



Exploring Investment Opportunities: Comparing Risks and Returns in Selected Sectors

Shakthi Charan M D¹, Chaitanya J², Ananth Bhat ³and Dr. Mansi Kukreja ⁴

^{1,2,3}Post graduate student, ⁴ Professor, Faculty of Management studies, CMS Business School, Jain Deemed to-be University, Bengaluru.

Abstract

In this comprehensive report spanning the years 2013 to 2023, we embark on a meticulous exploration of the Information Technology (IT), Banking, and Fast-Moving Consumer Goods (FMCG) sectors. Through an exhaustive analysis of historical data encompassing beta values, systematic, and unsystematic risks, this study illuminates the complex interplay of risk and return. Investors are afforded a panoramic view of these sectors, enabling nuanced and well-informed decision-making rooted in robust data analysis and thorough evaluation.

For academic communities, this report serves as a practical nexus, bridging the theoretical teachings of finance with real-world market intricacies. Students and scholars alike gain insights into the practical applications of financial theories, enriching their educational experience.

Furthermore, financial institutions find actionable intelligence within these pages. The insights provided herein empower them to offer bespoke, data-backed advice to clients, enhancing their service quality and building trust.

In essence, this report transcends traditional analysis, becoming a valuable tool for investors, academics, and financial professionals alike. It not only enriches academic understanding but also guides investors through the labyrinthine world of finance with clarity and precision, laying a foundation for strategic decision-making in an ever-evolving global market landscape.

Keywords

Investment Opportunities, Beta Analysis, Systematic Risk, Unsystematic Risk, Portfolio Diversification, Risk Mitigation, Stock Analysis, Financial Markets.

Introduction

The global financial landscape is a dynamic ecosystem, shaped by a myriad of factors including economic policies, technological advancements, geopolitical events, and societal changes. Within this ever-evolving

environment, investors constantly seek reliable data and robust analyses to guide their decisions. The years 2013 to 2023 have witnessed significant shifts in market trends, creating both challenges and opportunities across sectors. In this context, our comprehensive report delves into three pivotal sectors: Information Technology (IT), Banking, and Fast-Moving Consumer Goods (FMCG).

The IT sector, a perennial driver of innovation, has experienced rapid advancements in artificial intelligence, cloud computing, and cybersecurity. Concurrently, the Banking sector, a cornerstone of the global economy, has grappled with regulatory changes, digital transformations, and economic fluctuations. Meanwhile, the FMCG sector, deeply intertwined with consumer behavior, has responded to shifting preferences and sustainability imperatives. These sectors represent not only economic powerhouses but also indicators of broader societal and technological trends.

The overarching goal of this report is to provide a meticulous analysis of these sectors, offering investors a nuanced understanding of the risks and returns associated with specific companies within them. By scrutinizing historical data, calculating beta values, and evaluating systematic and unsystematic risks, this report unravels the intricacies of investment opportunities within the IT, Banking, and FMCG sectors. Through this exploration, investors can gain insights into optimal portfolio diversification and risk mitigation strategies, enabling them to make informed decisions in an increasingly complex financial landscape.

Additionally, this report contributes to academic research by bridging theoretical frameworks with practical applications, enriching the educational experience for students and scholars. Moreover, it equips financial institutions with actionable intelligence, enhancing their ability to provide tailored advice to clients. As we navigate this transformative decade, this report stands as a beacon, illuminating the path for investors, academics, and financial professionals, fostering a deeper understanding of the markets that shape our global economy.

Need for the Study

The need for this comprehensive study is underscored by the rapidly evolving landscape of global finance from 2013 to 2023. Amidst technological innovations, regulatory reforms, and shifting consumer behaviors, investors face unprecedented challenges and opportunities. Understanding the intricate dynamics of key sectors like Information Technology (IT), Banking, and Fast-Moving Consumer Goods (FMCG) is paramount in this ever-changing environment.

Firstly, investors need precise, data-driven insights to navigate these sectors successfully. The IT sector, constantly disrupted by emerging technologies, demands astute analysis to identify sustainable investment opportunities. Banking, a cornerstone of economies worldwide, grapples with digital transformations and regulatory shifts, impacting risk profiles and returns. Simultaneously, the FMCG sector, deeply influenced by changing consumer preferences and sustainability concerns, necessitates a nuanced approach to assess market volatility and growth potential. This study, through its meticulous examination of historical data, provides investors with actionable intelligence. By calculating beta values and analysing systematic and unsystematic risks, investors gain a strategic advantage, optimizing portfolios and mitigating risks effectively.

Secondly, the academic community benefits significantly from this study. It bridges the gap between theoretical knowledge and practical applications, enhancing the learning experiences of students and researchers. Real-world scenarios explored in this study provide valuable insights, enriching the academic discourse and fostering a deeper understanding of financial market intricacies.

1. Objectives of the Research

The research endeavours to achieve several pivotal objectives, each contributing significantly to the depth and breadth of understanding within the realms of Information Technology (IT), Banking, and Fast-Moving Consumer Goods (FMCG) sectors.

Firstly, the primary objective is to meticulously analyse historical data spanning from 2013 to 2023. By dissecting this data, the study aims to calculate beta values, a fundamental metric in assessing an asset's volatility concerning the overall market. These beta values serve as a compass, guiding investors in understanding how specific stocks within the IT, Banking, and FMCG sectors react to market movements.

Secondly, the research seeks to assess systematic and unsystematic risks associated with selected companies within these sectors. Systematic risks, often referred to as market risks, are inherent to the entire market and cannot be diversified away. Unsystematic risks, on the other hand, are specific to individual companies and can be mitigated through diversification. Understanding the interplay between these risk categories is crucial in devising risk management strategies.

Thirdly, the study aims to unravel sector-specific trends and patterns that have shaped market dynamics over the past decade. This analysis delves into the historical performance of key players in IT, Banking, and FMCG, providing a nuanced perspective on how these sectors have evolved. Such insights are instrumental for investors seeking not only to optimize their portfolios but also to anticipate future market movements.

Fourthly, the research endeavors to synthesize theoretical knowledge with practical applications. By grounding academic concepts in real-world scenarios, the study facilitates a comprehensive understanding for students and scholars. Bridging this gap is pivotal in enriching the educational experience, ensuring that theoretical frameworks are contextualized and applicable in practical investment scenarios.

Finally, the research aims to provide actionable recommendations. By amalgamating the findings from beta calculations, risk assessments, and sector-specific analyses, the study offers strategic guidance for investors. These recommendations serve as invaluable tools, empowering investors to make well-informed decisions, diversify their portfolios effectively, and mitigate risks astutely.

2. Literature Review

The literature review in this research encompasses insights from ten notable scholars and experts, offering a comprehensive understanding of beta analysis, risk assessment, and investment strategies within the IT, Banking, and FMCG sectors.

Raju (2022) investigates the realized returns, risks, and shortfall probabilities of Systematic Investment Plans (SIPs) in India. This study adds to the understanding of investment strategies by focusing on the Indian market,

providing valuable insights into SIP performance and risk. The author's examination of SIPs in the Indian context contributes to the broader knowledge of investment practices and their effectiveness.

He, Yao, and Michael Casey (2021) explore improvements in forecasting insurance stock excess returns, comparing the Investor Sentiment Endurance Index with traditional models such as CAPM and Fama-French. This research enhances our comprehension of forecasting methods for insurance stocks, incorporating sentiment analysis as a novel factor. The study contributes to the growing literature on stock market forecasting and investor sentiment's impact on asset pricing.

Jain, Sharma, and Srivastava (2019) conduct a comparative study of ESG (Environmental, Social, and Governance) indices and MSCI indices to assess the financial returns associated with sustainable investments. Their work deepens our understanding of ESG investing's potential for generating financial returns. By comparing ESG and MSCI indices, the authors shed light on the profitability of sustainable investment strategies.

Abdin (2019) explores various sub-sectors within MSMEs (Micro, Small, and Medium Enterprises) to attract more investment. This research offers insights into investment opportunities within the MSME sector and their potential for growth. The study is valuable for policymakers and investors interested in the MSME sector and its sub-sector variations.

Li, Long, and Chen (2015) investigate the returns and risks of investment portfolios during stock market crashes. Their research adds to our understanding of portfolio performance during market downturns, providing insights into risk management and investment strategies. This work is especially relevant for investors seeking to navigate turbulent market conditions.

Cosares (2014) compares risks among adaptive investment planning strategies. By evaluating different investment planning approaches, this study contributes to the literature on investment strategies and risk management. The findings offer valuable guidance for investors and financial professionals looking to optimize their investment planning.

Chaplinsky and Gupta-Mukherjee (2010) examine exit returns and venture capital investment opportunities. This research focuses on venture capital, shedding light on the exit returns associated with such investments. The study aids in understanding the venture capital landscape and the risks and rewards involved in this asset class.

Agarwal, Bakshi, and Huij (2008) explore dynamic investment opportunities and their implications for hedge fund returns, particularly focusing on higher-moment risks. This research delves into the cross-section of hedge fund returns and the role of higher-moment risks in performance evaluation. The study enhances our comprehension of hedge fund strategies and risk assessment, which is crucial for investors in this asset class.

William F. Sharpe: Sharpe's groundbreaking Capital Asset Pricing Model (CAPM) provides the theoretical foundation for beta analysis. His work laid the groundwork for understanding how individual stock volatility relates to market movements.

Eugene F. Fama: Fama's Efficient Market Hypothesis (EMH) is instrumental in understanding systematic risk. His studies emphasized that asset prices reflect all available information, aiding in assessing market-wide risks.

Robert C. Merton: Merton's contributions to option pricing models offer insights into understanding the risks associated with financial derivatives, which are pertinent in the modern Banking sector.

Myron J. Gordon: Gordon's work on the Gordon-Shapiro Model offers valuable perspectives on valuing stocks, which is pivotal in assessing the risk-return dynamics of FMCG companies.

Fischer Black: Black's co-development of the Black-Scholes-Merton Model is foundational in comprehending the risks and returns associated with financial derivatives and their impact on banking sector investments.

Peter L. Bernstein: Bernstein's works on portfolio theory and risk management provide a holistic view of managing risks and optimizing portfolios, which is crucial for investors in IT, Banking, and FMCG sectors.

John Lintner: Lintner's studies on dividends and stock valuation provide valuable insights into understanding the stability and growth potential of stocks, particularly relevant in the context of FMCG companies.

Jack Treynor: Treynor's pioneering work on portfolio performance evaluation introduces metrics like the Treynor Ratio, enhancing our understanding of risk-adjusted returns in the context of diverse investment sectors.

Harry Markowitz: Markowitz's Modern Portfolio Theory emphasizes the significance of diversification in mitigating risks. His work is foundational in understanding how investors can optimize their portfolios across different sectors.

Aswath Damodaran: Damodaran's extensive research on valuation and investment strategies provides practical insights into assessing the intrinsic value of companies within IT, Banking, and FMCG sectors, guiding investors in their decision-making processes.

Industry and Company Analysis for Beta Calculations In this research, industry and company analyses play a pivotal role in the calculation of beta values, offering a nuanced understanding of how individual stocks within the IT, Banking, and FMCG sectors respond to market fluctuations.

Industry

Information Technology (IT) Sector: The IT industry has consistently been at the forefront of technological innovation. Industry analysis involves examining market trends, competitive landscapes, and technological advancements. Factors such as research and development expenditure, patent filings, and market saturation are evaluated to gauge the industry's growth potential and volatility.

Banking Sector: Banking, as a foundational sector of the economy, undergoes scrutiny of regulatory changes, interest rate movements, and economic indicators. Analysis includes evaluating loan-to-deposit ratios, net

interest margins, and regulatory policies. Understanding macroeconomic factors influencing the sector's stability is crucial for accurate beta calculations.

Fast-Moving Consumer Goods (FMCG) Sector: The FMCG sector is influenced by consumer behaviour, brand loyalty, and global economic trends. Market analysis involves assessing consumer spending patterns, market saturation, and brand strength. Factors such as product differentiation, advertising expenses, and consumer sentiment indices contribute to understanding the sector's dynamics.

Company Analysis

For beta calculations at the company level, detailed analysis of specific firms within these sectors is conducted:

IT Companies: Company-specific factors include revenue diversification, product innovation, market share, and global presence. Examination of quarterly financial reports, technology adoption rates, and client retention strategies offers insights into individual company risks.

Banks: Bank-specific metrics such as loan portfolios, credit quality, capital adequacy, and operational efficiency are analyzed. Regulatory compliance, stress testing results, and mergers and acquisitions activities provide a comprehensive view of the company's risk profile.

FMCG Companies: FMCG company analysis involves studying brand recognition, market share, distribution networks, and consumer preferences. Factors such as product recall incidents, supply chain efficiency, and marketing strategies are explored. Consumer surveys and loyalty indices are utilized to gauge brand strength.

3. Research Methodology

The research methodology employed in this study is meticulous and systematic, ensuring the reliability and validity of the findings. The research utilizes a retrospective approach, analysing ten years of historical data from 2013 to 2023 for the IT, Banking, and Fast-Moving Consumer Goods (FMCG) sectors by Simple random sampling method from listed companies in BSE.

Data Collection: Primary data sources include financial reports, stock prices, and market indices. Secondary data are gathered from reputable financial databases, scholarly articles, and industry reports, ensuring a comprehensive dataset for analysis.

Data Analysis: Beta values, systematic and unsystematic risks are calculated using statistical techniques and financial modeling. Beta values provide insights into individual stock volatility concerning market movements, while systematic risks are evaluated in the context of macroeconomic factors. Unsystematic risks are determined by company-specific variables, offering a holistic understanding of the risk landscape.

Interpretation and Validation: The calculated values are meticulously interpreted, and results are cross-validated to ensure accuracy. Robust statistical tools are employed to validate the findings, enhancing the credibility of the research outcomes.

4. Analysis and Interpretation

Table 1: Basic inputs of the selected samples

COMPANIES (X)								
Stocks	Mean	Variants	Standard Deviation	Covariant	Beta	Total Risk	Systematic Risk	Unsystematic Risk
Infosys	-0.03	0.15	0.39	0.01	1.12	39%	13%	26%
TCS	0.06	0.04	0.19	0.01	1.13	19%	13%	6%
HCL	0.19	0.60	0.77	0.05	3.68	77%	42%	35%
Tech Mahindra	0.08	0.21	0.46	0.03	2.66	46%	30%	16%
Birla Soft	0.33	0.85	0.92	0.04	2.76	92%	32%	60%
HDFC Bank	0.13	0.06	0.25	0.01	0.89	25%	10%	15%
ICICI BANK	0.06	0.11	0.34	0.00	-0.16	34%	-2%	36%
SBI	0.02	0.16	0.40	0.00	-0.28	40%	-3%	43%
Kotak Bank	0.14	0.10	0.32	0.03	2.09	32%	24%	8%
Bank of Baroda	0.07	0.35	0.59	0.02	1.75	59%	20%	39%
Hindustan Unilever	0.18	0.05	0.22	0.01	0.98	22%	11%	10%
Nestle India	0.17	0.03	0.16	0.01	0.68	16%	8%	8%
Britannia	0.24	0.15	0.39	0.02	1.49	39%	17%	22%
Marico	0.12	0.05	0.22	0.02	1.50	22%	17%	5%
Colgate	0.07	0.05	0.23	0.02	1.22	23%	14%	9%
Mean	0.13	Risk Free Rate = 364-days T-Bills: 6.4295%						
Variants	0.01							
Standard Deviation	0.11	Treynor Measure = (Rp-Rf)/(Beta)						

Interpretation

The data presented compares the performance and risks of several companies across different sectors. Overall, the average return on stocks is 0.13, indicating a positive trend. However, individual companies exhibit varying levels of risk and return. Diversification is crucial, as it helps spread risk across sectors. Investors should consider the risk-free rate (6.4295%) as a benchmark, ensuring investments offer returns higher than this rate. Evaluating beta values aids in aligning portfolios with market trends. In summary, understanding the risk-return trade off and diversifying investments are essential for exploring opportunities wisely in these sectors.

Balanced Market Portfolio								
	SL No.	Companies	Rp	Rf	(Rp-Rf)	Beta	Treynor = (Rp-Rf)/Beta	Rank
IT	1	INFOSYS LTD	-27%	6%	-33%	1.12	-0.297207061	9
	2	TATA CONSULTANCY SERVICES LTD	63%	6%	57%	1.13	0.499612194	6
	3	COFORGE LTD	376%	6%	370%	1.02	3.64394223	1
BANKING	4	HDFC BANK LTD	126%	6%	119%	0.89	1.336047525	4
	5	AXIS BANK LTD	17%	6%	11%	-0.69	-0.156077211	8
	6	BANK OF BARODA	71%	6%	65%	1.75	0.371062675	7
FMCG	7	HINDUSTAN UNILEVER	179%	6%	172%	0.98	1.755775932	2
	8	COLGATE-PALMOLIVE (INDIA) LTD	67%	6%	61%	1.22	0.499651195	5
	9	ZYDUS WELLNESS LTD	124%	6%	117%	0.96	1.218461253	3

Interpretation

In the balanced market portfolio analysis, IT sector witnessed mixed results: Infosys underperformed significantly, while TCS showed strong positive returns. HDFC Bank excelled in banking with a solid performance, while Axis Bank had a modest positive return. FMCG sector stood out, led by Hindustan Unilever's robust performance, followed by Colgate-Palmolive and Zydus Wellness, offering varying but positive returns. This data indicates potential investment opportunities, particularly in select FMCG companies, within the balanced market portfolio.

Research Through Innovation

Aggressive Growth Portfolio								
	SL No.	Companies	Rp	Rf	(Rp-Rf)	Beta	Treynor = (Rp-Rf)/Beta	Rank
IT	1	HCL INFOSYSTEMS LTD	187%	6%	181%	3.68	0.490841277	6
	2	TECH MAHINDRA LTD	84%	6%	77%	2.66	0.291439429	9
	3	BIRLASOFT LTD	328%	6%	321%	2.76	1.16414516	3
BANKING	4	KOTAK MAHINDRA BANK LTD	805%	6%	799%	2.09	3.814678021	1
	5	IDFC LIMITED	96%	6%	89%	2.17	0.411410726	7
	6	BANK OF BARODA	71%	6%	65%	1.75	0.371062675	8
FMCG	7	BRITANNIA INDUSTRIES LTD	236%	6%	229%	1.49	1.536663886	2
	8	MARICO LTD	119%	6%	113%	1.50	0.754540884	5
	9	TATA CONSUMER PRODUCTS LTD	273%	6%	266%	2.78	0.958768561	4

Interpretation

In the Aggressive Growth Portfolio, companies across IT, banking, and FMCG sectors demonstrated substantial returns. Notable performers included Kotak Mahindra Bank, exhibiting exceptional growth and securing the top rank. Birla soft and Tata Consumer Products also showcased significant growth, ranking third and fourth, respectively. Britannia Industries performed well, securing the second position, while Marico and HCL Infosystems exhibited moderate growth. Despite higher returns, careful consideration of risk factors is crucial for investors due to the aggressive nature of this portfolio.

8. Findings

A. Balanced Market Portfolio

Infosys, Tata Consultancy Services, and CoForge are prominent firms operating in the IT sector. These companies exhibit different levels of return (Rp) and beta values. CoForge distinguishes itself by exhibiting the highest return and the lowest beta, which suggests robust returns with comparatively reduced market sensitivity. Both Infosys and Tata Consultancy Services have positive returns; however, their Treynor ratios are comparatively lower as a result of their elevated beta values.

In the domain of banking, HDFC Bank has a notably favourable return, securing the fourth position. The Bank of Baroda exhibits a favourable return, albeit with a large beta coefficient, hence influencing its risk-adjusted return as measured by the Treynor ratio. Axis Bank exhibits a positive return; yet, its Treynor ratio is negative owing to its negative beta, which signifies a counteractive movement in relation to the overall market.

The FMCG companies, namely Hindustan Unilever, Colgate-Palmolive, and Zydus Wellness, have favourable financial performance in terms of returns. Hindustan Unilever has the highest level of return, however Colgate-Palmolive demonstrates the highest Treynor ratio, so suggesting a superior risk-adjusted return.

B. Aggressive Growth Portfolio

Kotak Mahindra Bank is a prominent entity within the banking industry, exhibiting noteworthy performance indicators such as a substantial return and a robust Treynor ratio. These metrics imply considerable returns in relation to its beta coefficient. The Aggressive Growth Portfolio attains the highest ranking overall.

The FMCG companies, namely Britannia Industries, Marico, and Tata Consumer Products, exhibit favourable returns. Britannia Industries exhibits notable performance in terms of its maximum return and a robust Treynor ratio.

The IT sector is characterised by HCL Infosystems, Tech Mahindra, and Birlasoft, which demonstrate divergent returns and beta values. HCL Infosystems exhibits the most favourable return and a favourable Treynor ratio.

Future Outlook

This comprehensive report serves as a cornerstone for future research, investment strategies, and educational endeavors within the dynamic landscape of financial markets. As we peer into the future, several key implications and avenues for exploration emerge:

1. Advanced Risk Modeling: Building upon the foundations laid in this study, future research could delve deeper into advanced risk modeling techniques. Exploring cutting-edge methodologies, such as machine learning algorithms and predictive analytics, can enhance the precision of risk assessments, enabling investors to anticipate market movements more accurately.

2. Sector-Specific Studies: While this report covers IT, Banking, and FMCG sectors, there is ample room for sector-specific studies. Emerging sectors like renewable energy, biotechnology, and e-commerce demand specialized analyses. Investors can benefit significantly from in-depth sectoral studies that unravel unique risk-return dynamics, guiding them towards sectors poised for exponential growth.

3. Sustainable Investing: The rise of sustainable and ethical investing is reshaping financial landscapes. Future research could focus on integrating environmental, social, and governance (ESG) factors into risk assessments. Understanding how ESG considerations impact risk profiles and long-term returns is crucial as ethical investments gain momentum globally.

4. Technological Innovations: With the continuous evolution of technology, future research can explore the impact of emerging technologies such as blockchain, artificial intelligence, and quantum computing on financial markets. Understanding how these technologies alter risk landscapes and investment strategies will be pivotal for investors and financial institutions.

5. Investor Education: The insights from this report lay a robust foundation for investor education. Future efforts should focus on disseminating this knowledge widely. Educational programs, workshops, and online

resources can empower a broader audience, equipping them with the skills to navigate financial markets effectively.

Conclusion

The examination of the Balanced Market Portfolio and the Aggressive Growth Portfolio provides valuable information for investors aiming to navigate the complex realm of financial markets. The aforementioned findings highlight the need of developing a carefully planned investing strategy that is customised to align with an individual's risk tolerance and financial goals.

CoForge stands out as a great choice within the Balanced Market Portfolio. By exhibiting the highest return and the lowest beta, this investment option offers the potential for significant gains while minimising its susceptibility to market fluctuations. This characteristic renders it an appealing choice for investors who are in search of a well-rounded and less risky strategy. Moreover, HDFC Bank and Colgate-Palmolive exhibit favourable returns accompanied by commendable risk-adjusted performance, rendering them attractive options for inclusion in a diversified investment portfolio.

On the other hand, the Aggressive Growth Portfolio places emphasis on companies that exhibit elevated risk levels and possess the potential for generating superior returns. Kotak Mahindra Bank stands out due to its noteworthy returns and strong performance when considering risk factors. Britannia Industries is also perceived as an attractive option for individuals in pursuit of expansion.

The selection of these portfolios should be carefully aligned with an individual's risk choices and financial objectives. It is imperative for investors to acknowledge that the implementation of diversification and the continuous monitoring of market circumstances are crucial factors in attaining effective investment plans. In light of the dynamic nature of the financial environment, it is imperative to adapt investment choices accordingly, underscoring the enduring significance of well-informed and strategic portfolio management. In essence, the achievement of investment success is a personal endeavour, wherein the chosen portfolio ought to align with an individual's distinct risk tolerance, time horizon, and financial goals.

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