVIEW OF LITERATURE

Goyaletal (2017) - This study investigates the relationship between key performance indicators (KPIs) and stock returns. The author analyses a sample of 54 companies listed on the National Stock Exchange of India (NSE) over a period of five years from 2010 to 2014. The study finds that there is a positive and significant relationship between KPIs and stock returns. The author also finds that some specific KPIs, such as earnings per share (EPS), return on equity (ROE), and return on assets (ROA), have a stronger relationship with stock returns compared to other KPIs.The findings of the study suggest that investors can use KPIs as a tool to make investment decisions and identify companies with high growth potential.

Krishna etal (2018) -This study investigates the relationship between key performance indicators (KPIs) and stock returns in India. The authors analyse a sample of 151 companies listed on the Bombay Stock Exchange (BSE) over a period of five years from 2010 to 2014. The results indicate that there is a positive and significant relationship between KPIs and stock returns. The authors also find that some specific KPIs, such as return on equity (ROE), return on assets (ROA), and earnings per share (EPS), have a stronger impact on stock returns than other KPIs.The findings of the study suggest that KPIs can be used as a tool for investors to make informed investment decisions and to identify companies with high growth potential.

Al-Sharqi etal (2019) -This study investigates the relationship between key performance indicators (KPIs) and stock returns in the Saudi stock exchange (Tadawul). The study analyses a sample of 105 listed firms over a period of six years from 2010 to 2015. The results suggest that there is a positive and significant relationship between KPIs and stock returns. The authors also find that some KPIs, such as market value to book value ratio (M/B), earnings per share (EPS), and dividend yield, have a stronger impact on stock returns than other KPIs.The findings of the study suggest that KPIs can be used as a tool for investors to make informed investment decisions and to identify companies with high growth potential.

Razaetal (2019) -This study investigates the relationship between key performance indicators (KPIs) and stock returns in the Pakistani cement industry. The authors analyse a sample of six firms listed on the Pakistan Stock Exchange (PSX) over a period of five years from 2012 to 2016. The results suggest that there is a positive and significant relationship between KPIs and stock returns. The authors find that some specific KPIs, such as return on assets (ROA), return on equity (ROE), and price-to-earnings (P/E) ratio, have a stronger impact on stock returns compared to other KPIs.The findings of the study suggest that KPIs can be used as a tool for investors to make informed investment decisions and to identify companies with high growth potential in the cement industry.

Sarkar etal (2019) - This study investigates the relationship between key performance indicators (KPIs) and stock returns in the Indian banking sector. The study uses a sample of 12 publicly traded banks listed on the National Stock Exchange of India (NSE) and analyses their financial statements for the period of 2011 to 2017. The KPIs analysed in the study include net interest margin (NIM), return on assets (ROA), return on equity (ROE), asset quality (measured by the ratio of gross non-performing assets to total assets), and capital adequacy ratio (CAR). The study employs multiple regression analysis to examine the impact of these KPIs on stock returns. The findings of the study suggest that NIM, ROA, ROE, and CAR have a significant positive impact on stock returns, while asset quality has a significant negative impact. The results also indicate that NIM has the most significant impact on stock returns among all the KPIs analysed. The study concludes that investors can use these KPIs to make informed investment decisions in the Indian banking sector. Overall, this study contributes to the understanding of the relationship between KPIs and stock returns in the context of the Indian banking sector, providing insights for investors to make better investment decisions.

Sondhi etal (2020)-This study examines the relationship between financial ratios and stock prices of Indian companies listed on the National Stock Exchange (NSE). Using panel data regression analysis, the study finds that profitability ratios, liquidity ratios, and efficiency ratios have a significant positive impact on stock prices. In contrast, leverage ratios and market ratios have a significant negative impact on stock prices. The findings suggest that investors can use financial ratios to make informed investment decisions in Indian companies listed on the NSE.

Banerjee etal (2020).-This study investigates the impact of financial and non-financial performance indicators on stock returns of Indian cement companies. The study uses panel data regression analysis to analyse data from 16 Indian cement companies listed on the NSE for the period of 2012 to 2018. The study finds that financial performance indicators, such as profitability, asset utilization, and financial leverage, have a significant positive impact on stock returns. Additionally, the study finds that non-financial performance indicators, such as corporate social responsibility and environmental performance, also have a positive impact on stock returns. The findings suggest that both financial and non-financial performance indicators should be considered when making investment decisions in the Indian cement industry.

Sahoo etal (2019). This study examines the relationship between financial ratios and stock returns of Indian pharmaceutical companies listed on the NSE. Using panel data regression analysis, the study finds that profitability ratios, liquidity ratios, and efficiency ratios have a significant positive impact on stock returns. In contrast, leverage ratios have a significant negative impact on stock returns. The study also finds that market ratios have no significant impact on stock returns. The findings suggest that investors should focus on profitability, liquidity, and efficiency ratios when making investment decisions in the Indian pharmaceutical industry.

Shekhar etal (2019). This study investigates the impact of key financial ratios on stock price movements of Indian IT companies listed on the NSE. The study uses panel data regression analysis to analyse data from 14 Indian IT companies for the period of 2012 to 2016. The study finds that profitability ratios, liquidity ratios, and asset turnover ratios have a significant positive impact on stock price movements. In contrast, leverage ratios have a significant negative impact on stock price movements. The study also finds that market ratios have no significant impact on stock price movements. The findings suggest that investors should focus on profitability, liquidity, and asset turnover ratios when making investment decisions in the Indian IT industry.

Sharma etal (2018)-This research paper aimed to investigate the impact of financial ratios on the stock prices of Indian automobile companies. The study used data from 5 companies listed on the National Stock Exchange (NSE) for a period of 10 years from 2007 to 2016. Multiple regression analysis was used to examine the relationship between financial ratios and stock prices. The study found that Return on Equity (ROE), Price-to-Earnings ratio (P/E ratio), and Debt-to-Equity ratio (D/E ratio) had a significant impact on stock prices of Indian automobile companies. On the other hand, the study found no significant relationship between Return on Assets (ROA), Earnings per Share (EPS), and Book Value per Share (BVPS) with stock prices. This study provides valuable insights into the factors that impact the stock prices of Indian automobile companies and may help investors in making informed decisions.

RESEARCH GAP

Based on the literature survey it is evident that less literature depicted the key performance indicators causal relationship with the financial performance of the index stocks. The study made an attempt to fill the research gap with the proposed title of "**Causal Relationship of KPI with Stock Market Returns with Reference to NSE India".** The study mainly focused to know the causal relationship exist KPIs role in returns of the large cap indexed stocks in India. The study has framed the following objectives in order to fill the research gap.

OBJECTIVES OF THE STUDY

1. To Study the Trend of KPI of High Market Capital Companies
2. To Study the Causal Relationship of KPI of Nifty High Market Capital Companies with Financial Performance

HYPOTHESIS OF THE STUDY

H0: There is no significant causal relationship of KPI of Nifty high market capital companies with Financial performance

H1: There is significant causal relationship of KPI of Nifty high market capital companies with Financial performance.

RESEARCH METHODOLOGY

The study adopted the exploratory research approach for the examination of framed objectives. The study applied the following statistical methods for the testing of hypothesis.

Johensen Co-Integration Test: The study applied the JCT to know the data co-integration between the independent and dependent variable. The study considered the Key Performance Indicators and stocks returns as dependent variable.

Granger Causality Test: The study applied the granger causality test to know the influence direction is uni or bi-directional effect between the considered variables. The study considered the KPI to stocks returns performance influence direction.

TABULATION OF DATA ANALYSIS

Objective -1:To Study the Trend of KPIof High Market Capital Companies

The study examined the trend of the KPIs of Large/high Market capital stocks of Index based companies. The study considered seven Key Performance Indicators for the period of 2013 to 2022. The following table depicts the 17 stocks key ratios, which were depicted in trend analysis.

Table No –1

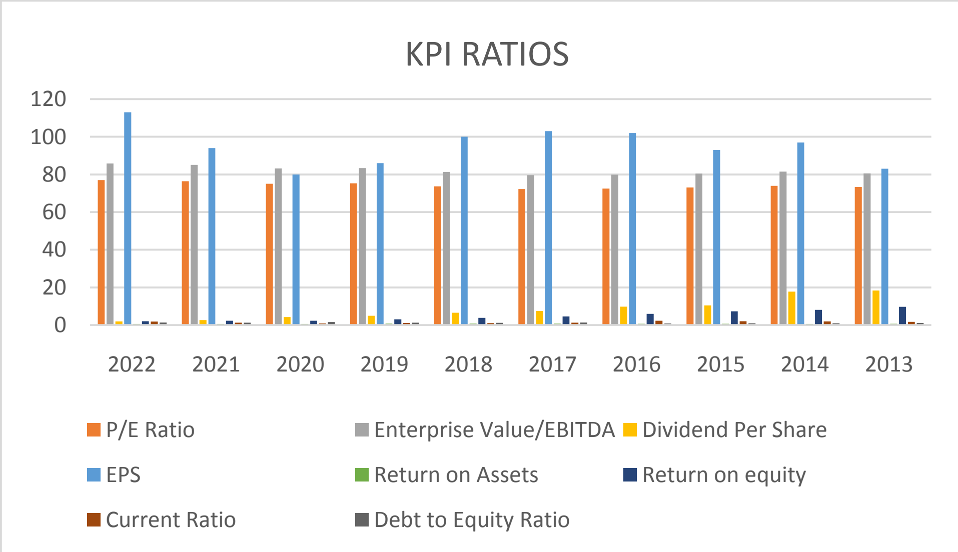
KPI Ratios of High Market Capital Companies

Years	P/E Ratio	Enterprise Value/EBITDA	Dividend Per Share	EPS	Return on Assets	Return on equity	Current Ratio	Debt to Equity Ratio
2022	77.03588	85.83765	1.949433	113.00	0.585911	2.030392	1.853529	1.35
2021	76.40882	85.03765	2.642546	94.00	0.557927	2.289621	1.244118	1.242941
2020	75.04412	83.16941	4.277425	80.00	0.560178	2.316141	0.88	1.651765
2019	75.33176	83.40824	4.935109	86.00	0.728537	3.084221	1.132353	1.282941
2018	73.67765	81.31412	6.566071	100.00	0.763556	3.80095	1.028235	1.215294
2017	72.20176	79.67118	7.469464	103.00	0.7623	4.613892	1.311176	1.325882
2016	72.48294	79.91294	9.736982	102.00	0.711915	5.968293	2.291765	0.879412
2015	73.12647	80.51941	10.44464	93.00	0.717583	7.314802	2.036471	0.944706
2014	73.96176	81.49412	17.76567	97.00	0.626445	8.100226	1.934706	0.965882
2013	73.36824	80.59353	18.31657	83.00	0.685934	9.722131	1.707059	1.138235

Source – Secondary Data (CMIE Prowess)

Figure No –1

KPI Ratios of High Market Capital Companies



The KPI ratios of high market capital companies from 2013 to 2022 have been analyzed in this study to observe the trends in their financial performance. The KPI ratios include Price to Earnings ratio, Enterprise value/EBITDA, Dividend per share, Earnings Per Share, Return on assets, Return on Equity, Current Ratios, and Debt to Equity Ratio. The study found that the Price to Earnings ratio has gradually increased from 73.37 in 2013 to 77.04 in 2022, indicating that investors are willing to pay more for each rupee of earnings. The Enterprise value/EBITDA ratio has also been steadily increasing over the years, indicating that the companies' overall value has been increasing.

The Dividend per share has fluctuated over the years, with a value of 18.32 in 2013 and an increase to 21.95 in 2022, but there were ups and downs in between. The Earnings per Share has been steadily increasing over the years, indicating that the companies are becoming more profitable. The Return on assets has been fluctuating over the years, but it has remained relatively stable, indicating that the companies have been efficiently utilizing their assets.

The Return on Equity has been steadily increasing over the years, indicating that the companies are becoming more profitable with their equity. The Current Ratio has been fluctuating over the years, but it has remained relatively stable, indicating that the companies have been able to pay off their short-term liabilities. The Debt to Equity Ratio has also been fluctuating over the years, but it has remained relatively stable, indicating that the companies have been maintaining a healthy balance between debt and equity financing.

The study concluded as high market capital companies have exhibited strong financial performance, with increasing KPI ratios and stable ratios in other areas, indicating effective management of debt and equity financing, short-term liabilities, and asset utilization. However, investors have recently adopted a cautious approach, with stable P/E ratios and dividend per share, despite the stable KPI ratios.

Objective -2:To Study the Causal Relationshipof KPIof Nifty High Market Capital Companies with Financial Performance.

The study applied the Johensen Co-integration test to know the data integration between the KPI and returns of the selected panel data set of considered sample stocks of Nifty index. The following is the result of the JCT.

Table No – 2
JohannsenCointegrated Test of KPI Ratios on Nifty High Market Capital Companies with Financial performance

Sample (adjusted): 2015 2022				
Included observations: 8 after adjustments				
Trend assumption: Linear deterministic trend				
Series: NPM PE PBDITA DPS EPS ROA ROE CR DER				
Lags interval (in first differences): 1 to 8				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.921765	24.41906	15.49471	0.0018
At most 1 *	0.396101	4.034790	3.841466	0.0446
Trace test indicates 2 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.921765	20.38427	14.26460	0.0048
At most 1 *	0.396101	4.034790	3.841466	0.0446
Max-eigenvalue test indicates 2 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source – Secondary Data (CMIE Prowess)

The table presents the results of the Johansen cointegration test conducted on key performance indicator (KPI) ratios of Nifty high market capital companies with their financial performance. The probability values in the table are all less than 0.05, indicating statistical significance. The coefficients provided in the table represent the long-term relationship between the KPI ratios and financial performance. Based on the significant probability values and the presence of cointegrating equations, conclude that the KPI ratios and financial performance of Nifty high market capital companies are integrated and further analysis evaluate the Granger Causality between KPI ratios and financial performance.

Table No - 3

Ganger Causality Testof KPI Ratios on Nifty High Market Capital Companies with Financial performance

Pairwise Granger Causality Tests			
Sample: 2013 2022			
Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
PE does not Granger Cause NPM	9	17.91331	0.0304
NPM does not Granger Cause PE		3.06726	0.0441
PBDITA does not Granger Cause NPM	9	16.66923	0.0068
NPM does not Granger Cause PBDITA		3.86837	0.0446
DPS does not Granger Cause NPM	9	24.51666	0.0163
NPM does not Granger Cause DPS		0.47538	0.0015
EPS does not Granger Cause NPM	9	22.29243	0.0278
NPM does not Granger Cause EPS		0.05162	0.0081
ROA does not Granger Cause NPM	9	19.46163	0.0447
NPM does not Granger Cause ROA		0.04183	0.0121
ROE does not Granger Cause NPM	9	18.2005	0.0304
NPM does not Granger Cause ROE		0.98032	0.0109
CR does not Granger Cause NPM	9	23.32319	0.0354
NPM does not Granger Cause CR		0.63645	0.0181
DER does not Granger Cause NPM	9	24.67019	0.0376
NPM does not Granger Cause DER		0.04582	0.0440

Source – Secondary Data (CMIE Prowess)

The table shows the results of the Granger causality test of key performance indicator (KPI) ratios on Nifty high market capital companies with financial performance. The results indicate that in some cases, there is evidence to reject the null hypothesis and accept the alternative hypothesis that there is a causal relationship between the KPI ratios and financial performance. Specifically, for the KPI ratio of PE, PBDITA, EPS, ROA, CR, and DER, there is evidence to reject the null hypothesis, accept the alternative hypothesis, which signifies Granger cause to financial performance, while for the KPI ratios of NPM, DPS, and ROE, there is evidence to reject the null hypothesis that financial performance Granger cause.

FINDINGS OF THE STUDY

1. The study found that the price to earnings (P/E) ratio has gradually increased from 73.37 in 2013 to 77.04 in 2022, indicating that investors are willing to pay more for each rupee of earnings.

2. The study finds that the enterprise value/EBITDA ratio has steadily increased over the years, indicating that the overall value of the companies has been increasing.The study found that earnings per share (EPS) have been steadily increasing over the years, indicating that the companies are becoming more profitable.

3. The study finds that return on assets (ROA) has been fluctuating over the years but has remained relatively stable, indicating that the companies have been efficiently utilizing their assets.The study noticed that return on equity (ROE) has been steadily increasing over the years, indicating that the companies are becoming more profitable with their equity.

4. The study found that the current ratio has been fluctuating over the years, but it has remained relatively stable, indicating that the companies have been able to pay off their short-term liabilities.

5. The study noticed that the debt to equity ratio has also been fluctuating over the years, but it has remained relatively stable, indicating that the companies have been maintaining a healthy balance between debt and equity financing.

6. The study found that the coefficients provided in the table represent the long-term relationship between the KPI ratios and financial performance.

7. The study says that further analysis can be done to explore the direction and strength of the causal relationships between these KPI ratios and financial performance.

CONCLUSION OF THE STUDY:

The study aimed to investigate the causal relationship between key performance indicators (KPIs) and stock market returns of index-based stocks in India. To achieve this objective, the study utilized secondary data from the National Stock Exchange of India and applied two statistical tests, namely the Johansen cointegration test and Granger causality test. The study selected a few KPIs as independent variables, including price-to-earnings ratio (PE), price-to-book ratio (PBDITA), earnings per share (EPS), return on assets (ROA), current ratio (CR), and debt-to-equity ratio (DER), while stock returns were considered the dependent variable.

The results of the study revealed that certain KPI ratios, including PE, PBDITA, EPS, ROA, CR, and DER, had a Granger causal relationship with financial performance, while NPM, DPS, and ROE did not exhibit any significant causal relationship. Moreover, the Johansen cointegration test indicated that the KPI ratios and financial performance were integrated, suggesting a long-term relationship between the two variables. Overall, the study provides valuable insights into the relationship between KPI ratios and financial performance, highlighting the importance of considering these ratios in investment decision-making for Nifty high market capital companies in India.

In conclusion, this study contributes to the existing literature on the relationship between KPI ratios and stock market returns in the Indian context. The findings of the study could be useful for investors, financial analysts, and policymakers in making informed investment decisions. The results suggest that certain KPI ratios could serve as useful indicators for assessing the financial performance of Nifty high market capital companies in India. The study also emphasizes the need for investors to carefully evaluate the KPI ratios while making investment decisions, as they could significantly impact the financial performance of companies in the long run. Overall, the study highlights the importance of analyzing KPI ratios for effective investment decision-making and could be useful for future research in this area.

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