A Study on Risk & Return Analysis of Selected FMCG Companies in India

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ABSTRACT

This research paper analyses the risk and return dynamics within India's Fast-Moving Consumer Goods (FMCG) sector, focusing on five major companies - Hindustan Unilever Limited (HUL), Nestle India, ITC, Britannia Industries Limited, and Godrej Consumer Products Limited. The study evaluates the risk-adjustedreturns, financial ratios, and investment prospects of these companies from 2017 to 2022, providing insightsfor investors seeking diversification opportunities in this essential sector. The findings reveal that the benchmark S&P BSE Fast Moving Consumer Goods index demonstrated an expected return of 12.5% and amoderate risk level of 11.45% during the study period. However, the risk-adjusted ratios of the five companies fluctuated across different years, with some periods of underperformance relative to risk. The financial ratios analysis indicated sound financial health for most companies, with minimal debt levels, adequate liquidity, and robust profitability ratios. From an investment perspective, the FMCG sector in Indiapresents opportunities for investors, with HUL and Nestle India emerging as attractive options based on consistent risk-adjusted performance and strong financial metrics.

KEY WORDS: - Risk and return analysis, FMCG sector, Stock market analysis, financial ratios, Investmentdecision

INTRODUCTON

The Fast-Moving Consumer Goods (FMCG) sector plays a vital role in the Indian economy, catering to the daily needs of consumers. This sector encompasses a wide range of products, including food and beverages, personal care items, household products, and more. Given its essential nature, the FMCG sector has remainedrelatively stable even during economic downturns, making it an attractive investment option. This research paper aims to analyze the risk and return dynamics of major FMCG companies in India, providing insights forinvestors seeking diversification opportunities within this sector.

LITERATURE REVIEW

The business valuation provides the facts and figures to arrive at the actual value or worth of the business. The valuation should be performed annually to unveil the company's growth. The benefits of getting a valuation done were better knowledge of company assets, understanding of the resale value of the company,and knowing its worth during mergers and acquisitions the value of a firm depends on forecasted growthtrends. The growth rate was derived from various elements such as product mix, consumer spending, currentprice level etc.

Here I have used charts and some statistical formulas to determine the future value of stocks and the risk associated with a particular script and the return of the script.

Gamal Jimmy, Mohammad Aljafari, Ahmed Juma (Jan 2006). Methods of corporate valuations that include the discounted cash flow models, the Capital Asset Pricing Model (CAPM), and Arbitrage Pricing Models (APM), Tobin's q, sales accelerator, and cash flow models of investment, and economic base performance measures such as

Economic Rent and Excess Market Value. **K. Rajagopalan (July 2019)** For calculating the current net-worth of the company researcher used APV model for the study.

Shubhangi Anil Patil, Vijay Jadhav (March 2019). The FMCG sector in the last few years has shown moregrowth in rural areas as compared to urban areas. It is projected that the FMCG sector will continue to growby 13-14 percent in the next 5-10 years and is likely to become a $220-240 billion industry by 2025.

Abhishek Ramesh Palav (2014). The evaluation of a company's fundamentals, financial statement analysis,financial modelling, and scenario creation for equity recommendations are all part of equity research. Equity research departments serve both the sell-side and the buy- side of the market.

Dev Shah, Haruna Isah, Farhana H. Zulkernine (May 2019). Application of machine learning techniquesand other algorithms for stock price analysis and forecasting is an area that shows great promise.

Santhapalii Gautami (May 2018). Risk may be defined as the chance of variations in actual return. Returnis defined as the gain in the value of investment. The return on an investment portfolio helps an investor to evaluate the financial performance of the investment.

M. Němcová (September 2017). While there are many deviations from the fair values suggested by the model these are small in magnitude when compared with the potential transaction costs implying the contracts are efficiently priced. It is confirmed that there is a cointegrating relationship between futures and spot indexvalues, however, given the regression analysis results the prices do not entirely follow the model design.

Ms. Mary Cherayan (2014). Department of Management Studies Kolkata Investment decision is a part of our economic life. Everybody takes such decision at different context. Investment decisions are to be made in a systematic manner with two approaches such as technical and fundamental analysis The objectives of the study are to conduct Fundamental analysis for BSE listed FMCG The study cover fundamental analysis on selected three companies from the Indian FMCG sector on the basis of share volume and market capitalization. The study was carried on for a period of 21 days.

Shubhangi Anil Patil1, Viraj Vijay Jadhav (March 2019.) A Fast-Moving Consumer Goods (FMCG) sector is an escalating sector among all other growing sectors in India. It is the fourth largest sector in India.Changing lifestyles, growing awareness and easier access are the major drivers for the growth of the FMCGsector. The government's growing focus on agriculture, health care, infrastructure and employment in the union budget is expected to directly influence the FMCG sector. FMCG sector consists of a huge number ofcompanies servicing the society by proving various kinds of goods and services which fulfill the growing needs of the society. The FMCG sector in the last few years has shown more growth in rural areas as compared to urban areas. It is projected that the FMCG sector will continue to grow by 13-14 percent in thenext 5-10 years and is likely to become a $220-240 billion industry by 2025.

Dr. Somnath Das (2020). In which company to invest or purchase shares is an important question for everyinvestor. Fundamental analysis can help such investor to select company/s to invest. In this study our focus is on FMCG sector. For analysis seven leading FMCG companies have been selected. Such companies are Britannia, Dabur, Godrej, HUL, ITC, Marico and Nestle. Different profitability ratios like Net Profit Margin,Total Assets Turnover Ratio, Operating Profit Margin, Earnings per share, Dividend per share. Dividend Pay-out ratio, Return on Capital

Employed, Return on Equity have been used in this study. Du Pont 5 points analysis is being used to calculate ROE for measuring joint effect of ratios. From the study we found that Nestle. ITC and HUL are profitable sectors where investor can invest. After considering the joint effect of ratios we found that Godrej is the risky profitable concern of the selected companies. Though there is significant difference in variables of the selected companies**.**

Unnati Parmar (2019). India is one of the world's fastest growing large economies. The International Monetary Fund has projected that India's GDP will grow by 7.4% during the year 2016-17. This fastest growing country has converted into a large market opportunity for FMCG players with a very large population and rapidly evolving consumer preferences. India represents world's 12 largest consuming country in 2010. Such a large market means immense opportunities on one hand and various challenges on the otherhand. FMCG sector is one of the important contributors of the Indian economy. This sector has shown an extraordinary growth over past few years, in fact it witnessed growth during recession period alse That is wing the researcher has aim to find out its liquidity position of the businesses For this reason, the researcherhad taken top ten companies of Indian FMCG sector on the basis of market capitalization from BSE index type 100 companies at the end of 2016. The study period is of ten years from 2007-08 to 2016-17 Here, the archer has used secondary data for her calculations and applied one-way ANOVA test for Hypothesis testing.The researcher had selected seven Liquidity Ratios for her research work on the basis of simple random sampling method. Here, the result is rejecting null hypothesis (Ho) and accepting alternative Hypothesis (H)Thus, can say that, in relation to Liquidity Ratios, there is significant difference between selected FMCG companies during the study period.

Shaini Naveen and T. Mallikaryunappa (2016) have made study on Risk and Return analysis of banking sector taking NIFTY bank index and 5 years secondary data have been collected from 2011 to 2015 data havebeen analyzed using mean, standard deviation and correlation. The study compares the performance of 12 listed banks in NSE. Based on the analysis, it is found that all the banks have positive beta values and Indusland bank has earned highest return whereas bank of India has earned lowest return when analyzed.

Shobha CV and Navaneeth K (2017) have scrutinized Risk and Return analysis of selected stocks on NSE,with the objective to compare selected public bank and private sector bank. Secondary data have been used for this study. Average return, standard deviation and capital asset pricing model have been used for analysisfor the period 1January 2010 to 31 December 2010. It is concluded that all 5 bank showed arc effect.

Muthu Gopala Krishnan and Amal Vijay AK (2018) have made study on Risk and Return analysis of pharmaceutical industries stock in India, with objective to compare the risk and return of selected companieslisted in NSE. The study is based on secondary data, stocks selected for this study were analyzed using mean,standard deviation and coefficient of variation for period of 5 years from 2012-13 to 2016-17. It is concluded sun pharmaceutical gives higher return and risk with high volatility of return.

RESEARCH GAP

The Fast-Moving Consumer Goods (FMCG) industry serves as a vital economic backbone for any country. It not only generates substantial employment opportunities but also operates with a keen focus on fulfilling the evolving needs and demands of consumers. Due to the essential natureof its products, the FMCG sector remains stable even during economic fluctuations, making it anattractive investment option for investors. Moreover, it offers a significant area for diversificationwithin investment portfolios. Hence, we have chosen to study the FMCG sector and analyze its risk and returns.

OBJECTIVES

- To analyze the risk & return of the selected FMCG companies of India.
- To compare risk & return of the selected FMCG Companies.
- To compare risk & Return with its Benchmark (BSE).

HYPOTHESES OF THE STUDY

The following hypotheses have been formulated and tested to draw the conclusions:H0= Price Can be affected by external factors
H1= Price cannot be affected by external factors
H0=Return Is significant with Risk
H1= Return is not significant with Risk

RESEARCH METHODOLOGY

This empirical study intends to find the true value of select FMCG companies using from past data. In these value-generating stocks, investors can invest with less risk and generate wealth through better growth and return on investment.

DATA: - data used for this research is secondary.

RESEARCH DESIGN

Descriptive research Design has been followed in this study.

SAMPLE DESIGN

Non probability convenience Sampling design is followed in this study as only 5 FMCGcompanies have been taken for study.

SOURCE OF DATA

The data used for this study were secondary. The stock price data were collected from the Bombay Stock Exchange (BSE) website. The data required for setting up assumptions were gathered from the recent annual reports, earnings call transcripts, investor presentations, and equity research reports.

SAMPLING SIZE

The companies chosen for this study were from the FMCG Industry. In this segment, the top five publicly traded companies based on market capitalization were chosen; HUL, Nestle India,ITC, Britannia Industries Limited and Godrej Consumer Products Limited.

PERIOD OF THE STUDY

The financial metrics were collected from the BSE from 2017-2022, and the risk and returnanalysis is carried out for 5 years.

DATA ANALYSIS & INTERPRETATION

This Study Compared the companies with the benchmark (S&P BSE FAST MOVING CONSUMRGOODS).

Year	Open	Close	Ri	Ri-ER	Square (Ri-ER)
2016	7880.85	8130.87			
2017	8126.7	10695.18	31.5	19.0	362.1
2018	10697.35	11829.07	10.6	-1.9	3.6
2019	11879.07	11405.88	-3.6	-16.1	258.8
2020	11450.53	12608.96	10.5	-2.0	3.8
2021	12650.07	13784.58	9.3	-3.2	10.1
2022	13820.82	16075.3	16.6	4.1	16.9
		TOTAL	75.1		
		ER	12.5	Σ(Ri-ER) Square	655.4
				VARIANCE	131.078

				σ (Risk)	**11.44893864**

The S&P BSE Fast Moving Consumer Goods index has shown a consistent upward trend, with anexpected return of 12.5% and a risk of 11.45% over the last five years. The index started at 5000 in 2016 and climbed steadily, reaching a value close to 20,000 by 2022. The overall increase in value over the years is attributed to the consistent upward trend of the index. The risk is 11.45%. The data range from 2016 to 2022 shows a positive growth in the index.

HINDUSTAN UNILEVER LIMITED (HUL)

Date	**Open**	**Close**	**Ri**	**Ri-ER**	**Square (Ri-ER)**
2016	859.55	826.3			
2017	826.25	1368.1	65.5694058	42.9	1844.06098
2018	1355	1818.05	32.8886777	10.3	105.3046024
2019	1821	1923.25	5.78641952	-16.8	283.6009291
2020	1931	2393.55	24.4533992	1.8	3.336191916
2021	2404	2359.75	-1.4121284	-24.0	577.8736689
2022	2379	2559.75	8.4754741	-14.2	200.2621376
		TOTAL	135.761248		
		ER	22.6268746	Σ(Ri-ER) Square	3014.43851
					602.8877021
				σ (Risk)	**24.55377165**

OBSERVATIONS

- HUL's stock price has experienced fluctuations over the years.
- In 2016, the stock opened at ₹859.55 and closed at ₹826.3.
- The highest closing price was in 2022 at ₹2559.75.
- The lowest closing price was in 2016 at ₹826.3.
- The total return (Ri) over the entire period is approximately 135.76%.

- Excess return is calculated by subtracting the risk-free rate from the actual return.
- The average excess return (Ri-ER) is approximately 22.63%.
- The standard deviation (σ) of returns (risk) is approximately 24.55%.
- The sum of squared excess returns (Σ(Ri-ER)²) is 3014.44.

NESTLE

Date	Open	Close	Ri	Ri-ER	Square (Ri-ER)
2016	5850	6029.8			
2017	6030	7845	30.1038177	7.377689844	54.43030744
2018	7880	11107.25	41.5838113	18.85768348	355.6122264
2019	11112	14789.95	33.1558216	10.42969379	108.7785125
2020	14819.95	18392.35	24.3570803	1.630952454	2.660005906
2021	18380	19708.55	7.15623615	-15.56989171	242.4215278
2022	19601.05	19598.8	-0.5568649	-23.28299277	542.0977526
		TOTAL	136.356767	Σ(Ri-ER) Square	1306.000333
		ER	22.7261279		
					261.2000665
				σ (Risk)	**16.16168514**

OBSERVATIONS

- Nestle stock price has experienced fluctuations over the years.
- The highest closing price was in 2022 at ₹199598.8.
- The lowest closing price was in 2016 at ₹6029.8.

- The total return (Ri) over the entire period is approximately 136.67%.
- The average excess return (Ri-ER) is approximately 22.72%.
- The standard deviation (σ) of returns (risk) is approximately 16.16%.
- The sum of squared excess returns (Σ(Ri-ER)²) is 1306.00

ITC

Date	Open	Close	Ri	Ri-ER	Square(Ri-ER)
2016	218.38	240.95			
2017	241.95	263.1	9.19277858	1.69197737	2.86278742
2018	263.3	281.65	7.05055112	-0.450250094	0.202725147
2019	283.75	237.65	-15.622226	-23.12302738	534.6743953
2020	238.9	209	-12.055544	-19.55634508	382.450633
2021	210	218	4.3062201	-3.194581119	10.20534853
2022	218	331.65	52.1330275	44.63222631	1992.035625
		TOTAL	45.0048073	Σ(Ri-ER) Square	2922.431515
		ER	7.50080122		
					584.4863029
				σ (Risk)	**24.17615153**

OBSERVATIONS

- ITC stock price has experienced fluctuations over the years.
- The highest closing price was in 2022 at ₹331.65.

- The lowest closing price was in 2016 at ₹240.95.
- The total return (Ri) over the entire period is approximately 45.00%.
- The average excess return (Ri-ER) is approximately 7.50%.
- The standard deviation (σ) of returns (risk) is approximately 24.18%.
- The sum of squared excess returns (Σ(Ri-ER)²) is 2922.43.

BRITANNIA

Date	Open	Close	Ri	Ri-ER	Square(Ri-ER)
2016	1481.56	1441.1			
2017	1448.86	2357.88	63.6166817	41.72732363	1741.169537
2018	2357.5	3118.4	32.254398	10.36503995	107.4340531
2019	3129.9	3027.26	-2.9226526	-24.81201071	615.6358756
2020	3064.5	3575.1	18.0968929	-3.792465171	14.38279208
2021	3580	3606.7	0.88389136	-21.00546671	441.2296318
2022	3606.7	4306.65	19.4069371	-2.482420982	6.162413931
		TOTAL	131.336148	Σ(Ri-ER) Square	2926.014304
		ER	21.8893581		
					585.2028608
				σ (Risk)	**24.19096651**

OBSERVATIONS

- Britannia stock price has experienced fluctuations over the years.
- The highest closing price was in 2022 at ₹4306.65.

- The lowest closing price was in 2016 at ₹1481.56.
- The total return (Ri) over the entire period is approximately 131.34%.
- The average excess return (Ri-ER) is approximately 21.89%.
- The standard deviation (σ) of returns (risk) is approximately 24.19%.
- The sum of squared excess returns ($\Sigma(Ri-ER)^2$) is 2926.01.

GODREJ

Date	Open	Close	Ri	Ri-ER	Square (Ri-ER)
2016	439.67	503.93			
2017	505.8	666.17	32.1949477	20.91448564	437.4157094
2018	674.67	813.65	22.1384932	10.8580311	117.8968394
2019	815.75	684.8	-15.836047	-27.11650952	735.3050883
2020	689	740.15	8.08265187	-3.197810206	10.22599011
2021	741	968.45	30.845099	19.56463689	382.7750167
2022	974.95	874.1	-9.7423718	-21.02283391	441.9595455
		TOTAL	67.6827725	Σ(Ri-ER) Square	2125.578189
		ER	11.2804621		
					425.1156379
				σ (Risk)	**20.61833257**

OBSERVATIONS

- Godrej stock price has experienced fluctuations over the years.

- The highest closing price was in 2021 at ₹968.45.
- The lowest closing price was in 2016 at ₹439.67.
- The total return (Ri) over the entire period is approximately 67.68%.
- The average excess return (Ri-ER) is approximately 11.28%.
- The standard deviation (σ) of returns (risk) is approximately 20.62%.
- The sum of squared excess returns (Σ(Ri-ER) ²) is 2125.58.

RATIO ANALYSIS

HUL

	HUL	2022	2021	2020	2019	2018	2017
RISK RATIOS	Total Debt/Equity (X)	0	0	0	0.01	0	0.04
	Current Ratio (X)	1.34	1.26	1.31	1.36	1.29	1.3
	Quick Ratio (X)	0.98	0.95	1.02	1.07	1.02	0.97
	Interest Coverage Ratios	123.73	93.69	80.43	268.64	283.19	179.34
RETURN RATIOS	Return on Equity (%)	18.08	16.76	83.89	78.8	74.02	69.18
	Return on Assets (%)	12.64	11.67	34.37	33.78	30.53	30.43

The company's risk ratios show a debt-free capital structure, with a current ratio above 1, indicatingsufficient current assets to cover liabilities. The quick ratio is close to 1, indicating a strong liquid position. The interest coverage ratios were high in 2018 and 2017, indicating a low interest burden.The company's return ratios are strong, with a return on equity (ROE) ranging from 70% to 83.89%,and a return on assets (ROA) consistently above 30%, indicating excellent asset utilization.

NESTLE

	NESTLE	2022	2021	2020	2019	2018	2017
	Total Debt/Equity (X)	0.01	0.02	0.02	0.03	0.01	0.01

RISK RATIOS	**Current Ratio (X)**	1.13	1.05	1.68	1.74	2.55	2.64
	Quick Ratio (X)	0.51	0.45	1.11	1.16	2.03	2.03
	Interest Coverage Ratios	24.67	18.45	20.39	21.71	22.7	21.01
RETURN RATIOS	**Return on Equity (%)**	97.2	102.89	103.12	102.58	43.74	35.81
	Return on Assets (%)	26.62	26.12	26.36	27.44	19.86	16.64

The company's financial picture is a mixed bag. While they boast impressive profitability with ROE exceeding 97% and ROA around 26%, some warning signs emerge in their liquidity ratios. The debt level remains low, with a debt-to-equity ratio below 0.03. However, the current ratio andquick ratio have dropped significantly, raising concerns about their ability to meet short-term obligations. This trend needs close monitoring to ensure they maintain sufficient cash flow. The strong interest coverage ratios are a positive sign, indicating they can comfortably managetheir debt burden.

ITC

	ITC	2022	2021	2020	2019	2018	2017
RISK RATIOS	**Total Debt/Equity (X)**	0	0	0	0	0	0
	Current Ratio (X)	2.7	3.13	4.02	3.07	2.77	3.59
	Quick Ratio (X)	1.82	2.2	3.13	2.28	1.95	2.44
	Interest Coverage Ratios	571.51	403.54	369.66	422.36	189.95	660.27
RETURN RATIOS	**Return on Equity (%)**	24.52	22.08	23.63	21.5	21.83	22.49
	Return on Assets (%)	20.05	18.2	20.11	17.85	17.99	18.81

This company appears to be in an enviable financial position. Their complete lack of debt (debt- to-equity ratio of 0) eliminates financial risk associated with borrowing. Furthermore, their liquidity ratios are exceptional, with both the current ratio and quick ratio consistently exceedinghealthy benchmarks, indicating they have ample resources to cover short-term liabilities. The interest coverage ratios further solidify their financial strength, suggesting their minimal debt hasa negligible impact on their ability to meet financial obligations. While their profitability ratios (ROE and ROA) are steady and respectable, they are not overly high, suggesting a more conservative and sustainable approach to growth. Overall, this company prioritizes financial security with a strong foundation for future success.

BRITANNIA

	BRITANNIA	2022	2021	2020	2019	2018	2017
RISK RATIOS	Total Debt/Equity (X)	0.91	0.54	0.28	0	0	0
	Current Ratio (X)	0.93	1.21	1.45	1.94	2.03	1.84
	Quick Ratio (X)	0.61	0.91	1.16	1.49	1.59	1.29
	Interest Coverage Ratios	16.8	23.66	25.2	195.6	201.05	240.27
RETURN RATIOS	Return on Equity (%)	66.72	53.02	34.72	27.78	29.29	32.67
	Return on Assets (%)	22.89	23.73	20.46	19.85	20.48	22.82

The company's risk ratios show a gradual increase in financial leverage, but still manageable. The current ratio has declined from 2 to 0.93, indicating liquidity concerns. The quick ratio has decreased from 1.5 to 0.61, exacerbating liquidity risks. The interest coverage ratios remain high, suggesting a manageable interest burden. The return ratios are strong, with a return on equity (ROE)of 27.78% to 66.72% and a return on assets (ROA) of 20-24%.

GODREJ

	GODREJ	2022	2021	2020	2019	2018	2017
RISK RATIOS	Total Debt/Equity (X)	0	0	0.06	0	0.4	0.63
	Current Ratio (X)	2.62	1.55	1.2	1.12	1.24	1.31
	Quick Ratio (X)	1.78	0.98	0.81	0.74	0.86	0.89
	Interest Coverage Ratios	22.56	19.39	9.47	9.17	12.56	12.61
RETURN RATIOS	Return on Equity (%)	18.83	19.25	23.01	35.62	26.11	24.59
	Return on Assets (%)	16.65	15.9	16.99	26.33	11.7	10

The company's risk ratios show a decline in total debt/equity, improved current ratio, and increasedquick ratio, indicating a strong liquid position. The interest coverage ratios are relatively low but sufficient, indicating a manageable interest burden. The return on equity (ROE) has fluctuated significantly, from 24.5% in 2017 to 35.62% in 2019, and currently stands at 18.83% in 2022. The

return on assets (ROA) is more stable, around 16-26%, indicating consistent asset utilization andprofitability.

BETA	
HINDUNILVR	0.452
Nestle	0.557
ITC	0.869
Britannia	0.459
GODREJ	0.733

RISK FREE RATE OF RETURN IN PERCENTGE	
2017	6.5
2018	6.75
2019	6.25
2020	4.25
2021	4
2022	5.75

HUL

YEAR	Ri	RISK FREE RATE OF RETURN	SHARPE RATIO	TREYNORS RATIO	JENSEN RATIO
2017	65.57	6.5	2.41	130.68	56.36
2018	32.89	6.75	1.06	57.83	23.54
2019	5.79	6.25	-0.02	-1.03	-3.29
2020	24.45	4.25	0.82	44.70	16.47
2021	-1.41	4	-0.22	-11.97	-9.25
2022	8.48	5.75	0.11	6.03	-0.33
SD	**24.55**				
BETA	**0.452**				
Rm	**12.5**				

The analysis of HUL stock's risk-adjusted performance reveals a mixed picture. While the stock outperformed the risk it carried in 2017 (positive Sharpe and Treynor ratios, high Jensen's ratio),its performance fell short in 2021 (negative Sharpe and Treynor ratios, negative Jensen's ratio). 2022 showed a return to some positive performance, with a positive Treynor ratio but a slightly negative Jensen's ratio, indicating a lower risk-adjusted return compared to its peak years. This volatility highlights the importance of tracking these ratios over time to understand how the stock's risk and return profile changes.

NESTLE

YEAR	Ri	RISK FREE RATE OF RETURN	SHARPE RATIO	TREYNORS RATIO	JENSEN RATIO
2017	9.19	6.5	0.11	3.10	-2.52
2018	7.05	6.75	0.01	0.35	-4.70
2019	-15.62	6.25	-0.90	-25.17	-27.30
2020	-12.05	4.25	-0.67	-18.76	-23.47
2021	4.3	4	0.01	0.35	-7.09
2022	52.13	5.75	1.92	53.37	40.51
SD	24.17				
BETA	**0.869**				
Rm	**12.5**				

Nestle's stock performance also shows a trend of declining risk-adjusted returns. In 2018, the positive Sharpe and Treynor ratios along with a high Jensen's ratio indicated strong outperformancerelative to risk. However, by 2022, the picture turned negative. The Sharpe ratio dipped below zero,and both Treynor's ratio and Jensen's ratio became negative, signifying underperformance comparedto the level of risk undertaken. While some risk-adjusted performance remains, as seen in the positive Treynor ratio for 2022, it's significantly lower than the peak years. This volatility emphasizes the importance of monitoring these metrics to stay informed about Nestle's evolving risk-return profile.

ITC

YEAR	Ri	RISK FREE RATE OF RETURN	SHARPE RATIO	TREYNORS RATIO	JENSEN RATIO
2017	30.1	6.5	1.46	42.37	20.26
2018	41.58	6.75	2.16	62.53	31.63
2019	33.15	6.25	1.66	48.29	23.42
2020	24.35	4.25	1.24	36.09	15.50
2021	7.15	4	0.19	5.66	-1.580
2022	-0.55	5.75	-0.39	-11.31	-10.06
SD	16.1616				
BETA	**0.557**				
Rm	**12.5**				

ITC's stock exhibited a turnaround in risk-adjusted performance in 2022. Before 2022, the Sharpe ratio remained negative, and both Treynor's and Jensen's ratios indicated underperformance relative to the risk taken. However, in 2022, the positive Sharpe ratio and strong Treynor's ratio signalled a positive risk-return relationship. Similarly, the high Jensen's ratio in 2022 suggested significant outperformance compared to previous years. While not necessarily exceeding peak performance historically, these metrics undeniably show a positive shift in ITC's risk-adjusted returns in 2022.

BRITANNIA

YEAR	Ri	RISK FREE RATE OF RETURN	SHARPE RATIO	TREYNORS RATIO	JENSEN RATIO
2017	63.61	6.5	2.36	124.42	54.36
2018	32.25	6.75	1.05	55.56	22.86
2019	-2.92	6.25	-0.38	-19.98	-12.04
2020	18.09	4.25	0.57	30.15	10.05
2021	0.88	4	-0.13	-6.80	-7.02
2022	19.4	5.75	0.56	29.74	10.55
SD	24.19				
BETA	**0.459**				
Rm	**12.5**				

Britannia's stock has had an inconsistent risk-adjusted performance history. The high Sharpe ratio in 2017 and its return to positive territory in 2022 indicate periods of strong performance relative torisk. However, the negative Sharpe ratio in 2019 suggests a year of underperformance. Similarly, the Treynor's ratio and Jensen's ratio reflect this inconsistency, with highs in 2017 and lows in 2019.While 2022's positive Jensen's ratio shows some outperformance compared to 2019, it falls short ofthe peak performance observed in 2017. Overall, Britannia's risk-adjusted performance appears to be more volatile compared to the other companies analyzed.

YEAR	Ri	RISK FREE RATE OF RETURN	SHARPE RATIO	TREYNORS RATIO	JENSEN RATIO
2017	32.19	6.5	1.25	35.05	21.29
2018	22.13	6.75	0.75	20.98	11.17
2019	-15.83	6.25	-1.07	-30.12	-26.66
2020	8.08	4.25	0.19	5.23	-2.22
2021	30.84	4	1.30	36.62	20.61
2022	-9.74	5.75	-0.75	-21.13	-20.44
SD	20.61				
BETA	**0.733**				
Rm	**12.5**				

GODREJ

Godrej's stock mirrored a trend of declining risk-adjusted performance. In 2021, the positive Sharpeand Treynor ratios indicated a good relationship between risk and return. However, 2022 painted adifferent picture. The Sharpe ratio turned negative, and both Treynor's and Jensen's ratios became negative as well, signifying underperformance relative to the inherent risk. While some positive performance existed in previous years (as seen by the positive Jensen's ratio in 2021), 2022 markeda clear decline. This volatility highlights the importance of monitoring these metrics to understandthe evolving risk-return profile of Godrej's stock.

H0 = Price can be affected by external factors H1 = Price cannot be affected by external factors

The research paper provides evidence to support the null hypothesis (H0) that stock prices can be affected by external factors:

The Covid-19 pandemic significantly impacted the FMCG sector, leading to a slowdown and recovery due to changing consumer preferences. Risk-adjusted return ratios for selected companiessuggest external factors influenced stock prices and returns. Companies like Britannia and Godrej experienced periods of underperformance or negative returns in specific years, possibly due to external factors impacting their stock prices.

Based on these observations, we can accept the null hypothesis (H0) and conclude that the alternative hypothesis (H1) is rejected, H0 indicating that stock prices can be affected by external factors such as economic conditions, market volatility, government policies, and regulations.

H0 = Return is significant with Risk

H1 = Return is not significant with Risk

The research paper provides strong evidence to support the null hypothesis (H0) that returnis related to risk in the context of the FMCG sector in India:

The analysis uses risk-adjusted return ratios to evaluate the performance of selected companies, considering their returns and associated risks. The findings show that these ratios fluctuate acrossdifferent years, indicating

a relationship between returns earned and risk taken. The research alsocalculates standard deviation risk and expected returns for the benchmark index and individual companies, revealing higher returns generally lead to higher levels of risk.

Based on these observations, we can accept the null hypothesis (H0) and conclude that the alternative hypothesis (H1) is rejected, Null hypothesis suggesting that return is significant to riskin the FMCG sector in India.

FINDING

The key findings from the research paper:

1. Risk and Return Analysis: - The benchmark S&P BSE Fast Moving Consumer Goods indexhad an expected return of 12.5% and a risk (standard deviation) of 11.45% during 2017- 2022.

2. Company Performance: - Hindustan Unilever Limited (HUL) had a total return of 135.76%and a risk of 24.55%, with mostly positive risk-adjusted ratios. Nestle India had a total returnof 136.67% and a risk of 16.16%, but negative risk-adjusted ratios in 2022 indicated underperformance. ITC had a total return of 45% and a risk of 24.17%, with positive ratiosin 2022. Britannia Industries Limited had a total return of 131.34% and a risk of 24.19%, with positive ratios in most years.

3. Financial Ratios: - Most companies exhibited strong financial ratios, with minimal debt levels, adequate liquidity, and robust profitability ratios, suggesting sound financial health and efficient resource utilization

4. Investment Perspective: The study provides insights into the risk-return dynamics and relative performance of select FMCG companies, aiding investors in identifying potentialdiversification opportunities within this sector.

CONCLUSION

The research paper highlights the potential for reasonable returns and diversification in the Indian FMCG sector. The benchmark S&P BSE Fast Moving Consumer Goods index showed an expected return of 12.5% and a moderate risk level of 11.45% from 2017 to 2022. Top performers in the sector were Hindustan Unilever Limited (HUL) and Nestle India, with total returns of around 136%. Their risk-adjusted performance ratios were mostly positive, indicatinga balance between risk and return. ITC, Britannia Industries Limited, and Godrej Consumer Products Limited also exhibited strong overall performance, with total returns ranging from 45% to 131.34%. However, their risk-adjusted ratios fluctuated across different years, with periods of underperformance relative to risk. Most selected FMCG companies maintained sound financial health, suggesting efficient resource utilization and strong financial management practices. The FMCG sector presents opportunities for investors seeking diversification and stable returns.

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