



THE INVESTMENT DECISION-MAKING: UNDERSTANDING OVERCONFIDENCE, HERDING AND RISK AVERSION AMONG INDIVIDUAL INVESTORS

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KEYWORDS	ABSTRACT
<p>Overconfidence, Herding Behavior, Disposition Effect, Risk Aversion & Investment Decision</p>	<p>The main objective of present study is to analyze impact of overconfidence, herding behavior, disposition effect & risk aversion on investment decisions made by investors. The study's population comprises individual investors who engage in investments within the Pakistan Stock Exchange. The study's sample comprises 365 individual investors who participate in the Pakistan stock exchange over survey questionnaire. The results are analyzed using a structural equation model by researcher. The findings of this study suggest that there exists a statistically significant and positive correlation between the overconfidence, herding behavior, disposition effect, and risk aversion in relation to investors' decision-making regarding their investments. Current work offers novelty by unveiling complex interplay of psychological biases and risk preferences in determining investment decisions. The study focus is narrowed down to individual investors on PSE and paves way for exploration of future research, like, investigating same phenomena among institutional investors to enhance the inclusiveness of observed variables as well as their relationship.</p> <p> 2024 Journal of Social Sciences Development</p>
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INTRODUCTION

The investment decisions made by investors serve as the significant indicators that delineate the advancement of an economy at both its micro and macro levels. Investment plays a pivotal role in fostering economic growth and development (Sachdeva, Lehal, Gupta & Garg, 2023). The trading volume observed in stock markets demonstrates a progressive increase, indicating a corresponding rise in financial literacy pertaining to investment practices. Recent economic developments and advancements indicate that contemporary stock markets exhibit greater levels of volatility and instability compared to previous periods (Kim, 2023). The level of volatility as driver of risk profile

of the stock increases. The instability in the stock market has been a major concern for professionals, scholars & investors alike. Conventional viewpoint in finance claims that stock market has always shown efficiency, with stock prices correctly reflecting all the information available (Heeb, Kölbl, Paetzold & Zeisberger, 2023). As per traditional finance theories investors are always deemed to be rational when in market and create their portfolios out of logical deductions. Many scholars have advanced several theories for classical finance including efficient market hypothesis and expected utility theory.

The Efficient Market Hypothesis (EMH) is grounded on two fundamental assumptions: firstly, that the stock price in market includes all available information historical, public, and private data; and secondly, that this means the market can be considered efficient. The second assumption states that the lack of market anomalies can be explained by rationality of investors when choosing companies for the investment purposes (Quang, Linh, Nguyen & Khoa, 2023; Xu, Yüksel & Dincer, 2023). Precisely, behavioral finance is a field that seeks to explain psychological and cognitive elements that influence actions of investors. Less research has been done on how overconfidence, disposition effect, risk-aversion partiality, and herding behavior affect investment decisions in Pakistan (Kim, Thompson & Kim, 2023; Widyatama & Narsa, 2023). The shortcomings of the literature exploring the impact of behavioral biases and investment decisions on investor decision-making in Pakistani context are numerous. The examination of the said subjects in different countries has yielded useful information; nevertheless, it must be valued that cultural, economic, and social variables that shape investor behavior in Pakistan are distinctive. Lack of region-specific studies limits transferability of findings from other settings, therefore calling for localized inquiry (Ansari, Albarrak, Sherfudeen & Aman, 2023; Bihari, Dash, Muduli, Kumar, Mulat & Luthra, 2023; Quang, Linh, Nguyen & Khoa, 2023).

The concern of utmost importance is existence of overconfidence bias among investors in Pakistan. Overconfident investors are known to underestimate risks, overrate their ability to earn profits, and choose suboptimal investments with higher financial vulnerability. Also, perhaps the disposition effect, the case whereby investors hold on to underperforming investments for longer periods than profitable ones, is a common occurrence in Pakistan. The presence of bias could lead to suboptimal portfolio performance and decreased returns for investors (Goyal, Gupta & Yadav, 2023; Mishra & Mishra, 2023; Sachdeva, Lehal, Gupta & Garg, 2023). Also, it is noteworthy that investment decisions in Pakistan may be influenced by risk-aversion bias, which is characterized by preference for the safer options despite the possibility of greater returns, as well as herding behavior, whereby investors tend to emulate the actions of others instead of relying on their own discernment. The occurrence of irrational behaviors is due to retail investors, which affect decision-making processes of institutional investors. The presence of biases can potentially result in negative consequences for portfolio diversification and overall market stability, thereby exerting an impact on the growth and development of the financial market in Pakistan (Elvira, Sutejo & Marciano, 2022; Sherani, Naeem & Shah, 2023).

Research Objectives

1. To examine effect of over-confidence on investors investment decision in particular context.

2. To examine the effect of herding on investors investment decision in the particular context.
3. To examine effect of disposition effect on investors investment decisions in specific context.
4. To examine the effects of risk aversion on investors investment decisions in specific context.

LITERATURE REVIEW

Ajzen (1991) took the idea of rational action and developed it into what we now call the theory of planned behavior (TPB). One of the legitimate notions that may describe human behavior is the TPB. Attitudes & belief that one can exercise some degree of control over one's actions are two examples of the motivating elements this theory identifies as influencing human behavior. One definition of attitude is "degree to which an individual is praised or criticized for engaging in a certain behavior." Also, TPB uses factors like how much control an individual feels they have over their behavior to make predictions about likely future actions when no choice is involved (Conner & Sparks, 2005). Theory of planned behavior postulates that individual's behavior intentions and actions are heavily influenced by that person's attitude toward the behavior, subjective standards, and theory of TPB (Conner, 2015).

Overconfidence & Investment Decision

Quddoos, Rafique, Kalim and Sheikh (2020) bring another important facet of the overconfidence concerning the investors. The authors underline that sometimes investors refer to past trends as the basis for forecasting future market dynamics, leaving out evaluating current situation/performing a fundamental analysis of the driving forces shaping the observed trend. Muniswaran et al. (2020) investigated effect of different behavioral biases on the financial decision-making process of retail investors in their study. Researchers' results show that overconfidence bias significantly influences the decision-making behavior of the retail investors. Shahid, Aftab, Latif and Mahmood (2018), the S&P 500, discussed the problem of inflation due to the fact that investors exhibit the overoptimistic behavior and overconfidence bias. The occurrence of irrational behaviors is due to retail investors, which affect the decision-making processes of institutional investors. Thus, according to Waweru, Munyoki and Uliana (2008), institutional investors on the Nairobi stock exchange were impacted by the overconfidence bias when making their investment choices. The stock market is a significant part of the financial realm for retail investors. The individual investors, which are normally known as small or individual investors, make their investment decisions based on their subjective analysis and market opinion.

The behavior of retail investors may not always abide by rationality and is vulnerable to cognitive biases, such as the overconfidence bias (Pikulina, Renneboog & Tobler, 2017). The overconfidence effect is linked to the tendency of individuals to overestimate their capabilities and underestimate risks, which results in the bad investment decisions. This paper aims at evaluating the impact of overconfidence on the behavior of retail investors and the ripple effect within the retail investment domain (Lee, Park & Chen, 2023). Overconfidence effect is a cognitive bias that drives up the level of confidence in one's judgment and abilities beyond grounds. Overconfidence can have different manifestations in the realm of retail investing. Initially, investors may have the perception that they are better than others in picking stocks, and this can lead to excess trading or concentration of their portfolios in a few stocks (Quang et al., 2023). Also, chance exists that investors may underestimate

risk component of their investments, thus leading to insufficient diversification of their portfolios. The investors may resort to speculative activity, which can adversely affect their performance by underestimating ability to time the market (Toma & Mihai, 2023). Based on above discussion it is hypothesized that:

H1: There is a significant effect of overconfidence on Investors' investment decisions

Herding Behavior & Investment Decision

The herding effect is the phenomenon where individuals tend to mimic what others do, especially in the financial markets. This phenomenon has been largely studied to understand the behavior of retail investors (Quang et al., 2023). A number of studies have looked into the effect of herding on retail investors, revealing its causes, effects and possible ways of mitigating it. Dewan and Dhani (2019) the common stock investment performance of individual investors. The authors in this study analyze the trading behavior of a large number of retail investors. They observe herding behavior among retail investors which results in suboptimal investment performance. In finance economics, the effect of herd mentality on the behavior of retail investors has been studied extensively (Raut, 2020). In addition, herding can cause individual investors to deviate from their risk preferences or long-term investment strategies, possibly resulting in suboptimal investment outcomes (Saraih et al., 2017). Analyzing the herding effect on the behavior of retail investors improves understanding of market dynamics, investor psychology, and financial markets (Adil et al., 2022). The drivers and consequences of herding can be understood by policymakers, market participants, and regulators who can then design measures to minimize the negative impact and promote informed decision-making among retail investors (Mishra & Mishra, 2023). Thus, based on the above discussion it is hypothesized that:

H2: There is a significant effect of herding behavior on Investors' investment decisions

Disposition Effect & Investment Decision

According to Guenther and Lordan (2023), the phenomenon known as disposition effect has been extensively researched and observed as a behavioral bias that impacts decision-making processes of individual investors in financial markets. The disposition effect pertains to inclination of investors to retain underperforming investments for extended period while disposing of gainful investments prematurely. The presence of bias holds significant implications for both investment performance & market efficiency. This essay aims to present a succinct overview of disposition effect, encircling its conceptualization, theoretical foundations, empirical substantiation, and plausible justifications (Costa et al., 2013). According to Gupta and Shrivastava (2022) the phenomenon known as the disposition effect manifests when investors demonstrate a tendency to prioritize the realization of gains while concurrently attempting to evade losses. Stated differently, investors exhibit tendency to divest from stocks that have appreciated in value while retaining stocks that have depreciated in value to occur despite the presence of rational economic principles that would indicate different outcome. Investors ought to base their decisions on future potential of an investment, irrespective of its historical performance. Disposition effect posits that investor investment decisions are impacted by emotional reactions to gains and losses, resulting in suboptimal outcomes (Rau, 2015). Thus, it is hypothesized that:

H3: There is a significant effect of the disposition effect upon the investors' investment decisions

Risk Aversion & Investment Decision

As per [Zalata et al. \(2022\)](#), the retail investor behavior is driven by risk aversion bias which is a psychological phenomenon. The concept mentioned is tendency of people to choose loss aversion over gain acquisition despite the fact that possible outcome is same. The presence of bias is of great importance because it can affect investment choices, the process of portfolio diversification, as well as the general financial wellbeing. The essay is aimed at examining the risk aversion bias concept, such as its definition, underpinning factors, observable manifestations, and the influence it exerts on the investment decision-making of retail investors ([Bauer et al., 2023](#)). Risk aversion bias tendency often leads to insufficient portfolio diversification. Investors are prone to limit investments to small number of known assets/industries, instead of issuing it across diverse asset classes/regions. While diversification is strategy that effectively reduce risk, risk-averse individuals may prefer to invest in a few assets, although false assumption that this will minimize their exposure to possible losses ([Kyaw et al., 2022](#)). Disposition effect is often observed behavior characterized by the tendency to sell profitable investments prematurely while retaining losing investments, can be attributed to risk aversion bias. Retail investors may exhibit a tendency to prioritize the swift realization of gains in order to preempt potential future losses, while concurrently deferring sale of underperforming investments in hope of eventual recovery. The conduct may lead to the omission of prospects for increased yields and diminished investment performance on the whole ([Garcia et al., 2022](#)). Thus, it is hypothesized that:

H4: There is significant effect of risk aversion on investor investment decisions in particular context

RESEARCH METHODOLOGY

The present study employed a cross-sectional survey design. Data was gathered from a subset of investors through the utilization of the survey questionnaire. This particular design facilitates the acquisition of data at a designated moment and facilitates the analysis of interrelationships among variables ([Bloomfield & Fisher, 2019](#); [Sair et al., 2023](#)). The researcher used positivism philosophy to conduct this research. As the nature of the research is quantitative and deductive approach was used by researcher to conduct this research, therefore this type of research method is consider most reliable ([Sohail et al., 2023](#)). The retail investors who are interested in investing on Pakistan Stock Exchange in Lahore make up research population for this study. Study was conducted in Lahore. Individuals who invest their own money in stock market are known as retail investors. Compared to institutional investors, retail investors often trade in lower quantities. The selection of an adequate number of participants is required in order to provide a sample that is representative of the whole ([Hill & Williams, 2012](#)).

As the population of the study is un-known therefore researcher employed item to response theory to select the sample size of study. According to this hypothesis total number of items in questioner is multiply with formula 10 ([Wauters et al., 2010](#)). Thus, a sample size of N equaling 365 was aimed for in this investigation. In study there were 450 questionnaires distributed to respondents through random sampling method, 390 responses received from respondents but 25 questionnaires were

incomplete and unable to use for analysis were discarded from sample. 365 responses were used for purpose of analysis through smart PLS. The response rate was 81.11%. This sample size, which was determined based on previous research, is considered to be adequate for quantitative investigation. It is anticipated that the findings offer a realistic representation of population if sample size is big enough. This may be accomplished by having enough number of participants. Method of sampling that was decided to use for investigation was convenience sampling, more just purposive sampling (Sharma, 2017).

Table 1 Research Instruments

Variables	Items	References
Over Confidence	05	(He et al., 2019)
Herding Behavior	04	(Dewan & Dharni, 2019)
Disposition Effect	05	(Richards et al., 2018)
Risk Aversion	05	(Zaleskiewicz, 2001)
Investor's Decisions	05	(Lucey & Dowling, 2005)

The contemporary scholars use diverse data analysis methodologies to extract insights and derive significant inferences from their data. Descriptive analysis utilizing SPSS (Statistical Package for Social Sciences) and inferential analysis employing SMART (PLS) Structural Equation Modeling (SEM) are two frequently utilized methodologies which was used by researcher for data analysis (Carlson & Donovan, 2008).

RESULTS OF STUDY

Table 2 Frequency Analysis

Variable	Frequency	Percent
Gender		
Male	201	55.1
Female	164	44.9
Age of Respondents		
20-30	172	47.1
31-40	132	36.2
41-50	53	14.5
51-Above	8	2.2

Table 2A Frequency Analysis

Variable	Frequency	Percent
Education		
Bachelor Degree	19	5.2
Master	257	70.4
MS	55	15.1
Doctorate	20	5.5
Diploma	14	3.8
Investment Experience		
< 10 Years	163	44.7

11 – 15 Years	92	25.2
> 16 -25 Years	93	25.5
> 25 Years	17	4.7

The demographic characteristics of the respondents are shown in Table 4.1 below. According to the statistics, 55.1% of the respondents are male. The majority of respondents are male. In addition, it can be seen from the table that the majority of the respondents were between the ages of 20 and 30 (47.1%), and majority of them also had a master’s degree (70.4%). The findings also revealed that over half of the respondents had been involved in the investing industry for a period of less than ten years (44.7%).

Measurement Model

Cronbach’s alpha and composite reliability were employed by researcher to evaluate the construct validity of lower-order concept. The generally accepted cutoff for each of these metrics is 0.7 (Boyd & Reuning-Elliott, 1998). All model constructs are reliable, as shown in Table 2 of study findings. Each construct has a Cronbach’s alpha and composite reliability over 0.7, showing that they are internally consistent.

Table 3 Construct Reliability

	CA	CR
Herd Behavior	0.794	0.857
Over Confidence	0.871	0.907
Disposition Effect	0.908	0.936
Risk Aversion	0.858	0.904
Investment Decisions	0.954	0.959

The average variance extracted uses for purpose of analyzing construct validity. As per Alarcón et al. (2015), it should be more than 0.5. Table 4 represents AVE of lower-order construct that is almost more than 0.5. VIF is used for purpose of analyzing multicollinearity of items. VIF should be less than five that shows no multicollinearity between indicators. Thus, annexure 02 shows VIF table of the measurement model.

Table 4 Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
Herd Behavior	0.597
Over Confidence	0.55
Disposition Effect	0.628
Risk Aversion	0.784
Investment Decisions	0.695
Financial Literacy	0.661

Table 4 shows results of HTMT for checking discriminant validity amid constructs. Figures of HTMT should be less than 0.9 (Yusoff et al., 2020), and if it is more than 0.9, it means the data do not have discriminant validity.

Table 5 Construct Validity (HTMT)

	HB	OC	DE	RA	ID	FL
Herd Behavior	0.812					
Over Confidence	0.674	0.675				
Disposition Effect	0.639	0.545	0.699			
Risk Aversion	0.66	0.735	0.772	0.878		
Investment Decisions	0.759	0.69	0.696	0.691	0.761	
Financial Literacy	0.562	0.638	0.55	0.351	0.506	0.53

Assessment of Structural Model

In order to assess the structural model, path analysis was conducted using Smart PLS software. The SRMR (Standardized Root Mean Square) was calculated over PLS-Bootstrapping to model fitness. According to [Sarstedt and Cheah \(2019\)](#), an SRMR value of less than 0.08 indicates a good fit. The calculated value of SRMR for our model was 0.052, indicating that model is good fit. This assessment follows the measurement model assessment conducted earlier, which analyzed the validity and reliability of model.

Table 6 Results of R Square

	R Square	R Square Adjusted
Investment Decision	0.699	0.697
Financial Literacy	0.686	0.684

Table represents results of r square from the PLS bootstrapping. R square shows how much percent change in the dependent variable is explained by independent variables. These results show that approximately 70% of change in investment decisions is captured through available independent variables. While r square of risk perception is 0.686, which shows a 68% change in risk perception because of change in independent variables (Behavioral biases, social and cultural factors, and institutional factors).

Table 7 Path Coefficients

	Original Sample (O)	T Statistics	P Values
Direct Effect			
Herding Behavior_ -> Investment Decision	0.087	1.76	0.083
Over Confidence_ ->Investment Decision	0.613	15.339	0.000
Disposition effect -> Investment Decision	0.292	6.681	0.020
Risk Aversion->Investment Decision	0.145	3.614	0.002
Financial Literacy -> Investment Decision	0.389	7.565	0.000

The table 7 shows the results extracted from PLS-SEM for the purpose of showing the significance regarding the impact of exogenous variables on the endogenous variables. The table shows that all exogenous variables have a significant impact upon endogenous variables. The researcher accepts direct hypothesis because all the independent variables and moderating variable has significant direct effect with the investment decisions making of the retail investors at 0.01 and 0.05 levels of significance in study.

DISCUSSION

H1: There is a significant effect of the overconfidence upon the investor's investment decisions

The findings of research demonstrated a significant impact of overconfidence on decision-making procedures of investors. The aforesaid findings augment current corpus of literature on behavioral finance and furnish significant perspectives on function of overconfidence in process of investment decision-making (Pikulina et al., 2017). Correlation between overconfidence and decision-making process of investors in line to prior research conducted in separate domain. Many academic studies have provided evidence that excessive self-assurance can exert a noteworthy influence upon the financial decision-making of individuals, resulting in biased assessments, suboptimal investment selections (D'Acunto, 2015; Pikulina et al., 2017; Ullah et al., 2017). Study strengthens prior research, thereby furnishing additional substantiation for impact of overconfidence in realm of investment (Quang et al., 2023).

H2: There is a significant effect of herding behavior on investor's investment decisions

The outcomes of present research have provided a sufficient basis to back notion that herd behavior has a sizeable effect on investment decisions of the investors. The observation that herding behavior affects investors' decision-making process affirms assumption that people copy from one another while making investment decisions (Dewan & Dharni, 2019; Garcia et al., 2022; Hussain et al., 2022; Wentao, 2023). The present study suggests that behavior of peers and the decisions made by them have a marked effect on investors which often ends up in clustering of the financial markets. Hence, herding behavior could potentially affect market activity that could lead to increased volatility & erratic pricing. The uniform conclusions reached in our study and former research on matter point out that herd behavior is a prevalent practice rather than just a chance phenomenon (Jain, Franklin, & Unela, 2022).

H3: There is a significant effect of disposition effect on investor's investment decisions

The results of the study show that disposition effect is quite influential in the investment-related choice. The findings acquired imply that the prior research studies executed in the field support the claim that the disposition effect has a critical role in the implication of investment decisions (Costa et al., 2023; Danbolt et al., 2022). The significant impact of disposition effect on investors' decision-making has been observed meaning that the people favor to hold their losing investments and are quick to offload their winning investments. Many studies have shown that investors have tendency of holding on to their underperforming stocks for a much longer shelf life relative to holding on to their outperforming stocks; thus, displaying a biasness in their portfolio constitution and less than optimal outcomes. The previously discussed behavior reflects the disposition effect, an established occurrence in the area of behavioral finance. Individual investors have been widely recognized in studies by (Ahn, 2022; Costa Jr et al., 2013; Costa et al., 2023; Guenther & Lordan, 2023) as having a predisposition effect.

H4: There is a significant effect of risk aversion on investor's investment decisions

The result of current research provides evidence in support of risk aversion as a major influencing factor on investors' thought process. We find that individuals with a high-risk aversion are more likely to use diverse investment decision-making plans than their less risk-averse counterparts and consequently, the outcome corresponds to the works conducted in the domain, thereby enhancing the understanding of the link between risk aversion and investment decisions (Ryan, 2006). Our current study serves as a validation of previous studies which pointed to the effect of risk aversion on financial decision making. In numerous studies on empirical users, it has been found that risk aversion plays a crucial role in constructing the investment behavior and the attitude of individuals towards uncertainty (Bauer et al., 2023; Garcia et al., 2022; Ji et al., 2022). The above findings imply that the psychological feature and risk aversion are very significant in an investor's choice of the investments.

CONCLUSION

In spite of the fact that this investigation arrived at a number of significant findings, there are a few constraints on the study that need to be addressed. Self-reporting was the major approach utilized in the study to evaluate variety of aspects, including overconfidence, herding behavior, disposition effect, risk aversion, and investing behavior. In beginning of the study, self-reporting was employed. It is possible for self-report measures to be impacted by biases like social desirability and memory bias, both of which may have an effect on the accuracy of the data that is acquired. This is because social desirability and memory bias are both forms of social desirability. The addition of more objective measures, such as behavioral tests or observation of actual investment decisions, might be beneficial to prospective future research in terms of providing a more complete understanding of link between these psychological biases and investing behavior. This would allow for the possibility of future studies.

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