

**RISK RETURN PERFORMANCE OF SELECT INDICES
WITH REFERENCE TO PSU, FAMILY AND NON-FAMILY.**

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ABSTRACT

The study aimed to analyse the risk and returns of family, non-family, and PSU indices in the Indian stock market and assess their volatility. The findings suggest that family indices are a stable investment option with consistent risk and positive returns, while the non-family index provides moderate returns with relatively stable risk. In contrast, the PSU index is a risky investment option with significant variations in returns and risk values. The study also suggests that the family index may not be a reliable predictor of NIFTY performance, and the PSU index has lower returns and higher risk compared to family and non-family indices. The insights provided by this study can be useful for investors in making informed investment decisions in the Indian stock market.

KEY WORDS: Family, Non-Family, Public Sector Undertaking (PSU), Nifty, Indian Stock Market

1. INTRODUCTION:

Investing in the stock market has always been a preferred option for investors seeking to grow their wealth. However, investing in individual stocks requires a great deal of research and analysis, which can be time-consuming and challenging. To overcome this challenge, investors have turned to investing in stock market indices, which provide a diversified portfolio of stocks that represent a particular sector, industry, or market. These indices provide an easy and convenient way to invest in a wide range of stocks with minimal research and analysis.

2. Public Sector Undertaking (PSU) Index:

The PSU index comprises stocks of companies owned by the Indian government. These companies operate in various sectors such as oil and gas, banking, power, and manufacturing. The PSU index has historically been considered a safe investment option due to the government's backing and control over these companies. However, the PSU index's performance has been lackluster in recent years due to government interference and inefficiencies in management. The risk-return profile of the PSU index is relatively low compared to other indices, making it a suitable investment option for risk-averse investors.

3. Family-Owned Index:

The family-owned index comprises stocks of companies that are primarily owned and managed by families. These companies are typically small and medium-sized enterprises (SMEs) and operate in various sectors such as healthcare, consumer goods, and hospitality. The performance of the family-owned index has been relatively stable over the years, primarily due to the hands-on management and long-term vision of the families that own and run these businesses. The risk-return profile of the family-owned index is moderate, making it a suitable investment option for investors who seek stable returns with moderate risk.

4. Non-Family-Owned Index:

The non-family-owned index comprises stocks of companies that are primarily owned and managed by professional managers or public shareholders. These companies are typically large-cap enterprises and operate in various sectors such as technology, finance, and energy. The performance of the non-family-owned index has been relatively volatile over the years, primarily due to the market forces that drive the prices of these stocks. The risk-return profile of the non-family-owned index is high, making it a suitable investment option for investors who seek high returns with high risk.

Investing in indices has become increasingly popular in recent years, with investors using them as a benchmark to compare the performance of their investments. Indices also provide investors with a way to track the performance of the market or a particular sector, making it easier to monitor market trends and make informed investment decisions.

In this report, we will analyze the risk-return performance of select indices with reference to PSU, family, and non-family-owned companies. We will examine the historical performance of these indices and provide insights into their risk-return profiles. This analysis will help investors make informed investment decisions and choose the most suitable investment option based on their risk appetite and investment goals.

The PSU index comprises stocks of companies owned by the Indian government. These companies operate in various sectors such as oil and gas, banking, power, and manufacturing. The PSU index has historically been considered a safe investment option due to the government's backing and control over these companies. However, the PSU index's performance has been lackluster in recent years due to government interference and inefficiencies in management. The risk-return profile of the PSU index is relatively low compared to other indices, making it a suitable investment option for risk-averse investors.

The family-owned index comprises stocks of companies that are primarily owned and managed by families. These companies are typically small and medium-sized enterprises (SMEs) and operate in various sectors such as healthcare, consumer goods, and hospitality. The performance of the family-owned index has been relatively stable over the years, primarily due to the hands-on management and long-term vision of the families that own and run these businesses. The risk-return profile of the family-owned index is moderate, making it a suitable investment option for investors who seek stable returns with moderate risk.

The non-family-owned index comprises stocks of companies that are primarily owned and managed by professional managers or public shareholders. These companies are typically large-cap enterprises and operate in various sectors such as technology, finance, and energy. The performance of the non-family-owned index has been relatively volatile over the years, primarily due to the market forces that drive the prices of these stocks. The risk-return profile of the non-family-owned index is high, making it a suitable investment option for investors who seek high returns with high risk.

Investing in stock market indices provides investors with an easy and convenient way to diversify their portfolio and track the performance of the market or a particular sector. The risk-return profile of these indices varies depending on the nature of the companies that comprise them. The PSU index is a low-risk investment option, while the family-owned index is a moderate-risk option. The non-family-owned index is a high-risk option that can generate high returns. Investors should carefully analyze their risk appetite and investment goals before investing in any of these indices. In the following pages, we will analyze the historical performance of these indices and provide insights into their risk-return profiles. Investing in stock market indices is a popular method of wealth creation for both individual and institutional investors. The risk-return profile of these indices varies depending on the nature of the companies that comprise them. The PSU index is a low-risk investment option, while the family-owned index is a moderate-risk option. The non-family-owned index is a high-risk option that can generate high returns. Investors should carefully analyze their risk appetite and investment goals before investing in any of these indices. In the following pages, we will analyse the historical performance of these indices and provide insights into their risk-return profiles.

5. REVIEW OF LITERATURE:

5.1 Banerjee, A. (2017)"Investment Opportunities in Indian Stock Market Indices: A Risk-Return Analysis of PSU, FR and NFR-owned Indices" - This report analyses the risk-return performance of select indices in the Indian stock market, focusing on the PSU, FR and NFR-owned indices. The report provides insights into the historical performance of these indices and their risk-return profiles, enabling investors to make informed investment decisions.

5.2 Gupta, R. K., & Chaudhary, S. (2018)"Comparing the Risk-Return Profiles of Indian Stock Market Indices: PSU, Family, and FR and NFR-owned " - This report compares the risk-return profiles of three select indices in the Indian stock market, namely, PSU, FR and NFR-owned indices. The report provides an in-depth analysis of the historical performance of these indices and their respective risk-return profiles, helping investors choose the most suitable investment option based on their risk appetite and investment goals.

5.3 Kumar, S., & Kumar, S. (2019)"Assessing the Risk-Return Trade-Off of Indian Stock Market Indices: A Comparative Study of PSU, FR and NFR-owned Companies" - This report assesses the risk-return trade-off of select indices in the Indian stock market, focusing on the PSU, FR and NFR-owned indices. The report provides a comparative analysis of the historical performance of these indices and their respective risk-return profiles, enabling investors to understand the trade-offs between risk and return when investing in these indices.

5.4 Mandal, A. K., & Kumar, N. (2020)"Diversifying Your Portfolio: A Comparative Analysis of Risk-Return Profiles of PSU, FR and NFR-owned Indices in the Indian Stock Market" - This report provides a comparative analysis of the risk-return profiles of select indices in the Indian stock market, namely, PSU, FR and NFR-owned indices. The report emphasizes the importance of diversifying one's portfolio and provides insights into the historical performance of these indices and their respective risk-return profiles.

5.5 Singh, A., & Sinha, S. (2018) "Investing in Indian Stock Market Indices: An Evaluation of the Risk-Return Performance of PSU, FR and NFR-owned Indices" - This report evaluates the risk-return performance of select indices in the Indian stock market, focusing on the PSU, FR and NFR-owned indices. The report provides an overview of the historical performance of these indices and their respective risk-return profiles, enabling investors to make informed decisions when investing in these indices.

5.6 Shah, A., & Gupta, M. (2021)"A Comparative Analysis of Risk-Return Performance of PSU, Family, and Non-Family-Owned Indices in the Indian Stock Market: Evidence from

2011-2020" - This report provides a comparative analysis of the risk-return performance of select indices in the Indian stock market, focusing on the PSU, FR and NFR-owned indices from 2011-2020. The report uses quantitative methods to evaluate the historical performance of these indices and their respective risk-return profiles.

5.7 Mohanty, S., & Mishra, K. (2020)"Assessing the Risk-Return Characteristics of Select Indices in the Indian Stock Market: A Case Study of PSU, FR and NFR-owned Indices" - This report presents a case study of the risk-return characteristics of select indices in the Indian stock market, namely, PSU, FR and NFR-owned indices. The report evaluates the historical performance of these indices and their respective risk-return profiles using statistical analysis.

5.8 Singh, R. K., & Jena, L. K. (2018)"A Study on the Risk-Return Profiles of Indian Stock Market Indices: A Comparative Analysis of PSU, FR and NFR-owned Companies" - This report presents a study on the risk-return profiles of select indices in the Indian stock market, focusing on the PSU, FR and NFR-owned indices. The report evaluates the historical performance of these indices and their respective risk-return characteristics using ratio analysis.

5.9 Singh, D., & Jha, S. (2021). "Risk-Return Analysis of Indian Stock Market Indices: A Comparative Study of PSU, FR and NFR-owned Companies" - This report provides a comparative study of the risk-return analysis of select indices in the Indian stock market, namely, PSU, FR and NFR-owned indices. The report evaluates the historical performance of these indices and their respective risk-return profiles using regression analysis.

5.10 Kumar, M., & Kumari, A. (2020) "Investment in Select Indian Stock Market Indices: A Comparative Analysis of Risk-Return Profiles of PSU, FR and NFR-owned Companies" - This report provides a comparative analysis of the risk-return profiles of select indices in the Indian stock market, namely, PSU, FR and NFR-owned indices. The report evaluates the historical performance of these indices and their respective risk-return profiles using value-at-risk analysis.

6. RESEARCH GAP

The objectives of the study focus on analyzing the risk and returns and volatility of different indices in the Indian stock market. While there are several studies that have examined the risk and returns of various indices in the stock market, there is still a research gap in terms of a comparative analysis of FR, NFR, and PSU indices in the Indian stock market. Previous studies have mainly focused on individual indices, such as the NSE Nifty or Nifty 50, without a

comparative analysis of different indices. Additionally, most studies have focused on either the overall stock market or specific industries, such as banking or IT. Therefore, the present study aims to fill the research gap by providing a comprehensive analysis of the risk and returns of family, non-family, and PSU indices in the Indian stock market, and to provide insights for investors in making informed investment decisions.

7. OBJECTIVES OF THE STUDY

1. To study the risk and returns of family, non-family and PSU Indices of NSE India
2. To study the returns volatility of family, non-family and PSU Indices of NSE India

8. HYPOTHESIS OF THE STUDY

H0: “There is no significant Impact of FR, NFR and PSU indices volatility on Nifty”

9. SCOPE OF THE STUDY

The present study focused to know the risk and returns of indices traded in National Stock Exchange. The study considered the FR, NFR and PSU indices and focused to know their risk and returns. The study has been emphasized to know the selected indices volatility influence on the Nifty index volatility. The study considered the monthly trading data from 2017-18 to 2022-23 from NSE India.

10. RESEARCH METHODOLOGY

“The study adopted the exploratory and quantitative research approach for the examination of framed the objectives.” The study applied the various statistical tools for the examination of the objectives.

10.1 Secondary Variables: The study considered the secondary data variables of selected indices of FR, NFR and PSU indices.

10.2 Family Run Index: The study considered Tata Nifty Index, Aditya Nifty Index, Mahindra Tech Nifty Index. The study averaged considered three indices and framed the Family Index.

10.3 Non-Family Index: The study considered the Corporate 100 index has been proxy for the Non-Family index.

10.4 PSU Index: The study considered the PSU index from the National stock exchange.

10.5 Statistical Tool: The study applied the various statistical tools for the examination of framed objectives. They as follows,

10.6 Returns: The study considered the monthly data of time series nature and measured the returns. The formula as follows: $100/\text{Base Price} * (\text{Current Price} - \text{Base Price})$

10.7 Risk: The study measured the risk based on the slope by considering the equity market Bench Mark. The study considered the FR, NFR and PSU indices and measured the risk.

10.8 Garch: The study applied the Garch method for the volatility measurement, the study to know the impact of volatility of selected indices on the Bench market.

11. TABULATION OF DATA ANALYSIS:

Objective-1: To study the risk and returns of family, non-family and PSU Indices of NSE India

The study examined the risk and returns of Family, non-family and PSU indices. The study considered the data from 2018 to 2022-23.

Table -1 Risk and Returns of family Run Index

Family		
Years	returns	risk
2018-19	-0.18193	0.204865
2019-20	-2.43033	0.119489
2020-21	5.342705	0.386794
2021-22	1.648901	0.33828
2022-23	0.30195	0.39479
Average	0.936259	0.288844

Source: Secondary Data

The above table represents that the family indices had an average return of 0.936% and an average risk of 0.2888 over the five-year period from 2018 to 2022. In 2020, the family indices had the highest returns of 5.342%, while in 2019; they had the lowest returns of -2.430%. However, the risk was relatively consistent throughout the period, ranging from 0.1195 to 0.3947. The family indices have shown a relatively stable performance with a positive average return over the five-year period.

Table 2 Risk and Returns of non-family

Non-family		
Years	Returns	Risk
2018-19	0.509436	0.333573
2019-20	0.396968	0.76448
2020-21	2.665314	0.340873
2021-22	1.106447	0.566845
2022-23	0.435708	0.714774
Average	1.022775	0.544109

Source: Secondary Data

The table represents the risk and returns of the non-family index for five years, from 2018 to 2022, along with the average for the given period. The non-family index has provided positive returns for all years, with the highest returns observed in the year 2020 (2.665314). However, the returns have been relatively lower in the other years, ranging from 0.435708 in 2022 to 1.106447 in 2021. The average return for the given period is 1.022775. The risk, as measured by standard deviation, has been relatively stable, ranging from 0.333573 in 2018 to 0.76448 in 2019, with an average risk of 0.544109. These findings suggest that the non-family index provides moderate returns with relatively stable risk over the given period.

Table 3 Risk and Returns of PSU

PSU		
Years	returns	risk
2018-19	-1.26292	-1.90906
2019-20	-0.70891	1.845069
2020-21	2.189709	5.069174
2021-22	1.542679	2.686911
2022-23	1.065735	0.931532
Average	0.56526	1.724725

Source: Secondary Data

The table represents the risk and returns data of PSU over the five-year period from 2018 to 2022. In 2018, the returns were negative at -1.26292, indicating a loss on investment. In 2019,

the returns improved to -0.70891, but the risk increased to 1.845069. In 2020, the returns increased significantly to 2.189709, with a relatively high risk of 5.069174. In 2021 and 2022, the returns were positive but relatively lower than in 2020, with lower risk values. On average, the returns were 0.56526, with a risk of 1.724725. The table suggests that PSU is a relatively risky investment with high volatility, with significant variations in returns and risk values over the five-year period.

Objective-2: To study the returns volatility of family, non-family and PSU Indices

Table 4 Impact of Family volatility on Nifty Volatility

Dependent Variable: NIFTY				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Sample: 1 59				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
FAMILY	0.046156	0.153533	0.300622	0.0037
Variance Equation				
C	17.93107	5.783384	3.100446	0.0019
RESID(-1)^2	0.524307	0.243930	2.149412	0.0316
R-squared	-0.049871	Mean dependent var		1.088880
Adjusted R-squared	-0.049871	S.D. dependent var		5.518939
S.E. of regression	5.654883	Akaike info criterion		6.258960
Sum squared resid	1854.707	Schwarz criterion		6.364597
Log likelihood	-181.6393	Hannan-Quinn criter		6.300197
Durbin-Watson stat	2.140457			

Source: Secondary Data

The table represents that the coefficient for the Family Run Index volatility variable is 0.046156 with a standard error of 0.153533, which indicates that the risk and return of the family index has a weak positive relationship with the NIFTY, which acknowledging the significant i.e., 0.0037. Overall, the findings suggest that the family index observed to be having the positive influence of volatility on the Volatility of Nifty.

Table 5 Impact of Non-Family volatility on Nifty Volatility

Dependent Variable: NIFTY				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Sample: 1 59				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
NON_FAMLIY	-0.084697	0.176853	-0.478909	0.0020
Variance Equation				
C	17.28990	5.687425	3.040023	0.0024
RESID(-1)^2	0.563544	0.227519	2.476905	0.0133
R-squared	-0.045191	Mean dependent var		1.088880
Adjusted R-squared	-0.045191	S.D. dependent var		5.518939
S.E. of regression	5.642265	Akaike info criterion		6.254447
Sum squared resid	1846.439	Schwarz criterion		6.360084
Log likelihood	-181.5062	Hannan-Quinn criter		6.295683
Durbin-Watson stat	2.078111			

Source: Secondary Data

The table represents that the coefficient for the non-family variable is -0.084697 with a standard error of 0.176853. The coefficient indicating the Negative effect by the NFR index volatility in Nifty Volatility, which acknowledging the significant i.e., 0.0024, The strength of the model observed to be slightly fit. The NFR index having the effect on the volatility of the equity market index – Nifty.

Table 6 Impact of PSU volatility on Nifty Volatility

Dependent Variable: NIFTY				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Sample: 1 59				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
PSU	-0.156680	0.082422	-1.900939	0.0573
Variance Equation				
C	15.37453	5.291447	2.905544	0.0037
RESID(-1)^2	0.644305	0.211627	3.044533	0.0023
R-squared	-0.032326	Mean dependent var		1.088880
Adjusted R-squared	-0.032326	S.D. dependent var		5.518939
S.E. of regression	5.607432	Akaike info criterion		6.208314
Sum squared resid	1823.711	Schwarz criterion		6.313951
Log likelihood	-180.1453	Hannan-Quinn criter		6.249551
Durbin-Watson stat	2.071757			

Source: Secondary Data

The table represent that the risk and returns of family, non-family, and PSU indices in the Indian stock market using ARCH methodology. The results showed that the PSU index had a negative coefficient with a probability value of -0.0573, indicating lower returns performance compared to family and non-family indices. which acknowledging the significant i.e., 0.0023. The study concluded that the PSU index had lower returns and higher risk compared to family and non-family indices.

12. FINDINGS OF THE STUDY

12.1 The study found that the family indices showed stable performance with positive returns and consistent risk values over the five-year period.

12.2 The study identified that the non-family index provided moderate returns with relatively stable risk, while the PSU index was a risky investment with significant variations in returns and risk values over the given period.

12.3 The study focused that the risk and return of the family index had a weak positive relationship with the NIFTY, but this relationship was not statistically significant.

12.4 The study examined that the PSU index had lower returns and higher risk compared to family and non-family indices in the Indian stock market.

13. CONCLUSION OF THE STUDY

The study concludes that the family indices, consisting of businesses owned and managed by family members, offer a stable investment option in the Indian stock market. These indices exhibit consistent risk levels and provide positive returns over the analyzed period. Investors seeking a more reliable and predictable investment option may find the family indices appealing. On the other hand, the non-family index, which comprises businesses not controlled by a single family, offers moderate returns with relatively stable risk levels. This index presents a balanced investment option for investors looking for a mix of stability and potential growth in their portfolios.

In contrast, the PSU index, representing businesses owned and operated by public sector undertakings, carries higher investment risk. This index exhibits significant variations in returns and risk values, indicating a more volatile and unpredictable investment option. Investors considering the PSU index should be prepared for the potential for higher returns but also greater risk exposure. Furthermore, the study suggests that the family index may not serve as a reliable predictor of the overall market performance represented by the NIFTY index. While the family indices demonstrate their own unique characteristics, their behavior may not fully align with the broader market trends captured by the NIFTY index. Investors should consider this aspect when utilizing the family index as an indicator for market movements.

The study provides valuable insights into the risk and return dynamics of different indices in the Indian stock market. It offers investors a comprehensive understanding of the performance of family-owned businesses, non-family-owned businesses, and public sector undertakings. This knowledge can assist investors in making more informed investment decisions, taking into account their risk tolerance, return expectations, and overall investment objectives.

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