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ASSESSMENT OF INVESTORS' INVESTMENT BEHAVIOUR: MEDIATING EFFECT OF RISK TOLERANCE: A CASE OF PAKISTAN STOCK EXCHANGE

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KEYWORDS

Investment Behavior, Market Factors, Organizational Factors, Personal Factors, Risk Tolerance

ABSTRACT

This study aims to investigate the role of risk tolerance as a mediator in the investment choices of retail investors on Pakistan Stock Exchange. Research addresses criticisms of the descriptive theories in behavioral economics and emphasizes the importance of understanding factors that impact consumers' financial decisions for a more efficient and stable financial system. The study analyzes organizational, personal, and market factors to determine relative significance. Sample for this study consists of individual investors actively trading on Pakistan Stock Exchange. The findings indicate that individual investors' investment behavior is mainly swayed by market factors, personal characteristics, and organizational context. Study findings hold value for various stakeholders, including investors, brokerage companies, managers, and government officials. By utilizing these findings to inform their decision-making processes, these stakeholders can make more informed choices. Thus, understanding the role of risk tolerance and the influence of different factors contributes to development of a stronger and more knowledgeable financial system.

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INTRODUCTION

The volatility and uncertainty in the financial market result in significant fluctuations in turnover. These fluctuations are primarily caused by human behavior, which has been a subject of concern for some time. Thus, investment returns often fall short of expectations (Huang, Tang & Zhang, 2020). The investors, being human, sometimes make irrational decisions influenced by emotions and social factors, as shown by research. The decision-making process is influenced by cognitive and emotional aspects. This phenomenon is explained by the emerging field of Behavioral Finance, which suggests that psychological factors play role in decision-making (Rafay & Mustafa, 2023). The importance of institutional and individual investors in Pakistan's stock market should not be underestimated (Ahmad, 2017). Although institutional investors have larger portfolios compared to retail investors, understanding retail investors is vital as they have disproportionate impact when shared (Khurshid & Ahmad, 2023). Those studying financial markets often assume that the institutional investors are better informed and actively counteract excessive interest of retail investors. This leads to insight that retail investors are either poorly educated or torn between conflicting desires and outcomes (Hussain & Rasheed, 2023).

Retail investors face additional challenges compared to fund managers when making investment choices, as they lack comprehensive knowledge and official data, resulting in illogical and hasty decisions (Lu, 2010). The behavioral finance suggests that many investors are risk-averse and easily influenced by others' opinions, leading to biases in their investment decisions (Hussain & Rasheed, 2023). Impact of psychological and emotional factors can result in irrational investment behavior among individual investors. Making informed investment decisions requires factual information, logical thinking, and proper data analysis (Mirzazadeh, Yazdani, Khanmo & Dastnaee, 2023). Due to lack of knowledge in balancing expected returns with risk tolerance, individual investors often make poor investment decisions and fail to achieve their financial goals. To understand functioning and volatility of stock market, it is crucial to consider the role of human nature (Rafay & Mustafa, 2023). Understanding how different demographic groups of investors are influenced by behavioral aspects is essential for gaining insights into investor behavior. In this connection, extent of investors' past experiences in making investment decisions and their exposure to different market conditions. Although, the impact of behavioral biases upon investment choices has been extensively studied in the advanced economies, only limited research is available for the emerging nations like Pakistan (Khurshid & Ahmad, 2023).

According to Hudson, Yan and Zhang (2020), Pakistani investors often make decisions based upon crowd behavior. Moreover, cultural differences, values, infrastructure of financial markets, financial literacy, and education levels necessitate separate studies for developing countries, as research conducted in industrialized nations cannot be directly extrapolated (Hussain & Rasheed, 2023). The risk tolerance refers to an investor's willingness to take on risk or uncertainty in their investment choices. It plays crucial role in shaping investment behavior and act as mediator between various factors and investment decisions (Khurshid & Ahmad, 2023). The financial objectives investors aim to achieve over their investments, such as capital growth, income generation, or risk mitigation. The aim of this research is to examine intermediary function of risk tolerance in relation to investment decisions made by retail investors in the Pakistan Stock Exchange. The level of knowledge investors possesses about investment strategies, financial markets and instruments. Organizational, individual, and market factors was extensively analyzed to determine their relative importance. The investors, brokerage firms, management, corporate governance, and governments can benefit from this study by gaining valued knowledge that can lead to informed and effective decision-making, ultimately contributing to stable market.

LITERATURE REVIEW

A wide range of variables are influencing investors' choices in stock buying. Parveen, Satti, Subhan, and Jamil (2020) conducted research in Pakistan to recognize how representational bias, heuristics, and overconfidence affect investor behavior. The study revealed that these factors have significant impact on stock selection choices of Pakistani investors. Another study focused on the relationship between financial education and success of Chinese investors (Jiang, Liao, Wang, & Xiang, 2020). The findings indicated that financially knowledgeable retail investors give more consideration to their investment decisions, which can potentially enhance their wealth. Huang, Tang, and Zhang (2020) found that the investors' investment decisions are highly influenced by their search for the information about different investment opportunities. In United Kingdom, separate research was conducted to investigate how herd behavior influences the choices made by mutual fund investors. The findings indicated that herding has a major impact on investors' choices (Hudson et al., 2020). Similarly, the recent study focused upon how Arab women invest their money and found that the confidence, risk tolerance, herding, and financial knowledge significantly impact women investors' behavior (Salem, 2019). According to Ahmad (2017), organizational and market aspects have most influence on investors' choices.

Azam and Kumar (2011) conducted study upon the factors that affect investors' decisions and found that macroeconomic variables, such as growth rate of earnings per share, foreign direct investment, and gross domestic product, significantly influence companies' share prices on the KSE (Caracas Stock Exchange). Financial statements play crucial role in informing the stakeholders and investors about a company's financial health, thereby heavily influencing investors' choices (Hillenbrand & Schmelzer, 2017). Various academics have studied the characteristics of investors' personalities and found that issues in their relationships with other investors and firms greatly influence the investor behavior (Bucciol & Zarri, 2017). Aytaç, Coqueret, and Mandou (2017) conducted research on herd mentality and outlook of wine investors. Babatunde and Razali (2016) led research suggesting that investors should consider company's dividend, predict rate of return, and financial stability when making investment decisions. Company culture can also influence investor behavior (Chang & Lin, 2015). Levinson and Peng (2007) examined that how different cultures influence Americans' and Chinese individuals' approaches to money, revealing cross-cultural differences in biases associated with framing and ethical caliber.

Hossain and Nasrin (2012) conducted research in Bangladesh and identified 8-influential factors affecting investor retention. A study by Hoffmann, Post, and Pennings (2015) found that high-risk investors are increasingly investing in stocks to maximize their profits. Ahmad (2017) found that investors rely more on the advice of financial advisors and friends rather than family members when making investment decisions. Moreover, investment choices are positively related to one's comfort level with risk. Stock market data is frequently utilized by investors, and the actions of traders can be impacted by changes in stock prices (Waweru, Munyoki, & Uliana, 2008). According to Shafi's (2014) research, news coverage & involvement of government officials play vital role in investment decision-making. Religious convictions can significantly influence investors' actions (Lein, Turk, & Weill, 2017). Merika (2016) found that market movements during the survey period had impact on economy, emphasizing importance of understanding the country's financial and economic situation for making better investment decisions. Maini (2017) validated that market pricing volatility plays crucial role in individual investors' choices, particularly at Tehran Stock Exchange, where political and psychological elements heavily influence decisions due to a lack of information objectivity and financial professionals.

Mahfudh (2016) conducted study at Nairobi Securities Exchange and found significant correlation between investors' levels of financial literacy and their investment decisions. Muhammad and Khan (2018) used samples of the students, professors, and people with expertise in investing to explore the association between financial literacy and desire to invest. Another study focused on relationship between financial education and success of Chinese investors (Jiang, Liao, Wang, & Xiang, 2020). Behavioral finance, which encompasses various approaches, offers insights into how people make financial decisions (Mak & IP, 2017). In the Pakistani stock market, the traders are susceptible to representativeness bias, as indicated by research conducted by Irshad et al. (2016). Risk tolerance refers to an investor's willingness to take on risk or uncertainty in their investment choices. It plays crucial role in shaping the investment behavior and act as a mediator between various factors and investment decisions (Khurshid & Ahmad, 2023). Hussain et al. (2017) identified three heuristics that expectedly influence investors' decisions, with higher-educated and more experienced investors being less susceptible to these heuristics. Scholars used mixed-methods approach to test prospect theory in Pakistan stock market, considering multiple factors that influence investment decisions of Pakistani retail investors.

RESEARCH METHODOLOGY

This study employed quantitative methods to investigate the relationship between behavioral characteristics and the investment decisions of individual Pakistan Stock Exchange (PSX) investors. The population under investigation consisted of the private individuals who had engaged in PSX transactions. The sample was derived from individuals actively trading on the PSX in the Lahore stock exchange area, using convenience and snowball sampling methods. Total 350 questionnaires were distributed to investors, resulting in 311 usable responses. The sample selection was guided by item-rate theory. To assess individuals' investment behavior, the modified questionnaire was used, consisting of two distinct dimensions. The first section examined the behavioral biases of individual investors, focusing on the impact of accounting data, firm image, firm culture, individual investor financial requirements, consultation, self-image, market data and uncertainty, risk tolerance, and investment decisions. Second section gathered essential demographic information, including age, gender, salary, and years of work experience. A revised questionnaire was designed to correspond with the five behavioral bases of individual investors outlined by DAS (2012) and Hussein, Hassan, and Tamimi (2006). This questionnaire incorporated insights from relevant literature sources to evaluate investors' fundamental decision-making. Various data analysis tools and methodologies were employed to ensure the accuracy of collected data. The analysis included reliability analysis, descriptive statistics, correlation, and regression. The IBM's SPSS statistical package was utilized to analyze the data for this study.

RESULTS OF STUDY

Table 1 Frequency Analysis

Variable	Frequency	Percent
	Gender	
Male	210	67.52
Female	101	32.48
	Age of Respondents	
20-30	88	28.29
31-40	112	36.01
41-50	85	27.33
51-above	26	8.37

Table 1a Frequency Analysis

Variable	Frequency	Percent
	Education	
Bachelor Degree	19	6.10
Master	203	65.27
MS	55	17.68
Doctorate	20	6.44
Diploma	14	4.51
	Investment Experience	
< 10 years	163	52.41
11 – 15 years	92	29.58
> 16 -25 years	39	12.54
> 25 years	17	5.46

The demographic profile of the respondents is illustrated in Table 1 & 1a. The results indicate that a significant proportion of the participants are male, comprising 67.52% of total sample. Moreover, the table illustrates that a significant proportion of the participants belonged to the age group of 31 to 40 years (36.01%), with the majority holding a Master's degree (65.27%). The findings indicate that a majority of the participants (52.41%) possess less than 10 years of investment experience) in the present study.

Measurement Model for Lower-Order Construct

According to Yamamoto et al. (2014), outer factor loading represents how much item contributes to the formation of each latent variable. The minimum requirement for the outer loading is 0.7, so the researcher excluded all those items whose outer loading is less than 0.7. Table 2 shows the construct reliability of the variables which clearly state that all the variables are reliable for further analysis in the present research.

Table 2 Construct Reliability

	C-Alpha	RHO_A	CR	AVE
Investors Behavior	0.809	0.815	0.869	0.572
Market Factors	0.832	0.824	0.831	0.714

Organizational Factors	0.804	0.807	0.706	0.569
Personal Factors	0.713	0.715	0.785	0.556
Risk Tolerance	0.878	0.886	0.902	0.585

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 3 represents AVE of lower-order construct that is almost more than 0.5. VIF is normally used by the researcher for the purpose of analyzing multicollinearity of items. VIF should be less than five that shows no multicollinearity amid indicators. Table 3 shows VIF table of the measurement model.

Table 3 Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
Investors Behavior	1.68
Market Factors	1.91
Organizational Factors	1.63
Personal Factors	1.39
Risk Tolerance	1.66

Table shows the results of HTMT for purpose of checking discriminant validity between constructs. The figures of HTMT should be less than 0.9, and if it is more than 0.9, it means the data do not have discriminant validity.

Table 4 Construct Validity (HTMT)

	Investors Behavior	Market Factors	Organization Factors	Personal Factors	Risk Tolerance
Investors Behavior					
Market Factors	0.194				
Organizational Factors	0.558	0.797			
Personal Factors	0.208	0.177	0.364		
Risk Tolerance	0.275	0.423	0.443	0.383	

The discriminant validity using Fornel and Larcker. This is achieved by comparing the square root of each Average Variance Extracted (AVE) in the diagonal with the correlation coefficients (off-diagonal) for each construct in the relevant rows and columns. In summary, the measurement model demonstrates the desired acceptable discriminant validity, thereby supporting the distinctiveness of the constructs.

Table 5 Discriminant Validity_ Fornell Larcker Criterion

	Investors Behavior	Market Factors	Organization Factors	Personal Factors	Risk Tolerance
Investors Behavior	0.756				
Market Factors	0.936	0.845			
Organizational Factors	0.423	0.496	0.685		
Personal Factors	0.813	0.829	0.836	0.746	
Risk Tolerance	0.229	0.293	0.703	0.607	0.696

Assessment of Structural Model

Table 6 Path Coefficients

	OS	SM	SD	TS	PV
Market Factors -> Investors Behavior	0.459	0.446	0.074	6.209	0.000
Market Factors -> Risk Tolerance	0.452	0.442	0.078	5.818	0.000
Organizational Factors -> Investors Behavior	0.447	0.469	0.042	11.192	0.000
Organizational Factors -> Risk Tolerance	0.351	0.366	0.086	4.085	0.000
Personal Factors -> Investors Behavior	0.899	0.906	0.077	11.631	0.000
Personal Factors -> Risk Tolerance	0.688	0.666	0.152	4.523	0.000
Risk Tolerance -> Investors Behavior	0.422	0.419	0.023	10.272	0.000

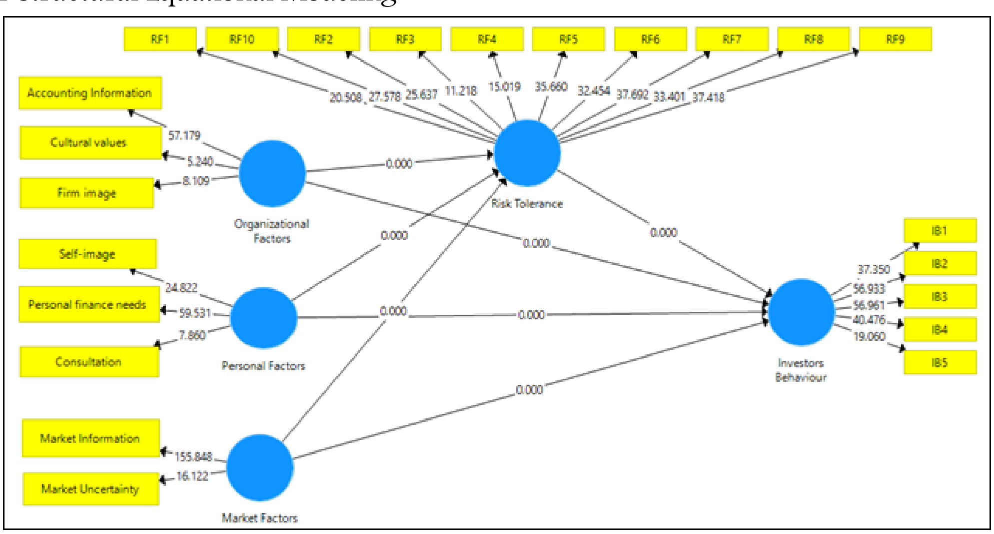
Table 6 shows results extracted from PLS-SEM for purpose of showing the significance regarding impact of exogenous variables on endogenous variables. Table shows that variables have significant impact on endogenous variables. The researcher accepts H_1 as behavioral biases affect investment decisions at 0.1 level of significance.

Table 7 Mediation Analysis (Risk Tolerance)

	OS	SM	SD	TS	PV
Market Factors -> Risk Tolerance -> Investors Behavior	0.055	0.053	0.015	3.649	0.000
Organizational Factors -> Risk Tolerance -> IB	0.043	0.042	0.009	4.559	0.000
Personal Factors -> Risk Tolerance -> Investors Behavior	0.084	0.081	0.028	2.974	0.003

Table 7 shows mediation analysis through the path coefficients. The results show that risk tolerance plays its role as mediator variable between all exogenous variables (Personal, organizational and market factors) & endogenous variables that are investment behavior. Based upon these results, the researcher accepted the research hypothesis H_2.

Figure 1 Structural Equational Modeling



DISCUSSION

This research reveals that individual investors in Pakistan are influenced by the market variables, organizational factors, and personal factors. These findings are consistent with the previous studies conducted by Chandra and Kumar (2011). Also, Sara (2017) observed that political, environmental, innovative social, and legal issues play a role in the decision-making of private investors in the JSX. Further support for this theory comes from the discussion of Malaysian investor behavior by Chong and Lai (2011). The research conducted in this study emphasizes that profit/return is a crucial factor for individual investors in Pakistan, which aligns with the findings of Azam and Kumar (2011) and Tanha and Halid (2011) in their research on PSX and KSX, respectively. The influence of personal bias as a significant element is reflected in investors' preconceived notions that certain firms offer superior returns on ad hoc basis. This finding is consistent with a similar study conducted by Hussein and Hassan (2006) on the stock market in the United Arab Emirates. However, the present study's findings do not align with certain previous studies. Researchers Sultana and Pardhasaradhi (2010) and Chou, Huang and Hsu (2010) studying Taiwanese investors that personal investing experience can alter one's perception of risk. Thus, these studies indicate that the firm's organizational aspect significantly impacts investor behavior. Furthermore, results suggest that investor decision-making is heavily influenced by the market knowledge and uncertainty, as indicated by the state of market variables (Chang & Lin, 2015).

CONCLUSION & IMPLICATIONS

This study concludes by investigating the role of risk tolerance as a mediator for retail investors on the Pakistan Stock Exchange, thereby contributing to the comprehension of investment decisions. By addressing criticisms of descriptive theories in behavioral economics, the research emphasizes the significance of the understanding the factors that influence consumers' financial decisions for a more efficient and stable financial system. The relative significance of organizational, personal, and market factors is illuminated by their analysis. Thus, individual investors' investment behavior is predominantly influenced by market factors, personal characteristics, and organizational context, according to the findings as it influences of personal bias that reflected in investors' preconceived notions for superior returns. Besides, risk tolerance emerges as an important mediator between these variables. This emphasizes significance of contemplating a person's risk tolerance when analyzing their investment options.

However, this research has limitations. First, research concentrates exclusively on retail investors in the Lahore stock exchange area, which may limit the applicability of the findings to other regions or categories of investors. In addition, study relies on self-reported data, which may contain errors or biases. Future research could consider increasing the sample size and incorporating a variety of investor profiles to increase the external validity of the study. In this connection, the implications of this research for various stakeholders are noteworthy in diverse contexts. Investors can benefit from a deeper comprehension of their risk tolerance and how it impacts their investment decisions. These findings can be utilized by brokerage firms and administrators to modify their services, policies and strategies to the requirements of the individual investors. In order to promote a more informed and resilient financial system, government officials can consider integrating these insights into financial regulations and policies.

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