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Adoption of Robo-Advisory in Investment Management: Insights from Individual Investors

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Abstract

Study Objective: *With the rapid growth of fintech, investment management is increasingly turning to robo-advisory services. However, the behavior of individual investors in adopting this technology remains to be explored. This study examines how an investor's willingness to use robo-advisory services is influenced by perceived transparency, perceived effectiveness, perceived usability, and perceived trust.*

Research Methodology: *For the study purpose, a structured questionnaire and SPSS software was used. To accomplish the research objectives descriptive statistics, correlation analysis, and multiple linear regression were employed to determine the relationships among the selected variables.*

Findings of the Study: *The study results revels that perceived effectiveness and perceived transparency are the most significant variables influencing willingness to adopt robo-advisory services. Whereas, perceived trust has a negative impact with the willingness to adopt robo-advisory services. From the findings, study suggested that excessive trust in traditional financial advisors may discourage the adoption of robo-advisory services.*

In addition, perceived usage factor was found to be an insignificant predictor of future adoption behavior. Further to it, regression model explains of the variance in adoption willingness, it also confirming its statistical significance to the study.

Practical Implications: *The Findings indicate that fintech companies and financial advisors should emphasize to enhancing the effectiveness and transparency of robo-advisory platforms to increasing investor confidence and adoption level of technology. Furthermore, financial institutions might want to focus on educating investors about the reliability of algorithms for making decisions rather than depending on traditional trust-building methods.*

Research Originality: *This study contributes in the field of research on financial technology adoption. By showing that trust may not always be an encouraging element in the adoption of robo-advisors, by highlighting the perceived efficacy and perceived transparency perform in investment decision-making, it additionally supports the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT).*

Keywords: *Robo-Advisory, Financial Technology, Investment Management, Financial Decision-Making*

Introduction

Technology has turned into an important part of investment management in today's world. As result, traditional banking faces more competition, particularly among technology enterprises, which has led to the creation of a new market termed Fintech. Fintech has developed cutting-edge business models that aggressively rival traditional banking operations, leading to significant innovation and digitalization in the financial sector. The growing trend of robo-advisors, that offer individual investors with automated, algorithm-driven financial services, has drastically changed the context of investment management. Traditional assistance models are being undermined by these digital platforms that provide readily available, affordable, and customized holding investments alternatives. The factors influencing private investors' willingness to embrace robo-advisory services have become the object of numerous studies. Robo advisers, that offer computerized, algorithm-driven financial services to investors on their own, have grown up as an outcome of the integration of artificial intelligence (AI) into investment management. Such platforms challenge traditional advice paradigms by offering customized, accessible, and cost-effective investing alternatives.

By applying online surveys, a typical robo-advisor obtains data from clients regarding their financial standing and goals for the future. It employs this data to give clients suggestions and perform out asset investments on behalf of them (Frankenfield, 2020). Robo advisors are accessible, user-friendly, and available on a variety of platforms 24/7. They provide cost-effective, human-bias-free, scalable making investments solutions. They offer customized investment responses, such as financial, retirement, and tax planning, leveraging contemporary portfolio theory to help customers optimum returns while eliminating risk ((Beketov *et al.,* 2018). In addition, robo advisors require that investors be tech-savvy and employ technology. However, considering how much easier

these duties have become because of smartphones and mobile applications, this doesn't seem to be an important constraint ((Beketov *et al.*, 2018).

Baulkaran and Jain (2021) revealed that robo-advisory service users are professionals, modest investors, married, and relatively young. Further, Fan and Chatterjee (2020) discovered that the adoption of robo-advisors by individual investors had a positive association with the desire to free up time, a greater risk tolerance, a greater amount of subjective investment knowledge, and an increased amount of investable assets. Despite their growing appeal, robo-advisors still have challenges becoming accepted by society, especially with groups of consumers who tend to be less tech-inclined. To better robo-advisory services' design, working properly, and outreach and make sure they serve a broad variety of investing public needs, it is necessary for understanding how individual investors evaluate these services. Individual innovativeness, perceived risk, and technology anxiety have been identified to be significant variables influencing Indian investors' adoption of robo-advisors (Nain *et al.*, 2024).

Objectives of the study

i. To examine the factors affecting individual investors' adoption of robo-advisory services.
ii. To assess how investor perceptions of robo-advisors are influenced by perceived trust, usability, effectiveness, and transparency.

Review of Literature

Major factors of individual investors' preferences, like trust, financial literacy, demography, and technology perceptions, have been emphasized in the literature on the adoption of robo-advisors. According to several studies, robo-advisor use is more prevalent with younger, tech-savvy investors who have greater understanding of finances (Fan & Chatterjee, 2020; Nain *et al.*, 2024). Issues throughout data security, trust, and the lack of personalized human interaction, however, continues to present significant challenges (Hassan, 2023; CFA Institute, 2020). Since robo-advisors offer automated, reasonable, easily accessible investing solutions, solving trust issues as well as improving user experience is crucial for broad adoption.

The review of literature on the adoption of robo-advisors can be categorized according to a selection of factors, each of and these plays a role when assessing investor preferences and acceptance of computerized investment solutions. Some of these variables embrace financial

literacy, technological anxiety, trust and perceived risk, demographic influences, usability, and comparisons with human advisors.

Demographic Factors

According to studies, the usage of robo-advisors is greatly impacted by demographic factors. Younger investors are more inclined to utilize robo-advisory services if they possess a greater capacity for risk and are thought to know more about finance, as stated by Fan and Chatterjee (2020). Similarly, among Indian investors, Nain *et al.* (2024) determined that technological readiness and individual's inventiveness were major motivators. On the opposite hand, 82% of Indian retail investors select human advisors over robo-advisors, in accordance to a 2020 CFA Institute survey, showing a preference towards traditional investment advice.

Trust and Perceived Risk

A significant variable in the adoption of robo-advisors is trust. According to Hassan (2023), millennials' tendency to use robo-advisory services is significantly affected by their perceptions of usability and trust. However, prospective customers get discouraged by perceived dangers which are exacerbated by concerns regarding data security and the robotic nature of automated counsel. This further reinforced by a 2020 survey by the CFA Institute, revealing a high preference for human advisers since automated systems remain unpredictable.

Financial Literacy and Knowledge

A crucial aspect of robo-advisor the acceptance is financial literacy. Individuals who have bigger subjective knowledge of finance are more likely to make use of robo-advisory services, as stated by Fan and Chatterjee (2020). This suggests that acceptance of automated investment services rises when people have trust in financial decision-making.

Technological Anxiety and Perceived Usability

A distrust of technology could discourage individuals from using robo-advisors. In accordance with Nain *et al.* (2024), technological anxiety is a major obstacle for Indian investors, indicating that concern about technology could hinder the adoption of robotic financial services. The important role of user-friendly design is underscored by Hassan's (2023) conclusion that millennials' adoption intentions are positively influenced by perceived ease of use.

Comparisons with Human Advisors

The majority of investors still prefer human advisors despite the advantages of robo-advisors. A sizable majority of individual investors trust human advisers than robo-advisors, according to a 2020 CFA Institute survey. This preference can be explained by the simple fact that human advisors offer more customized advice and emotional intelligence than computerized systems do at the present time.

A complex relationship between demographics, trust, financial literacy, and technology perceptions affects the adoption of robo-advisors. Although robo-advisors offer several advantages, addressing trust issues and tech anxiety is essential for improving ordinary investors' acceptance.

Perceived transparency

Establishing confidence and commitment within an organisation needs perceived transparency, which is the degree to which information is clear, comprehensive, and accurate (Schnackenberg, 2021). The "illusion of transparency," which takes place when managers overestimate the clarity of their remarks in performance reviews, can cause misunderstanding and unanticipated effects (Schaerer *et al.,* 2018). Consumers' views of the authenticity of the brand are enhanced by transparent brand communication, such requires being in advance about production costs and procedures. This in turn improves attitudes, trust, and behaviour intentions towards the company (Yang & Battocchio, 2021). Furthermore, in service industries, the relationship among customer loyalty and service fairness is impacted by perceived transparency, highlighting the significance of honest and transparent communication in preserving client relationships (Abdulaziz & Maiyaki, 2021).

Research Methodology

This study used a quantitative research methodology to test the hypotheses and answer research questions related to investors' perception of Robo-Advisory services in investment decision-making. This approach was selected as it allows for statistical analysis of relationships between different variables, ensuring objective and data-driven insights. A convenience sampling technique, was used to collect data through the questionnaire from individual investors. A total of 80 respondents participated in the survey, which aimed to assess their level of awareness and perception regarding Robo-Advisory services. This study used the Microsoft Excel and analyzed using the IBM Statistical Package for Social Sciences (SPSS) to attain the study objectives. In addition, to find out the relationships between study variables, Pearson’s Correlation and

Regression Analysis were also employed. For the study purpose, Pearson's Correlation was used to estimate the relationships between independent and dependent variables, whereas Regression Analysis were used to examine the impact of predictor (independent) variables on investor perception towards Robo-Advisory services.

Hypothesis formulation

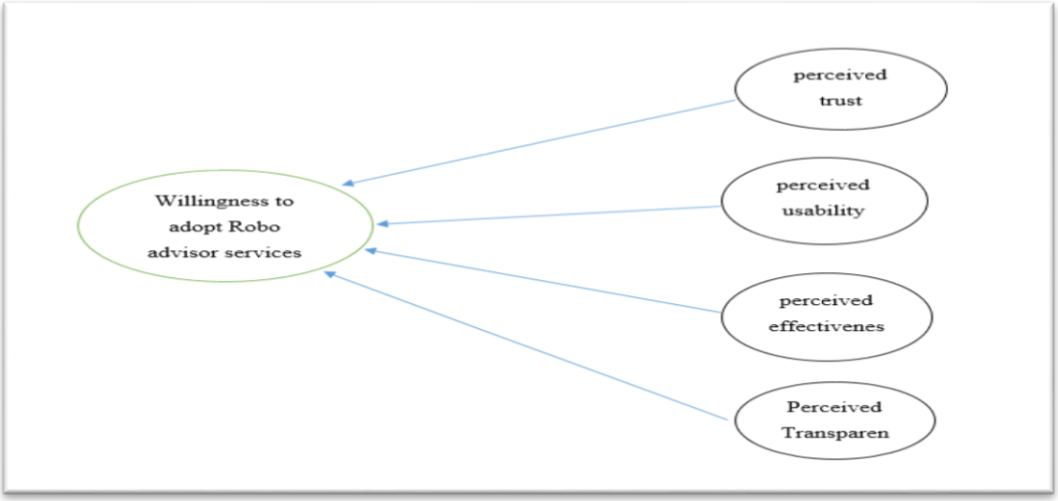
H_1: There is a significant relationship and impact between the perceived trust of financial robo advisor and investors willingness to adopt it.

H_2: There is a significant relationship and impact between the perceived usability of financial robo-advisor and investors willingness to adopt it.

H_3: There is a significant perceived effectiveness and the impact of financial robo-advisor on investors willingness to adopt it.

H_4: There is a significant Perceived Transparency and the impact of financial robo-advisor on investors willingness to adopt it.

Research Framework



Data Analysis and Findings

This section describes the descriptive statistics, reliability analysis, and multiple regression analysis to determine the relationship between factors influencing the adoption of robo-advisory services. The descriptive statistics shows an overview of the dataset; reliability analysis validate the reliability of the analysis. Transparency, effectiveness, trust, and usage are the key factors that impact investor perspectives, based to the multiple regression study, in addition to finds the primary drivers of willingness to adopt robo-advisory.

Table 1: Descriptive Statistics

Factors	Mean	Standard	C.V.
Perceived Transparency	2.93	0.84	28.67%
Perceived Effectiveness	4.04	0.60	14.85%
Perceived Trust	2.79	0.75	26.88%
Usage	2.21	0.84	38.01%
Willingness to Adopt Technology	3.87	0.61	15.76%

Source: SPSS output

The above table 1, presented significant descriptive statistics on individual investors' adoption of robo-advisory in investment management. According to the results there are positive effects of perceived effectiveness are strongly and consistently accepted based on adoption of technology. In addition, the high mean (3.87) and relatively low variability (15.76%) of Willingness to Adopt Technology demonstrate that investors are usually ready to embrace robo-advisory services.

Table 2: Karl Person Correlation Matrix

Factors	Transparency	Effectiveness	Trust	Usage	Willingness to Adopt Technology
Transparency	1	.304**	.276**	.030	.342**
Effectiveness	.304**	1	.250**	-.009	.519**
Trust	.276**	.250**	1	.104	.066
Usage	.030	-.009	.104	1	.084
Willingness to Adopt Technology	.342**	.519**	.066	.084	1
**. Correlation is significant at the 0.01 level (2-tailed). SPSS output					

The table 2 demonstrate the Pearson correlation coefficients among the five factors related to the adoption of robo-advisory in investment management. Form the study findings, it shows that the Willingness to Adopt has a positive, moderate, and statistically significant association with both Perceived Transparency and Perceived Effectiveness, it indicates that greater willingness to adopt robo-advisory services. Whereas Perceived Trust relates positively with transparency and effectiveness, which indicates that more transparent and effective robo-advisory services can build the trust.

In addition, Perceived Usage does not show a statistically significant relationship with any other variable ($p > 0.05$), it implying that current usage levels do not strongly agreed to perceptions

or willingness to adopt the service. Finally, these findings highlight the importance of transparency and effectiveness in influencing both trust and willingness to adopt robo-advisory solutions.

Table 3: Regression analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.542	.273		5.650	.000
	Transparency	.165	.046	.228	3.605	.000
	Effectiveness	.490	.064	.483	7.694	.000
	Trust	-.103	.051	-.127	-2.031	.044
	Usage	.069	.043	.094	1.599	.112
a. Dependent Variable: Willingness to Adopt Technology(SPSS OUTOUT)						

Form the table 3, it represents the regression analysis findings for the factors affecting the adoption of robo-advisory in investment management. Without taking into consideration the independent variables, the intercept reveals a baseline degree of adoption with a positive and significant effect. Result indicated that both Perceived Trust, Effectiveness, Transparency have a positive and significant impact.

According to the study, the most significant factor of robo-advisor adoption is perceived effectiveness. This result is in alignment with previous research that emphasized the importance of performance expectancy in the adoption of technology (Davis, 1989; Venkatesh et al., 2003). Investors are inclined more to involve robo-advisory services into their methods of decision-making when they believe these platforms are efficient at giving precise financial suggestions (Jung et al., 2018).

Likewise, transparency plays a role in supporting prior studies showing that perceived transparency improves trust in algorithm-driven financial advice (Luo et al., 2019). Transparency enhances the probability of adoption by reducing uncertainty and boosting confidence in robotic financial decisions (Rüdiger *et al.*, 2021).

Surprisingly, willingness to trust is adversely affected by perceived trust. While trust has traditionally been seen as an essential component in financial services (Gefen *et al.*, 2003), a few

studies indicates that excessive reliance on trust could reduce the perceived necessity of continuous system a suggestion validation (Gambacorta *et al.*, 2021). This is according to research indicating that consumers may be reluctant to switch to robo-advisory services if they currently have more trust in traditional financial advisors (Belanche *et al.*, 2019).

Future adoption of robo-advisors is not highly anticipated by current use. This result lines up with research showing that long-term adoption of financial technology does not always correlate with regular usage (Lim et al., 2022). Instead of depending on previous usage, users evaluate new financial tools with respect to evolving needs (Chen & Goh, 2020).

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.573[a]	.328	.314	.5042
a. Predictors: (Constant), Usage, Effectiveness, Trust, Transparency				

Source: SPSS output

The above table 4, regression model shows an acceptable predictive ability, which accounts for 32.8% of the variation in the Willingness to Adopt Robo-Advisory (R2 = 0.328). According to the Adjusted R^2, independent variables contribute to 31.4% of the variability in adoption willingness. The value of R shows the dependent variable and the factors that predict (Perceived Transparency, Effectiveness, Trust, and Usage) have a moderately positive relationship. The average variance of the values observed from a regression line is displayed by the standard error of the estimate (0.5042). These findings suggest that though the model takes into consideration important variables, other variables could potentially provide a more comprehensive explanation of adoption willingness.

Conclusion

This study focused at the factors—transparency, effectiveness, trust, and usage—that affect the willingness of individuals to utilize robo-advisory services. The findings show that effectiveness and transparency are significant factors that affect adoption, with effectiveness providing the most reliable driver. Still, willingness can be adversely affected by trust, showing that people who are more confident in standard approaches to investing tend to be more unlikely to use robo-advisory

services. Additionally, usage had been found to be statistical insignificant, demonstrating that earlier robo-advisory experience is not always related to a greater willingness for utilizing these kinds of services.

Further research should examine additional factors that can influence the adoption of robo-advisory, which includes as perceived risk, cost-effectiveness, and safety concerns, considering the significance of the growing reliance on financial technology. A continuous investigation might provide additional insights on how perceptions of robo-advisory change over time. Furthermore, by appreciating demographic variations, such as differences in adoption trends among age and income groups, institutions of finance may be able to more accurately customize their robo-advisory services.

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