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Impact of Inflation on FMCG Companies in India

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Abstract: Fast-moving consumer goods (FMCG) companies in India have a significant impact on the country's entrepreneurial environment. Various internal and external factors influence their market share prices. This study examines how inflation affects India's FMCG companies. The study takes a descriptive and empirical approach to exploring the relationship between the Consumer Price Index (CPI) and FMCG firms in the Indian market. This information allows investors to make more informed decisions about investing in the FMCG sector. The study's data spans 2013 to 2023. The Granger causality test rejects the null hypothesis that Nifty FMCG does not cause CPI, yielding statistically insignificant p-values at the 5% level. This means that Nifty FMCG effects CPI, but the CPI has no causal effect on Nifty FMCG, demonstrating unidirectional causality, in which the Nifty FMCG influences the CPI but not the reverse.

Keywords **- CPI, Share Market Prices, FMCG Sector**

INTRODUCTION

Since its establishment, the Fast Moving Consumer Goods (FMCG) industry in India has experienced a notable surge in entrepreneurial activity. This industry sells a broad variety of commodities, such as household & personal care goods, food and drink, and more.

The inception of the FMCG industry in India dates back to pre-independence period when local business owners started producing and supplying necessities for their consumers. One notable entrepreneur during this period was Ardeshir Godrej, who founded the Godrej Group in 1897. The company initially focused on manufacturing soap, a product that would later become synonymous with FMCG in India. Following its independence, the Indian economy experienced substantial transformations as economic reforms were implemented in the early 1990s. The beginning of liberalization, privatization, and globalization, which paved the way for increased entrepreneurial activities in the FMCG sector. Domestic players, such as Hindustan Unilever Limited (HUL) and ITC Limited, emerged as key contributors to the sector's growth during this time. The growth of the Indian economy is heavily impacted by the Indian capital market. Small variations in the stock market have an impact on the economy's performance. Investors, whether Indian or not, can provide or withdraw assets (funds) for capital appreciation in the capital market. Before and throughout the process of

investing his money in the stock market, an investor examines several factors. These various factors may include a company's historical performance, return on equity or assets, return on index, free cash flow, internal management, or any number of macroeconomic variables such as GDP, inflation, interest rates, and unemployment rates, among others.

It is thought that shifts or volatility in macroeconomic factors affect stock market return.

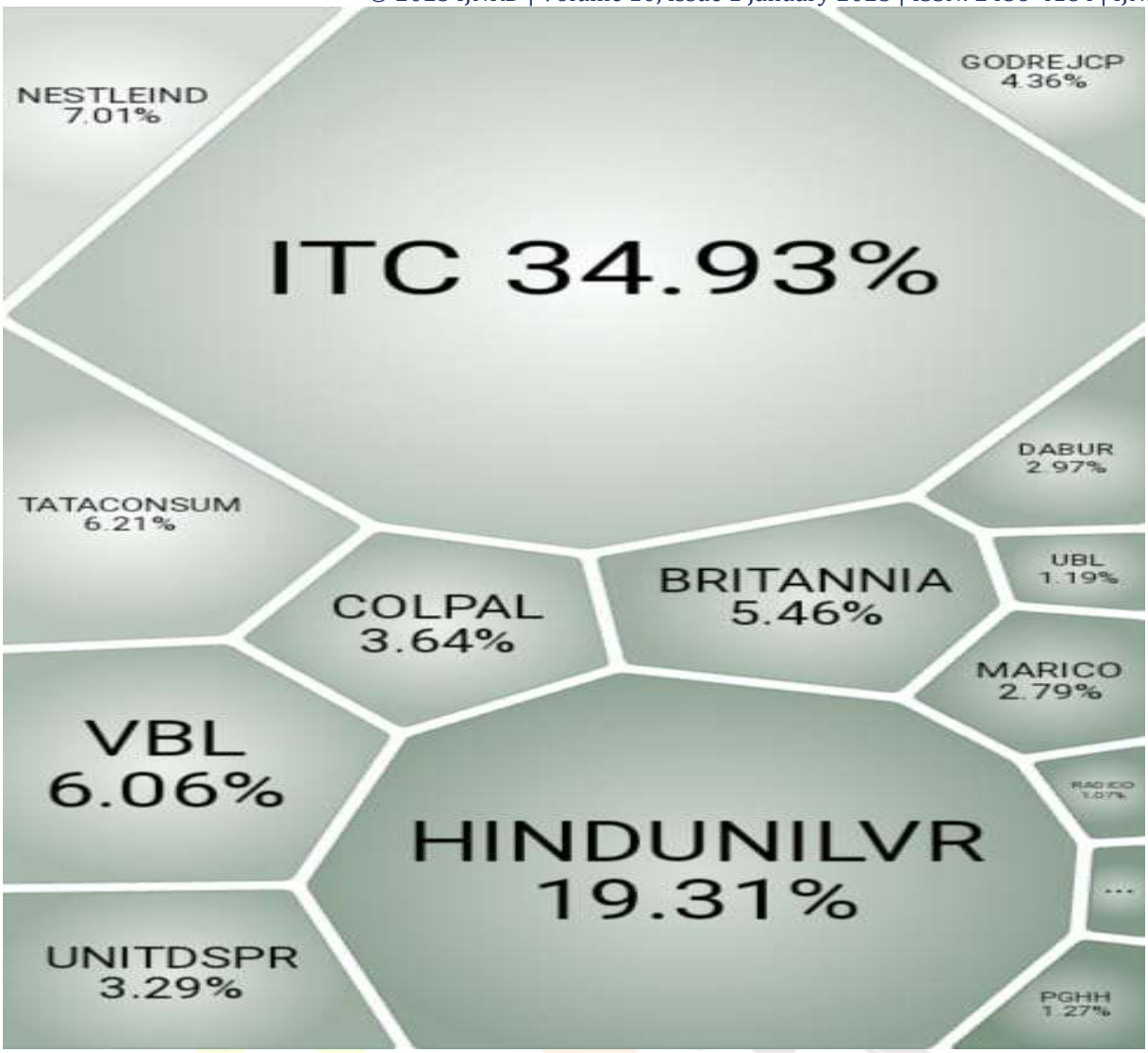
While some macroeconomic factors have a minor impact, others have a large impact on the return on stock. There are 2 types of markets: primary markets and secondary markets. Since the primary market generates the secondary market, the two markets are interrelated. The primary market is where a variety of businesses and the government initially offer securities to the public; the secondary market is where these securities are resold.

FMCG Sector

India's FMCG sector has seen significant growth, driven by consumer demand and increased product prices, particularly for essential items. The sector provides employment to approximately 3 million people, representing about 5% of the total factory workforce in India. During the fiscal year 2022-23, FMCG sales in the country rose by 7-9% in terms of revenue. Key factors contributing to this growth include supportive government policies, the expansion of rural markets, a rising youth population, the introduction of new branded products, and the growth of e-commerce platforms. For FMCG companies to thrive in the long term, resilience in manufacturing, daily operations, retail and logistics, consumer insights, and communication is crucial. In the April-June 2023 quarter, the sector recorded a 7.5% growth in volume—the highest in eight quarters—driven by a revival in rural areas and an increase in modern trade.

The fast-moving consumer goods (FMCG) sector is India’s fourth-largest sector and has been expanding at a healthy rate over the years because of rising disposable income, a rising youth population, and rising brand awareness among consumers With household and personal care accounting for 50% of FMCG sales in India, the industry is an important contributor to India’s GDP. India is a country that no FMCG player can afford to ignore due to its middle-class population which is larger than the total population of USA. The Indian FMCG market continues to rise as more people start to move up the economic ladder and the benefits of economic progress become accessible to the public. More crucially, with a median age of just 27, India's population is becoming more consumerist due to rising ambitions. This has been further aided by government initiatives to increase financial inclusion and establish social safety nets.

The Nifty FMCG Index is crafted to represent the performance of Indian companies within the Fast-Moving Consumer Goods (FMCG) sector. It includes companies that specialize in goods and products that are non-durable and widely consumed by the masses.



Source: NSE

Inflation

Inflation is the general increase in the price levels of goods and services in an economy over time. Inflation reduces the purchasing power of money, which means that each unit of currency buys fewer goods and services than previously.

Types of Inflation

Demand-Pull Inflation occurs when the demand for products and services exceeds the supply. When individuals have more discretionary income or the government spends more, demand rises, driving prices higher.

Cost-Push Inflation: When the cost of producing products and services rises, businesses raise prices to maintain profit margins. Wage increases, rising raw material costs, and supply chain interruptions are all common causes.

Built-In Inflation: Also known as wage-price inflation, this type stems from a feedback loop in which workers seek greater wages to keep up with rising living costs. Businesses, in turn, boost prices to meet the higher wages, causing additional inflation.

Hyperinflation: This is an extreme form of inflation where prices increase rapidly and uncontrollably, often exceeding 50% per month. Hyperinflation usually occurs during times of severe economic distress, often leading to the collapse of the currency.

Measures of Inflation

Consumer Price Index (CPI): The CPI calculates the average change in prices over time that consumers pay for a basket of goods and services. It is one of the most extensively used inflation indicators and represents the cost of living for households.

Wholesale Price Index (WPI): WPI measures the price changes at the wholesale level, meaning the prices at which goods are sold in bulk to other businesses, not consumers. WPI is often used as an early indicator of inflationary trends in an economy.

Producer Price Index (PPI): PPI measures the average change in selling prices received by domestic producers for their output. It differs from CPI in that it measures prices from the seller's perspective, rather than the buyer's.

GDP Deflator: The GDP deflator is a broad measure of inflation that reflects the prices of all goods and services produced domestically. Unlike CPI, which uses a fixed basket of goods, the GDP deflator can reflect changes in consumption patterns and the introduction of new goods.

Consumer Price Index (CPI) in India

In India, the Consumer Price Index (CPI) is a key indicator of inflation. It tracks the price changes of a basket of consumer goods and services consumed by households. India's CPI is determined monthly by the Ministry of Statistics and Programme Implementation (MoSPI).

India has several CPI indices, reflecting different population groups:

CPI for Industrial Workers (CPI-IW): This index measures inflation for industrial workers and is used for wage adjustments in industries. CPI for Agricultural Labourers (CPI-AL) and Rural Labourers (CPI-RL): These indices measure inflation in rural areas, focusing on the agricultural and rural labor force. CPI (Rural/Urban/Combined): These indices measure inflation for rural and urban consumers separately, as well as a combined index for the entire population. The CPI is vital for economic policy, as it influences decisions related to monetary policy, wage negotiations, and social programs. The Reserve Bank of India (RBI) uses the CPI as the primary gauge for setting interest rates and controlling inflation, aiming to maintain it within a targeted range to ensure economic stability.

Provide a critical overview of existing Knowledge of the relationship between inflation and stock returns.

T. Choudhury (2001). Inflation and Stock Returns: Evidence from Countries with High Inflation. Journal on International Financial Markets, Institutions, and Money. This study looks at the relationship between inflation and stock returns in countries with high inflation. Choudhry (2001) demonstrated that during periods of high inflation, stock returns are negatively correlated with inflation. The study asserts that inflation

diminishes the real value of future cash flows, resulting in lower stock prices. The study underlines the importance of incorporating inflationary tendencies into investment strategies, especially in emerging markets.

Fama (1981) explores the links between stock returns, economic activity, inflation, and money supply. The study concludes that stock market returns are more closely related to real economic activity than inflation. However, during periods of unexpected inflation, stock returns tend to decline as inflation negatively impacts corporate profits and investor sentiment. Fama's work is foundational in understanding how macroeconomic factors interact with stock market performance.

Schwert (1989) looks into the reasons of changes in stock market volatility, focusing on macroeconomic factors including inflation, interest rates, and GDP growth. The study discovered that periods of high inflation and economic uncertainty are linked to increased market volatility. This volatility, in turn, influences investor risk perception and stock pricing. Schwert's analysis emphasizes the importance of investors monitoring macroeconomic developments as part of their risk-management strategy.

Chen, Roll, and Ross (1986) investigate how macroeconomic factors such as inflation, industrial production, and interest rates affect stock returns. According to the study, these factors are important predictors of stock market performance, with inflation and interest rates having a particularly high negative impact. The authors contend that knowing these economic variables can aid in forecasting stock market developments and enhancing portfolio management.

Jung and Shiller (2005) address the argument over whether the stock market is an effective inflation hedge. They discover that, contrary to popular opinion, the stock market is not always a dependable hedge against inflation, especially in the short term. The study emphasizes the intricacies of the relationship between inflation and stock market returns, as well as the importance of investors considering other assets for inflation protection.

Bodie (1976) studies the effectiveness of common stocks as inflation hedges. The analysis indicates that, while stocks can provide some long-term inflation protection, they are not perfect hedges. During periods of high inflation, stock returns may not keep up with growing prices, decreasing their effectiveness as an inflation hedge. According to Bodie's research, investors should diversify their portfolios by including assets intended expressly to combat inflation.

Bekaert and Engstrom (2010) investigate the so-called "Fed Model," which posits a relationship between the stock market's earnings yield and the 10-year Treasury bond yield. Their study reveals that inflation significantly affects this relationship, with higher inflation leading to lower stock market valuations. The findings suggest that the inflation expectations are crucial for understanding the dynamics between equity and bond markets, providing insights for both monetary policy and investment strategies.

Boyd, Levine, and Smith (2001) examine how inflation affects the performance of the financial sector, particularly stock markets. They find that inflation negatively impacts financial development and stock market activity. The study argues that higher inflation reduces the ability of financial markets to allocate resources efficiently, leading to lower economic growth. This research highlights the detrimental effects of inflation on financial stability and stock market performance.

Kaul (1987) investigates the relationship between stock returns and inflation, concentrating on the function of the monetary sector. According to the study, monetary policy has a detrimental impact on stock returns and inflation. When central banks tighten monetary policy to combat inflation, interest rates rise, leading to lower stock market valuations. Kaul's research emphasizes the need of taking monetary policy into account when examining the stock market's response to inflation.

Luintel and Paudyal (2006) investigate whether emerging-market common stocks can be used as an inflation hedge. Their research reveals that in emerging economies, the relationship between stock returns and inflation is complex and varies by country. Some developing market stocks hedge against inflation, while others do not. The study underlines the need of investors taking into account each market's unique economic situation when utilizing stocks as an inflation hedge.

Patelis (1997) studies the predictability of stock returns in terms of monetary policy and inflation. According to the study, monetary policy changes have a considerable impact on stock returns, with expansionary policies often producing larger returns. However, the impact of inflation on stock returns varies depending on whether it is expected or unexpected. According to the findings, investors should attentively monitor monetary policy signals and inflation expectations when predicting stock market moves.

Ritter and Warr (2002) examine the relationship between falling inflation and the long-running bull market in the United States from 1982 to 1999. They suggest that the drop in inflation during this time period played a key impact in increasing stock market valuations, as reduced inflation led to lower interest rates and increased corporate earnings. The study emphasizes the positive influence of low and steady inflation on long-term stock market performance, and it provides historical background for understanding the relationship between inflation and stock prices.

Objective of the study

- To analyze the relationship between CPI and Nifty FMCG Index
- To study the cause-and-effect between CPI and Nifty FMCG Index

Hypotheses of the research

Null Hypothesis (H0): There is no causal relationship between the Consumer Price Index and Nifty FMCG Index.

Alternative Hypothesis (H1): There is causal relationship the Consumer Price Index and Nifty FMCG Index.

Data for the study

The study uses monthly data from 2013 to 2023, for a total of 132 observations. The analysis focuses on the Nifty FMCG index's monthly closing values. The Consumer Price Index (CPI) for all commodities, with 2012-2013 as the base year and a base value of 100, acts as an indicator of inflation in India. The Nifty FMCG index statistics were collected from the official National Stock Exchange website, whereas inflation (CPI) data were gathered from several editions of the Handbook of Statistics on the Indian Economy and the Reserve Bank of India Bulletin, both issued by the Reserve Bank. The econometric study was carried out using Eviews.

Variables Specification

Inflation, one of the study's independent variables, is defined as a continual increase in the overall price level or the rate at which the prices of products and services rise, resulting in diminished purchasing power. High inflation is frequently the outcome of increasing price volatility. The study uses two independent variables to analyze the association between inflation and FMCG company stock market values. The Consumer Price Index (CPI) is used as a proxy to measure inflation.

Research Methodology

The empirical literature provides a variety of methods for studying the impact of inflation on the securities market. Building on earlier studies, this study looks into the causal relationship between inflation and stock market values. Given that the data used is a time series, it is critical to investigate its features. To gain a fundamental understanding of the data's behaviour and features, descriptive statistics such as skewness, kurtosis, and the Jarque-Bera test were produced. These statistics show that the distributions of the Nifty FMCG and CPI during the selected time are not normally distributed, which is a well-known fact in financial literature.

The research proceeds with the Augmented Dickey-Fuller Test, which checks for the presence of a unit root and ensures the time series' stationarity. A stationary time series has a constant mean and variation throughout time, with dependencies based on the lag between periods rather than specific time points. This study's time series variables contain monthly data for the Nifty FMCG index and the CPI from 2013 to 2023. Furthermore, the Granger (1969) Causality Test is used to investigate the causative relationships between stock returns and inflation across the sample period.

Lag Length Criteria

When applying econometric techniques, selecting the appropriate lag length is crucial to ensure accurate and realistic results. The optimal lag length is determined using three commonly employed criteria: the Akaike Information Criterion (AIC), the Schwarz Information Criterion (SIC), and the Hannan-Quinn Criterion (HQC). These criteria are evaluated within the framework of a Vector Autoregressive (Vn

AR) model, and the lag length with the minimum value is chosen for analysis of the variables.

Empirical Results

Descriptive statistics were produced for each series to better understand the data's behavior. Table 1 shows the statistics for the variables examined in the study. The summary shows the mean, median, minimum, maximum, and standard deviation values for the years 2012-13 through 2022-23. These statistics help to

demonstrate the statistical properties of the variables. For properly distributed data, the predicted mean is zero and the standard deviation is one. However, the examined series does not match these requirements.

The comparatively high standard deviation indicates that the data is not regularly distributed. The NIFTY FMCG and CPI variables exhibit asymmetry and positive skewness, indicating a distribution with a greater right tail. Overall, the distribution is positively skewed, which means the tails are flatter than a normal distribution. The kurtosis values also indicate that the data is not regularly distributed, as they differ from the typical kurtosis of three. Both NIFTY FMCG and CPI show a platykurtic distribution (kurtosis < 3). The Jarque-Bera test, which is a sort of Lagrange multiplier test, was used to determine whether the series had a normal distribution.

Table: 1. Descriptive Statistic of NIFTY FMCG & CPI

Descriptive Statistic **Sample:** 2013M012023M12		
CPI		NIFTYFMCG
Mean	142.2492	28841.89
Median	139.0500	28672.61
Maximum	186.3000	56210.95
Minimum	104.6000	14659.93
Std. Dev.	22.14393	10063.06
Skewness	0.338779	0.777007
Kurtosis	2.095977	2.869404
Jarque-Bera	7.019882	13.37608
Probability	0.029899	0.001246
Sum	18776.90	3807130.
Sum Sq. Dev.	64236.35	1.33E+10
Observations	132	132

Source: Computed

When testing for normality, the Jarque-Bera statistics were found to be significant at the 5% level, indicating that the data did not fit the criteria for normality. Before analyzing the causal link between variables, the data were tested for stationarity with the Augmented Dickey-Fuller Test. Before employing any econometric technique, you must first determine the right lag duration.

The optimal lag order was identified using the Akaike Information Criterion (AIC) and Schwarz Information Criterion (SIC) within a VAR framework. A lag order of one was selected as the optimal choice based on SIC and AIC to ensure realistic results. Given the emphasis on informational efficiency in security markets,

empirical studies typically favor a low-order lag length, such as one, which was consistently applied in the subsequent analyses presented in Table 2.

Table 2. VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria Endogenous variables: CPI1 NIFTYFMCG1 Exogenous variables: C
Date: 08/29/24 Time: 16:03 Sample: 2013M01 2023M12
Included observations: 123

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1222.281	NA	1515510.	19.90702	19.95274*	19.92559
1	-1216.576	11.13306	1474083.	19.87928	20.01646	19.93500
2	-1205.900	20.48380	1322542.*	19.77073*	19.99936	19.86360*
3	-1203.633	4.276037	1360551.	19.79891	20.11899	19.92893
4	-1199.991	6.750024	1368887.	19.80474	20.21628	19.97190
5	-1197.280	4.937629	1398481.	19.82569	20.32869	20.03001
6	-1195.071	3.951719	1440700.	19.85481	20.44925	20.09627
7	-1189.538	9.716071*	1406440.	19.82989	20.51578	20.10850
8	-1187.251	3.942551	1447777.	19.85773	20.63508	20.17349

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level) FPE: Final prediction error
AIC: Akaike information criterion SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Computed

Following the selection of the optimal lag length, the Augmented Dickey-Fuller (ADF) test was conducted to analyze the presence of unit roots. The results, presented in Table 3, include both the levels and first differences of the data.

Table 3: Unit Root Test of Nifty FMCG and CPI (Inflation)

Variables	**At Level**				**At First Difference**			
	Intercepts		Trends & Intercepts		Intercepts		Trends & Intercepts	
	t-stat.	p-value	t-stat.	p-value	t-stat.	p-value	t-stat.	p-value
CPI	2.4902	1.0000	0.3876	0.9989	-6.3969	0.0000	-7.6971	0.0000
NIFTY FMCG	1.2890	0.9985	-0.9609	0.9448	-11.2292	0.0000	-9.1736	0.0000

Source : Computed

The results of the Augmented Dickey-Fuller (ADF) test, as shown in Table 3, show that both series are stationary at the first difference but have a unit root at level. The t-statistics for the series at the first difference are -7.6971 and -9.1736, with p-values of 0.00, indicating statistical significance. As a result, the first-differenced series for the Consumer Price Index and Nifty FMCG were constructed with Eviews.

In addition, the Granger causality test was utilized to investigate the relationship between inflation and FMCG company stock prices. This test analyzes if inflationary changes cause changes in stock prices or vice versa. The null hypothesis (H0) for the Granger causality test asserts that X does not Granger cause Y. If the p-value is greater than 0.05, H0 is accepted, implying no causality. If the p-value is less than 0.05, the null hypothesis is rejected, implying that causality exists.

Table 4. Granger Causality Test of NIFTY FMCG & CPI

Pairwise Granger Causality Tests
Date: 08/29/24 Time: 16:05
Sample: 2013M01 2023M12
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
NIFTYFMCG1 does not Granger Cause CPI1	129	4.23469	0.0166
CPI1 does not Granger Cause NIFTYFMCG1		1.03361	0.3588

Source: Computed

The results, as stated in Table 4, reveal F-statistics of 4.2346 and 1.0336, respectively, with p-values of 0.0166 and 0.3588 for each hypothesis. Because the p-values for the first hypothesis are statistically significant at the 5% level, we reject the null hypothesis that Nifty FMCG does not cause CPI to rise. This implies that Nifty FMCG Granger causes CPI. The null hypothesis, which states that CPI does not cause Nifty FMCG, is accepted. As a result, there is a unidirectional causality: Nifty FMCG causes CPI, but CPI does not cause Nifty FMCG.

Conclusion

This study mainly focused upon the assessment of the impact of inflation on Fast-Moving Consumer Goods (FMCG) companies in India by examining the relationship between the Consumer Price Index (CPI) and the FMCG industry, with a particular emphasis on the Nifty FMCG index. To better understand this link, the study uses data from 2013 to 2023 and employs a descriptive and empirical methodology, including the Granger causality test. The findings are meant to assist investors make better decisions when investing in the FMCG sector.

The study concludes that there is a one-way causality: the Nifty FMCG index affects the Consumer Price Index (CPI), but the CPI does not influence the Nifty FMCG index. The statistical study, based on the Granger causality test, reveals that the null hypothesis that Nifty FMCG does not Granger cause CPI is rejected, but the null hypothesis that CPI does not Granger Cause Nifty FMCG is accepted. This implies that the

performance of FMCG companies, as shown in the Nifty FMCG index, can have a considerable impact on inflation as measured by the CPI, but inflation does not directly affect the FMCG sector's performance.

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