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Research Article

The Timing of Mutual Funds in India's Market and their Selectivity

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ABSTRACT
This study looks at the performance of Indian equity mutual funds from 2019 to 2024, focusing on timing, diversity, and selectivity as key variables. The funds' performance over this time was used to select ten. The evaluation made use of the following models: Henriksson and Merton, Fama, Treynor, and Treynor-Mazuy. According to the results, mutual funds usually follow their benchmarks rather closely since they offer relatively low-risk investments. Some funds outperform the market, though, so clearly there's talent in the management team. Mutual fund investors who want to get the most out of their money can use these findings to their advantage.

1. Introduction

An expanding financial sector, which invests capital in lucrative initiatives, is the engine that drives an economy forward. Banks in India have long promoted saving, but by 2022, just 3% of the population had put money into the stock market, which was still considered to be reserved for experienced investors. The household savings rate reached 150% in 2021 and 2022, with a significant portion of the increase going into mutual funds, a popular investment option particularly for smaller investors. With almost 2,000 programs provided by forty-four asset management companies, mutual funds manage assets exceeding two trillion rupees [1-4]. They provide regular people better profits and more control over their risk thanks to their effective management. However, considering the importance of timing and stock selection, it is essential to evaluate the performance of mutual funds. This research aims to assess the performance of mutual funds operating in the Indian market and shed light on the factors that influence their capacity to generate returns for investors.

2. Literature Review

The timing and selectivity of Indian sector funds' performance between 2012 and 2015 was the primary subject of the research by Gudimetla, (2015). Researchers used the Jensen, Treynor, and Mazuy models to conclude that sector fund managers aren't good at picking stocks or predicting market movements. Managers of sector funds confront difficulties in predicting changes in their respective industries, since the results showed that these funds had negative market timing skills[5-8].

Market timing and the ability to pick stocks are crucial for Indian mutual funds to succeed. It emphasizes the application of models such as Treynor and Mazuy and Henriksson and Merton for the purpose of assessing these abilities. According to the research, these skills are vital to the success of mutual funds.

According to Thippeswamy (2023), an investor-friendly approach is crucial for the future of the mutual fund sector in India. The findings indicate that improving marketing methods can help the industry develop and succeed [9-14].

This research looked at the Bombay Stock Exchange in India and how certain indices did from 2011 until 2021. The study's findings regarding the S&P BSE Index's superior performance have important ramifications for a range of interested parties, including regulators, policymakers, portfolio managers, and international institutional investors.

Few funds achieved statistically significant alpha values, and the vast majority did not achieve net selectivity or positive alpha. The same was true for market timing abilities; the gamma values were so little that they couldn't be considered statistically significant. According to Sarkar and Ghosh (2019), the majority of fund managers failed to properly choose equities or time the market, resulting in returns that fell short of market expectations on a consistent basis [15-18].

Using the four-factor approach, researchers in India were able to determine that equities fund managers' style timing and liquidity timing abilities were strong, while their ability to time market liquidity was weak.

Robust long-term performance and healthy risk-adjusted returns were shown by positive values of Treynor, Sharpe, Jensen's alpha, M-squared, and IR. Nonetheless, the research discovered statistically significant negative gamma values when employing the TM and HM models, suggesting that fund managers lacked the necessary market timing abilities. According to Srivastava (2023), market concerns and disruptions created by the COVID-19 outbreak could be the reason for this divergence [19].

Using conditional TM and HM models, the study assessed 52 equity diversified mutual fund schemes in India for their

stock selection and market timing abilities from April 2009 to March 2019. The research indicated that little under a quarter of the funds were good at picking stocks; none of them were negative selectors. Additionally, there was scant evidence of market timing abilities, and a few funds even displayed "perverse" market timing. If fund managers had trouble being great at both stock selection and market timing, that would explain why they struggled.

In 1972, Fama put out a model that tried to assess investment performance by considering both return and risk (selectivity). The methodology advocated dissecting the performance of a portfolio into its individual elements. It provided a means of comparing the returns achieved with a similar level of systematic risk with the enhanced returns achieved by a fund in relation to a specific degree of risk[20].

2.1 Research Gap

According to the literature review, there are some unknowns about the performance of mutual funds in India. Although there is a wealth of information available on specific aspects of mutual fund performance, there is still a lack of research specifically addressing the intricate interplay between stock selection, market timing, and long-term fund performance in the Indian context.

2.2 Research Objective

1. Analyze Indian equity mutual fund performance between 2018 and 2024, paying particular attention to factors like diversity, timeliness, and selectivity.
2. To critically examine the stock selection and market timing skills of mutual fund managers by applying the Henriksson and Merton model, the Fama model, the Treynor model, and the Treynor-Mazuy model.

3. Research Methodology

3.1 Period of Study

Over the course of five years, from 2019-01-01 to 2024-03-30, the study examines ten separate funds. Funds' daily Net Asset Values (NAVs), the 252-day Treasury-Bill rate, and the NSE Nifty fifty index are the variables utilized for analysis.

3.2 Data Collection

The majority of the study's data came from secondary sources. We used Yahoo Finance to compile the funds' daily NAVs, and the NSE website to get the Nifty Fifty index values. Also, we have retrieved the 252-day Treasury-Bill value from the RBI website for the given period.

3.3 Sample Selection

Table 1 depicts the ten funds selected for the study

Table 1. Ten Funds

Sl No.	Portfolio
1	Axis Bluechip Fund - Direct Growth
2	SBI Bluechip Fund - Direct Growth
3	Motilal Oswal Midcap 30 Direct Growth
4	Tata Banking&Financial Service Direct Growth
5	Nippon India Banking Fund Direct Plan Growth
6	Kotak Emerging Equity Scheme Direct Plan Growth
7	Canara Robeco Infrastructure Fund Direct Plan Growth
8	Aditya Birla Sun Life MNC Fund Direct Plan
9	ICICI Prudential Bluechip Fund – Direct Growth
10	Hdfc Infra Fund- Direct Growth

Table 2 depicts the market returns and portfolio returns

Table 2. Market Returns and Portfolio Returns

Sl No.	Portfolio	Returns (Rp/Rm)
1	Axis Bluechip Fund - Direct Growth	0.068224
2	SBI Bluechip Fund - Direct Growth	0.068721
3	Motilal Oswal Midcap 30 Direct Growth	0.103071
4	Tata Banking&Financial Service Direct Growth	0.068251
5	Nippon India Banking Fund – Direct Plan Growth	0.027806
6	Kotak Emerging Equity Scheme Direct Plan Growth	0.075807
7	Canara Robeco Infrastructure Fund Direct Plan Growth	0.075352
8	Aditya Birla Sun Life MNC Fund Direct Plan	0.023688
9	ICICI Prudential Bluechip Fund – Direct Growth	0.075487
10	Hdfc Infra Fund - Direct Growth	0.082709
	Market	0.061382

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4. Tools for Analysis

The analysis examines how several mutual funds perform based on their risk and returns relative to risk. The following tools are employed for this evaluation:

4.1 Average Returns

The average returns are computed using the daily net asset value (NAV). Subtracting the NAV of one day from the NAV of the next day and then dividing the result by the NAV of that day is how the daily returns a re calculated. Finally, the average of these calculated returns is determined.

$$\text{Daily Return} = \frac{NAV_{t+1}-NAV_t}{NAV_t}$$

$$\text{Average Return} = \frac{\sum \text{Daily Returns}}{\sum t}$$

4.2 Standard Deviation

The dispersion of the fund is measured by it. The dispersion of a fund's returns around its mean is proportional to its standard deviation. The entire risk of the fund can be measured by calculating its standard deviation.

$$\text{Standard Deviation } (\sigma) = \frac{\Sigma (Ri - R\bar{\imath})^2}{n-1}$$

4.3. Beta (ß)

Beta is a way to estimate the unavoidable systematic risk of investing in risky assets that diversification cannot eliminate. It indicates the degree to which a fund's volatility exceeds that of the market benchmark. By dividing the market benchmark's variance by its covariance with itself, the market beta value is always one. Thus, a beta larger than one indicates that the volatility of the fund is higher than the market benchmark. When compared to the market benchmark, a fund's volatility is reduced when its beta value is less than one.

$$\text{Beta } (ß) = \frac{\Sigma(Ri - R\bar{\imath}) * (Rm - R\bar{m})}{\Sigma(Rm - R\bar{m})^2}$$

4.4 Models Applied

4.4.1 (a) FAMA Net Selectivity

An extension of the Jensen model, net selectivity was proposed by Fama (1972). When looking at a fund's performance in relation to its needed return, Fama's net selectivity takes the total risk into account. An indication of the fund manager's stock picking ability is the 'net selectivity,' which is the difference between the fund's actual performance and the necessary return. It is usually preferable to have a greater net selectivity value rather than a lower one. Below, we detail the four main components of a portfolio's observed return (Rp), from which Fama's measure is derived:

1. The risk-free return: Rf
2. The impact of systematic risk: βp(Rm - Rf)
3. 3.The impact of imperfect diversification: (σp/σm - βp)(Rm - Rf)
4. The net superior returns due to net selectivity: Rp - (Rf + σp/σm(Rm - Rf))

In the above context:

1. Rp represents the average return of the portfolio.
2. Rf signifies the risk-free rate of return.
3. βp denotes the systematic risk of the portfolio.
4. Rm represents the average return of the market.
5. σm represents the standard deviation of the market returns.
6. σp signifies the standard deviation of the portfolio returns.

Together, they provide light on all the factors that went into calculating the portfolio's total return. When trying to understand the observed return of a portfolio, Fama's measure sheds light on the relative contributions of risk-free returns, systematic risk, net selectivity, and imperfect diversification.

4.4.2 TREYNOR-MAZUY Model of Market Timing:

Market timing is ability of fund manager to forecast the market and hence change the beta of portfolio accordingly. Treynor and Mazuy (1966) proposed the following model to estimate the market timing skill of fund manager,

1. $Rp - Rf = \alpha + \beta (Rm - Rf) + \gamma (Rm - Rf)$ 2
2. Rp = Average return of the scheme
3. Rf = Risk free rate of return
4. β = Systematic risk of the sample scheme
5. Rm = Average return of the market
6. α = estimated selectivity performance
7. γ = market timing coefficient

4.4.3 Henriksson and Merton model

A well-known framework in the field of finance for assessing the efficacy of investment portfolios, the Henriksson and Merton model is likewise dependent on regression, much like the Treynor and Mazuy model. This model, which was created by Robert A. Henriksson and Robert C. Merton, adds market timing capability to the study, making it an extension of the classic Capital Asset Pricing Model (CAPM). The effect of portfolio managers' choices about market timing on performance is the primary emphasis of the Henriksson and Merton model. In doing so, it acknowledges that managers' exposure to market risk may evolve over time in response to managers' subjective assessments of market conditions.

This relationship can be measured by using a dummy variable

1. $Rp - Rf = \alpha + \beta (Rm - Rf) + \gamma [D (Rm - Rf)]$
2. Rp = Average return of the scheme
3. Rf = Risk free rate of return
4. β = Systematic risk of the sample scheme
5. Rm = Average return of the market
6. α = estimated selectivity performance
7. γ = market timing coefficient

Where D is a dummy variable that equals to 1 for Rm > Rf and -1 otherwise. The significant value of γ would indicate market timing ability of the fund managers.

5. Empirical Findings and Performance Evaluation

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Table 3. Fama's Decomposition Measure for Portfolio Returns

Portfolio	Impact Of Systematic Risk	Impact Of Diversification	Net Superior Returns Due to Net Selectivity	Average Return (Rī)
Axis Bluechip Fund - Direct Growth	0.00121	0.02887	0.01081	0.068224
SBI Bluechip Fund – Direct Growth	0.00083	0.03133	0.00922	0.068721
Motilal Oswal Midcap 30 Direct Growth	0.00124	0.03261	0.04188	0.103071
Tata Banking&Financial Service Direct Growth	0.00125	0.03261	0.00128	0.068251
Nippon India Banking Fund – Direct Plan Growth	0.00089	0.04482	-0.0452	0.027806
Kotak Emerging Equity Scheme Direct Plan Growth	0.00209	0.02772	0.01865	0.075807
Canara Robec Infrastructure Fund Direct Plan Growth	0.00106	0.03273	0.01422	0.075352
Aditya Birla Sun Life MNC Fund Direct Plan	0.00152	0.02507	-0.0302	0.023688
ICICI Prudential Bluechip Fund – Direct Growth	0.00065	0.03068	0.01682	0.075487
Hdfc Infra Fund - Direct Growth	0.00074	0.03795	0.01668	0.082709

You can see Fama's decomposition measures in the table up there. The table3 shows the various aspects of performance that are affected by net selectivity, diversification, and systematic risk. Hp(Rm - Rf) is the beta coefficient, which shows how systemic risk impacts portfolio returns. When values are higher, the portfolio's results could be more affected by market fluctuations. The returns of the Kotak Emerging Equity Scheme Fund are more affected by overall market conditions compared to the other portfolios in the table. This is evident from the fact that "Kotak Emerging Equity Scheme Direct Plan Growth" has a relatively high impact of systematic risk, which is 0.00209. The Influence of Variety: This exemplifies the impact of inadequate diversity on portfolio results. A negative value indicates that it has a negative impact on the diversification of the portfolio, while a good value indicates the opposite. If one wants to diversify their holdings among midcap firms, they should look into the "Nippon India Banking Fund - Direct Plan Growth" portfolio, which has a stronger positive impact of diversity (0.04482) than the other portfolios in the table. Maximize Profits Indicates the portfolio's net excess returns due to net selectivity, which considers both the risk-free rate (Rf) and the beta (βp) of the portfolio. Greater returns from the portfolio's selectivity are indicated by positive values, whereas underperformance is indicated by negative values. As can be seen in the table above, the selection of midcap companies has contributed to the portfolio's outperformance of the market. Specifically, "Motilal Oswal Midcap 30 Direct" has the highest positive net superior return (0.04188) as a result of net selectivity, followed by "Kotak Emerging Equity Scheme Direct Growth." Average Return (Rī) is a measure of the portfolio's average return over a five-year period. A good indicator of a portfolio's health is its average return. According to the data presented, of the aforementioned portfolios, "Motilal Oswal Midcap 30 Direct" yields the highest average return (0. 10307). This means that, relative to the other portfolios in the table, this one has, on average, generated higher returns.

Table 4. Table showing results on performance of market timing abilities of fund managers using Treynor and Mazuy model

Portfolio	Alpha(α)	Beta(β)	Standard Error of β	T-Beta	Gama(γ)
Axis Bluechip Fund - Direct Growth	0.05895	0.03557	0.0327	1.085	-16.6425
SBI Bluechip Fund – Direct Growth	0.05970	0.02437	0.0294	0.8261	-16.5336
Motilal Oswal Midcap 30 Direct Growth	0.05762	0.03642	0.028	1.3004	14.5518
Tata Banking&Financial Service Direct Growth	0.05887	0.03671	0.0239	1.5348	-16.5847
Nippon India Banking Fund – Direct Plan Growth	0.06065	0.02605	0.0207	1.2557	-52.7136
Kotak Emerging Equity Scheme Direct Plan Growth	0.05673	0.06133	0.0317	1.9298	-8.9368
Canara Robeco Infrastructure Fund Direct Plan Growth	0.05902	0.03124	0.028	1.1132	-10.4263
Aditya Birla Sun Life MNC Fund Direct Plan	0.06032	0.04477	0.0356	1.2554	-56.5274
ICICI Prudential Bluechip Fund – Direct Growth	0.05993	0.01918	0.0302	0.6335	-10.7375
Hdfc Infra Fund - Direct Growth	0.05957	0.02183	0.0245	0.8904	-4.2741

The ability to time the market is symbolized by gamma (γ). In contrast to negative numbers, which indicate incompetence in market timing, positive gamma values indicate that the portfolio manager has demonstrated competence in this area. With a gamma of -16.6425, as shown in the previous table, the "Axis Bluechip Fund - Direct Growth" portfolio manager's market timing decisions have failed to meet expectations when measured against a buy-and-hold strategy.

The portfolio manager's decisions on market timing have proven to be more successful than a buy-and-hold strategy, as indicated by the highest positive gamma for "Motilal Oswal Midcap 30 Direct Growth" at (14.5518). Alpha (α) represents the surplus return of a portfolio over its expected return (b beta). Portfolios with positive alphas have generated superior returns after accounting for systematic risk and market swings. The positive alpha of (0.06065) in the following table "Nippon India Banking Fund - Direct Plan Growth" indicates that the portfolio has produced extra returns beyond what would be expected based on its beta. The beta coefficient (β) measures the sensitivity of a portfolio's returns to moves in the market. Portfolio volatility is expected to be lower with a beta below one, and higher with a beta greater than one, relative to the market. If the beta of the portfolio shown in Table 4 is less than 1, it means that its volatility is expected to be lower than the market's.

Table 5. Table showing results on performance of market timing abilities of fund managers using Henriksson and Merton model

Portfolio	Alpha(α)	Beta(β)	Standard Error of β	T-Beta	Gama(γ)
Axis Bluechip Fund - Direct Growth	0.05895	0.03557	0.0327	1.085	-0.56651
SBI Bluechip Fund – Direct Growth	0.05970	0.02437	0.0294	0.8261	-0.5628
Motilal Oswal Midcap 30 Direct Growth	0.05762	0.03642	0.028	1.3004	0.49534
Tata Banking&Financial Service Direct Growth	0.05887	0.03671	0.0239	1.5348	-0.56454
Nippon India Banking Fund – Direct Plan Growth	0.06065	0.02605	0.0207	1.2557	-1.79437
Kotak Emerging Equity Scheme Direct Plan Growth	0.05673	0.06133	0.0317	1.9298	-0.30421
Canara Robec Infrastructure Fund Direct Plan Growth	0.05902	0.03124	0.028	1.1132	-0.35491
Aditya Birla Sun Life MNC Fund Direct Plan	0.06032	0.04477	0.0356	1.2554	-1.92419
ICICI Prudential Bluechip Fund – Direct Growth	0.05993	0.01918	0.0302	0.6335	-036551
Hdfc Infra Fund - Direct Growth	0.05957	0.02183	0.0245	0.8904	-0.14549

The empirical results of the Henriksson and Merton model are shown in Table 5, which is located above. One way to test market timing ability is using gamma (γ). A positive gamma score indicates that the portfolio manager has demonstrated proficiency in market timing, whilst a negative score indicates a lack of such talents. One portfolio is correctly timing the market (positive value) while nine are badly timing the market (negative value). When compared to buy-and-hold strategies, the funds with negative gamma values are Tata Banking & Financial Service, Nippon India Banking Fund, SBI Bluechip Fund, Kotak Emerging Equity Scheme Direct Plan Growth, Canara Robeco Infrastructure, Aditya Birla Sun Life MNC Fund, ICICI Prudential Bluechip Fund, and Hdfc Infra Fund - Direct Growth.

A positive gamma indicates that the portfolio manager's market timing decisions have produced superior returns than a buy-and-hold strategy for Motilal Oswal Midcap 30 Direct, as seen in the table. A portfolio's beta, which shows its predicted return, represents its excess return (α). A positive alpha shows that the portfolio has generated superior returns after accounting for systematic risk and market swings. The positive alpha of "Nippon India Banking Fund - Direct Plan Growth" is 0.06065, indicating that the portfolio has achieved extra gains beyond what would be predicted by its beta.

5. Conclusion

Both models' positive alpha values and substantial net superior returns indicate that Motilal Oswal Midcap 30 Direct Growth had strong performance in stock selection among the ten equity mutual funds in India chosen for the 2019–24 period, according to empirical results from performance evaluation. Although Motilal Oswal Midcap 30 Direct Growth has a positive gamma, most funds still have trouble with market timing. Diversification has many advantages, one of which is the Nippon India Banking Fund-Direct Plan Growth. In addition, all of the funds have positive alpha values, which mean they perform better than

average when considering risk levels, and beta values below 1, which mean they are less volatile than the market overall. Based on these findings, it appears that Indian mutual fund managers may struggle with market timing, but they excel at picking stocks. In conclusion, investors can make educated decisions; to maximize profits, they can target funds with a history of good stock picking.

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