

Risk Tolerance, Overconfidence and Investment Decisions in Nepal

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Article Info

Article history:

Received 2024-04-30

Revised 2024-05-28

Accepted 2024-05-29

Keywords:

Investment decisions

Financial assets

Overconfidence

Risk tolerance

Stock market

ABSTRACT

In the present globalized, modernized and digitalized business environment, investors are attracted to the stock market for their investment in financial assets rather than real assets. Investors' investment decisions are affected by various factors affecting their investment in financial assets in the stock market. This research intends to address problems of how investors' psychological factors (risk attitude & overconfidence) influence their investment decisions. Therefore, this paper examines the impact of investors' risk tolerance capacity and overconfidence level on investors' investment decisions in Nepal. This study has applied descriptive and causality (regression) research designs to investigate the effect of risk tolerance and overconfidence on investment decisions based on financial behavior theories. Data were obtained through the structured questionnaire survey. Investment decision-making is considered a dependent variable in this research, and risk tolerance and investors' overconfidence levels are used as explanatory variables. The correlation result reveals positive associations between explanatory variables and investment decisions. The regression result of this research study concludes that risk tolerance capacity and overconfidence level both significantly impact investors' investment decisions in the Nepalese stock market. Therefore, policymakers, regulatory bodies, decision makers, market traders, and academics should focus on investors' risk tolerance ability and overconfidence level to enhance investors' ability to make sound investment decisions to maximize their returns and minimize risk in Nepal.

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1. INTRODUCTION

The economic development of a nation depends on the development of various sectors of the economy. The rapid growth of the industrial sectors has increased the availability of products and services in the market. As a result, people's desire to buy and

own new products and services also changes rapidly. People's regular fixed income alone cannot fulfill their desire to own such products. So, they can meet their needs and desires only with additional income other than their fixed, regular income through investment into various tangible and financial assets. Investment is the process of allocating funds for having low-risk assets such as savings and deposits, gold and/or real estate [1] and high-risk assets such as stocks [2], [3].

Investment decisions are not always based on an investor's rational considerations only, but they can be based on an investor's psychology and financial behavior. The limits of arbitrage and cognitive psychology are the major doctrines of behavioral finance [4]. Cognitive is the process of thought, and people consistently make mistakes in their thinking because of overconfidence and put more emphasis on their recent experiences, which may lead to distortions. Instead of arrogantly disregarding this information, behavioral finance capitalizes on its advantage of it. Limits of arbitrage determine the conditions under which arbitrage forces would be more effective. Simon et al. [5] observed that cognitive bias makes a person overestimate the risk components.

Investors should trade off risk and return while making an investment decision. Investment decision is influenced by the level of an investor's risk tolerance. Some investors might have a higher risk tolerance, whereas others might have a lower one. Risk tolerance is the investor's attitude in assessing risk created due to uncertainties or variations between the expected and actual returns. Investors willing to accept more risk tend to be brave in allocating their funds to high-risky assets and vice versa [6]. Investor attitudes toward acceptable risk depend on the investor's attitude of who is a risk seeker, risk averter, or risk indifferent, which in turn affects an investor's risk-taking capacity [7].

Overconfidence is another behavioral bias factor that can influence investment decisions. Overconfidence is the belief in judgment, rational reasoning, cognitive ability, and intellectuality, which exaggerates an individual's ability to forecast and correct information, which can influence investment decisions [8]. Overconfident investors frequently undervalue the risk, resulting in an unfavorable asset allocation [9]. Overconfident investors allocate more funds to high-risk assets (stocks, real estate, etc.), whereas less overconfident investors deploy more funds towards low-risk assets. Roll [10] introduced the innovative theory of the optimism and overconfidence approach based on the Hubris theory in finance. Based on this theory, the CEOs of acquiring companies overestimated the takeover projects. They made inaccurate valuation decisions and overbid the target company, which hurts the shareholders [11]. Overconfidence was considered in the stock market by Odean [12], [13], [14] and [3], [15]. Most American CFOs still have overconfidence [16], [17]. Literature shows numerous studies on stock returns have been administered both in developed and developing economies [18], [19], [20], [21], [22]. However, the overconfidence behavior of the stock market has been studied at the academic level [23], [24], [25], [26]. Therefore, the overconfidence behavior in stock markets is a researchable issue.

Sudirman et al. [27] investigated psychological variables in investment decision-making using structural equation modeling partial least squares. They revealed a significant positive mediating role of risk tolerance in examining the effect of

overconfidence and availability bias on investment decision-making. Overconfidence exists in the causal relationship between return and trading volume based on non-linear Granger causality, which confirms the overconfidence and rate of return declined during the COVID-19 pandemic period [28]. The analysis of the effect of representative bias, overconfidence bias, and herding on investment decisions through risk tolerance based on SEM-PLS shows that overconfidence bias and representative bias significantly impacted the investment decision process [29].

Yuliani and Nurwulandari [30] used quantitative partial least square structural equation modeling (PLS-SEM) to examine the relationship among variables. They revealed that financial literacy, overconfidence, and investment experience significantly impact risk tolerance. These variables (financial literacy, overconfidence and investment experience) also positively affect investment decisions. In assessing the impact of behavioral biases (disposition effect, herding, overconfidence) on investment decisions using PLS-SEM, the results indicate that disposition and overconfidence affect decision-making. However, herding is having no significant impact [31]. Overconfidence and herding bias reduce the quality of investment decisions and investors' risk perception, influencing investment decisions. Risk perception can mediate between herding and overconfidence biases in investment decisions. Thus, investors should minimize the formation of bias for investment decisions and should diversify investment portfolios to reduce the risk [32].

Hussain and Rasheed [33] examined the effect of financial literacy, overconfidence bias and investor personality on investment decisions using risk tolerance as a mediator variable based on SEM. They revealed that financial literacy, investors' personality, and overconfidence bias significantly impact risk tolerance and investment decisions. Overconfidence, risk tolerance, and representativeness bias influence investment decisions considerably [34]. Risk perception and overconfidence have a significant favorable influence, whereas regret aversion bias does not substantially impact investment decisions.

Gupta and Shrivastava [35] investigated the effect of loss aversion and herding on retail investors' investment decisions, considering the mediating role of fear of missing based on a questionnaire survey using Smart PLS (factor analysis and partial least square structural equation) modeling. They revealed investment decisions are significantly influenced by herd behavior and loss aversion. In investigating the effect of overconfidence, financial literacy, and risk tolerance on investment decisions, Yulianisa and Erna Sulistyowati [36] applied multiple linear regression models and observed that overconfidence and financial literacy have a significant influence. In contrast, risk tolerance does not affect investment decisions.

The SEM results show that trust has a significant positive association with risk perception (RP) and financial literacy (FL), FL has a substantial positive relation with risk tolerance (RT), and RP and RT have significant positive association with asset allocation [37], [38]. Using multiple linear regressions, Adielyani and Mawardi [39] investigated the effect of herding behavior, overconfidence, and risk tolerance on stock investment. They revealed that herding behavior, overconfidence, and risk tolerance significantly affect stock investment decisions.

PLS-SEM results show that risk perception has a significant negative effect, whereas overconfidence and risk tolerance have a considerable positive impact on investment decisions; however, loss aversion has no role in investment decisions [40]. Optimism is cheerful, and confidence does not affect investment decisions. Thus, investment managers should focus on portfolios with higher returns rather than high risk while making investment decisions [41]. Khalid et al. [42] used regression analysis to investigate herding bias, overconfidence bias and investment decision. They revealed that herding bias, overconfidence bias and financial literacy positively impact investment decisions.

There is a positive association between overconfidence in financial knowledge and investment decisions because overconfidence intends excess investment and vice-versa, and the relation of overconfidence with investment decisions is robust to the riskiness of investment projects, changes in the structure of incentives and individual risk aversion [43]. In examining the effect of overconfidence, loss aversion, and behavioral biases, considering risk perception as a mediator, results confirm that loss aversion bias and overconfidence significantly influence investment decisions [44]. In investigating the impact of financial literacy, risk aversion bias, risk tolerance and overconfidence on investment decisions, estimated results show that risk aversion, risk tolerance and overconfidence significantly affect the investment decision-making process [45].

The investigation of the relationship between personality traits significantly influences the risk-tolerance behavior of individuals, which affects investment decisions about financial securities such as stocks, bonds, etc. It indicates that investment advisors consider individuals' personal characteristics and risk tolerance when advising investors [46]. Overconfidence is positively influenced by the willingness to risk and is inversely influenced by risk perception, and stock return volatility is anticipated in most cases [47].

Individual investors have different beliefs and preferences and make biases in their investment decisions, which reveal the design of the investor's mind. Understanding investor psychology means understanding better ways to make better investment decisions, and consumers' perceptions and beliefs regarding financial investment biases contribute new knowledge in financial product buying behavior [48]. In the analysis of the relationship between demographic characteristics (age, gender, number of children, marital status, total net assets and income) and financial risk tolerance, logistic regression results indicate gender and work department were significant predictors of financial risk tolerance, however, monthly personal income, family's total income, total net assets have different level of significance based on differentiating individuals risk tolerance levels. Still, age, number of children, and marital status do not significantly influence investors' financial risk tolerance [49]. Weber and Milliman [50] investigated administering two studies to understand how investors make risky decisions and observed people's choice depends on how risky investment they feel instead of their attitudes toward risks; they also revealed investment in the stock market is influenced how investors' perceptions of whether they gained or suffered losses and suggested stability of preference towards risk intends better understandings how investors perceive risk and their attitudes toward the expected risks.

Comprehensive literature confirms the effect of risk tolerance and overconfidence on investment decisions. It reveals valuable insights that provide significant implications for academic research and practical applications in the financial sector. The literature review intends to identify and define the key variables associated with risk tolerance and overconfidence. It sheds light on various behavioral biases relating to risk tolerance and overconfidence, providing foundations for developing multiple models of investment decision-making. Literature guides the understanding of various biases that influence investors' behavior, enabling the creation of more realistic models for capturing the complexities of financial investment decision processes. Existing literature also explores the role of psychological and demographic variables influencing risk tolerance and overconfidence that affect investment decisions. The financial literature reveals the role of risk tolerance and overconfidence in portfolio diversification strategies and investment decisions. This paper expects risk tolerance and confidence to play a positive role in investment decisions. Therefore, insights into the results of this study will be more beneficial to Nepalese investors in their investment decision-making process.

Investors with high-risk tolerance may be inclined to allocate more of their portfolio to volatile assets, seeking potentially higher returns. Conversely, those with low-risk tolerance might opt for more conservative investment strategies, prioritizing capital preservation over growth. Overconfidence can lead to suboptimal investment decisions, excessive trading costs, and increased risk exposure. It may also result in the neglect of crucial information and a failure to diversify portfolios adequately. The interaction between risk tolerance and overconfidence is dynamic. While risk tolerance influences investors' willingness to take risks, overconfidence can skew their perception of risk and reward, potentially leading to misjudgments. Overconfident investors might underestimate the risks associated with their high-risk investment choices, disregarding their actual risk tolerance. This behavioral bias can contribute to financial losses and negatively impact long-term wealth accumulation. They understand how risk tolerance and overconfidence interplay in investment decision-making and provide valuable insights for individual investors and financial professionals, facilitating more informed and rational choices in the dynamic landscape of financial markets. Similar studies are made in developed and developing countries, but there is still a lack of in-depth studies on under-developed economies like Nepal. Therefore, this paper intends to fill the gap and address the problems of how investors' psychological factors (risk attitude & overconfidence) influence their investment decisions. The research objective of this study is to investigate the impact of risk tolerance and overconfidence on investment decisions in Nepal.

2. METHOD

Research methodology is a study plan that deals with the general layout, techniques, and approaches for collecting, analyzing, and reading information. It is also a dependent technique that guarantees the research is legitimate, dependable, and moral [51]. It is the blueprint for collecting, dimensioning, and evaluating information [52]. It provides the framework for completing research studies, deciding appropriate methods, techniques

and strategies for collecting and recording data, and analyzing facts based on obtained data to address the research questions or test the formulated hypotheses.

This research study has applied descriptive and causality (regression) research designs. This study is based on planned and financial behavior theories [53]. The descriptive research design is used to describe the respondents' characteristics and their investment decisions. The causal-comparative research design has been employed to examine the impact of risk tolerance and overconfidence on investment decisions in Nepal. The investment decision is a dependent variable, and risk tolerance and overconfidence are explanatory variables. This paper is made based on primary sources of data. The data were collected from individuals through a questionnaire survey.

A population is the people, institutions, events, or common features of a set of characteristics. This study's population is all the stock investors of Kathmandu Valley. A sample is the subset of the population selected for research. Therefore, the sample size in this study is 393, which was collected in usable form through a convenient sampling technique.

To investigate the impact of risk tolerance and overconfidence on making investment decisions in Nepal, questionnaires were prepared and distributed to the stock investors inside Kathmandu Valley. The first part of the questionnaire was related to the demographic variables of the respondents. The second part of the questionnaire was related to investment decisions, risk tolerance, and overconfidence-related variables. Each questionnaire was considered to contain five items for each of the variables. All the questionnaires for the survey were prepared based on a 5-point Likert scale. This study used primary data, and required data were collected through a structured survey questionnaire. The researcher had control over the data collection procedures.

This paper has applied descriptive and inferential statistics to analyze the data and results. Descriptive statistics were used to describe, summarise, and outline the results. Inferential statistics (causality research design) have been used to examine the impact of explanatory variables (risk tolerance and overconfidence) on investment decisions in the Nepalese stock market. In this paper, correlation analysis and regression analysis have been conducted using inferential statistics to investigate the relationship and effect of risk tolerance and overconfidence on stock investment decisions in the Nepalese stock market.

The regression model of this research study is presented in Equation 1 as follows:

$$IDM = \beta_0 + \beta_1 RT + \beta_2 OC + \varepsilon_i \quad (1)$$

IDM is the investment decision making; RT represents risk tolerance, OC stands for overconfidence, β_0 presents the constant intercept term, β_1 and β_2 are regression coefficients of explanatory variables RT and OC and ε_i is the error term.

3. RESULTS AND DISCUSSION

3.1 Analysis of Respondents' Profile

The survey result of this paper shows out of 393 stock investors, 180 are male, and 213 are female, which implies that the majority (54.20%) of investors in Nepal are female.

In addition, the result confirms that most (51.91%) of Nepalese investors are from 20 to 40 years old. Further, the result depicts that the majority (53.44%) of Nepalese investors have investment experience of more than one year to five years. Moreover, the result indicates Nepalese investors prefer to invest in both short-term and long-term rather than short-term or long-term.

3.2 Descriptive Analysis

The descriptive statistics of this study are presented in Table 1.

Table 1. Descriptive Statistics

Variables	Investment Decision Making	Risk Tolerance	Overconfidence
Mean	3.547	3.763	3.826
Standard Deviation	0.891	0.974	1.378
Minimum	1.000	1.000	1.000
Maximum	5.000	5.000	5.000
Observations	393.000	393.000	393.000

Note. Authors’ estimation based on data from field survey 2024

Table 1 depicts the descriptive statistics of this research study; the mean values are the weighted average values of investors' responses based on a five-point Likert scale. The average mean above three indicates respondents agree about the statements (items) asked in the questionnaire affecting investment decisions, risk tolerance and overconfidence. Nepalese investors agree that investors' risk tolerance and overconfidence level have a role in their investment decision-making process. The standard deviation shows the total variations of the investors’ responses, and the result confirms the more significant variation of the responses on the investors’ overconfidence and the slightest variation of the responses on the statements related to investment decision-making. The descriptive results show a minimum value of 1, which indicates a response of strongly disagree, and a maximum value of 5 implies a response of strongly agree on the given statements of each variable. Finally, the descriptive result shows the number of observations of this study.

3.3 Analysis of Relationship

This study used correlation analysis to investigate the relationship between variables. The correlation coefficients between the variables of this paper are presented in Table 2.

Table 2. Correlation Coefficients Analysis

Variables	Investment decision making	Risk tolerance	Overconfidence
Investment decision making	1	0.463**	0.597**
Risk tolerance	-	1	0.285*
Overconfidence	-	-	1

Note. Authors’ estimation based on data from field survey 2024. * indicates statistical significance at the 5% level, and ** represents significance at the 1% level.

Table 2 depicts the correlation coefficients. The correlation coefficient result shows that investors’ risk tolerance and overconfidence levels are positively correlated with investment decision-making. The result indicates the relationship between risk tolerance

and overconfidence with the investment decision is a statistically significant positive, which means investors with more risk tolerance and overconfidence level can make sound investment decisions in time. The correlation coefficient of 0.285 between risk tolerance and overconfidence shows a positive but weak association, which confirms the absence of multicollinearity problems between explanatory variables.

3.4 Impact of Risk Tolerance and Overconfidence on Investment Decision Making

This paper used regression analysis to examine the impact of risk tolerance and overconfidence on investment decisions. The regression statistics of this study are presented in Table 3.

Table 3. Regression Statistics

Variables	Coefficients	Standard Error	t-statistics	P-value
Risk tolerance (RT)	0.396	0.085	4.658	0.003
Overconfidence (OC)	0.514	0.072	7.139	0.000
Constant	2.217	0.361	6.140	0.001
Adjusted R ²	0.519			
F-statistics	47.273			
P-value	0.000			
Observations	393			

Note. Authors' estimation based on data from field survey 2024. Investment decision-making is the dependent variable, and risk tolerance and overconfidence are explanatory variables.

Table 3 shows the estimated regression results of this study. The coefficient of risk tolerance of 0.396 indicates a 1 unit increase in risk tolerance level, which leads to a 0.396 unit increase in the investment decision-making ability of the stock investors. The value of t-statistics of risk tolerance is 4.658, and the P-value $0.003 < 0.01$ indicates that risk tolerance has a statistically significant impact on the investment decision-making of investors. In addition, the regression coefficient of overconfidence is 0.514, which designates a 1 unit increase in the confidence level, which leads to a 0.514 unit increase in the investment decision-making capacity of the stock investors. The value of t-statistics of overconfidence is 7.139, and the P-value $0.000 < 0.01$ specifies that risk tolerance statistically impacts investment decision-making in the Nepalese context. Therefore, regression results conclude that risk tolerance and overconfidence of stock investors have a significant and positive role in their investment decision-making process.

The estimated regression result of Table 3 shows the value of adjusted R^2 of 0.519, which implies that independent variables, i.e., risk tolerance and overconfidence variables, have 51.9%, explaining the power of the variance in investment decision-making. The estimated F-statistics of this study is 47.273, and the P-value of F-statistics is $0.000 < 0.01$, which indicates the model used in this study is well-fitted and statistically significant at a 1% significance level.

3.5 Discussion

Literature shows the significant effect of risk tolerance and overconfidence on the investment decision process. This paper has applied descriptive and causality (regression) research designs. The primary data sources were collected from individuals through a

structural questionnaire survey. This paper has used descriptive and inferential statistics to analyze the data and results based on the theory of financial behavior [53]. Descriptive statistics have been used to describe relationships among variables and outline the results. Causality (regression) research design has been used to examine the impact of explanatory variables on investment decisions in the stock market. The descriptive results indicate that Nepalese investors agree that risk tolerance and overconfidence are valuable insights for investment decisions. The correlation coefficients substantiate the significant association between risk tolerance and overconfidence in the stock investment decision process [29], [39], [40], [44], [49].

The regression result of this paper ($\beta=0.396$) reveals a positive and significant (t-statistics $4.658 > 1.96$ & P-value $0.003 < 0.01$) influence of risk tolerance on the stock investment decision process in Nepal. The result of this study supports the existing theory of financial behavior, and the result is consistent with the findings of prior studies of [27], [29], [39], [40], [44], [45], [49]. Moreover, the estimated regression result of this research ($\beta=0.514$) indicates the positive and significant (t-statistics $7.139 > 1.96$ & P-value $0.000 < 0.01$) impact of the overconfidence on the investment decision-making process in Nepal. This result is consistent with the theory of financial behavior, and the result supports the prior findings of [30], [29], [33], [34], [36], [39], [40], [42], [44], [43], [45], [46]. However, the finding of this result is inconsistent with the prior findings of [32] [41]. Therefore, the regression results of this paper conclude that risk tolerance and overconfidence of stock investors have an essential role in their investment decision-making process in the context of the Nepalese stock market.

F-statistics of the overall models of this study 47.273 confirms the regression models used in this study are well fitted and statistically significant at 1 percent level (P-value $0.000 < 0.01$). The adjusted R^2 0.519 (coefficient of determinants) substantiates that investors' risk tolerance capacity and overconfidence level have 51.9%, explaining the power of the variance in the investment decision-making process. Cronbach's alpha of each variable is above 0.80. Therefore, these results validate the findings of this paper.

This study is based on multiples ordinary least square regression models, and the results of this paper could be tested based on other techniques, such as logistic regression, partial least square structural equation models, etc., to validate the results of this paper as well as to make consistent with prior theoretical and empirical studies. This study considers only risk tolerance and overconfidence as explanatory variables. Still, other essential variables may have more power over investors' investment decisions, such as financial literacy, herding behavior, risk perception, loss aversion, investor personality traits, and other psychological factors.

4. CONCLUSION AND IMPLICATION

In the present globalized, competitive, and digitalized business environment, most investors are attracted to investing their funds in various financial assets (stock, bonds, government securities, etc.). In the Nepalese context, the investment trend towards the stock market is growing. Investors must make sound investment decisions to construct optimal portfolios to maximize returns and minimize risks. This study reveals that most

Nepalese investors are females aged twenty to fifty years with less than five years of experience. This research explores the positive association of investors' risk tolerance and overconfidence with the investment decision-making process. The result of the study concludes that investors' risk tolerance capacity and overconfidence have a significant role in the investment decision-making process. This implies that investors with more risk tolerance and overconfidence can make sound investment decisions in time, which helps them achieve their target goal of return maximization in the Nepalese stock market.

Investors perceive that their investment decisions are affected by various factors such as personal factors, stock market information, rules and regulations, etc. because presently, most investors have been switching their investments from tangible assets to financial assets. This paper adds knowledge using financial behavior to enhance the understanding of risk tolerance, overconfidence, and investment decisions for investors and the general public. Therefore, policymakers, decision-makers, stock market developers, brokers, market makers and regulatory bodies should emphasize investors' risk tolerance capacity, overconfidence level, financial literacy, etc., to enhance investors for their investment decision-making process to attract stock market participation. Therefore, the action implication of this study is for policymakers, market makers, and regulatory bodies to develop the stock market and attract investors toward the stock market for their investments. The implication of this paper is that it serves as a guideline path for investors to make sound investment decisions. The implication of the output of this research is to the academics for their teaching-learning and research activities in the field of risk tolerance, overconfidence and investment decisions in Nepal. Future studies are suggested to confirm the findings of this paper in other contexts with the inclusion of different variables such as financial literacy, investment experience, herding behavior, loss aversion, risk perception, personality traits, etc. and adopting other research techniques such as SEM, smart PLS, etc.

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