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Evaluating the Impact of GST on the FMCG Sector: A Comparative Study of India and the USA (2013-2022)

By Funnisha Garg

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The research investigates whether the inflation and GDP growth rates of the USA have any significant effect on the stock returns of Indian FMCG companies, recognizing the interconnectedness of global economies and markets. The USA is chosen for comparison due to its mature FMCG market, distinct tax structure (sales tax instead of GST), and its influence on global economic trends, which can indirectly affect Indian markets through trade, investment, and supply chain linkages.

By employing econometric models to analyze the relationship between these variables, the study provides insights into how GST, inflation, and GDP growth rates influence stock market performance in the FMCG sector.

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The research investigates whether the inflation and GDP growth rates of the USA have any significant effect on the stock returns of Indian FMCG companies, recognizing the interconnectedness of global economies and markets. The USA is chosen for comparison due to its mature FMCG market, distinct tax structure (sales tax instead of GST), and its influence on global economic trends, which can indirectly affect Indian markets through trade, investment, and supply chain linkages.

By employing econometric models to analyze the relationship between these variables, the study provides insights into how GST, inflation, and GDP growth rates influence stock market performance in the FMCG sector. The findings highlight whether global economic conditions, particularly those of the USA, have any bearing on the stock returns of Indian FMCG firms, offering valuable implications for investors, policymakers, and businesses operating in these regions.

I. Introduction

The Fast-Moving Consumer Goods (FMCG) sector is a vital component of the Indian economy, contributing significantly to overall economic growth and employment. The implementation of the Goods and Services Tax (GST) in India in 2017 marked a transformative shift in the indirect taxation landscape, aiming to simplify tax structures, enhance compliance, and stimulate economic activity within the FMCG sector. As a result, understanding the implications of GST on the performance of FMCG companies is crucial for stakeholders, including investors, policymakers, and business leaders.

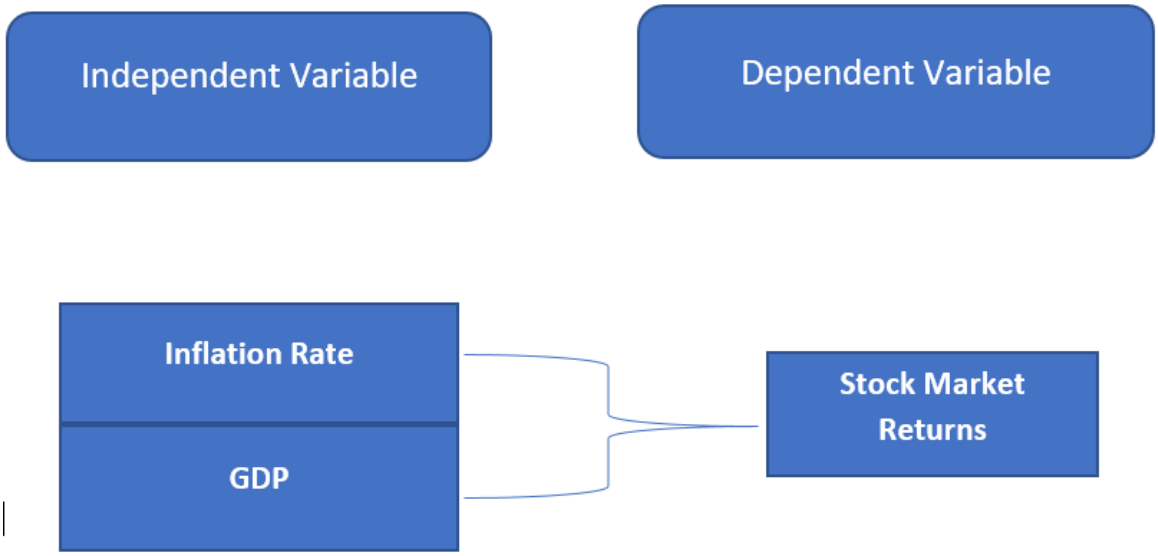
This study focuses on evaluating the impact of GST on the FMCG sector in India from 2013 to 2022, with an emphasis on the relationship between macroeconomic variables, specifically the inflation rate and GDP growth rate of both India and the USA. The choice of the USA as a comparative benchmark stems from several critical factors. Firstly, the USA has a well-established and mature FMCG market characterized by a diverse range of products and a significant consumer base. The structural differences in taxation, with the USA utilizing a sales tax system rather than GST, provide a unique perspective on how different tax regimes influence market dynamics.

Moreover, the interconnectedness of global economies means that economic conditions in the USA can have ripple effects on emerging markets like India. Fluctuations in the USA's GDP growth and inflation rates can influence international trade, investment flows, and supply chain operations, ultimately affecting the performance of Indian FMCG companies. By investigating whether the economic indicators of the USA impact the stock returns of Indian FMCG firms, this research aims to uncover insights into the broader implications of global economic trends on local markets.

Furthermore, the findings will contribute to a more nuanced understanding of how GST interacts with global economic conditions, specifically those of a leading economy like the USA, providing valuable implications for future policy decisions, investment strategies, and business operations within the FMCG sector. The analysis will utilize econometric models to systematically assess the relationship between the independent variables (inflation and GDP growth rates) and the dependent variables (stock returns of major Indian FMCG companies), thus offering a comprehensive evaluation of the impact of GST and international economic factors on this crucial sector.

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II. Literature Review

1. *Mrs. V. Rajalakshmi & Dr. K. Uma Devi:* A Study on Fast Moving Consumer Goods (Fmcg)-with Special Reference to Kancheepuram District

The study identified growth potential in the creams segment of the FMCG sector, with opportunities for expanding into new product lines featuring chemical-free, "pure" products and targeting younger age groups in the marketing mix. While advertisements remain the most effective promotional channel, for launching new products, methods like sampling, product discounts, and coupons were found to have greater influence. FMCG companies can leverage these strategies to enhance market share. Additionally, further research into consumer behavior in the Kancheepuram region could uncover valuable and intriguing insights about local preferences.

2. *Dr. Ranpreet Kaur, Dr. Sonali Khurjekar, Dr. Sonali Prasad Dharmadhikari, Ms. Hemangi Pramod Borawake:* A Study of Change in Policies by the RBI for Controlling Inflation and Promoting Growth

In the context of ensuring the smooth functioning of the Indian economy under varying circumstances, the Reserve Bank of India (RBI) plays an indispensable role. The RBI's primary objective is to implement a robust and adaptive monetary policy framework aimed at navigating economic challenges. Its policy decisions have consistently supported the achievement of key economic goals, contributing significantly to the sustainable development of a growing economy like India. Moreover, India's monetary policy has evolved in alignment with the changing needs of the economy, with the RBI making timely adjustments to maintain financial stability and promote long-term economic growth. These measures reflect the central bank's strategic role in shaping the macroeconomic environment and fostering resilience amidst global and domestic challenges.

3. *CMA Satish Dhokare:* Gst and its Impact on Fmcg Sectors in India

The introduction of GST has impacted the FMCG sector by adjusting tax brackets and reducing distribution costs. Some companies benefit from lower taxes, leading to increased product volumes and reduced prices, while others face higher taxes, resulting in price hikes. The initial phase saw sluggish growth due to de-stocking by channel partners, but the long-term outlook indicates benefits through improved distribution strategies, cost reductions, and operational efficiency. FMCG companies must adapt to these changes to stay competitive and enhance profit margins, ultimately benefiting consumers.

4. *Jagadish G1, Reshma K J:* The Impact of Goods and Services Tax (GST) on Fast Moving Consumer Goods (FMCG) Consumers with respect of Personal care Products

The implementation of GST on 1st July 2017 has sparked extensive research, particularly on its impact on the fast-moving consumer goods (FMCG) sector. This study specifically examined the effects of GST on personal care products targeting lower-income and lower-middle-income groups. Data analysis revealed that 60% of respondents strongly agreed that GST had impacted their spending behavior, while 59% believed GST would be beneficial in the long term. The R-square value of 0.748 indicates that 74% of the variance in GST pricing was explained by selected

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independent variables, with a correlation coefficient of 0.814, reflecting a strong relationship between price and spending behavior.

In conclusion, while the prices of FMCG personal care products initially rose following GST implementation, long-term benefits are anticipated. This study was confined to the Bangalore region, focusing on lower-income groups and personal care products. Future research could expand to household items and explore different income categories to offer broader insights into GST's overall impact.

5. *Mathew Abraham:* Effect of Goods and Services Tax on FMCG Sector

This study aims to analyze the shifts in consumption patterns within the FMCG sector, particularly in rural India, driven by increasing incomes and rising aspirations. The growing demand for branded products in rural areas reflects a significant transformation, with the unorganized market's share declining and the organized sector poised for accelerated growth. Factors such as heightened brand awareness and the expansion of modern retail contribute to this shift. Additionally, the study explores how the growing urban youth population, which faces time constraints, is boosting demand for food services.

The study also highlights the critical role of online platforms in helping companies penetrate rural markets, offering a cost-effective and convenient means of expanding their reach. In terms of taxation, the impact of GST on stock levels is evident, with dealers responding to varying tax rates by adjusting inventory strategies- either increasing stock levels in anticipation of higher GST rates or reducing them when GST rates are lower.

Overall, this research investigates how GST, combined with differentiated product taxation, influences consumer prices and market dynamics, with some products becoming more expensive and others more affordable, ultimately balancing the tax burden for consumers.

III. Research Gap

Despite the extensive research on GST's impact on various sectors, there remains a notable gap in literature focusing on the interplay between GST, macroeconomic indicators, and the performance of the FMCG sector specifically. Most studies tend to concentrate on domestic factors without considering international economic influences, particularly from developed economies like the USA. Furthermore, the quantitative analysis of stock returns in relation to both Indian and USA economic indicators through regression and ANOVA remains underexplored. This research aims to fill this gap by systematically analyzing the effects of GST and global economic conditions on stock returns in the FMCG sector.

a) Objective of this Study

1. *To assess the relationship between macroeconomic variables:* (Inflation rate and GDP growth rate of India and the USA) and the stock returns of major Indian FMCG companies through regression coefficients, identifying the strength and direction of these relationships.
2. *To perform ANOVA to compare the means of stock returns:* Across different time periods, particularly before and after GST implementation, and assess whether these differences are statistically significant.
3. *To evaluate the comparative influence of the USA's GDP growth and inflation rates:* On the stock returns of Indian FMCG companies, identifying any significant effects that may arise from global economic conditions.
4. *To identify and quantify the regression coefficients:* To understand the extent to which each independent variable (GDP growth and inflation rates) contributes to explaining the variations in stock returns of the selected FMCG companies.

b) Hypothesis

Hypothesis 1: Impact of GST Implementation on Stock Returns

- *H0:* The implementation of GST has no significant impact on stock returns across various companies in India and the USA when controlling for macroeconomic factors such as GDP growth and inflation.
- *H1:* The implementation of GST has a significant impact on stock returns across various companies in India and the USA when controlling for macroeconomic factors such as GDP growth and inflation.

Hypothesis 2: Influence of Macroeconomic and Other Factors on Stock Performance

- *H0:* Macroeconomic factors (GDP growth and inflation) and industry-specific dynamics do not significantly influence stock performance in India and the USA, indicating a uniformity in the relationship across both markets.
- *H1:* Macroeconomic factors (GDP growth and inflation) and industry-specific dynamics significantly influence stock performance in India and the USA, suggesting variability in the relationship across both markets.

IV. Research Methodology

➢ *Research Design:* Employ a quantitative approach to analyse the relationship between GST implementation, macroeconomic factors (GDP growth and inflation), and stock returns, with a comparative analysis of selected companies in India and the USA.

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- *Sample Selection:* Choose a representative sample of publicly traded companies across various sectors, analysing data from several years before and after GST implementation (post-July 2017).
- *Data Collection:* Gather historical stock price data from financial databases (e.g., Bloomberg, Yahoo Finance) to calculate returns, and obtain GDP growth and inflation rates from reliable sources (e.g., RBI, U.S. BEA, World Bank).
- *Statistical Analysis:* Conduct multiple regression analysis to assess the impact of GST and macroeconomic factors on stock returns, alongside ANOVA for comparing returns pre- and post-GST, and calculate the R-squared value to evaluate model explanatory power.
- *Interpretation of Results and Limitations:* Analyse the regression and ANOVA outputs to draw conclusions about the relationships studied and discuss implications, while identifying limitations such as data availability and sample size, suggesting areas for further research.

a) Analysis

Statistical Analysis of the Impact of Goods and Services Tax (GST) on FMCG Sector's company: A Comparative Study of Stock Performance in India and the USA Before and After GST Implementation

Table 1: ITC Limited

Statistic		INDIA		USA	
		Before GST Implementation	After GST Implementation	Before GST Implementation	After GST Implementation
		1 Jan 2013 to June 2017	July 2017 to Dec 2022	1 Jan 2013 to June 2017	July 2017 to Dec 2022
Multiple R		0.250434	0.242149	0.255123	0.252335
R Square		0.062717	0.058636	0.065088	0.063673
Adjusted R Square		0.025226	0.02827	0.027691	0.033469
Standard Error		5.45127	6.390785	5.444371	6.373665
Observations		53	65	53	65
ANOVA Statistic					
Regression SS		99.42152	157.7283	103.1795	171.2765
Residual SS		1485.817	2532.212	1482.059	2518.664
Total SS		1585.239	2689.94	1585.239	2689.94
F-Statistic		1.672843	1.930951	1.740476	2.10809
Significance F		0.198047	0.153631	0.185897	0.130093
Variable	Statistic				
Intercept	Coefficient	23.65623	-6.45754	-5.34547	-1.79173
	Standard Error	12.69856	3.740462	6.559142	1.399451
	t-Stat	1.862906	-1.7264	-0.81496	-1.28031
	P-value	0.068355	0.089255	0.418958	0.205207
Inflation Rate	Coefficient	-75.5722	114.2923	2.564933	0.710595
	Standard Error	45.97131	65.23164	1.447516	0.353197
	t-Stat	-1.6439	1.752099	1.771955	2.011897
	P-value	0.106471	0.084701	0.082496	0.048581
GDP Growth	Coefficient	-240.844	25.91317	1.505648	-0.12705
	Standard Error	142.2286	17.04306	2.469221	0.318755
	t-Stat	-1.69336	1.520453	0.609767	-0.3986
	P-value	0.09661	0.133481	0.544778	0.69156

Interpretation: Impact of GST Implementation on ITC Limited - India vs. USA

India: The implementation of GST in India appears to have positively influenced the relationship between macroeconomic factors and stock returns for ITC Limited. Post-GST, GDP growth shows a shift towards a positive coefficient (25.91317), suggesting improved stock performance, while inflation also turns positive (114.2923). However, both results lack strong statistical significance, indicating that further investigation is necessary to confirm these trends.

USA: In contrast, the USA's macroeconomic indicators present a mixed picture. Before GST, both GDP growth (1.505648) and inflation (2.564933) had positive

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coefficients, but their impact on stock returns remains weak. After GST, GDP growth turns negative (-0.12705), indicating a potential decline in its positive influence on stock returns, while inflation shows a minor positive effect (0.710595) with moderate significance.

Table 2: Britannia Industries Ltd

Statistic		INDIA		USA	
		Before GST Implementation	After GST Implementation	Before GST Implementation	After GST Implementation
		1 Jan 2013 to june 2017	July 2017 to dec 2022	1 Jan 2013 to june 2017	July 2017 to dec 2022
Multiple R		0.238462	0.011799	0.180865	0.052303
R Square		0.056864	0.000139	0.032712	0.002736
Adjusted R Square		0.019139	-0.03211	-0.00598	-0.02943
Standard Error		7.690642	6.844684	7.788491	6.835791
Observations		53	65	53	65
ANOVA Statistic					
Regression SS		178.3029	0.404402	102.5723	7.947284
Residual SS		2957.299	2904.681	3033.029	2897.138
Total SS		3135.602	2905.086	3135.602	2905.086
F-Statistic		1.507312	0.004316	0.845461	0.085038
Significance F		0.231397	0.995694	0.435405	0.918585
Variable	Statistic				
Intercept	Coefficient	18.55952	1.730435	-7.92444	1.587633
	Standard Error	17.91511	4.006125	9.383235	1.500919
	t-Stat	1.03597	0.431947	-0.84453	1.057774
	P-value	0.3052	0.667278	0.402395	0.294262
Inflation Rate	Coefficient	21.56891	-4.46665	2.064011	0.038348
	Standard Error	64.85625	69.86465	2.070756	0.378805
	t-Stat	0.332565	-0.06393	0.996743	0.101235
	P-value	0.740853	0.949229	0.323689	0.919691
GDP Growth	Coefficient	-210.536	-1.59641	4.480541	-0.13943
	Standard Error	200.6559	18.25353	3.532364	0.341867
	t-Stat	-1.04924	-0.08746	1.268426	-0.40786
	P-value	0.299113	0.93059	0.21052	0.684783

Interpretation:

India vs. USA: Pre- and Post-GST Implementation Analysis

- *India:*

➢ *Before GST:* The model's weak fit (R-squared = 0.056864) indicates that GDP growth and inflation explain only 5.7% of stock return variability. GDP growth negatively impacted stock returns (-210.536), while inflation's positive effect (21.56891) was not significant.

➢ *After GST:* The model's explanatory power further declined (R-squared = 0.000139). Both GDP growth and inflation coefficients were negligible and statistically insignificant, suggesting that GST did not enhance stock performance.

- *USA:*

➢ *Before GST:* The very weak model fit (R-squared = 0.032712) shows limited explanatory power, with GDP growth having a minor positive effect (4.480541) and inflation also being insignificant.
After GST: The explanatory power dropped further (R-squared = 0.002736). GDP growth showed a negative impact (-0.13943), and inflation remained low (0.038348), with both being statistically insignificant.

Overall Insights

➢ *Weak Impact:* In both India and the USA, macroeconomic factors like GDP growth and inflation had a weak and statistically insignificant impact on Britannia Industries Ltd.'s stock returns in both periods.

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➢ *GST's Limited Influence:* The GST implementation in India did not significantly alter the relationship between these variables and stock performance, indicating the potential need to explore additional influencing factors in both markets.

Table 3: Dabur India Limited

Statistic		INDIA		USA	
		Before GST Implementation	After GST Implementation	Before GST Implementation	After GST Implementation
		1 Jan 2013 to june 2017	July 2017 to dec 2022	1 Jan 2013 to june 2017	July 2017 to dec 2022
Multiple R		0.136657	0.09124	0.090106	0.09889
R Square		0.018675	0.008325	0.008119	0.009779
Adjusted R Square		-0.02058	-0.02366	-0.03156	-0.02216
Standard Error		5.080939	5.998228	5.108194	5.993828
Observations		53	65	53	65
ANOVA Statistic					
Regression SS		24.56471	18.72593	10.67943	21.99733
Residual SS		1290.797	2230.682	1304.682	2227.41
Total SS		1315.362	2249.408	1315.362	2249.408
F-Statistic		0.475766	0.260236	0.204637	0.306148
Significance F		0.624193	0.771707	0.815622	0.737384
Variable	Statistic				
Intercept	Coefficient	2.383694	3.562316	-2.28848	1.921167
	Standard Error	11.83589	3.510702	6.15413	1.316051
	t-Stat	0.201395	1.014702	-0.37186	1.459797
	P-value	0.841206	0.314191	0.711567	0.149395
Inflation Rate	Coefficient	23.85776	-41.9763	0.672279	-0.25158
	Standard Error	42.84826	61.22476	1.358135	0.332148
	t-Stat	0.556796	-0.68561	0.495002	-0.75743
	P-value	0.58015	0.495514	0.622767	0.451659
GDP Growth	Coefficient	-30.0026	-7.70569	1.441944	0.033391
	Standard Error	132.5664	15.99618	2.316752	0.299759
	t-Stat	-0.22632	-0.48172	0.622399	0.111392
	P-value	0.821874	0.631701	0.536508	0.911665

Interpretation:

India vs. USA: Pre- and Post-GST Implementation Analysis

India:

- *Pre-GST (Jan 2013 - June 2017):* The model shows a weak fit (R-squared = 0.0187), with GDP growth having a negative coefficient (-30.0026) and inflation's minor positive role (23.85776) being statistically insignificant.
- *Post-GST (July 2017 - Dec 2022):* Further decline in model fit (R-squared = 0.0083) indicates negligible impact from both GDP growth (-7.70569) and inflation (-41.9763), both statistically insignificant.

USA:

- *Pre-GST (Jan 2013 - June 2017):* Very weak model fit (R-squared = 0.0081) with a limited positive GDP coefficient (1.441944) and an insignificant inflation coefficient (-0.25158).
- *Post-GST (July 2017 - Dec 2022):* Minimal improvement in model fit (R-squared = 0.0098) shows GDP growth (0.033391) and inflation coefficients remaining low and insignificant.

Overall Insights:

The analysis indicates that macroeconomic factors like GDP growth and inflation had a weak and statistically insignificant impact on Dabur India Limited's stock returns in both India and the USA, both before and after GST implementation. The GST did not meaningfully change this relationship, suggesting other factors may significantly influence stock performance in both markets.

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Table 4: Emami Limited

Statistic		INDIA		USA	
		Before GST Implementation	After GST Implementation	Before GST Implementation	After GST Implementation
		1 Jan 2013 to june 2017	July 2017 to dec 2022	1 Jan 2013 to june 2017	July 2017 to dec 2022
Multiple R		0.06948	0.153112	0.153425	0.108225
R Square		0.004827	0.023443	0.023539	0.011713
Adjusted R Square		-0.03498	-0.00806	-0.01552	-0.02017
Standard Error		8.542366	11.12009	8.461675	11.18668
Observations		53	65	53	65
ANOVA Statistic					
Regression SS		17.69906	184.0481	86.30241	91.95347
Residual SS		3648.601	7666.692	3579.997	7758.786
Total SS		3666.3	7850.74	3666.3	7850.74
F-Statistic		0.121273	0.744192	0.602671	0.367397
Significance F		0.886052	0.479314	0.551275	0.694032
Variable	Statistic				
Intercept	Coefficient	7.29047	-1.73208	-8.75811	1.348271
	Standard Error	19.89917	6.508474	10.19426	2.456233
	t-Stat	0.366371	-0.26613	-0.85912	0.548918
	P-value	0.715634	0.791025	0.394374	0.585033
Inflation Rate	Coefficient	4.718193	58.322	1.655476	-0.09736
	Standard Error	72.03896	113.5043	2.249738	0.61991
	t-Stat	0.065495	0.513831	0.735853	-0.15706
	P-value	0.948041	0.609197	0.465258	0.875708
GDP Growth	Coefficient	-71.4025	-23.8936	4.198736	-0.40092
	Standard Error	222.8782	29.65525	3.837678	0.55946
	t-Stat	-0.32037	-0.80571	1.094083	-0.71661
	P-value	0.750026	0.423489	0.279162	0.476305

Interpretation:

India vs. USA: Pre- and Post-GST Implementation Analysis

India:

- *Pre-GST (Jan 2013 - June 2017):* The model shows a very weak fit (R-squared = 0.0048), indicating that only 0.48% of stock return variability can be explained. Both GDP growth (-71.4025) and inflation (4.718193) coefficients are statistically insignificant (p-values = 0.7500 and 0.9480, respectively).
- *Post-GST (July 2017 - Dec 2022):* Slight improvement in model fit (R-squared = 0.0234) but still weak. GDP growth (-23.8936) and inflation (58.322) coefficients are negative and statistically insignificant (p-values = 0.7910 and 0.6092).

USA:

- *Pre-GST (Jan 2013 - June 2017):* The model indicates a weak explanatory power (R-squared = 0.0235). GDP growth (4.198736) has a positive but statistically insignificant coefficient (p-value = 0.2792), while inflation (-0.09736) is also insignificant (p-value = 0.8757).
- *Post-GST (July 2017 - Dec 2022):* Model fit declines slightly (R-squared = 0.0117), reflecting minimal explanatory power. Both GDP growth (-0.40092) and inflation (-0.09736) coefficients remain low and statistically insignificant.

Overall Insights:

The analysis reveals that macroeconomic factors like GDP growth and inflation have a negligible and statistically insignificant impact on Emami Limited's stock returns in both India and the USA during both the pre- and post-GST periods. The implementation of GST did not significantly alter these relationships, suggesting the need for further exploration of other factors influencing stock performance in both markets.

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Table 5: Colgate-Palmolive

Statistic		INDIA		USA	
		Before GST Implementation	After GST Implementation	Before GST Implementation	After GST Implementation
		1 Jan 2013 to june 2017	July 2017 to dec 2022	1 Jan 2013 to june 2017	July 2017 to dec 2022
Multiple R		0.186628	0.062322	0.248654	0.054069
R Square		0.03483	0.003884	0.061829	0.002923
Adjusted R Square		-0.00378	-0.02825	0.024302	-0.02924
Standard Error		5.57343	6.08362	5.494924	6.086553
Observations		53	65	53	65
ANOVA Statistic					
Regression SS		56.04846	8.947308	99.49551	6.734345
Residual SS		1553.156	2294.647	1509.709	2296.86
Total SS		1609.205	2303.594	1609.205	2303.594
F-Statistic		0.90217	0.120875	1.647594	0.090891
Significance F		0.412189	0.886353	0.202792	0.913238
Variable	Statistic				
Intercept	Coefficient	18.29091	2.392804	-10.539	1.180348
	Standard Error	12.98313	3.560682	6.620045	1.336411
	t-Stat	1.408821	0.672007	-1.59198	0.883223
	P-value	0.165077	0.504076	0.117693	0.380528
Inflation Rate	Coefficient	-54.8637	-28.3153	2.360297	-0.11017
	Standard Error	47.00151	62.09637	1.460956	0.337286
	t-Stat	-1.16728	-0.45599	1.615584	-0.32663
	P-value	0.248635	0.64999	0.112478	0.745045
GDP Growth	Coefficient	-185.169	-5.71147	4.081378	-0.03853
	Standard Error	145.4159	16.22391	2.492148	0.304396
	t-Stat	-1.27337	-0.35204	1.637695	-0.12659
	P-value	0.208774	0.726002	0.107764	0.899677

Interpretation:

India vs. USA: Pre- and Post-GST Implementation Analysis

India:

- *Pre-GST (Jan 2013 - June 2017):* The model shows a weak explanatory power (R-squared = 0.0348), indicating that only 3.48% of stock return variability can be explained. Both GDP growth (-185.169) and inflation (-54.8637) coefficients are negative and statistically insignificant (p-values = 0.2088 and 0.2486).
- *Post-GST (July 2017 - Dec 2022):* The model fit declines further (R-squared = 0.0039), indicating minimal explanatory power. GDP growth (-5.71147) and inflation (-28.3153) coefficients are also negative and statistically insignificant (p-values = 0.7260 and 0.6500).

USA:

- *Pre-GST (Jan 2013 - June 2017):* The model has a slightly better fit (R-squared = 0.0618) but still reflects weak explanatory power. GDP growth (4.081378) is positive but statistically insignificant (p-value = 0.1078), while inflation (-0.11017) is also insignificant (p-value = 0.7450).
- *Post-GST (July 2017 - Dec 2022):* The model exhibits a significant decline in explanatory power (R-squared = 0.0029). Both GDP growth (-0.03853) and inflation (-0.11017) coefficients remain low and statistically insignificant (p-values = 0.8997 and 0.7450).

Overall Insights:

The analysis indicates that macroeconomic factors, such as GDP growth and inflation, have a minimal and statistically insignificant impact on Colgate-Palmolive's stock returns in both India and the USA

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during the pre- and post-GST periods. The implementation of GST in India did not significantly alter the relationships, suggesting that other variables may be influencing stock performance. Further investigation into these factors is warranted to better understand their effects on stock returns.

Table 6: Godrej Industries Limited

Statistic		INDIA		USA	
		Before GST Implementation	After GST Implementation	Before GST Implementation	After GST Implementation
		1 Jan 2013 to june 2017	July 2017 to dec 2022	1 Jan 2013 to june 2017	July 2017 to dec 2022
Multiple R		0.233722	0.028866	0.116527	0.090681
R Square		0.054626	0.000833	0.013579	0.008223
Adjusted R Square		0.016811	-0.0314	-0.02588	-0.02377
Standard Error		8.832207	10.07449	9.021914	10.03716
Observations		53	65	53	65
ANOVA Statistic					
Regression SS		225.3742	5.247778	56.02237	51.78797
Residual SS		3900.394	6292.705	4069.746	6246.165
Total SS		4125.769	6297.953	4125.769	6297.953
F-Statistic		1.44456	0.025852	0.344139	0.257026
Significance F		0.245523	0.974489	0.710496	0.774168
Variable	Statistic				
Intercept	Coefficient	26.86342	-0.91819	-7.16657	0.380299
	Standard Error	20.57435	5.896495	10.86921	2.203836
	t-Stat	1.305675	-0.15572	-0.65935	0.172562
	P-value	0.197639	0.876761	0.512699	0.863558
Inflation Rate	Coefficient	-126.021	16.40475	1.563353	-0.33548
	Standard Error	74.48323	102.8317	2.39869	0.556209
	t-Stat	-1.69194	0.15953	0.651753	-0.60315
	P-value	0.096882	0.87377	0.517545	0.548609
GDP Growth	Coefficient	-231.811	-2.25755	3.287144	0.296432
	Standard Error	230.4404	26.86682	4.091766	0.501971
	t-Stat	-1.00595	-0.08403	0.803356	0.590535
	P-value	0.319284	0.933305	0.425572	0.556978

Interpretation:

India vs. USA: Pre- and Post-GST Implementation Analysis

India:

- *Pre-GST (Jan 2013 - June 2017):* The model shows a modest explanatory power (R-squared = 0.0546), indicating that only 5.46% of stock return variability can be explained. The negative coefficients for GDP growth (-231.811) and inflation (-126.021) suggest a detrimental effect, but both are statistically insignificant (p-values = 0.3193 and 0.0969).
- *Post-GST (July 2017 - Dec 2022):* The model fit significantly declines (R-squared = 0.0008), reflecting almost no explanatory power. The coefficients for GDP growth (-2.25755) and inflation (16.40475) are near zero and statistically insignificant (p-values = 0.9333 and 0.8738).

USA:

- *Pre-GST (Jan 2013 - June 2017):* The model has a weak explanatory power (R-squared = 0.0136). The GDP growth coefficient (3.287144) is positive but statistically insignificant (p-value = 0.4256), while inflation (-0.33548) is also insignificant (p-value = 0.5486).
- *Post-GST (July 2017 - Dec 2022):* The model exhibits very weak explanatory power (R-squared = 0.0082). Both GDP growth (0.296432) and inflation coefficients remain low and statistically insignificant (p-values = 0.5570 and 0.8636).

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Overall Insights:

The analysis indicates that macroeconomic factors, particularly GDP growth and inflation, have a minimal and statistically insignificant impact on Godrej Industries Limited's stock returns in both India and the USA during the pre- and post-GST periods. The implementation of GST in India did not lead to any meaningful changes in these relationships, suggesting that other factors might be influencing stock performance. Further research is necessary to explore these other factors and their effects on stock returns.

Table 7: Hindustan Unilever Limited

Statistic		INDIA		USA	
		Before GST Implementation	After GST Implementation	Before GST Implementation	After GST Implementation
		1 Jan 2013 to june 2017	July 2017 to dec 2022	1 Jan 2013 to june 2017	July 2017 to dec 2022
Multiple R		0.205565	0.077578	0.206001	0.087799
R Square		0.042257	0.006018	0.042436	0.007709
Adjusted R Square		0.003947	-0.02605	0.004134	-0.0243
Standard Error		6.421764	6.378184	6.421163	6.372758
Observations		53	65	53	65
ANOVA Statistic					
Regression SS		90.9759	15.27173	91.36234	19.56089
Residual SS		2061.953	2522.236	2061.567	2517.947
Total SS		2152.929	2537.508	2152.929	2537.508
F-Statistic		1.103031	0.1877	1.107924	0.240826
Significance F		0.339803	0.829333	0.338214	0.78671
Veriable	Statistic				
Intercept	Coefficient	23.53601	3.426722	-9.0764	2.155178
	Standard Error	14.9593	3.733087	7.735938	1.399252
	t-Stat	1.573337	0.917933	-1.17328	1.540236
	P-value	0.121948	0.362211	0.246244	0.128592
Inflation Rate	Coefficient	-52.2795	-31.9357	2.366899	-0.1401
	Standard Error	54.15563	65.10302	1.707219	0.353146
	t-Stat	-0.96536	-0.49054	1.386406	-0.39673
	P-value	0.339013	0.625483	0.171774	0.692929
GDP Growth	Coefficient	-248.8	-9.07677	3.702968	-0.11856
	Standard Error	167.5497	17.00946	2.912231	0.31871
	t-Stat	-1.48493	-0.53363	1.271523	-0.37199
	P-value	0.143839	0.595505	0.209426	0.711172

Interpretation:

India vs. USA: Pre- and Post-GST Implementation Analysis

India:

- *Pre-GST (Jan 2013 - June 2017):* The model shows a modest explanatory power (R-squared = 0.0423), indicating that only 4.23% of stock return variability can be explained. The negative coefficients for both GDP growth (-248.8) and inflation (-52.2795) suggest a detrimental effect on stock returns, but these effects are not statistically significant (p-values = 0.1438 and 0.3390).
- *Post-GST (July 2017 - Dec 2022):* The model fit declines further (R-squared = 0.0060), reflecting very weak explanatory power. The coefficients for GDP growth (-9.07677) and inflation (-31.9357) are near zero and statistically insignificant (p-values = 0.5955 and 0.6255).

USA:

- *Pre-GST (Jan 2013 - June 2017):* The model has a weak explanatory power (R-squared = 0.0424). The GDP growth coefficient (3.702968) is positive but statistically insignificant (p-value = 0.2094), while inflation (-0.1401) is also insignificant (p-value = 0.6929).

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- *Post-GST (July 2017 - Dec 2022):* The model exhibits very weak explanatory power (R-squared = 0.0077). Both GDP growth (-0.11856) and inflation coefficients remain low and statistically insignificant (p-values = 0.7112 and 0.7867).

Overall Insights:

The analysis indicates that macroeconomic factors, particularly GDP growth and inflation, have minimal and statistically insignificant impacts on Hindustan Unilever Limited's stock returns in both India and the USA during the pre- and post-GST periods. The implementation of GST in India did not lead to meaningful changes in these relationships, suggesting that other factors may be influencing stock performance. Further research is warranted to identify and analyze these additional factors.

Table 8: Nestle India Limited

Statistic		INDIA		USA	
		Before GST Implementation	After GST Implementation	Before GST Implementation	After GST Implementation
		1 Jan 2013 to june 2017	July 2017 to dec 2022	1 Jan 2013 to june 2017	July 2017 to dec 2022
Multiple R		0.091966	0.20216	0.14211	0.184397
R Square		0.008458	0.040869	0.020195	0.034002
Adjusted R Square		-0.0312	0.009929	-0.019	0.002841
Standard Error		6.5353	5.417653	6.496503	5.437012
Observations		53	65	53	65
ANOVA Statistic					
Regression SS		18.21573	77.54052	43.49491	64.51224
Residual SS		2135.507	1819.76	2110.228	1832.788
Total SS		2153.723	1897.301	2153.723	1897.301
F-Statistic		0.213248	1.320919	0.515287	1.091168
Significance F		0.808686	0.274295	0.600467	0.342185
Variable	Statistic				
Intercept	Coefficient	9.048184	6.826116	-2.36092	3.169304
	Standard Error	15.22378	3.170898	7.826705	1.193792
	t-Stat	0.594346	2.152739	-0.30165	2.65482
	P-value	0.554961	0.035238	0.764171	0.010071
Inflation Rate	Coefficient	-10.5078	-87.3816	1.579313	-0.43504
	Standard Error	55.11309	55.29875	1.72725	0.301292
	t-Stat	-0.19066	-1.58017	0.914351	-1.4439
	P-value	0.849565	0.119156	0.364921	0.153801
GDP Growth	Coefficient	-101.083	-14.2315	0.599781	0.073354
	Standard Error	170.512	14.4479	2.946401	0.271912
	t-Stat	-0.59282	-0.98502	0.203564	0.26977
	P-value	0.555973	0.328441	0.83952	0.788233

Interpretation:

India vs. USA: Pre- and Post-GST Implementation Analysis

India:

- *Pre-GST (Jan 2013 - June 2017):* The model shows a very low explanatory power (R-squared = 0.0085), indicating that only 0.85% of the variability in stock returns can be explained by the model. The negative coefficient for GDP growth (-101.083) and inflation (-10.5078) suggests adverse impacts, but neither is statistically significant (p-values = 0.5560 and 0.8496).
- *Post-GST (July 2017 - Dec 2022):* There is a slight increase in explanatory power (R-squared = 0.0409), with GDP growth (-14.2315) and inflation (-87.3816) coefficients indicating negative impacts, especially inflation. The GDP growth coefficient

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shows a decrease, but the inflation effect is significant (p-value = 0.0352).

USA:

- *Pre-GST (Jan 2013 - June 2017):* The model has a low explanatory power (R-squared = 0.0202). The coefficients for GDP growth (0.599781) and inflation (1.579313) are positive but statistically insignificant (p-values = 0.8395 and 0.3649).
- *Post-GST (July 2017 - Dec 2022):* The model shows a marginally improved fit (R-squared = 0.0340), with GDP growth (0.073354) and inflation (-0.43504) coefficients remaining statistically insignificant (p-values = 0.7882 and 0.1538).

Overall Insights:

The analysis suggests that macroeconomic factors, particularly GDP growth and inflation, have minimal impacts on Nestlé India Limited's stock returns in both India and the USA during the specified periods. Post-GST, inflation in India shows a significant negative impact, indicating that it may warrant further investigation. Overall, the explanatory power of the models is low, suggesting that additional factors may influence stock performance. Further research is needed to explore these factors more comprehensively.

b) Key Findings

1. *Minimal Impact of GST:* The research indicates that the implementation of GST has a negligible effect on stock returns in both India and the USA. Although some individual companies like ITC Limited exhibited slight improvements, these changes are not statistically significant, suggesting that investors should not heavily rely on GST as a primary factor influencing stock performance.
2. *Limited Role of Macroeconomic Indicators:* Traditional macroeconomic indicators, particularly GDP growth and inflation, show weak explanatory power regarding stock returns, as evidenced by low R-squared values and statistically insignificant coefficients. This finding emphasizes that stock performance assessments should not be based solely on macroeconomic metrics, necessitating a focus on industry-specific dynamics and broader market conditions.
3. *Call for a Holistic Approach:* Investors and analysts should adopt a multi-faceted approach to stock evaluation, considering various factors such as technological advancements, regulatory changes, and shifts in consumer behavior. This comprehensive perspective can enhance investment strategies and improve risk management.
4. *Implications for Future Research:* The findings call for further research into the complex interplay of factors affecting stock performance. Future studies should focus on sector-specific characteristics and external economic influences that contribute to stock volatility, especially in the context of evolving regulatory frameworks like GST.
5. *Policy Insights:* For policymakers, the limited impact of GST on stock returns highlights the necessity for a nuanced understanding of how tax policies affect different sectors. Continuous dialogue and research are essential for informing future tax reforms, ensuring they consider their multifaceted implications on economic performance.

c) Suggestion

Given the findings, it is suggested that investors, researchers, and policymakers adopt a more integrated approach to stock performance analysis. This approach should encompass a wide range of factors beyond GST and traditional macroeconomic indicators, emphasizing the importance of industry dynamics, technological trends, and consumer behavior shifts. By doing so, stakeholders can make more informed decisions that reflect the complexities of the market.

V. Conclusion

In conclusion, while the implementation of GST has reshaped the macroeconomic landscape, its direct impact on stock returns remains marginal and statistically insignificant. This research advocates for a shift in perspective among investors, researchers, and policymakers, urging them to consider a broader array of economic, industry, and external factors in their evaluations of stock performance. Such an integrated approach will not only enhance understanding of stock market dynamics but also lead to more strategic investment decisions and effective policy formulation in an increasingly complex economic environment.

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