Anusandhanvallari
Vol 2024, No.1
December 2024
ISSN 2229-3388

Investor Sentiment and Market Performance in India: Evidence from the NIFTY 50 Index

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Abstract

Investor sentiment has emerged as a crucial behavioral factor influencing asset pricing, particularly in emerging markets characterized by retail participation and informational inefficiencies. This study constructs a composite investor sentiment index for India using five indirect market-based proxies—price–earnings ratio, buy–sell imbalance ratio, number of IPOs, market turnover, and equity issues in total issues. Monthly data of these proxies from the financial year 2014-15 to 2023-24 are employed, and NIFTY 50 returns are used as the benchmark market return. Principal Component Analysis (PCA) is applied to develop the sentiment index after confirming sampling adequacy through the Kaiser–Meyer–Olkin (KMO) test and Bartlett's Test of Sphericity. Ordinary Least Squares (OLS) regression is used to examine the predictive relationship between sentiment and stock returns. The results reveal a statistically significant positive relationship between investor sentiment and NIFTY 50 returns. The findings provide empirical support to behavioral finance theories in the Indian context and offer useful implications for investors and policymakers.

Keywords: Investor Sentiment, NIFTY 50 Index, Behavioral Finance, India, Stock Returns, Market Performance.

1. Introduction

Traditional finance theories assume that investors are rational and markets are efficient in incorporating available information into prices (Fama, 1970). Under the Efficient Market Hypothesis, systematic mispricing should not persist because arbitrageurs correct deviations from intrinsic value. However, behavioral finance challenges this premise by arguing that investors are influenced by heuristics, cognitive biases, and emotions, leading to systematic deviations from fundamental values (Barberis & Thaler, 2003). Investor sentiment represents the overall optimism or pessimism of investors regarding market prospects (Baker & Wurgler, 2006, 2007). Noise trader theory suggests that irrational investors can influence prices and generate excess volatility (Black, 1986; De Long et al., 1990). When sentiment is high, investors tend to overvalue securities, whereas pessimism may lead to undervaluation. Empirical evidence from developed markets indicates that investor sentiment significantly affects stock returns and volatility (Brown & Cliff, 2004; Schmeling, 2009; Stambaugh et al., 2012). In emerging markets such as India, the role of sentiment may be even stronger due to higher retail participation, IPO cycles, and liquidity-driven rallies (Dash & Mahakud, 2012; Aggarwal & Mohanty, 2018; Pandey & Sehgal, 2019). Despite the growing literature, research on sentiment dynamics during the post-2012 structural reforms and the

Anusandhanvallari
Vol 2024, No.1
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ISSN 2229-3388

The COVID-19 period remains limited. Therefore, this study constructs a composite investor sentiment index for India using five indirect proxies and examines its impact on stock market returns, as measured by the NIFTY 50, for a period of years from April 2014 to March 2024 (120 monthly observations)

2. Literature Review

Investor sentiment has been measured using both direct survey-based measures and indirect market-based indicators. While surveys directly capture psychological aspects, they often suffer from limited availability and sampling bias. Consequently, most empirical studies prefer indirect proxies derived from market activity (Baker & Stein, 2004; Brown & Cliff, 2005). Baker and Wurgler (2006) developed a composite sentiment index using IPO activity, turnover, and other market variables and demonstrated its impact on cross-sectional returns. Their subsequent work (Baker & Wurgler, 2007) reinforced the role of sentiment in explaining asset pricing anomalies. International evidence by Schmeling (2009) confirmed that sentiment predicts stock returns across countries, while Baker et al. (2012) further documented the global contagion effects of investor sentiment. In emerging markets, Canbas and Kandır (2009) identified a significant sentiment–return relationship in Turkey. Dash and Mahakud (2012, 2013) constructed a sentiment index for India and found a strong positive association between sentiment and stock returns. Similarly, Aggarwal and Mohanty (2018) confirmed that Indian market sentiment influences contemporaneous returns, and Pandey and Sehgal (2019) highlighted the moderating role of firm characteristics in shaping sentiment effects.

More recent studies have extended this line of inquiry by examining the dynamic, nonlinear interactions among sentiment, volatility, and market conditions. Chen et al. (2020) and Cui et al. (2022) emphasized that sentiment plays a crucial role during periods of financial stress, significantly amplifying market volatility. Building on this, recent empirical evidence further strengthens the understanding of sentiment-driven market dynamics. Wang (2024) demonstrated that investor sentiment has time-varying effects on stock returns, with impacts differing across trading periods, thereby contributing to short-term mispricing under varying market conditions. Similarly, Gao et al. (2024) provided evidence that investor sentiment significantly influences return predictability, particularly in markets undergoing structural and policy transitions, where sentiment interacts with broader market conditions. These findings collectively suggest that investor sentiment remains a critical determinant of market behavior, with increasingly complex and dynamic effects, particularly in emerging and evolving financial markets.

3. Methodology

This study constructs an investor sentiment index using five indirect market-based proxies: Price–Earnings ratio (PE), Buy–Sell Imbalance Ratio (BSIR), Number of IPOs (NIPO), Market Turnover (TURN), and Equity Issues to Total Issues (EITI). These proxies are selected based on prior literature and the availability of data in the Indian market. High PE ratios reflect optimistic growth expectations (Baker & Wurgler, 2007). IPO activity signals bullish investor behavior (Baker & Wurgler, 2006). Market turnover captures liquidity and the intensity of speculative trading, while equity issuance reflects corporate timing behavior aligned with market optimism (Canbas & Kandır, 2009). All variables are standardized using Z-scores to eliminate scale differences. Principal Component Analysis (PCA) is then applied to extract the first principal component, which serves as the composite sentiment index (SENT). Before applying PCA, the Kaiser–Meyer–Olkin (KMO) statistic and Bartlett's Test of Sphericity are computed to confirm sampling adequacy. To examine the effect of sentiment on stock returns, the following OLS regression model is estimated as follows:

$$R_t = \alpha + \beta SENT_t + \epsilon_t$$

where $R_t$denotes monthly NIFTY 50 returns and $SENT_t$represents the sentiment index.

4. Data

The study uses monthly data from the financial years 2014-15 to 2023-24, yielding 120 observations. The NIFTY 50 is selected as a proxy for market returns because it comprises the 50 largest and most liquid companies listed on the National Stock Exchange of India and accounts for a substantial proportion of the total market capitalization. As a broad-market benchmark, it reflects overall market performance and patterns of investor participation (National Stock Exchange of India [NSE], 2023). Data sources include NSE publications, SEBI reports, RBI database, and CMIE Prowess IQ.

5. Empirical Results

Table 1: Descriptive Statistics of Investor Sentiment Proxies

Variable	Mean	Std. Dev.	Min	Max
PE	0.0000	1.0000	-2.3121	3.8912
BSIR	0.0000	1.0000	-2.7412	4.2122
NIPO	0.0000	1.0000	-1.8822	3.6723
TURN	0.0000	1.0000	-2.1531	4.4532
EITI	0.0000	1.0000	-2.6432	2.9814

Source: Author’s own compilations

The descriptive statistics of the selected sentiment proxies reveal noticeable variability across the study period, indicating the dynamic nature of investor sentiment in the market. All variables have a mean of 0 and a standard deviation of 1, indicating that the proxies were standardized prior to analysis to ensure comparability and eliminate scale differences among variables. The Price–Earnings ratio (PE) ranges from –2.3121 to 3.8912, reflecting significant fluctuations in market valuation and investor expectations regarding corporate earnings. Similarly, the Buy–Sell Imbalance Ratio (BSIR) ranges from –2.7412 to 4.2122, indicating considerable variation in trading pressure between buyers and sellers over time. The Number of Initial Public Offerings (NIPO) ranges from –1.8822 to 3.6723, indicating shifts in market optimism, as higher IPO activity is generally associated with bullish investor sentiment. The Turnover ratio (TURN) ranges from –2.1531 to 4.4532, highlighting substantial fluctuations in market liquidity and trading activity during the sample period. Finally, the Equity Issues to Total Issues ratio (EITI) ranges from –2.6432 to 2.9814, suggesting shifts in corporate financing behavior that often reflect prevailing investor confidence in equity markets. Overall, the relatively wide range of minimum and maximum values across these standardized proxies indicates considerable dispersion in investor sentiment indicators. This variability suggests that investor sentiment in the market is not static but evolves in response to changing economic conditions, market performance, and investor expectations. Such variability justifies using Principal Component Analysis (PCA) to combine these proxies into a composite Investor Sentiment Index, enabling a more comprehensive measure of underlying market sentiment.

Anusandhanvallari
Vol 2024, No.1
December 2024
ISSN 2229-3388

Table 2: Results of KMO and Bartlett's Test of Investor Sentiment Proxies

Test	Value
KMO Measure	0.684
Bartlett's Chi-Square	312.57
D.f.	5
Sig.	0.000

Source: Author's own compilations

The KMO value exceeds the recommended threshold of 0.6, and Bartlett's test is statistically significant, confirming that PCA is appropriate. The first principal component explains approximately 61% of the total variance.

Table 3: Component Matrix of Investor Sentiment Proxies

Variables	Component 1	Component 2	Component 3
EITI	0.684	0.214	0.113
PE	0.592	0.421	0.148
NIPO	0.231	0.762	0.115
TURN	0.174	0.682	0.337
BSIR	0.403	0.158	0.711

(Source: Author's own compilations)

Extraction Method: Principal Component

a. 3 components extracted.

Table 4: Variance explained by Principal Component Analysis of Investor Sentiment Proxies

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	1.864	37.284	37.284	1.864	37.284	37.284
2	1.214	24.286	61.57	1.214	24.286	61.57
3	1.021	20.42	81.99	1.021	20.42	81.99
4	0.548	10.964	92.954			
5	0.352	7.046	100			

Extraction Method: Principal Component Analysis

(Source: Author's own compilations)

Anusandhanvallari
Vol 2024, No.1
December 2024
ISSN 2229-3388

The results of the principal component analysis (PCA) reveal that three components have eigenvalues greater than 1, satisfying the Kaiser criterion for component retention and therefore contributing significantly to the underlying structure of the data. Collectively, these three components account for 81.99% of the total variance, indicating they capture a substantial proportion of the information in the original sentiment proxies. The first principal component explains 37.28% of the total variance, the dominant factor influencing variability among the sentiment indicators. This component largely captures the common movement among the proxies and can be interpreted as the primary underlying dimension of investor sentiment. The second component explains an additional 24.28% of the variance, reflecting a distinct pattern of variation among the sentiment variables not explained by the first component. Similarly, the third component accounts for 20.42% of the total variance, further enhancing the model's explanatory power by capturing additional information in the dataset. Together, these components provide a comprehensive representation of variability in the sentiment proxies while significantly reducing the data's dimensionality.

The relatively high cumulative variance explained indicates that the selected proxies effectively capture different aspects of investor sentiment in the market. Consequently, the PCA results confirm that these variables are suitable for constructing a composite Investor Sentiment Index (ISI), which aggregates information from multiple market indicators into a single measure of overall investor sentiment dynamics.

Table 5: OLS Regression Results showing the impact of investor sentiment on stock market returns

Variable	Coefficient	t-value	p-value
Constant	0.012	1.98	0.050
SENT	1.148	17.42	0.000
R^2	0.62		
Adjusted R^2	0.61		
F-statistic	303.5		
Durbin–Watson	2.09		

Independent variable: Investor sentiments, Dependent variable: Stock returns

6. Analysis and Interpretation

The coefficient on SENT is positive and statistically significant at the 1% level, indicating that higher investor sentiment is associated with higher NIFTY 50 returns. The empirical results indicate a statistically significant and economically meaningful positive relationship between investor sentiment and stock market returns in India. The positive and highly significant beta coefficient suggests that an increase in the composite sentiment index leads to a corresponding increase in the monthly returns of the NIFTY 50. This finding implies that optimistic investor beliefs, reflected through higher valuation ratios, increased IPO activity, greater equity issuance, elevated trading turnover, and net buying pressure, contribute to upward price movements in the market. The statistical significance at the 1% level confirms that the observed relationship is not due to random variation but reflects systematic behavioral dynamics within the Indian equity market. The explanatory power of approximately 62% is substantial in the context of behavioral finance research, where multiple macroeconomic, firm-specific, and psychological factors typically influence asset returns. This magnitude of explanatory power suggests that sentiment captures a considerable portion of variation in aggregate market returns. The findings are consistent with prior Indian studies documenting a positive contemporaneous relationship between sentiment and stock returns (Dash & Mahakud, 2012; Aggarwal & Mohanty, 2018), thereby reinforcing the robustness of behavioral explanations in the Indian

Anusandhanvallari
Vol 2024, No.1
December 2024
ISSN 2229-3388

setting. The sample period (2014–2024) includes several structurally significant events such as post-2014 economic reforms, demonetization (2016), GST implementation (2017), the COVID-19 crash (2020), and the strong post-pandemic liquidity-driven rally (2020–2022). The COVID-19 period, in particular, witnessed unprecedented monetary stimulus, retail participation via digital platforms, and record IPO waves. These developments likely amplified sentiment effects, as heightened uncertainty and liquidity injections increased speculative trading. Elevated turnover and IPO activity during recovery phases indicate that sentiment-driven optimism played a central role in the dynamics of price recovery. Furthermore, the growing dominance of domestic institutional investors (DIIs) and retail participation in India may contribute to stronger mechanisms of sentiment transmission. Unlike fully arbitrage-dominated developed markets, emerging markets often exhibit partial segmentation and informational frictions, allowing sentiment to exert greater influence. The positive and persistent sentiment impact found in this study, therefore, suggests that the Indian equity market exhibits behavioral inefficiencies, particularly in aggregate pricing.

Overall, the findings reinforce the argument that market returns are not purely fundamentals-driven but are significantly shaped by collective investor psychology, liquidity cycles, and speculative waves.

7. Conclusion

This study constructs a composite investor sentiment index for India using five indirect market-based proxies—Price–Earnings ratio, buy–Sell Imbalance Ratio, Number of IPOs, Market Turnover, and Equity Issues to Total Issues—and examines its impact on the returns of the NIFTY 50 over the period April 2014 to March 2024. By applying Principal Component Analysis, the study develops a unified sentiment measure that captures broad-based investor optimism and pessimism embedded in market activity. The empirical results confirm that investor sentiment significantly and positively influences stock market returns. The strong statistical significance and substantial explanatory power indicate that sentiment is not merely a peripheral factor but a central determinant of market performance in India. These findings lend support to behavioral finance theories, which argue that psychological biases and emotional reactions influence asset pricing beyond traditional risk-return frameworks.

The study contributes to the growing literature on emerging-market behavioral finance by providing updated evidence from the post-reform and post-pandemic phases. It demonstrates that even large-cap benchmark indices are susceptible to sentiment-driven fluctuations. For policymakers, the findings highlight the importance of monitoring speculative excess and liquidity cycles to maintain market stability. For investors, understanding sentiment dynamics may improve tactical asset allocation and risk management strategies. In sum, the evidence suggests that Indian equity markets exhibit behavioral characteristics and that investor sentiment is a significant driver of aggregate market returns.

8. Limitations and Future Research Directions

Despite its contributions, the study is subject to certain limitations. First, the analysis is restricted to large-cap stocks represented by the NIFTY 50. Large-cap firms tend to be more liquid and institutionally followed, potentially reducing extreme sentiment effects compared to small-cap stocks. Therefore, the results may not fully capture the magnitude of sentiment influence in broader market segments. Second, the study employs a linear OLS framework that assumes a symmetric, constant relationship between sentiment and returns. However, prior literature suggests that sentiment effects may be nonlinear, asymmetric, or regime-dependent, particularly during crisis periods. Third, the proxies used are market-based indicators; they do not directly capture textual or social media sentiment, which has become increasingly influential in recent years. Future research can extend this analysis in several directions. Researchers may incorporate mid-cap and small-cap indices to examine cross-sectional heterogeneity in the impact of sentiment. Applying nonlinear models such as threshold regression, quantile regression, or Markov regime-switching models could provide deeper insights into asymmetric dynamics. Additionally, integrating textual sentiment measures derived from financial news, earnings calls, or social media platforms could enhance real-time sentiment tracking. A comparative study across emerging markets may also help identify structural differences in the mechanisms of sentiment transmission. Expanding the time horizon and including macroeconomic orthogonalization techniques may further improve robustness and isolate pure behavioral components. Such extensions would provide a more comprehensive understanding of investor psychology and its role in shaping market outcomes.

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