

EXAMINING THE EFFECTS OF PSYCHOLOGICAL BIASES AND RISK TOLERANCE ON INVESTMENT DECISION-MAKING USING STRUCTURAL EQUATION MODELING

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Abstract:-

This study empirically tests a structural equation model that explains how individual psychological characteristics influence investor decision-making by looking at the effects of psychological biases and risk tolerance on investment decisions. Investment decisions are rarely based solely on financial data, expected returns or market conditions. They are also influenced by perception, emotion, personal experience and attitude to uncertainty. Therefore, the study examines major psychological biases such as overconfidence, herding tendency, loss aversion, anchoring and confirmation bias, considering risk tolerance as an important individual-level variable that influences investment behavior. A conceptual framework is developed to investigate the direct and interrelated relationships between these behavioral characteristics and investment decision making. Primary data collection can take place through surveys of individual investors. In order to collect data related to investors' demographics, investment experience, behavioral traits, risk attitudes, and decision-making behavior, a survey can be prepared. Using the Structural Equation Modeling approach allows testing the measures of the constructs and the model of relationships between variables. Such an approach allows distinguishing observable indicators from behavioral constructs as well as investigating multiple relationships between psychological biases, risk attitudes and investment decisions. Psychological biases are expected to have significant impact on the process of investors' information processing, assessment of gains/losses, market signals interpretation and investment alternatives selection. Overconfident investors are expected to underestimate uncertainty and overinvest; those who are loss-averse may miss out on profitable investment opportunities due to fear of losses. In the same way, heaving and confirmation bias may lead to the decision making being driven either by the consensus view or the way the investors interpret information in a way that is consistent with their previous knowledge or beliefs. The behavior of the investors is expected to be driven not only by their attitude to the risk but also by the combination of psychological and risk attitudes; therefore, investors with different attitudes towards financial risk may make their decisions in different ways in the same market conditions. The paper makes a contribution to behavioral finance through combining psychological and risk attitudes in one structure. The results of the research may provide valuable information for financial advisers, financial institutions, policymakers, and individual investors who wish to understand the behavioral aspects of investing in order to make their investment decisions more rational and consistent.

Keywords: Psychological biases; Risk tolerance; Investment decision-making; Behavioral finance; Structural Equation Model.

Introduction; -

Decision making in investments constitutes one of the most significant dimensions of individual financial behavior because the decisions of investors have a direct effect on their wealth accumulation and financial

security. Traditional financial theories are typically based on the presumption that investors are rational, well-informed and objective in evaluating their options and choose those investment opportunities that provide them maximum utility. However, in practice, this is not always the case and the decisions of investors might be different from those prescribed by the traditional financial theories. Investors' decisions depend on their experience, emotional state, expectations, confidence levels, perceptions of uncertainty and interpretation of events in the financial markets that can result in different responses to the same financial information. With increasing complexity of modern financial markets, understanding the behavioral aspect has become an important issue. Increasing variety of investment products, fast dissemination of financial information via electronic media, new economic conditions and fluctuations in asset prices create the environment of uncertainty for investors. In this kind of situation, there are psychological elements that might play a role in the processing of information and assessment of the risk-return trade-off. Behavioral finance offers a useful theory that explains why such departures from pure rationality occur because the investors have a number of biases in their judgments. These include overconfidence, anchoring, loss aversion, herding and confirmation bias and all of them can have an effect on the interpretation of the information and hence impact portfolio selection, trading frequency, asset allocation and propensity to assume financial risk. It is particularly important because the distorted perceptions can cause decisions that will bring an excessive exposure to the risk, too early selling of securities, under-diversification or neglecting certain investments opportunities. That is why the study of the psychological determinants of investment behavior could shed more practical light on the way people make financial decisions in the uncertain economic environment.

Psychological biases form an integral part of behavioral decision-making, in that they may affect the perception, evaluation, and response of the investors to financial data. For instance, the overconfidence bias may result in investors having an exaggerated view of their own ability to analyze or predict market movements. Overconfident investors may therefore engage in frequent trading or investments based on the belief that their decisions are better than they really are. Another significant behavior is the loss aversion behavior. This behavior implies that individuals may feel the pain of loss more strongly than the joy from an equivalent gain. The loss aversion behavior may make investors hold onto their losing stocks for too long or shun risky but profitable investments. The phenomenon of anchoring might make the investors give too much importance to the initial reference point like past stock price, cost at which stock was purchased, etc., while considering new information. Herding effect is characterized by making the investors follow the choices made by other people in the market based on their investment decisions rather than making any independent judgment on the basis of the information provided. This phenomenon may have a greater effect during times of market optimism or uncertainty. Confirmation bias refers to the reinforcement of one's already held belief. Although these biases are different in their psychological mechanisms, they may together affect the quality and consistency of investment decisions. Their effects may also be affected by investors' financial knowledge, investment experience, demographic characteristics, market exposure, and risk tolerance. Thus, studying individual biases in isolation may not provide a complete picture of investment behavior. A holistic assessment requires consideration of the interplay of various psychological tendencies with investors' perceptions of financial risk and tolerance for uncertainty.

Another important factor in making investment decisions is risk tolerance. Different investors have different degrees of uncertainty, volatility, and potential financial loss they are willing to face. Risk tolerance refers to how much volatility in the value of investments you're willing to endure and stay the course with your investment strategy, even when the results are uncertain. Equities, growth-oriented securities, emerging assets or other instruments that tend to be more volatile and offer the possibility of higher returns may be more attractive to investors who have a relatively high tolerance for risk. Alternatively, those who have less appetite for risk might opt for fixed-income securities, deposits, conservative mutual funds or other comparatively stable options. Risk tolerance, however, should be viewed neither as an entirely independent trait nor as a constant. Investors' psychological perceptions of

risk and the actual or expected results of investments (investment outcomes) can, over time, affect each other with consequences for investors' risk appetite. For example, an overconfident investor may underestimate the probability of negative outcomes and thus be more willing to take risk. In contrast, a strongly loss-averse investor may regard relatively small possible losses as very threatening and take an excessively conservative investment position. Herding can also influence perceived risk as investors observe other investors investing money into a specific asset or market. Anchoring can influence decisions on whether an investment is cheap or expensive, and risky or safe. These results indicate that psychological biases and risk tolerance should be considered jointly, rather than as separate determinants. A study of their joint influence might shed light on the reasons for the large differences in investment decisions made by investors who have similar means and access to information. The above perspective of integration is highly relevant in today's world of finance, whereby independent decision-making by individuals has been increasing due to such innovations as online trading and mobile trading as well as other forms of social-media-enabled environment of information. The fast pace at which information flows might create more chances for good decisions, but it will also add more emotions, social influence and selection of information.

Under such conditions, the current research is devoted to the influence of psychological biases and risk tolerance on investment decisions by means of the application of Structural Equation Modeling (SEM). This method gives a proper analytical tool for analyzing complicated connections between latent behavioral characteristics. In contrast to the approaches when only separate variables are analyzed, SEM enables the analysis of both measurement and structural relationships, and therefore it gives a complete perspective of studying the influence of psychological features and risk tolerance on investment behavior. In the current paper, psychological biases are analyzed as multidimensional behavioral drivers and their relationships with risk tolerance and investment behavior are explored. The goal of the research is to reveal which behavioral factors affect investment decisions significantly and whether risk tolerance influences these decisions independently or jointly with other psychological features. At the practical level, this research can be useful because it can give new knowledge about the way investments are made and how people should choose among different investments. It is important from the theoretical point of view too, as it enriches behavioral finance. The theoretical implications of this work would be the improvement of approaches to the investor profiling, advice giving and financial literacy by financial consultants, portfolio managers, investment instructors and financial organizations. Knowledge about psychological biases would allow investors to reconsider their spontaneous actions, perceive the information in a balanced way and identify behavioral tendencies that might undermine their financial goals. An accurate estimation of the level of risk tolerance could also help in selecting appropriate investment strategies according to individual financial conditions and personal risk tolerance. Thus, the proposed study goes further than traditional assumptions about the rationality of financial decisions and emphasizes the role of psychological and risk-related factors in financial decisions making. This study aims at proving empirically the mutual dependence of these factors through SEM and providing an overall explanation of how psychological biases and risk tolerance influence investment decisions in modern financial markets.

2. Materials and methods

The methodology for the current study has been devised to understand the impact of psychological biases and risk tolerance on investment decisions and find out the extent and direction of the relationship between these variables through Structural Equation Modeling (SEM). Being affected by not only objective financial variables but also subjective psychological perception, this study has used an explanatory research design, which is quantitative in nature. The theoretical base of the methodology for this study is drawn from behavioral finance and uses empirical approaches to understand if psychological biases and risk tolerance play an important role in explaining the variations in investor behavior.

Design of Study

The current study utilizes a cross-sectional quantitative research design where data is obtained from individual investors at a specific point of time. As the study seeks to measure psychological constructs and test the relationships postulated between them statistically, a quantitative research design is most appropriate in this case. The research is explanatory in that it will be possible to go beyond descriptive characteristics of the subjects and explore whether psychological biases and risk tolerance play a role in investment decision-making.

In this conceptual model, psychological biases and risk tolerance are considered to be the main explanatory constructs, while investment decision-making is considered to be the main outcome construct. Psychological biases are considered a multidimensional construct that is made up of some behavioral predispositions that could systematically affect financial decisions. The biases in this case include overconfidence, herding effect, loss aversion, anchoring and confirmation biases. Risk tolerance is the variability in return from investments that the investor is prepared to accept for the sake of potential returns. Investment decision-making is the process of considering alternative options, selecting the investment vehicles, deciding on how much to invest and decision-making under uncertainty.

Construct	Role in the Model	Indicative Dimensions
Psychological Biases	Exogenous/Explanatory Construct	Overconfidence, herding, loss aversion, anchoring, confirmation bias
Risk Tolerance	Exogenous/Explanatory Construct	Willingness to accept risk, tolerance for loss, return-risk preference
Investment Decision-Making	Endogenous/Dependent Construct	Evaluation, selection, allocation, timing and consistency of investment decisions
Investor Characteristics	Control Variables	Age, gender, income, education, experience, investment horizon

Population and Sample

The target population comprises individual investors engaged in financial investment activities. Inclusion of participants who use instruments such as stocks, mutual funds, bonds, fixed income securities, exchange traded funds and other officially regulated investment vehicles is possible in this study. This makes it possible to include both seasoned and new investors since the study seeks to investigate different behavioral tendencies of individuals with varying investment experience levels.

To begin with, it is possible to conduct a purposive sample selection in order to ensure that all selected respondents satisfy the basic qualification requirement of personal investment experience. The accessible population can then be selected to take part in the survey, whether by convenience or voluntary response. This technique is especially important in behavioral finance research because psychological factors cannot be appropriately measured on people who have never invested.

For SEM analysis, the sample must be sufficiently large in order to provide for stable parameter estimates. Therefore, the study would target 400 respondents while the final usable sample will be decided after data screening. Such sample size provides a reasonable basis for confirmatory measurement analysis and structural model estimation, depending on the complexity of the final model and the statistical method chosen.

Instrument creation

The primary data are collected through a structured questionnaire which is developed based on established constructs of behavioural-finance and investment-behaviour. Existing conceptual definitions are used as a basis to develop clear statements and wording is adapted to the investment context of the respondents. Each construct is operationalized with multiple indicators, not just one question, because latent psychological characteristics cannot be properly measured with a single observable response.

Most of the attitudinal statements employ a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. In addition to reducing respondent confusion, using a consistent response scale makes it easier to compare the indicators in statistical analysis. The negatively worded items are reverse coded where required prior to the final analysis.

Variable	Sample Measurement Focus	Scale
Overconfidence	Confidence in personal investment knowledge and ability to predict outcomes	Five-point Likert
Herding	Tendency to follow other investors or prevailing market behaviour	Five-point Likert
Loss Aversion	Preference for avoiding losses relative to obtaining comparable gains	Five-point Likert
Anchoring	Dependence on previously observed prices or reference values	Five-point Likert
Confirmation Bias	Preference for information supporting existing investment beliefs	Five-point Likert
Risk Tolerance	Willingness to accept financial uncertainty and possible losses	Five-point Likert
Investment Decision-Making	Quality and consistency of investment evaluation and selection	Five-point Likert

The questionnaire is broken down into three general parts. The first section consists of demographic and investment-related variables. The second part measures psychological biases and risk preferences. The third section is an assessment of investment decisions. Demographic information includes mainly categorical information, while behavior is measured using a series of Likert-scale items.

Pilot Study and Instrument Development

A pilot study is conducted with a small group of investors who meet the criteria for eligibility but may not be in the final sample before the final questionnaire is administered. The pilot exercise is designed to identify ambiguous wording, repetitive questions, inappropriate terminology, and problems in understanding the response options.

Pilot participants' feedback is carefully reviewed. Items that caused considerable confusion or were conceptually redundant were revised. Also, preliminary reliability testing is performed to ascertain whether the indicators demonstrate acceptable internal consistency. Thus, the pilot stage is an important quality control device and it also helps to ensure that the final instrument is measuring the constructs it is intended to measure in a clear and consistent manner.

Data collection process

Primary data is collected through a structured questionnaire through suitable online and offline channels. Prior to participation, respondents are informed of the academic purpose of the study. Participation is voluntary and the respondent is not required to disclose personally identifiable financial information such as account numbers, passwords or transaction identifiers.

The questionnaire starts with a screening question confirming that the participant has experience with investment decisions. We retain responses only from participants who meet the eligibility criteria and provide sufficient complete data. The researcher will conduct the process in the same way to reduce variability caused by different explanations or instructions.

Secondary information is derived from scholarly literature, behavioral-finance studies, financial-market reports and methodological publications where necessary. These materials are used mainly to lay

conceptual groundwork, to aid in the definition of constructs, and to aid in the interpretation of empirical findings, not to supplant the primary investor responses.

Data screening and preparation:

The collected responses are systematically screened before SEM estimation. Questionnaires that are incomplete, duplicated, contain obvious response-pattern abnormalities, or have a large amount of missing information are excluded. The remaining data set is checked for missing observations, outliers and distributional characteristics.

Descriptive statistics are provided for demographic and investment variables. Categorical variables are summarized by frequencies and percentages while continuous or scale based responses are summarized by means and standard deviations . Data preparation also includes reverse coding negatively worded items and checking that all indicators are coded in the correct direction.

The same questionnaire measures the main variables, so we account for potential common method bias. Procedural safeguards include protecting respondent anonymity, separating conceptually different sections, using neutral wording, and emphasizing that there are no right or wrong answers. This statistical assessment of the existence of the threat of common method variance to the validity of the results can then be done using established diagnostic procedures.

Evaluation of the Measurement Model

SEM is performed in two successive stages i.e. assessment of measurement model and assessment of structural model. The measurement model tests whether the observed questionnaire items adequately reflect their underlying latent constructs.

Confirmatory Factor Analysis (CFA) is applied to test the relationship between latent variables and its respective indicators. Individual items are examined for factor loadings to determine if they load sufficiently on their assigned construct. When the removal of a weak loading indicator increases the construct validity, with no loss of the conceptual meaning of the variable, it can be considered for deletion.

Cronbach's alpha and Composite Reliability were used to measure internal consistency reliability. Convergent validity was evaluated by the standardized factor loadings and Average Variance Extracted (AVE). Discriminant validity was tested to see whether empirically different constructs are conceptually different.

Property of Measurement

Measurement Property	Indicative Assessment	Purpose
Internal Consistency	Cronbach's alpha, Composite Reliability	Determines consistency among indicators
Indicator Reliability	Standardized factor loadings	Evaluates contribution of individual items
Convergent Validity	AVE and factor loadings	Establishes whether indicators represent the same construct
Discriminant Validity	HTMT/Fornell–Larcker assessment	Determines whether constructs are empirically distinct
Model Fit	χ^2 , CFI, TLI, RMSEA, SRMR	Evaluates overall measurement-model adequacy

Structural Model and Test of Hypothesis

First, the measurement properties are satisfactorily established and then the structural model is estimated to study the proposed relationships. The analysis examines the effect of psychological biases on investment decision-making and the effect of risk appetite on investment decision-making. The model is also able to evaluate the relation between psychological biases and risk tolerance when theoretically driven.

The conceptual representation of the main structural relationships is as follows:

Psychological Biases → Investment Decisions

Investment Decision Making → Risk Tolerance

Psychological Biases → Risk Tolerance, concept supported

Standardized path coefficients are measures of the strength and direction of relationships. The corresponding critical ratios and probability values are used to test for statistical significance and bootstrapping can be used to generate confidence intervals for a more robust test of indirect or non-normal effects.

In the cases in which the research framework defines psychological biases as a multidimensional construct, the individual dimensions can also be tested separately. This allows the study to establish whether overconfidence, herding, loss aversion, anchoring or confirmation bias are more related to investment decision-making.

Fit of the model assessment

The adequacy of the structural model is assessed in terms of a number of measures, rather than one statistic. Alongside the chi-square statistic, the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) are used. Because chi-square is sample size sensitive, interpretation depends on the totality of evidence provided by multiple fit indicators.

Model changes are discussed with high care. Modifications are carried out based on theoretical reasons, and not solely to improve goodness-of-fit through empirical modifications. This ensures that the resulting model does not overfit the particular sample.

Ethical Issues

Ethical considerations run through the entire research process. All respondents are notified about the objectives of the research as well as the fact that their involvement is completely voluntary and that they have the right to refuse to participate in the research. No respondent is forced to disclose information about his/her finances unless required by the research objectives. Personal identifiers are stripped off from the data set used for analysis and all information is treated as confidential.

The research paper does not suggest any specific investment tool for trading or purchasing. “The questionnaire is designed to explore only decision making and behavior characteristics. The results should be understood purely as academic findings about investor behavior and not as personalized financial advice”.

Analysis Framework

All the process of analysis happens in an orderly way starting from data collection to the analysis of structure relations.

Analytical Stage	Main Procedure	Expected Outcome
Stage 1	Data collection	Completed investor responses
Stage 2	Data screening	Clean and usable dataset
Stage 3	Descriptive analysis	Profile of respondents and investment behaviour
Stage 4	Reliability testing	Evidence of measurement consistency
Stage 5	CFA	Validation of measurement structure
Stage 6	Validity assessment	Confirmation of convergent and discriminant validity
Stage 7	Structural model estimation	Assessment of hypothesized relationships
Stage 8	Hypothesis testing	Identification of significant and non-significant paths

Stage 9	Model interpretation	Explanation of behavioural influences on investment decisions
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Overall, it is possible to outline a combined framework for analysis that includes the aspects of psychological biases and risk tolerance of investors. SEM is particularly useful since it will enable us to analyze a set of psychological factors together as well as take into account the measurement errors associated with latent variables. In order to ensure the reliability and validity of the research, it is necessary to validate the measurement tool first before proceeding with further analysis. In this way, the model can help determine whether the behavior of investors is mostly explained by their risk tolerance, specific psychological biases, or a combination of the two.

Results and Discussion section

The findings from the study were evaluated to determine the degree to which psychological biases and risk-taking affect investment decisions. The analysis was carried out through a systematic procedure of respondent profiling, descriptive assessment, reliability and validity testing, confirmatory factor analysis and structural equation modeling. Our empirical results indicate that financial considerations alone cannot account for the investment decisions. Perceptions, behavioral tendencies and willingness to accept uncertainty of investors seem to be important factors in the evaluation and selection of investment alternatives. The SEM results also provide further evidence that psychological characteristics are related in a measurable way to investment decision-making, although the size of the effect varies across the behavioral dimensions.

Descriptive Findings and Profile of Respondent

The respondents were from a diverse cross section of age groups, educational qualification, income groups, investment experience and investment preferences. Such variation was useful as investment behavior can vary greatly depending on financial experience and personal circumstances. Broad representation of investors also decreased the chance that the findings would represent the behavioral characteristics of a narrowly defined investor group.

The descriptive analysis showed that the respondents generally had moderate to relatively high levels of investment confidence and risk awareness. Moreover, the responses indicated that investors were not fully rational in their interpretation of market information. Some interviewees showed tendencies to use previous observed prices, to follow market trends, to search for information in support of their existing opinions or to rely heavily on their own investment judgment.

Construct	General Response Pattern	Interpretation
Overconfidence	Relatively high	Investors may place substantial trust in their own knowledge and forecasting ability
Herding tendency	Moderate	Market opinions and actions of other investors can influence individual choices
Loss aversion	High	Potential losses appear to receive considerable psychological weight
Anchoring	Moderate	Previous prices and reference points can influence subsequent judgments
Confirmation bias	Moderate to high	Investors may favour information consistent with existing beliefs
Risk tolerance	Moderate	Respondents show varying willingness to accept financial uncertainty

Investment decision-making	Moderate to high	Decisions reflect both financial assessment and behavioural considerations
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The descriptive findings offer preliminary support to the behavioural-finance view that investors do not always process financial information in a fully objective manner. However, descriptive results do not establish causal or statistically significant relationships. Therefore, further measurement and structural analyzes were carried out.

Assessing Reliability and Validity

The reliability test showed acceptable internal consistency among the indicators of the key constructs. The items in the questionnaire to measure psychological bias, risk tolerance and investment decision-making showed an acceptable level of internal consistency to be used in the subsequent SEM analysis. The results also showed that the indicators assigned to each individual construct measured correlated behavioral attributes and not unrelated ones.

Confirmatory factor analysis provided further support for construct validity. The standardized factor loadings were generally acceptable, indicating that the observed indicators made a significant contribution to the latent variables. Convergent validity was supported since indicators of the same construct showed adequate shared variance. Discriminant validity was also established, indicating that psychological biases, risk tolerance and investment decision making are distinct but related dimensions.

Measurement Assessment	Result Interpretation
Cronbach's Alpha	Acceptable internal consistency across constructs
Composite Reliability	Satisfactory construct reliability
Factor Loadings	Indicators demonstrated meaningful relationships with their constructs
Average Variance Extracted	Adequate convergent validity
Discriminant Validity	Constructs remained empirically distinguishable

These findings are important because SEM estimates are only meaningful if the measurement model has acceptable reliability and validity. The measurement results thus provide a sound basis for the evaluation of the assumed structural relations.

Results Structural Equation Model

Next, the structural model was tested to see if psychological biases and risk tolerance significantly explain differences in investment decision-making. The results showed that psychological biases have a significant positive effect on investment decision making. This does not mean that psychological biases are necessarily good for investment performance. Instead, it argues that the presence and strength of behavioral tendencies is linked to the manner in which investors make investment decisions.

Overconfidence was a significant behavioral influence amongst the individual psychological dimensions. Greater self-confidence in one's own analytical ability was related to a greater probability of making decisions based on personal judgments and expectations. Overconfidence may lead investors to believe that they have better information or forecasting ability and may lead to a greater willingness to act on their own assessment rather than objectively processing conflicting information in the market.

Herd behavior also had a significant correlation with the investment decision making. If uncertainty is high, investors may look to what other people in the market are doing, especially if they don't have enough information or if they are not confident in their own analysis. It's psychologically comforting to follow the market sentiment because you don't feel like you're the only one making the decision. But this can also lead investors to buy and sell investments based mainly on what other investors are doing.

Especially relevant was the relation between loss aversion and investment decisions. Loss aversion appeared to be an important psychological factor for investors. This may affect investment decisions, holding time, and reactions to declining asset values. Loss aversion can strongly influence an investor to continue holding an underperforming investment longer than a rational financial assessment would dictate, because the act of realizing the loss is psychologically uncomfortable. In contrast, the same investor might steer clear of some good opportunities for fear of losing money.

Anchoring also helped in investment decision making. Past purchase prices, past market prices, analyst targets or recent price observations may also be used by investors as “anchors” in judging current investment opportunities. Reference points can help in decision making but if investors rely on them too much, they may not adequately take new information into account. An asset may look cheap because its price is below a price it has fetched previously, but the economic conditions underlying it may have shifted. Confirmation bias was found to have another important behavioral association. Investors selectively seek out, remember or interpret information that is consistent with an existing investment belief. Once a decision has been made, contradictory information may be played down in favor of information that is supportive. This tendency can strengthen existing views, and make investors less inclined to revisit decisions with the emergence of new evidence.

Risk Tolerance Plays a Key Role

The risk tolerance was positively and significantly related to investment decision making. It can be seen that those individuals who are more comfortable with uncertainties had a tendency to look into investment options that are riskier but can provide greater gains. The result has been consistent with the basic notion that the ability to bear risks and risk appetite determine asset allocation.

But risk tolerance is not the same as risk taking behavior. A high tolerance for financial uncertainty is not necessarily a conservative investment approach if the investor has specific investment objectives, liquidity needs or is operating in a challenging market environment. Similarly, a low risk tolerant investor may sometimes purchase a risky investment because of social influence or overconfidence. This differentiation shows the utility of jointly considering psychological biases and risk tolerance in the framework of SEM. The results also suggest that risk tolerance may interact conceptually with psychological biases. For example, overconfident investors may underestimate the riskiness of risky investments, as they consider them less threatening than they objectively are, whereas loss-averse investors may overestimate the importance of potential losses. Hence, investment decisions may be the result of the combined effect of an investor’s intrinsic risk preference and the psychological processes through which market information is processed.

Overall Structural Results

Hypothesized Relationship	Observed Relationship	Interpretation
Psychological Biases → Investment Decision-Making	Significant	Behavioural tendencies significantly shape investment choices
Risk Tolerance → Investment Decision-Making	Significant	Willingness to accept risk influences investment preferences
Overconfidence → Investment Decision-Making	Significant	Personal confidence affects investment judgments
Herding → Investment Decision-Making	Significant	Actions and opinions of others influence decisions
Loss Aversion → Investment Decision-Making	Significant	Fear of losses affects investment behaviour

Anchoring → Investment Decision-Making	Significant	Reference points influence evaluation of investments
Confirmation Bias → Investment Decision-Making	Significant	Existing beliefs can influence information processing

The main thesis of the study – that investment decision making is not only about objective financial analysis but also about psychological and risk-related traits – is overall confirmed by the results. The SEM framework provides an integrated explanation by simultaneously investigating a number of behavioral dimensions.

5. Discussion of Results

The results support the more general claim of behavioral finance that investors often use simplified mental processes when making decisions under uncertainty. Financial markets provide a wealth of information and individual investors are not always able to process all the information objectively. This gives psychological shortcuts a lot of power, particularly in uncertain or emotionally charged market conditions.

The importance of multiple psychological biases is particularly relevant because these biases are not necessarily independent. An investor can be overconfident, confirmation biased and anchor at the same time. For example, an investor who has a very strong belief in the ability of personal analysis may seek out information that supports that belief and use a previous level of the price for the same purpose of justification of continued investment. In a similar way, investors who herd and are loss averse can combine when they see markets falling and worry about losses.

Implications of the results are also practical as well as for individuals who are investors, financial educators, investment professionals and institutions. Investor education is not confined only to the financial concepts such as diversification, return and valuation, but should enable investors to see through their own behaviors. Journaling investments, reflection on decisions after some period of time, consideration of contradictory data and use of preset investment criteria may contribute to the reduction of impact of impulsive psychological response.

The findings indicate that financial planners should take into account not only financial goals but also behaviors of investors. Risk Tolerance Alone May Not Be Sufficient to Explain Investing Behavior The risk tolerance of the investor alone may not be enough to explain investing behavior as even those investors who share same level of risk aversion or risk tolerance, but differ in confidence, loss sensitivity, social influence and information processing, may behave differently.

In conclusion, the results show that the investment decision-making process is multi-dimensional. Psychologic biases influence the interpretation of information while the degree of an investor's willingness to embrace uncertainty refers to risk tolerance. These factors give a better insight into investment behavior compared to a purely rational approach to decision making. As a result, the results from SEM show that to understand investor behavior, one needs not only to take into account financial situations but also psychological factors behind individuals' decisions.

Conclusion

The structural equation modeling technique was applied in order to analyze the impact of psychological biases and risk tolerance on investment decision-making and to reveal the relationships between the constructs in question. As can be seen from the findings of the research, there is no evidence of the fact that investment decisions depend exclusively on objective financial data and anticipated profitability and are not affected by the psychological features of the investors as well as their ability to deal with uncertainty. In addition to the objective criteria, the psychological and behavioral characteristics of the investors should also be considered when analyzing the process of evaluation and choice of the investment opportunities. The following behavioral variables of overconfidence, herding, loss aversion, anchoring and confirmation bias were found to play a significant role in making investment decisions. The findings suggest that the

subjective perception of the market and the use of psychological benchmarks should be considered when dealing with investments. Risk tolerance was also found to play an important part since it reflects the differences in tolerance of the investors to uncertainty and financial risks.

The practical significance of the paper has to do with individual investors, financial adviser, educators and investment institutions. Raising consciousness on psychological biases could help investors to become more conscious on their decisions, questioning their unjustified beliefs, taking into account conflicting opinions and recognizing true investment possibilities out of emotional and socially-based decisions. Similarly, it could help financial advisers to develop investor profiles, taking into consideration psychological features along with standard evaluations of financial goals and risk tolerance. However, there are certain limitations of the study, including cross-sectional design, self-reporting nature and particular sample of investors that may affect the generalization of results to other groups and markets. Future studies might use longitudinal designs for testing whether psychological biases change based on experience and market situation. Generalizations might be made using comparative studies conducted across various countries, investors' groups and financial instruments. Incorporation of more behavioral factors like financial literacy, market sentiment and digital investment could enhance the SEM models in future research. This study overall indicates the necessity of a balanced approach to the analysis of risk preferences and psychological processes in individual decisions for understanding of investment behavior.

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