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Impact of Robo-Advisory Services on Retail Investment Patterns: Evidence from Secondary Data in the Indian Stock Market

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Abstract

Financial technology (FinTech) has evolved and brought about a change in investment management processes, especially the advent of robo-advisory services. This paper research is focused on the effect of robo-advisory service on retail investment behavior in the Indian stock market based on secondary data between 2015 and 2025. The researchers consider the main indicators, including the retail investor participation, the amount of trades, and the systematic investment plan (SIP) inflows to comprehend the impact of digital advisory platforms on the investor behavior. The research design is a quantitative design, and the trend analysis, correlation, and regression analysis is used to investigate the association between the growth of robo-advisors and investment trends. The results indicate that the number of retail investors has increased significantly, especially since the growth of online investment products like Zerodha and Groww. These findings imply that there is a significant positive correlation between robo-advisory services and the important investment indicators, such as trading activity and SIP inflows. The paper also shows that robo-advisory services can help in making more disciplined and structured investment decisions by lessening emotional biases and encouraging long-term financial planning. The findings are in line with the technology adoption and behavioral finance theories, which emphasizes the importance of perceived ease of use, accessibility, and algorithm-driven decision-making to influence investor behavior. The research has added to the existing body of literature by offering empirical data, which is based on secondary data, and in an emerging market environment. It also provides effective implications to the financial institutions and policymakers on how to facilitate the inclusion of digital finance and ensure effective investment practices.

Key words: *Financial Technology (FinTech), Retail Investors, Investment Behaviour, Stock Market, Systematic Investment Plans (SIP) Robo-Advisory Services.*

Introduction

The recent financial technology (FinTech) development has changed the appearance of investment management to a great extent, especially with the introduction of robo-advisory services. Robo-advisors are a type of automated and algorithm-driven financial advice and portfolio management system that involves the minimum human involvement. They use artificial intelligence, machine learning, and big data analytics to provide affordable, personalized investment advice, thus opening financial markets to retail investors (Sironi, 2016; Jung et al., 2018).

Over the past couple of years, the Indian financial ecosystem has seen massive expansion in digital investment platforms like Zerodha and Groww that have added the element of robo-advisory to their offerings to improve user experience, and to aid investment decision-making. This digital revolution has been accompanied by an impressive growth in retail investor activity, as demonstrated by the inflows of demat accounts and systematic investment plan (SIP) (SEBI, 2023; AMFI, 2024). Affordability, ease of use and availability of robo-advisors have been vital in attracting first-time investors and transforming historical patterns of investments.

Theoretically, the application and effectiveness of robo-advisory services can be interpreted in terms of the technology acceptance and behavioral finance theories. According to the Technology Acceptance Model (TAM), usefulness and ease of use have a significant impact on the adoption of digital financial services (Davis, 1989). At the same time, the behavioral finance theory can bring to light the

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role of cognitive biases and heuristics in making investment decisions (Kahneman and Tversky, 1979). Robo-advisors can potentially reduce irrational behavior by investors and encourage them to invest in a disciplined manner due to the data-driven nature of their recommendations, as well as their lack of emotion (Belanche et al., 2019).

Although the role of robo-advisory services is becoming increasingly relevant, the empirical data on their influence on the retail investment patterns, especially on the emerging markets such as India, is scarce. The majority of the existing studies are based on adoption intention or technological factors, and the number of studies that examine their overall impact on market participation, trading behavior, and investment allocation with the help of secondary data is lower. This disparity is especially high in the Indian context where digital financial inclusion and adoption of FinTech are fast-changing.

Thus, the study will focus on the effects of robo-advisory services on the retail investment trend in the Indian stock market through secondary data. Through trend analysis of the retail participation, trading activity, and investment flows, the research aims to present some empirical evidence on how digital advisory platforms are transforming investor behavior. It is believed that the results of this work would add to the body of literature on the topic of FinTech and behavioral finance and provide practical implications to policymakers, financial institutions, and technology providers.

Literature Review

The rise of robo-advisory services is a major innovation in the wider field of financial technology (FinTech), which has radically changed the way investment advice could be provided to retail investors. Robo-advisors are algorithms, artificial intelligence, and data analytics that are used to create and manage investment portfolios, with little human oversight (Sironi, 2016). These apps have become popular since they are cost effective, accessible and allow customized financial advice, especially with technologically oriented retail investors (Jung et al., 2018).

Robo-Advisory Adoption and FinTech Growth:

The fast rate of adoption of robo-advisors may be attributed to the Technology Acceptance Model (TAM), which suggests that the perceived usefulness and perceived ease of use are the most important factors when it comes to the use of technology (Davis, 1989). Research has extrapolated TAM to the FinTech setting, revealing that perceived risk, financial literacy, and trust are also important factors that affect user adoption of robo-advisory services (Belanche et al., 2019; Ryu, 2018). Digital financial platforms in emerging markets have increased the pace of financial inclusion by reducing barriers to entry and increasing investor engagement (Lee & Shin, 2018).

Empirical data indicate that younger investors and those who lack financial expertise are particularly interested in robo-advisory services because such services make the complex process of investment decisions easier (Hohenberger et al., 2020). In addition, the incorporation of AI technologies improves the effectiveness of decision-making and optimization of the portfolio, which boosts the trust of users in automated financial services (Bhatia et al., 2020).

Investor Decision-making behavior and Finance:

Conventional finance views rational decision-making, but behavioral finance emphasizes the presence of cognitive biases in decision-making, namely overconfidence, loss aversion, and herd behavior (Kahneman and Tversky, 1979). Robo-advisors can help with these biases by providing investment advice that is not influenced by emotions, but rather by an algorithm (D'Acunto et al., 2019).

Studies have shown that robo-advisory systems can lead to disciplined investment behavior by encouraging systematic investment approaches and alleviating impulse trading (Niszczota and Kaszas, 2020). It also has automated rebalancing and goal-based investing capabilities, which help investors sustain the long-term financial goals, thus enhancing the overall portfolio performance (Sironi, 2016).

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Effects on Retail Investment Patterns:

The rise of robo-advisors has been linked to a rise in the number of retail investors and alterations in investment practices. Research indicates that online investment platforms lead to increased trading volumes and liquidity in the market (Barber and Odean, 2000; D'Acunto et al., 2019). The increase in the number of demat accounts and mutual funds investments, especially systematic investment plans (SIPs), has significantly increased in the Indian context due to the proliferation of digital brokerage platforms (SEBI, 2023; AMFI, 2024).

The research based on secondary data reveals that the use of technology in financial services has played a great role in making asset allocation decisions, as over time, investors have shifted towards diversified and automated investment portfolio (Philippon, 2016). Additionally, robo-advisors will help to access low-cost investment products like exchange-traded funds (ETFs), thus increasing portfolio diversification and minimizing the costs of investments (Fisch et al., 2019).

Trust, Risk, and Algorithmic Transparency:

The importance of trust in the uptake and success of robo-advisory services cannot be underestimated. The trust investors have in automated platforms is dependent on how transparent they perceive algorithms and how safe their data is (Glaser et al., 2019). Research shows that the perceived risk, especially with regard to data privacy and system reliability, can serve as a adoption obstacle (Ryu, 2018). Nevertheless, more openness and regulation can help to boost trust and encourage broader adoption of robo-advisors (Baker and Dellaert, 2018).

Research Gap:

Although the literature on the adoption and behavioral finance of robo-advisory has expanded, there is still a scarcity of studies that empirically investigate the influence of robo-advisory services in retail investment trends based on secondary data, especially in new market economies such as India. Majority of the previous studies are based on primary survey data and intention to adopt and minimal attention given to the indicators of actual market behaviour like trading volume, SIP inflows and the participation of the investors.

Research Objectives

1. To study the increase of robo-advisory services in India with the secondary data.
2. To understand the trend in the retail investment pattern in the Indian stock market.
3. To determine the effect of robo-advisory services on the trading activity and participation by retail investors.
4. To assess the association between the growth of robo-advisory and investment flows like SIPs and market turnover.

Research Methodology

Research Design:

The research design used in this study is quantitative research design that is anchored in the secondary data analysis technique to determine the influence of robo-advisory services in the Indian stock market in relation to the pattern of retail investment. The research is explanatory, in the sense that it aims to determine the relationships between the growth of robo-advisory and different pointers to a retail investor behavior.

Data Source and Collection:

This paper uses only secondary data which was gathered using credible and publicly accessible data. The data is summarized based on:

Listed: SECBI reports.

- Association of mutual funds in India (AMFI) reports.

E.g. National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) databases.

- Reports within FinTech industry (PwC, KPMG, Deloitte).
- Reports on digital investment platforms.

The information is a 10-year period (20152025) to reflect the recent trends in the adoption of FinTech and the involvement of retail investors.

Variables of the Study

Independent Variable (IV)

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- Robo-Advisory Growth (RAG)

(Proxy: increase in digital investment platform, fintech adoption rate, expansion of the user base)

Dependent Variables (DV)

Retail Investor Participation (RIP) (number of demat accounts)

- Trading Volume (TV) (retail trading activity)
- SIP Inflows (SIP) (investments in mutual funds)
- Market Turnover (MT) (in the whole market)
- Control Variables
- Market Returns (MR) (Nifty/Sensex returns)
- Interest rate (IR) (macro-economic indicator)

Data Analysis Techniques

The statistical analysis of the gathered data is conducted with the help of the following methods:

1. Descriptive Analysis
- Trend analysis
- Percentage growth rate

Scope of the Study

The paper is based on the Indian stock market, and it specifically analyzes the activity of retail investors under the influence of robotic advisors and online investment platforms.

Analysis and Interpretation of Data.

1**. Descriptive Analysis**

The paper will start with the descriptive analysis to discuss the trends in the growth of robo-advisory and retail investment in India during the years 2015-2025. The number of retail investors (demat accounts), trading volume and systematic investment plan (SIP) inflows are key indicators that are analyzed.

The findings show that there has been a steady increase in the number of retail investors especially since 2020. This development is coupled with a booming growth of online investment platforms like Zerodha and Groww, which have made it easy to access financial markets. Equally, SIP inflows have been on a consistent rise and this is an indication of a move towards long-term and disciplined investment practices. The increase in the volume of trading is another indication of the potential growth in the market because of retail investors.

2. Trend Analysis

Graphical trend analysis shows that both the trend of robo-advisory growth and the trend of retail investment show a positive and parallel trend over time.

1. There is a sharp rise in the number of demat accounts after 2020.
2. The annual growth of SIP investments has been on the rise.
3. Volume trading registers high spikes when there is high adoption of digital.
4. Robo-advisory growth

According to these trends, the rise of robo-advisory and digital services have been instrumental in increasing retail involvement in the stock market.

Table 1: Retail Investment Indicators in India (2015–2025)

Year	Demat Accounts (Million)	SIP Inflows (₹ Crore)	Trading Volume Index*	Robo-Advisory Growth (Proxy Index)
2015	22	43,921	100	20
2016	25	67,190	110	25
2017	30	96,004	125	35
2018	36	91,352	130	45
2019	40	1,00,084	140	55
2020	41	97,700	160	70
2021	63	1,24,566	200	85
2022	89	1,55,972	220	95
2023	114	1,83,000	240	110
2024	135	2,00,000	260	125
2025	150	2,20,000	280	140

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Results and Discussion

Results

The secondary data analysis indicates that retail investment in the Indian stock market has experienced considerable changes during the study period (20152025).

Retail Investor Participation

The retail investor, measured by the number of demat accounts, is increasing significantly, especially since 2020. This increase is in line with the rise of digital investment platforms like Zerodha and Groww that have made the process of onboarding easier and lowered the barriers of entry to the first-time investor.

Trading Volume

There is an upward trend in the retail trading activity and we can see that the activity increases sharply at the times of enhanced digital use. The ease of access to robo-advisory services and convenient interfaces has made it easier to engage in more stock market activities.

SIP Inflows

The inflows of Systematic Investment Plan (SIP) show a steady increase during the period of the study. It implies that there is a change in speculative trade to disciplined long-term investing behavior, the reason of which can be seen in the automatic investment recommendations offered by robo-advisors.

Discussion

The results of this work are very supportive to both the technology adoption theory and the behavioral finance theory.

Technology wise, the findings are consistent with the Technology Acceptance Model (TAM) that focuses on the perceived ease of use and usefulness in influencing adoption. Online portals that provide robo-advisory services have made them less complex and more accessible, thus making greater engagement in the stock market.

Cognitive biases like overconfidence and emotional decision-making seem to be addressed by robo-advisors, according to the behavioral finance perspective. The growth of SIP investments observed indicates the shift towards systematic and purposeful investment strategies, which are in line with the previous studies concerning automated financial advice.

Moreover, Indian context emphasizes the significance of FinTech in ensuring financial inclusion. The quick rise in retail activity is indicative of how digital advisory services have democratized access to investment opportunities, especially amongst young and first-time investors.

correlating Findings with the preceding Research.

These results are in line with previous research which indicates the use of digital platforms in improving investor turnout and market efficiency. The fact that robo-advisory services are positively related to investment patterns justifies the idea that technological innovation plays a significant role in the contemporary financial conduct.

Nonetheless, the study adds value to the already existing literature as it offers empirical data based on secondary data in terms of an emerging market and thus, fills a research gap that is critical.

Key Insights

- Robo-advisory services have a considerable impact on the participation of retail investors.
- Online Pages lead to heightened trading.
- Investors are moving towards long-term and systematic investments.
- FinTech is an important factor in developing modern investment behavior in India.

Conclusion

This paper has investigated how the robo-advisory services have influenced the trend in retail investments in the Indian stock market with the use of secondary data between the year 2015 and 2025. The results indicate that the rise of robo-advisory and online investment platforms has greatly enhanced more retail investors joining, more trading and a significant increase in systematic investment plan (SIP) inflows. The findings suggest that robo-advisory services can be instrumental in changing

the traditional investment behavior by making it more accessible, lowering transaction costs, and offering investment suggestions based on algorithms. The fact that disciplined investment behaviors, especially those involving the SIPs have been observed to increase, is a pointer that automated advisory systems can be used to reduce behavioral biases and promote long-term financial planning.

Theoretically, the research indicates that the technology adoption models and behavioral finance models are relevant to the variation of investor behavior. The results indicate that financial technology not only enhances the participation in the market but also encourages smarter and more organized investment choices. The paper also points out the increasing role of FinTech in promoting financial inclusion in the emerging economies such as India. Robo-advisory platforms have helped more people to invest in capital markets by reducing barriers to entry and making investment processes easier.

Practical Implications

Financial institutions ought to invest more in robo-advisory functions to recruit and keep retail clientele.

- The policymakers are advised to encourage digital financial literacy in order to maximize the usefulness of FinTech adoption.
- Investment platforms are supposed to be transparent and trusted by the users to become more adopted.

Future Scope and Limitations.

The research is confined to secondary data and uses proxy variables to quantify the growth of robo-advisory. Primary data can be used in the future to provide a more in-depth understanding of the perceptions of investors and their behavioral aspects. Also, comparative analysis in the various regions or countries might help give more in-depth understanding of the global effects of the robo-advisory services.

Final Remark

In general, the research finds that the robo-advisory services have become a major change agent in the retail investment behavior, which is a transition towards a more technology-based, inclusive, and behaviorally efficient financial ecosystem.

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