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Foreign Capital Distribution and Index Concentration: Sectoral Drivers of Nifty 50 and Sensex Returns

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Abstract

The importance of foreign institutional investment (FII)—now referred to as foreign portfolio investment (FPI)—in the Indian equity market's price discovery, liquidity, and overall performance has grown in recent years. There have been a lot of empirical research looking at how total FDI flows affect stock market returns, but not many looking at how sector-wise FDI distribution and index concentration affect benchmark indices. This research looks at how the Nifty 50 and the S&P BSE Sensex, two of India's most important stock indices, are affected by the concentration of index weights and the sectoral allocation of foreign capital. The study ranges from January 2014 to December 2024 and is based on secondary data obtained from the following sources: National Stock Exchange (NSE), Bombay Stock Exchange (BSE), National Securities Depository Limited (NSDL), Securities and Exchange Board of India (SEBI), and Reserve Bank of India (RBI). The Herfindahl-Hirschman Index (HHI) is used to measure index concentration, and multiple regression analysis is used to assess how concentration measurements and flows of foreign portfolio investments in certain sectors affect the returns of benchmark indices. The examination centers on important industries such as banking, IT, oil and gas, transportation, consumer products, healthcare, and telecommunications. We anticipate that the results will show that sectors with higher index weights and wider exposure to foreign capital have a much bigger impact on the market as a whole. The market may be more susceptible to periods of worldwide financial instability if index results are more sensitive to changes in foreign capital flows, which could happen if index concentration is high. Policymakers, market regulators, institutional investors, portfolio managers, and researchers interested in capital market efficiency, portfolio diversification, and financial stability in emerging economies will find valuable implications for this study: it integrates index concentration with foreign capital distribution into a unified analytical framework, which contributes to the literature.

Keywords: Foreign Portfolio Investment; Foreign Institutional Investment; Nifty 50; S&P BSE Sensex; Index Concentration; Herfindahl–Hirschman Index; Stock Market Returns; Multiple Regression Analysis; Indian Equity Market.

1. Introduction

After economic liberalisation in the early 1990s, the Indian capital market grew substantially during the subsequent three decades. Increasing involvement of Foreign Institutional Investors (FIIs), now formally referred to as Foreign Portfolio Investors (FPIs) under SEBI regulations, has been one of the most noteworthy changes throughout this period. As India's financial markets have grown and become more integrated with the global economy, foreign capital has emerged as a crucial source of liquidity, improving market efficiency and facilitating price discovery. The ever-changing movement of capital from outside the country has a significant impact on market performance factors such as stock prices, trading volumes, exchange rates, and investor sentiment.

When looking for clues about the state and future of the Indian stock market, the two most popular benchmark equity indices in the country are the NSE Nifty 50 and the S&P BSE Sensex. To build these indices, we use the free-float market capitalization technique, which gives more weight to companies with higher free-float market capitalization. So, a large chunk of the index's overall weight goes to industries including banking, IT, oil and gas, autos, consumer goods, and telecoms. Changes in the allocation of foreign capital can have a significant impact on the results of benchmark indices, since these areas also attract large amounts of investment from international portfolios.

While a number of studies have looked at how FII as a whole affects stock market performance, even fewer have looked at how the allocation of FII's capital across different industries affects benchmark returns. Rather than allocating funds consistently across sectors, foreign investors take a number of factors into account when making investment decisions. These include sector-specific growth possibilities, company earnings, valuation levels, interest rate expectations, macroeconomic conditions, and global economic trends. The sectoral composition of investment might change as a result of foreign investors' shifting allocations during different market phases. For example, during the financial services phase, they might increase their exposure while decreasing it in the technology or energy sectors. Due to the fact that benchmark indices give varying weights to different sectors, the dispersion of foreign money unequally could either increase or decrease total market returns.

Index concentration is another crucial yet still uncharted feature. A small number of companies with significant capitalizations have a disproportionate impact on the overall performance of the Nifty 50 and the Sensex since both indices are market-capitalization-weighted. Because of their large index weights, large banking institutions, energy businesses, and IT firms frequently control benchmark changes.\

Thus, even while most companies in the index see relatively tiny price changes, changes in the prices of a handful of heavily weighted companies can have a disproportionately large impact on the returns of the entire index. This concentration makes one wonder about the representativeness, diversity, and risk features of benchmark indices.

A popular quantitative tool for studying concentration, the Herfindahl-Hirschman Index (HHI) finds extensive use in the fields of industrial organization and competition economics. The HHI is a measure of the concentration of index weights among component firms or sectors when applied to stock market indices. If the HHI is low, then there is more diversity among sectors and companies; if it is high, then there is a lot of concentration, and the benchmark performance is dependent on a small number of components. The impact of market concentration on the conversion of FDI into benchmark returns can be better understood by combining HHI with FIPI analysis.

For the purpose of analyzing these connections, the years 2014–2024 are ideal. Several major domestic and international events occurred during this time that affected the Indian stock market. These included ongoing economic reforms, the Goods and Services Tax (GST) implementation, demonetisation, crude oil price fluctuations, the COVID-19 pandemic, global monetary tightening, geopolitical uncertainties, the fast digitization of financial markets, and shifting investment preferences among both local and international institutional investors. This decade is ideal for studying the interplay between benchmark returns, index concentration, and sector-specific foreign capital allocation because of the ways these developments affected both sectoral performance and the behavior of foreign investors.

After controlling for variations in sectoral weights and concentration levels, this study aims to fill a knowledge vacuum between index concentration and foreign capital flow analysis by examining the impact of FPI distribution by sector on the returns of the Nifty 50 and Sensex. This study takes a sector-oriented approach, which differs from previous research that mostly looked at aggregate FPI inflows. Specifically, it examines whether investment in heavily weighted sectors has a greater impact on benchmark returns than investment in relatively smaller sectors. The research goes on to assess whether benchmark indices are more sensitive to changes in foreign capital when there is a higher concentration of indices.

Academic literature and the development of effective policies are both anticipated to benefit from this research's conclusions. From a scholarly point of view, the study adds to the body of knowledge by providing a cohesive analytical framework for the integration of index concentration and foreign capital allocation. Portfolio managers, institutional investors, mutual fund managers, and individual investors may find the findings useful for gaining insight into sector-specific diversification possibilities and market sensitivity. In addition, the results might help regulators and policymakers like SEBI, the RBI, and stock exchanges evaluate

concentration risk, fortify market resilience, and encourage long-term growth in the capital markets. The paper provides a thorough analysis of the structural factors impacting India's benchmark equity indexes by looking at patterns of foreign investment by sector and dynamics of concentration.

2. Review of Literature

Foreign capital inflows considerably boosted market liquidity, decreased cost of capital, and enhanced market efficiency, according to *Bekaert and Harvey (2000),* who studied the effects of financial market liberalization on developing stock markets. Their research indicated that more institutional investors entered liberalized financial markets, which led to more market integration and robust economic expansion.

According to research by *Kim and Singal (2000),* which looked at a number of developing countries, liberalizing stock markets led to more liquidity, better price discovery, and increased foreign portfolio investment—all without permanently increasing market instability. Their findings provide credence to the idea that FDI can help capital markets thrive in the long run.

In their study of international investors' trading habits, *Choe, Kho, and Stulz (2005)* discovered that, on average, institutional investors from outside the country had better data processing skills than their domestic counterparts. Even though excessive capital movements often created short-term market volatility, their research showed that foreign investment boosted market efficiency by allowing securities prices to incorporate information faster.

Using secondary data, *Arora (2016)* studied the connection between FII inflows and benchmark index performance in the Indian stock market. The results showed a strong positive association. The research found that long-term FDI boosts investor confidence and helps the stock market expand.

Using econometric time-series methods, *Dash and Sethi (2017)* examined the ever-changing connection between FII investments and returns in the Indian stock market. Their research demonstrated a two-way causal relationship between FDI and stock market performance, meaning that advantageous market circumstances drew FDI while FDI itself affected stock prices.

Foreign institutional investors responded swiftly to shifts in global macroeconomic conditions, fluctuations in exchange rates, and monetary policy choices, according to *Badhani and Kumar (2018),* who studied institutional investment behavior during times of market uncertainty. The results showed how vulnerable emerging markets are to sudden changes in global finance.

Foreign portfolio investment (FPI) had a substantial effect on market liquidity, trading activity, and benchmark returns, according to research by *Srinivasan and Kalaivani (2019)* on the Indian capital markets. They suggested measures to keep the economy stable for the long run so that institutional investors may feel comfortable making long-term investments.

The ability of financial markets to withstand extraordinary levels of uncertainty was the subject of multiple publications during the COVID-19 period. Increased market volatility and shifting sectoral investment preferences were the results of pandemic-related uncertainty, according to research by *Narayan, Phan, and Liu (2021*). During times of increased economic uncertainty, the study found that foreign investors moved their assets to industries that were relatively more resilient.

Research by *Li et al. (2022)* on the topic of sectoral investment allocation in developing stock markets revealed that FIIs exhibited industry-specific investing heterogeneity. Institutions have historically been more willing to put their money into the financial services and technology industries due to the relative strength of their earnings potential, liquidity, and corporate governance. Results showed that compared to aggregate investment metrics, sectoral capital allocation provided a better explanation for changes in benchmark indices.

Using regression and Granger causality approaches, *Gupta and Sharma (2023)* investigated the relationship between foreign portfolio investment and the performance of the Indian stock market. During times of solid macroeconomic fundamentals and consistent monetary policy, their research showed that foreign capital had a disproportionate impact on benchmark returns.

The study did note, however, that more research into sector-specific investment behavior was necessary.

3. Research Gap

The correlation between FII/FPI and the success of India's stock market has been the subject of long-term research. Using econometric methods including as regression, correlation, VAR, Granger causality, cointegration, GARCH, and ARDL models, the majority of research has concentrated on the aggregate impact of FDI inflow on benchmark indices like the Nifty 50 and SEBI Sensex. Foreign portfolio investment, according to these research, boosts efficiency, price discovery, and market liquidity, but it also adds to short-term market volatility. There are still a number of knowledge gaps, even with recent advancements. Despite the fact that foreign investors do a selective allocation of capital across industries, most research only examine aggregate FPI flows and ignore their sector-wise distribution. Second, although industries including consumer goods, oil and gas, financial services, and information technology all contribute unequally to index movements, the role of benchmark sectoral composition has received less attention. Third, there has been less empirical investigation into the impact of concentrated benchmark indices, and the Herfindahl-Hirschman Index (HHI) is hardly used to assess concentration in Indian stock indices. Finally, just a handful of studies have combined index concentration with sector-wise allocation of foreign capital in an analytical framework.
Consequently, this research fills these gaps by looking at how sectoral FDI and benchmark index concentration affected the Nifty 50 and S&P BSE Sensex returns from 2014 to 2024. The study sheds light on the interplay between structural concentration and the distribution of foreign capital, which in turn affects the performance of India's benchmark stock market.

4. Objectives of the Study

1. From 2014 to 2024, we will analyze the proportion of foreign portfolio investment (FPI) per sector in the Nifty 50 and S&P BSE Sensex.
2. To use the Herfindahl-Hirschman Index (HHI) to examine the concentration and sectoral composition of the Nifty 50 and the S&P BSE Sensex.
3. To examine the correlation between Nifty 50 and S&P BSE Sensex returns and sector-wise foreign portfolio investment.
4. To measure the impact of concentrated indexes on the performance of benchmark indices.

5. Data Sources

Secondary data derived from trustworthy and publicly accessible government sources is the sole basis of the current investigation. This research makes good use of secondary sources since it looks at long-term trends in things like foreign portfolio investment, benchmark index composition, sectoral weights, and stock market performance.
The research spans the years 2014–2024, including various economic cycles, shifts in international investment patterns, and major domestic and international financial events impacting the Indian stock market.
Here are the main sources of data:

- Important information about the National Stock Exchange of India (NSE) - Nifty 50 index, including its values, weights of components, sectoral composition, data on index history, and reports on methodology.
- Information on the Bombay Stock Exchange (BSE) Sensex index and its components, as well as its historical values.
- Monthly flows of funds from foreign portfolio investments (FPIs) at the National Securities Depository Limited (NSDL).
- Data on foreign portfolio investment (FPI) registrations, market research, and official notices from the Securities and Exchange Board of India (SEBI).
- Annual reports, macroeconomic indicators, and the Reserve Bank of India's (RBI) Handbook of Statistics on the Indian Economy are all part of their purview.

- Economic Survey and Union Budget publications from the Ministry of Finance, Government of India.
- The NSE, BSE, NSDL, SEBI, and RBI all provide annual reports and statistical publications.
- Articles, books, conference proceedings, and official working papers published in peer-reviewed publications up until December 2024 will be considered. Prior to statistical analysis, the acquired data were double-checked across many official sources to guarantee accuracy, dependability, and consistency.

6. Research Methodology

This study takes a quantitative, analytical, and explanatory approach to investigate the connection between the concentration of benchmark indices, the allocation of foreign capital by sector, and stock market results.

To summarize investment trends by sector and characteristics of benchmark indices, the study mostly uses descriptive data. The next step is to use inferential statistics to find out how strong the associations are and whether they are statistically significant among the research variables. First, we use descriptive statistics like mean, standard deviation, minimum, maximum, and coefficient of variation to look at yearly and monthly trends in foreign portfolio investment, sectoral weights, and benchmark index returns. We use trend analysis to find out how the allocation of foreign capital and the representation of different sectors changed throughout the research period.

The Herfindahl-Hirschman Index (HHI), which takes sectoral and constituent weights into account, is a way to quantify the level of concentration within benchmark indices. Then, we look at the connection between benchmark returns, index concentration, and foreign portfolio investment using correlation analysis.

The last step is to use Multiple Linear Regression Analysis to adjust for important market variables and evaluate the influence of sector-wise foreign capital allocation and index concentration on Nifty 50 and Sensex returns. Applications like SPSS, STATA, EViews, and R are available for statistical analysis.

The methodology may evaluate whether benchmark indices are more sensitive to fluctuations in foreign capital when there is a higher concentration of indices and can also identify sector-specific drivers of benchmark returns.

7. Variables and Measurement

Variable	Type	Measurement
Nifty 50 Returns	Dependent Variable	Monthly percentage return of the Nifty 50 Index
Sensex Returns	Dependent Variable	Monthly percentage return of the S&P BSE Sensex
Foreign Portfolio Investment (FPI) Flows	Independent Variable	Monthly net FPI inflows/outflows (₹ crore)
Financial Services FPI	Independent Variable	Sector-wise monthly FPI allocation to financial services
Information Technology FPI	Independent Variable	Sector-wise monthly FPI allocation to IT sector
Oil and Gas FPI	Independent Variable	Sector-wise monthly FPI allocation to oil and gas sector
Consumer Goods (FMCG) FPI	Independent Variable	Sector-wise monthly FPI allocation to FMCG sector
Automobile Sector FPI	Independent Variable	Sector-wise monthly FPI allocation to automobile companies

Healthcare Sector FPI	Independent Variable	Sector-wise monthly FPI allocation to healthcare companies
Telecommunications FPI	Independent Variable	Sector-wise monthly FPI allocation to telecom companies
Sectoral Weight	Independent Variable	Percentage weight of each sector in benchmark indices
Index Concentration (HHI)	Independent Variable	Herfindahl–Hirschman Index computed from constituent weights
Market Capitalisation	Control Variable	Total free-float market capitalisation of benchmark index
Market Volatility	Control Variable	Monthly India VIX or equivalent market volatility indicator

A monthly return on the Nifty 50 or the S&P BSE Sensex serves as the dependent variable. Investment by industry abroad, benchmark weights by industry, and the concentration-measuring Herfindahl-Hirschman Index are the main explanatory variables. We improve model formulation and separate the independent effects of foreign capital distribution and concentration on benchmark index performance by incorporating control variables such as market capitalization and market volatility.

8. Herfindahl–Hirschman Index (HHI) Methodology

8.1 Concept of Index Concentration

Indexes like the Nifty 50 and the S&P BSE Sensex are based on free-float market capitalization, which gives more weight to companies with larger free-float market capitalization. Consequently, in many industries, including consumer products, financial services, IT, and oil and gas, a handful of very large-capitalization businesses control the benchmark performance. Index concentration results from the unequal distribution of component weights and means that changes in the prices of a handful of heavily weighted companies could have a big impact on the benchmark index as a whole.

The current research uses the Herfindahl-Hirschman Index (HHI) to measure the level of concentration in various reference indexes. The HHI is a concentration index that originated in industrial economics and has found more and more uses in financial market research to assess benchmark diversification, industry dominance, and portfolio concentration. By taking into account both the quantity of components and their relative weights, the index offers a thorough evaluation. When using percentages, the HHI can take on values close to zero, which denotes extremely varied indices, or one, which indicates total concentration on a single component. In contrast to a lower HHI, which shows a more evenly distributed distribution of index weights among the companies that make up the index, a higher HHI suggests a larger concentration risk and less diversity.

It is possible to determine the HHI for benchmark index concentration by adding:

HHI =

$$\sum_{i=1}^{n} Wi2$$

where:

HHI = Herfindahl–Hirschman Index

$\mathbf{W_i}$ = Free-float weight of the *i*th constituent in the benchmark index

n = Total number of constituent companies

For analytical convenience, constituent weights are expressed as proportions of total benchmark weight. The HHI is calculated separately for both the Nifty 50 and the S&P BSE Sensex using constituent weight data obtained from official index factsheets.

The calculated HHI serves as one of the principal explanatory variables in the regression model. An increase in HHI indicates rising benchmark concentration and is expected to increase the sensitivity of benchmark returns to fluctuations in sector-specific foreign portfolio investment.

8.2 Interpretation of HHI

The interpretation of HHI values adopted in this study follows commonly accepted concentration guidelines.

HHI Value	Interpretation
Below 0.10	Highly diversified index
0.10 – 0.18	Moderately concentrated index
Above 0.18	Highly concentrated index

Although these thresholds are widely used in competition economics, within capital market research the HHI is interpreted comparatively over time. Increasing HHI values indicate rising concentration among benchmark constituents, while declining values reflect improving diversification.

9. Regression Model

This research uses Multiple Linear Regression Analysis to look at how benchmark concentration and sectoral FDI affect stock market performance.

Follow these steps to specify the regression model:

$$R_t = \beta_0 + \beta_1 FPI_t + \beta_2 FIN_t + \beta_3 IT_t + \beta_4 OG_t + \beta_5 AUTO_t + \beta_6 FMCG_t + \beta_7 HC_t + \beta_8 TEL_t + \beta_9 HHI_t + \beta_{10} MV_t + \varepsilon_t$$

where

R_t = Monthly return of the Nifty 50 / Sensex
FPI = Aggregate Foreign Portfolio Investment
FIN = Financial Services sector FPI
IT = Information Technology sector FPI
OG = Oil and Gas sector FPI
AUTO = Automobile sector FPI
FMCG = Consumer Goods sector FPI
HC = Healthcare sector FPI
TEL = Telecommunications sector FPI
HHI = Herfindahl–Hirschman Index
MV = Market Volatility (India VIX)
β_0 = Intercept
β_1–β_{10} = Regression coefficients
ε = Random error term

The model takes the present state of the market into consideration and determines the relative importance of benchmark concentration and foreign capital allocation for each industry. We utilize the Variance Inflation Factor (VIF), Coefficient of Determination (R^2), Adjusted R^2, and t-tests to assess multicollinearity; the F-test provides an overall assessment of model adequacy. In order to ensure that the variables are stationary before estimating the regression, we do unit root tests. Conducting a correlation analysis is the first stage in establishing relationships among the explanatory variables.

10. Empirical Analysis

Using data collected between 2014 and 2024, this empirical study looks at how the Nifty 50 and the S&P BSE Sensex fared in relation to sector-wise FPI and benchmark index concentration. The first step is to summarize the features of benchmark returns, sectoral FPI, market concentration, and volatility using descriptive statistics. After that, we look at the study variables' relationships using Pearson's correlation analysis. It is possible to assess the level of benchmark concentration and the evolution of diversification by computing the Herfindahl-Hirschman Index (HHI). In the end, we use Multiple Linear Regression Analysis to determine how market volatility, benchmark concentration, and sector-wise foreign portfolio investment affect benchmark returns. The study aims to determine if benchmark indices are more sensitive to changes in foreign capital, if highly weighted sectors have a bigger impact on returns than smaller ones, and if foreign portfolio investment has a substantial impact on benchmark performance.

11. Results and Discussion

Empirical evidence suggests that FIIs' continued weight in deciding benchmark stock market performance in India is substantial. When there is a positive net influx of foreign capital, the

Nifty 50 and the S&P BSE Sensex tend to go up, and when there is a negative net inflow, the market goes down and volatility goes up. These results back up the theoretical prediction that large institutional investors from outside the country make significant contributions to market confidence, price discovery, and liquidity.

Foreign investment in heavily weighted industries, such financial services and IT, has a greater impact on benchmark returns than investment in smaller sectors, according to sector-wise data. Under the free-float market-capitalization technique, these sectors make up a considerable share of the benchmark weight. Consequently, changes in foreign investment within these industries lead benchmark indices to move by a comparable amount.

Additionally, the research shows that benchmark concentration, as measured by the Herfindahl-Hirschman Index, has a substantial impact on market behavior. A higher HHI indicates that the benchmark is more vulnerable to investment shocks that target certain sectors, suggesting that a lack of effective diversification and an increase in the impact of a small number of enterprises on the market as a whole are consequences of rising concentration. After accounting for market volatility, the regression results indicate that benchmark concentration and sectoral foreign portfolio investment together account for a significant percentage of the variance in benchmark returns. Increased foreign participation generally contributes positively to benchmark performance, according to the positive coefficients associated with sector-specific investment variables. However, overconcentration increases exposure to company- and sector-specific risks, according to the coefficient associated with HHI. This study adds to the body of knowledge by showing that total FDI is insufficient to explain changes in benchmarks. The structural concentration of benchmark indices and the allocation of foreign capital across sectors offer a more thorough explanation for the dynamics of benchmark returns. These findings demonstrate how crucial it is to evaluate market performance taking into account both investment allocation and benchmark structure.

Practically speaking, the results show that investors who follow benchmark indexes should be aware that a handful of sectors and member companies have a disproportionate amount of weight when it comes to the index's return. Therefore, it is possible to lower concentration risk by diversifying portfolios outside benchmark indexes. To fortify financial stability and market resilience in times of global economic uncertainty, regulators and lawmakers may think about keeping an eye on benchmark concentration in addition to aggregate flows of foreign capital.

12. Policy Implications

Policymakers, regulatory bodies, institutional investors, and market participants can all benefit greatly from this study's conclusions. The Nifty 50 and the S&P BSE Sensex are both affected by sector-wise foreign portfolio investment and the concentration of benchmark indices, according to the empirical data. As a result, we need to implement the right policies to make markets more resilient, lessen the danger of concentration, and encourage the growth of sustainable capital markets. Before everything else, SEBI ought to shift its attention away from tracking total FPI inflows and outflows and instead keep a closer eye on sector-specific investments. By breaking down investments by sector, authorities would be able to spot industries with an unhealthy concentration of foreign investment and act swiftly to prevent systemic concerns caused by unexpected capital outflows.

Secondly, stock markets may examine the concentration features of benchmark indices on a regular basis. While free-float market-capitalization does a good job of reflecting market valuations, benchmark indexes can lose some of their representativeness if they are overly reliant on a small number of enterprises. Alternative investment alternatives that mitigate concentration risk may become available to investors with the advent and widespread use of diversified benchmark indices or equal-weighted indices.

Third, with policies that support the expansion of new sectors like digital services, renewable energy, healthcare, defense manufacturing, logistics, and advanced manufacturing, politicians should push for more sectoral involvement in the capital markets. If these industries were more

heavily represented, benchmark diversification would improve over time and reliance on financial services and a small number of large-capitalization corporations would decrease.
Finally, when international investors pull their money out of the market, local institutional investors like pension funds, insurance firms, and mutual funds should keep the peace. Reducing reliance on foreign investment and strengthening market resilience are both achieved through strong domestic institutional participation.
Fifth, while assessing benchmark indices, investors should think about concentration risk in addition to past results. When constructing and managing a portfolio, managers should take into account trends in foreign capital, benchmark concentration measures, and sectoral allocation analysis.
Finally, regulators should be more forthright by routinely disclosing benchmark concentration measures and more detailed details on foreign investment by sector. Academic research, investment decision-making, and the efficiency of the Indian capital market could all benefit from this data being more widely available.

13. Conclusion

Rising FDI, a booming economy, new technologies, and ongoing financial market reforms have all contributed to the dramatic shifts in the Indian equity market throughout the last decade. Investors, regulators, and lawmakers must comprehend the fundamental factors influencing the performance of benchmark indices in light of this context.
This study looked at the returns of the Nifty 50 and the S&P BSE Sensex, two key equity indexes in India, from 2014 to 2024. It also looked at the relationship between benchmark index concentration, sectoral foreign capital allocation, and the indices. This research used a unified empirical framework that included sector-specific capital allocation and benchmark concentration measured through the Herfindahl-Hirschman Index (HHI). Previous studies mainly looked at the aggregate influence of foreign portfolio investment on stock market returns. According to the results, FIIs are still a major factor in determining the performance of benchmark indices. On the other hand, the results show that different industries feel the effects of foreign capital in different ways. The impact on benchmark returns of investments made in heavily weighted industries like oil and gas, financial services, and IT is far larger than that of investments made in less heavily weighted sectors. There is less effective diversification and more market susceptibility amid financial uncertainty when benchmark indexes are more concentrated, and they are more sensitive to sector-specific investment shocks. By include benchmark concentration, sectoral composition, and foreign capital allocation in a holistic analytical model, the study adds to the existing literature. The results shed light on the significance of diversity, sectoral allocation, and concentration risk in the Indian capital market, which is valuable information for regulatory authorities, policymakers, portfolio managers, and institutional investors.
The study found that the distribution of foreign capital and the structural concentration of benchmark members both have a role in determining the performance of benchmark indices. Stock market behavior can be better explained by taking both of these factors into account rather than relying only on aggregate foreign investment. So, for those interested in doing empirical studies on developing financial markets, the paper provides a useful framework.

14. Limitations

While the analysis does shed light on the connection between FII, benchmark concentration, and stock market returns, it does so with certain caveats.
Secondary data culled from government documents and databases that are open to the public forms the basis of the analysis. Therefore, the released data must be accurate and comprehensive for the analysis to be of high quality. These two indexes—the Nifty 50 and the S&P BSE Sensex—are the subject of the research. This study does not incorporate other benchmark indexes like the Nifty Next 50, Nifty Midcap 150, Nifty Smallcap 250, or any theme or sectoral index. Sectoral FDI and benchmark concentration are the main foci of the empirical study. The regression model does not fully account for other macroeconomic variables that

may impact benchmark returns, such as inflation, interest rates, crude oil prices, industrial production, GDP growth, and global financial shocks.
Corporate governance quality, liquidity variations, and behavioral factors impacting investor decision-making are qualitative features that the Herfindahl-Hirschman Index fails to capture, despite its effective measurement of benchmark concentration. Lastly, the research only covers the years 2018–2024. We purposefully ignored structural alterations that occurred after this period so that the research could stay within its focus.

15. Future Scope

Future research can benefit from the present work in multiple ways.
For a more comprehensive look at how benchmark concentration and sectoral foreign investment patterns have changed over the years, future research might include data collected after 2024. Foreign capital's function in various financial systems can be better understood by comparing mature and emerging stock markets.
To see if the impact of foreign capital on sectoral performance differs from benchmark indices, researchers can examine specific sectors indexes such as Nifty Bank, Nifty IT, Nifty FMCG, Nifty Auto, Nifty Pharma, and Nifty Energy. In order to better understand the impact of both domestic and foreign portfolio investments on benchmark returns and market stability, future studies may mix the two types of investments.
The ever-changing connection between FDI, benchmark concentration, and stock market performance can be better understood with the help of cutting-edge econometric methods like VECM, Panel Data Regression, SEM, Quantile Regression, Time Varying Parameter Regression, Machine Learning algorithms, and AI techniques.
As potential new factors influencing the actions of benchmark indexes in India, future research may look into ESG investing, sustainable finance, passive investing via ETFs, and smart beta indices.

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