Policy Research Journal
ISSN (E): 3006-7030 ISSN (P) : 3006-7022 Volume 3, Issue 11, 2025

FROM FINANCIAL LITERACY TO INVESTMENT ACTION: THE MEDIATING ROLE OF INVESTMENT ATTITUDE AND THE MODERATING ROLE OF RISK PERCEPTION IN EMERGING FINANCIAL MARKETS

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DOI: https://doi.org/10.5281/zenodo.17513430

Keywords
Financial literacy; Investment attitude; Investment decision; Risk perception; Mediation; Moderation; Behavioral finance; Emerging markets; Theory of Planned Behavior; PLS-SEM

Article History
Received: 12 September 2025
Accepted: 22 October 2025
Published: 03 November 2025

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Abstract

Financial literacy is often believed to foster positive investment attitudes and constructive decisions. This theory is challenged, however, by the notion that investment app-making experience and the influence of risk perception which is a moderator to the outcome relationship, by which investment behavior is exhibited. Within the context of shadow (emerging) markets like Pakistan, data is analyzed for investment behavior and attitudes (IBA) and investment literacy (IL) using to justify, in part, the planned behavior theory. Insight is garnered via Partial Least Squares Structural Equation Modeling (PLS-SEM). IA is 'Investment Attitude', while ID is 'Investment Decisions'.

Our results indicated that the level of I have directly proportional relationship FA have positive correlation with IA and ID. Similarly, IA has positive correlation with IC, to a point. Moreover, the blueprint structurally captures investment ID and IL inter-act which reflects attitude change, which in turn defers the issue of behavior to a partially expressed opaque states.

RPs lowers the assumption that there is a positive correlation between attitude toward the perceived risk and investment IA and ID. In other words, weaker positive attitude investment earns attitude participation.

You have done remarkable good investment awareness based on the investment literacy and investment attitude behavioral relationships. What also matters is the ability to help investors think rationally.

This research added new dimensions to behavioral finance by melding cognitive, emotional, and perceptual analysis and serves to enhance the knowledge and trust of investors even more in emerging markets.

1. INTRODUCTION

Due to the sophistication of the ever-changing financial landscape, individuals face myriad investment opportunities that require familiarity, reason, and the ability to make sound financial decisions. This prompted contemporary behavioral finance scholars to focus on the need for investors to comprehend, assess, and control their finances (Lusardi & Mitchell, 2014). Financial literacy is defined as the ability to grasp and make effective decisions regarding finances including budgeting, saving, investing, and risk management (Remund, 2010). It helps individuals engage in financial activities, assess and evaluate financial opportunities, and minimize the impact of behavioral biases that lead to losses (OECD, 2020). Nonetheless, the importance of financial literacy is evident in the empirical studies that showed many, especially in developing countries, displaying the lowest financial literacy which, in turn, translated to poor investment decisions and financial weakness (Klapper et al., 2015; Lusardi & Tufano, 2015).

When making financial decisions, having the necessary knowledge won't automatically translate to the right behaviors, given that an individual's attitudes and perceptions of the associated risks will shape this behavior. An investment attitude describes how an individual evaluates an investment opportunity, that is, what they think about it, the emotions it evokes, and what they want to do about it (Nguyen et al., 2019). This attitude shows how an individual perceives the value of the investment, the profits to be gained, and whether it is congruent with their purpose or goals. Individuals with a positive investment attitude tend to actively seek a range of financial instruments, invest on a regular basis, and take advantage of investment opportunities readily (Kaur & Kaushik, 2016). And this does not occur independently; it is also largely driven by one's financial knowledge and the perceived risk of the market (Khan et al., 2021). Financially literate individuals will typically have a more positive outlook on the investment climate and will be more inclined to take risks.

On the other hand, those who believe the risks are higher tend to adopt a negative perspective, even if they understand the finances (Ricci & Caratelli, 2017). Risk perception explains why investors behave differently, as it describes the subjective evaluation individuals make around the uncertainty and probable loss of money (Slovic, 1987). In behavioral finance, investors are seen as having irrationality, including biases, emotions, and risk perception (Kahneman & Tversky, 1979; Ricciardi & Simon, 2000). Prospect Theory explains why investors avoid 'gambling' on [risky] the high-return option. This is because they believe that the loss would outweigh the gain. Thus, the perception of risk affects the relationship of financial literacy and investment attitude. This means that an investor might be hesitant to put their money in the stock market if they are overly suspicious of it, and the opposite is true if the risk perception and suspicion is low. In such cases, the knowledge an investor has is likely to be confident and proactive.

For countries like Pakistan, the emerging topics of financial literacy, investment attitudes, and risk perceptions rely on the limited scope of financial education, high uncertainty in the market, and information asymmetry (Yusof et al., 2018). Speculation and informal advice and social influence networks flow more freely than systematic analyses making investors susceptible to volatility (Aren & Aydemir, 2015). Digital tools may contribute to the ease of access to high-risk investments, but irrational investment behavior will remain unchallenged without structured financial education. Psychological and perceptual factors bottleneck the translation of information into action, evident in the inconsistent investment decisions made by individuals with similar financial knowledge (Henager & Cude, 2016). Past studies have emphasized the financial literacy-investment behavior correlations, yet the direct pathways in correlation remain under explained (Lusardi & Mitchell, 2011; Klapper et al., 2015).

Little research has focused on the mediation of investment disposition and the moderation of risk perception regarding the transformation of financial knowledge into actionable decision-making (Chavali & Mohanraj, 2016). It is important to address this to obtain a holistic grasp

of the behavior underlying the investment decisions of retail investors in developing economies, which tend to be financially unstable and have investors with volatile sentiments. The research, based on the Theory of Planned Behavior (Ajzen, 1991) and Prospect Theory (Kahneman & Tversky, 1979), suggests that financial literacy positively impacts investment decision making with a concurrent development of investment disposition, while risk perception modifies this effect. The Theory of Planned Behavior suggests that behavioral intention and action is driven by attitudes, subjective norms, and perceived behavioral control. In this scenario, financial literacy is presumed to strengthen perceived behavioral control, with investment disposition making the evaluative component, and risk perception acting as a situational factor that can either trigger or inhibit the investment action. This relationship in theory clarifies the decision making in finance correlating cognitive and emotional factors.

Considering these viewpoints, this research looks at the intricate relationships among financial literacy, attitudes toward investments, perceptions of risk, and decision-making concerning investments specifically among retail investors in Pakistan. It aims to fill the gap in the literature on behavioral finance by providing empirical evidence on the integration of financial literacy and actual investment behavior, while exploring mediating and moderating effects. From an applied perspective, it is hoped that the results will assist relevant stakeholders, including policymakers, financial institutions, and educators, in developing comprehensive and actionable financial literacy initiatives that not only build knowledge but also support the development of constructive attitudes to invest, healthy perceptions of risk, and a culture of willing and sustainable investing.

Financial literacy is essential when it comes to making confident and informed decisions, especially during periods of uncertainty and uneven information distribution (OECD, 2020). An informed analysis of investment options enables one to assess risks, anticipate returns, and make selections among different investment vehicles.

Prior research has shown that financial literacy improves individuals' confidence and feelings of control over financial outcomes, which results in more rational decision making (Lusardi & Tufano, 2015; Henager & Cude, 2016). However, knowledge does not always lead to positive financial behavior, as decision making is influenced by psychological and behavioral components (Ricci & Caratelli, 2017). Among such components, investment attitude, which is defined as evaluative orientation toward financial risk, return, and opportunity, is one of the key mediating variables between knowledge and behavior (Nguyen et al., 2019). Positive investment attitude leads to proactive financial planning and more extensive portfolio diversification (Kaur & Kaushik, 2016). This is based on one's risk perception, which is the evaluative and subjective cognitive appraisal of uncertainty and potential loss (Slovic, 1987). Within behavioral finance, risk perception explains some of the most irrational investor behaviors, as investors think and act emotionally when processing information and passing judgments on the markets (Kahneman & Tversky, 1979; Ricciardi & Simon, 2000). The interaction of financial literacy, investment attitude, and risk perception is especially vital in developing economies, where there are limited financial education resources and heightened market risks (Yusof et al., 2018). In these situations, even individuals with financial literacy might be risk averse and lose trust in investing.

On the other hand, those who are more positive around investments may be more resilient and display more risk tolerance, and translate the knowledge they gained into effective decision (Khan et al., 2021). Though there is more and more research on the behavioral side of finance, there is still a lack of understanding research on how financial literacy causes a person to actively apply it in hands-on investing in behavioral and perceptual gaps. It is true that most research has focused on the consequences of financial literacy in isolation (Lusardi & Mitchell, 2011) but it has largely ignored the indirect consequences that

come from the psyche and attitude of the potential investor. Moreover, risk perception is somewhat downplayed, even though it seems so obvious, as a 'blind' predictor than a moderator that defines the nexus between the literacy and the attitude (Chavali & Mohanraj, 2016). This is a gap showing how the illusion of certainty can strengthen or weaken the flow of knowledge in finance toward the investor's attitude.

Given how financially independent people are expected to be, one must consider how quickly the global financial environment is evolving. Autonomy when it comes to savings, investments, and retirement is a new norm, and it seems information about personal finance is everywhere. Yet, numerous investors seem to lack proper judgment when it comes to investing, managing risks, and holding on to financial losses (Lusardi & Mitchell, 2014; Klapper et al., 2015). Volatility, information asymmetry, and a lack of financial education in emerging economies like Pakistan set the groundwork for irrational investment behavior (Khan et al., 2021). There is a gap on how to adequately work with the financial knowledge you may have. Gaps like these lead to the approach of understanding the hidden behavioral or psychological factors that might exist between the financial literacy you may have and the investments you choose to make.

Understanding how wealth of knowledge impact financial decisions still remains unanswered questions. Most studies agrees there is positive influence of financial knowledge on financial behaviors (Lusardi & Tufano, 2015; OECD, 2020) but there is also evidence that shows this relation is weak in some instances. Even among those who have a good grasp of the principles, there are still issues with execution at the investment level (Henager & Cude, 2016). It is possible that other internal mechanism such as attitudes, predilections on investments, and risk perception may defuse the connection between knowledge and action (Nguyen et al., 2019; Ricci & Caratelli, 2017). The Theory of Planned Behavior suggests that attitudes have primary influence on intended behavior and, eventually, action (Ajzen, 1991). For investments, the application of knowledge is determined by the attitudes one posesses towards the financial risks, returns, and opportunities. Thus, the matter of whether financial literacy affects investment decisions or whether it is investment attitudes that primarily explains the gap is crucial especially for retail investors behavior analysis since professional financial advice is often inaccessible. Besides, risk perception is also an important factor that makes investment decision more challenging. Prospect Theory suggest that people have stronger biases towards losses compared to gains, thus, leading to more conservative investments (Kahneman & Tversky, 1979).

Even individuals with financial literacy can lose the ability to make sound decisions because of faulty perception (Ricciardi & Simon, 2000). In some instances, the financial and institutional risk perception can negatively affect the benefits that financial literacy has on attitude towards investments in emerging economies, which can lead to less participation in the market (Aren & Aydemir, 2015). Therefore, the perception on risk may influence financial literacy and the attitude towards investment in such a way that, depending on the investor's uncertain financial literacy level, it can either strengthen or weaken the relationship.

There is a growing acknowledgement of the importance of behavioral aspects in financial decision making. However, empirical literature that combines financial literacy, investment attitude, and risk perception in one framework is still lacking, especially for developing economies. In previous literature, the primary research focus was on examining these concepts and variables in silos without consideration for the potential interactive and mediating relationships. In addition, most research has focused on developed markets, where financial literacy and regulation are more robust, and therefore, behavioral research in regions like South Asia, where informal financial systems and low confidence in investing are prevalent, has been under-explored. Such a lack of field- specific empirical research has resulted in a lack of clarity on why financial literacy does not always translate into positive investment behavior for retail investors. In particular, the role that investment attitude plays in mediating

financial literacy and investment decision and the extent to which risk perception might moderate this relationship is not clearly outlined. Bridging these gaps will elaborate on the behavioral aspects of finance in a theory and provide actionable insights for policy makers and financial educators focused on fostering positive financial behaviors. This leads us to the specific research problem of this study.

What are the reasons financial literacy does not guarantee rational and proactive investments among retail investors? How do investment attitude and risk perception affect this?

Through the mediating role of investment attitude and the moderating role of risk perception, this study attempts to create a complete behavioral model to capture the cognitive and emotional pathways that financial literacy converts into investment decisions. The proposed model aims to bridge gaps within the behavioral finance discipline, advance the understanding of investor behavior in emerging economies, and suggest viable ways to formulate financial literacy initiatives that promote confident, informed, and risk-conscious investing.

1.1 Purpose of the Study

The aim of this study is to explore the effect of financial literacy on the investment decisions made by retail investors through the lens of investment attitudes and to determine how risk perception influences this interaction. This study examines the cognitive (literacy) and the two affective (attitude and perception) dimensions of an individual to construct a more comprehensive picture of investment behavior in emerging markets such as Pakistan. This study builds on the Theory of Planned Behavior (Ajzen, 1991) by introducing risk perception as a contextual moderator, illustrating the interplay of knowledge and psychology on financial behavior. This study may expand the scope of behavioral finance and assist policymakers and educators in creating financially education curriculums that aim to not only increase knowledge but also positively influence investment attitudes under various risk perceptions in balancing behavioral finance with negative risk perception.

1.2 Research Gap:

While previous research has established financial literacy as an important determinant of financial behavior, the relationship between financial literacy and actual investments remains divergent. Previous studies showed that the financially literate are more inclined to plan, save, and invest rationally (Lusardi & Mitchell, 2014; Klapper et al., 2015). Nevertheless, financially savvy investors are found to make suboptimal and inconsistent investment decisions, pointing to the fact that other behavioral issues are at play (Henager & Cude, 2016; Khan et al., 2021). This shows that financial literacy leave some gaps inconclusive as it does not directly contribute to a person's good investment behavior. A majority of the previous research has studied more direct components of financial literacy and investment decisions, leaving indirect components such as attitudes and perception virtually unexplored (Nguyen et al., 2019). The mediating precept of investment attitude has not been widely researched—the investors' confidence, motivation, and evaluative orientation frame toward investment is particularly understudied in emerging markets. Risk attitude is a key psychological variable in behavioral finance (Kahneman & Tversky, 1979; Slovic, 1987), however, the exploration of it as a moderator on the relationship between financial literacy and investment attitude remains neglected.

In addition, most previous research has been done in developed economies with stable financial systems and high awareness of finance (Lusardi & Tufano, 2015; OECD, 2020). Few studies have looked at how these relationships function in countries such as Pakistan, where financial literacy is low, market volatility is high, and emotional and social factors predominantly drive investment decisions (Yusof et al., 2018). Hence, it is necessary to study how financial literacy affects investment decisions through investment attitude and how risk perception moderates this effect within emerging financial markets. Filling this void will advance our knowledge in behavioral finance and offer policymakers and educators practical guidance to encourage retail investors to invest more confidently and knowledgeably.

1.3 Hypotheses:

H1: Financial literacy has a positive and significant effect on investment attitude. *(Rationale: Investors with higher financial knowledge develop more confident and favorable attitudes toward investment opportunities.)*

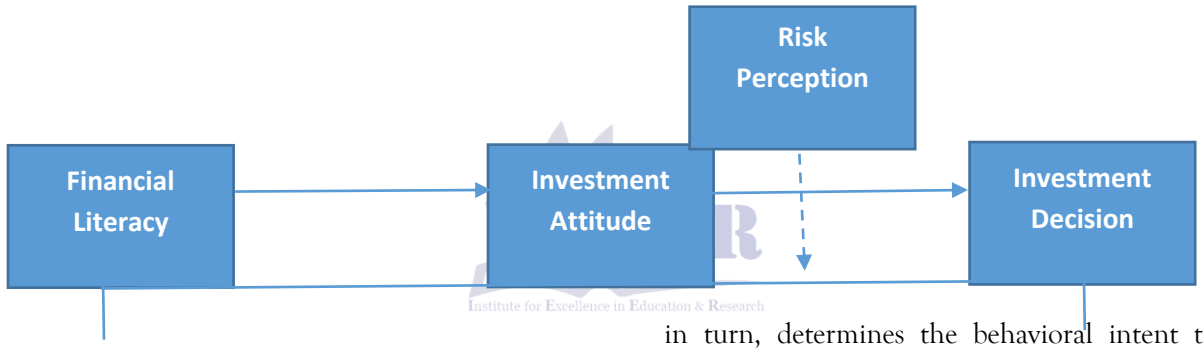
H2: Investment attitude has a positive and significant effect on investment decision. *(Rationale: A positive investment attitude encourages investors to act upon their preferences and make informed financial decisions.)*

H3: Financial literacy has a positive and significant effect on investment decision. *(Rationale: Financially literate individuals are more capable of evaluating risks and returns, which enhances the quality of their investment choices.)*

H4: Investment attitude mediates the relationship between financial literacy and investment decision. *(Rationale: Financial literacy enhances investors' confidence and shapes their investment attitudes, which in turn influence final investment decisions.)*

H5: Risk perception moderates the relationship between investment attitude and investment decision. *(Rationale: higher perceived risk weakens the likelihood that positive investment attitudes will translate into actual investment actions)*

1.4 Conceptual Framework:



2. Literature Review

2.1 Investment Attitude and Financial Literacy

In today's world, financial literacy is regarded as a fundamental aspect in behavioral finance. It embodies the understanding of financial concepts and the subsequent ability to utilize that knowledge to make critical decisions. It is noted by Lusardi and Mitchell (2014) that financial literacy allows individuals to evaluate and manage risks, allocate resources and achieve secure long-term financial objectives. Such individual investors often indulge in economic activities with confidence and optimism. Thus, enthusiastic investors exhibit a positive attitude towards investment activities. The Theory of Planned Behavior (Ajzen, 1991) asserts that knowledge influences beliefs and attitudes which in turn, determines the behavioral intent that follows. This has also been confirmed in various academic works. For instance, Nguyen et al. (2019) affirm that with greater financial literacy comes greater confidence and risk-taking, thus a stronger positive investment orientation. Also, Ricci and Caratelli (2017) found that greater financial literacy fosters greater trust and more active investment behavior. In developing markets, Khan et al. (2021) found that financially literate individuals, regardless of the underlying economic conditions, posses more positive attitudes towards investment. It is thus derived that additional financial knowledge enhances the investors' predisposition towards investment opportunities.

H1: Financial literacy has a positive and significant effect on investment attitude.

2.2 Investment Attitude and Investment Decision

An investment in any idea or venture requires having a deliberate investment focus which

concrete and emotional. Investment focus having an emotional attachment will help the person in having a positive the focus will have a picture of profit. One of the Major shifts and focus on attitude is the Framework or what is reffered to as the Theory of Planned Behavior (Ajzen, 1991). The theory defines attitues as significant predictors of intentions to carry a certain behavior after which the actions shall for certain follow. Investors with a positive attitude tend to diversify their portfolios and make other investments that are rational and in balance after a certain period (Zafar et al 2025). Investing as a goal is positive and personally empowering which results more financial decisions to be made (Al-Tamimi and Kalli, 2009). Attitudes are a consequence of knowledge and experience in the market as well as socio-psychological conditions (Aren & Aydemir, 2015). Hence, the investment attitude enhances positive perceptions towards behavior towards investment.

H2: Investment attitude has a positive and direct effect on investment actions.

2.3 Financial Literacy and Investment Decision

You will agree that making investment decisions relies on sound reasoning. Financial literacy improves awareness at a level that promotes the critical understanding needed to assess risks and manage a portfolio for more complicated markets (Remund, 2010) (Lusardi & Mitchell, 2011). Able to identify gains and steer clear of fads, investors with more financial literacy are known to outperform their peers more (Henager & Cude, 2016). Rational decisions as postulated in Prospect Theory, requires a cognitive assessment of the risks involved relative to the gains (Kahneman & Tversky, 1979). Hence, financial literacy will reduce the level of irrational decisions and the biases that accompany them. Further evidence indicate that those with irrational financial knowledge and biases are frequent investors and perform better financially (Yusof et al., 2018). as cited in Pakistan, Khan et al. (2021) proved that financial literacy, despite the demographic factors involved, is still a predictor of investment behavior. Hence, financial literacy promotes decision making but also gives the investors the ability to manage risk as they strive to achieve their financial goals with a long-term perspective.

H3: Financial literacy has a positive and significant effect on investment decision.

2.4 Mediating Role of Investment Attitude Between Financial Literacy and Investment Decision

In as much as there is structured decision making meant to be undertaken to putknowlege to action, there is an investment disposition which attests to holding attitude. The Theory of Planned Behavior posits investing attitudes as motivational precursors to action (Ajzen, 1991). Financial literacy as an academic discipline equips individuals with adequate theory and skills to acquire a positive and confident disposition which results to making better investment choices (Ricci and Caratelli, 2017). Several works provide evidence to support this theory. Nguyen et al (2019) studied Vietnamese investors and found that investment attitudes are of significant mediating value between the financial literacy and the behavioral intention. Kaur and Kaushik (2016) found out that people with strong attitude towards positive financial literacy are able to invest successfully. In a developing country, the attitude of an investor to a great extent replaces action. This is because there are a lot of unknowns in the external market. Therefore, attitude toward investment is the actionable component of financial literacy aggressive investment disposition.

H4: Investment Attitude Mediates the Relationship Between Financial Literacy and Investment Decision

2.5 Moderate Impact of Risk Perception

Risk perception is critical with respect to how investors convert attitude into action investment choices perception. Risk is defined as the mental judgement about the loss and uncertainty on the financial outcome. Differently put, financial outcomes are the result of perceived risks and the investment is designed to mitigate the subjective, and psychological uncertainties (Slovic, 1987). A Psychological Theory argued by Kahneman and

Tversky (1979) suggests that perception of loss dissuades people from risky behavior more compared to the opposite. Hence, how people react to risks influences the choices they make. Positive aspirations about investment, on the other hand, do not mean that action will automatically follow. Perception of risk is critical. Put simply, high touch points even with assumption of risk aversion strengthens the action intent. Evidence supports this notion. Zafar et al (2025) argues that reduced perception of risks increases the tendency to convert favorable investment attitude into behavior such as transacting stocks or mutual funds. In the same way, Sajid et al. (2020)data where perception of risk reduces the investment attitude decision relation where high risk aversion people tend to postpone investment more compared to positive investors.

This illustrates how risk perception can act as an amplifier and a filter at the same time, and in behavioral terms, inhibit the outcomes of the attitude an investor has. Much of the moderation in the relationship between risk perception and an investor's attitude is also explained in the Theory of Planned Behavior (TPB) (Ajzen, 1991). Risk an attitude guides behavior through the defining components of attitude, perceived behavioral control, and the accompanying normative and social structures. Perceived behavioral control is attenuated when an investor's perception of risk is altered and the investor begins to feel more capable and confident in handling the risk and uncertainty. If risk perception is low, an investor will feel more in control and this strengthens the attitude-to-behavior relationship. On the other hand, perceived risk is high grey, then individuals feel more constrained, and the more positive the attitude-willing to invest feel less to invest. This has also been supported by emerging economies. For instance, Chitra and Jayashree (2014) studied Indian investors and noticed those who perceived risk lower were more willing to invest irrespective of the income levels. In Pakistan, Khan et al. (2021) pointed out that investors' attitudes and the decisions they made only interacted when the investors considered the risks to the market were low. This means that there is a strong attitude to invest, then the perception of risk substantially moderates the certainty of action that will be taken.

From the behavioral finance viewpoint, an investor's perception of risk lowers moderates the cognitive–behavioral process of attitude–action relationships. Investors who characterize an investment opportunity as more favorable perceive less risk, use more reasoned analysis, and display more investment behavioral continuity over time (Pompian, 2012). In contrast, investors who characterize an investment as more subjectively uncertain and risky depend more on feelings and mental shortcuts, frequently doing nothing or making poor choices. Thus, for investment advisors and public policy decision-makers aiming to improve access to formal investment markets, knowing how risk perception moderation works is of utmost importance.

H5: Risk perception moderates the relationship between attitude toward investment and decision made regarding the investment.

3. Research Methodology

3.1 Research Design

The author mixed relative measurement with different cross-sectional financial actions. It used two methods: Consolidation of existing theories using set relationships of behavioral finance with quantitative measurement. The author coordinated wholes and parts of the phenomena—direct and indirect relationships. The retail investors had contacted the financial decision during the given period, thus making the cross-section handy for the author.

3.2 Research Philosophy and Approach

The author used a semi-structured objective questionnaire to gather data for the research and, thus, was able to transform it into a structured one. The author used question and hypotheses from the Prospect Theory and Theory of Planned Behavior deductively to shape the narrative. The order followed was first set upon the numerous theories with set relationships. We used reflexive thematic analysis to review, interpret and explain the data. We cross-referenced and paired the data with the existing literature to build meaningful

and logical connections. The analysis of the data sets helped to build evidence-based thinner evaluations, determining the existing gaps. We form collaborative data sets and secure differentiated answers. The results are contextual with existing literature and practical observation.

3.3 Theoretical Framework

The rest of the chapter details the two hypotheses of the study in a sequential manner. The first hypothesis is supported by the Theory of Planned Behavior. This theory assumes that knowledge (here, in question, financial literacy) affects attitudes (behavior) and actions (investment decisions) in a behavioral response through cognitive and affective channels. As defined in the theory, the attitudes towards a particular behavior determine the intention, and that intention, in turn, determines behavior (Ajzen, 1991). The Prospect Theory rounds this up by adding the component of risk perception. It involves the notion that individuals' evaluations of uncertain transactions (losses and gains) impact their decisions (Kahneman & Tversky, 1979). In tandem, the two theories illustrated above discuss how possessing financial literacy affects investment behavior and attitude in the presence of an investor's perception of risk.

3.4 Population and Sampling

The study will focus on individual retail investors in Pakistan at the level of direct personal (self) decision making or self investment. Investors in the sample include people who buy and sell shares, invest in mutual investment funds, purchase real estate, and put their money in various savings and time deposit accounts. Because of the absence of a thorough and detailed list of retail investors, this study used non-probability convenience sampling (Hair et al., 2021). This is appropriate for the preliminary phase of behavioral studies where participants are selected according to set criteria.

Per Hair et al. (2019), sample sizes should be set at least 10 times the most complex path within any given model. This model deal with five latent variables. Thus, 150 responses are the bare minimum. To boost model power, we are aiming for 300-400 responses.

Sample subjects should meet the following criteria:

- Account for those 20 years and above.
- Have set personal financial goals and have or are willing to exercise personal investment.
- Possess some knowledge on the investment instruments available such as stocks, bonds, and mutual funds.

3.5 Data Collection Method

Primary data will be collected using the self on self administered questionnaires which will be administered both online (on platforms such as Google Forms) as well as face-to-face during investment seminars and at financial institutions. This approach maximizes both the number as well as the diversity of the sample with respect to age, income, and even education.

The questionnaire will look at:

- Personal demographics which include age, sex, school and the years of investment.
- To what degree do you consider your self financially literate.
- Do you have any relevant investment experience.

In this case, a cover letter will first explain its purpose, its aim to maintain data privacy, and how it will protect confidentiality based on ethical principles.

3.6 Measurement of Variables

All constructs in the model are treated as latent variables and measured as such, using multi-item scales based on empirical works. Responses will be taken through a five-point Likert scale, 1 = "Strongly Disagree" and 5 = "Strongly Agree".

Variable	Description	Source
Financial Literacy (FL)	Measures respondents' understanding of financial concepts such as interest, inflation, diversification, and risk-return tradeoff.	**Lusardi & Mitchell (2014); OECD (2020)**

Investment Attitude (IA)	Captures the investor's evaluative orientation toward investment opportunities, including confidence, optimism, and risk tolerance.	**Nguyen et al. (2019); Kaur & Kaushik (2016)**
Investment Decision (ID)	Reflects the behavioral outcome—actual or intended investment behavior, diversification, and financial planning.	**Khan et al. (2021); Yusof et al. (2018)**
Risk Perception (RP)	Represents subjective evaluation of potential financial loss or uncertainty influencing investment choices.	**Slovic (1987); Ricciardi & Simon (2000)**

All the scale items will be to some extent changed to fit the specifics of the study but no meaning will be lost. A pre-test of the questionnaire will be conducted with 30 participants as a way to test the reliability and clarity of the questionnaire.

3.7 Technique of Analyzing the Data

Data for the study will be analyzed through the use of Partial Least Squares Structural Equation Modeling (PLS-SEM) in the SmartPLS 4.0 software. PLS-SEM is chosen as it is appropriate for prediction and exploration of research with complex models that have mediators and moderators (Hair et. al, 2021). The analysis will be conducted in a two-step process:

- **Measurement Model Evaluation**

a. Determining internal consistency reliability using Cronbach's Alpha (α), rho_A, and Composite Reliability (CR).
b. Convergent validity using Average Variance Extracted (AVE ≥ 0.50).
c. Discriminant validity using Fornell–Larcker criterion and Heterotrait–Monotrait Ratio (HTMT ≤ 0.90).

Evaluation of Structural Model

Assessment of direct, mediating, and moderating relations in the variables.

The acceptance of the hypotheses will depend on the following: the path coefficients (β) alongside the t-value and p-value of each individual component of the model. Systematic and R^2 will indicate the model's overall explanatory power. Predictive Q^2 and model f^2 will also be included in the assessments of the model's strength. Like moderation, which will be assessed with the product-indicator interaction module in SmartPLS, will be conducted using bootstrapping mediation (2008: Preacher and Hayes, 5000 resamples).

3.8 Construct Validity and Reliability

The validated instrument will be assessed for reliability through Cronbach's Alpha and Composite Reliability (CR) to calculate the internal consistency (difference of 0.70) of the instrument. Convergent validity will be assessed through individual factor loadings (minimum of 70%) and overall AVE (minimum of 00.50). The Fornell-Larcker and HTMT thresholds will be used to validate the discriminant validity of the instrument. Refinement of the instrument will be done using results from the pilot test before proceeding to data collection.

4. Findings:

4.1 Measurement Model:

In order to measure validity and reliability of the constructs the measurement model was used to make sure the items were able to measure the underlying latent variables. As shown in Table 1, internal construct reliability for all constructs were found to be within the acceptable range. In this case Kohban's alpha for all constructs was above 0.725 and the 0.874 lower threshold proving minimum internal reliability on the constructs value. The values of composite reliability also ρ_a and ρc were found between 0.729 and 0.909 which is greater than the 0.70 lower threshold confirming reliability on the construct and internal consistency among the items. The values of Average Variance Extracted (AVE) were found to be between 0.541 and 0.667 which is greater than the 0.50 criterion suggesting sufficient convergent validity. The constructs with the most

convergent validity and strongest indicator representation were Investment Decision (AVE = 0.667; ρc = 0.909) and Risk Perception (AVE = 0.659; ρ_c = 0.906). Discriminant validity in Table 3 and Table 2 is shown using the HTMT and Fornell–Larcker Criterion. The highest HTMT value which is 0.802 between Financial Literacy and Investment Decision is considered to have sufficient discriminant validity among the constructs below the conservative threshold of 0.85 (Henseler et al., 2015).

This was further confirmed through the Fornell-Larcker criterion because the square roots of the AVEs (diagonal elements) were greater than the block inter-construct correlations (off-diagonal elements) thus confirming that each construct has more variance with its own indicators than with the other constructs in the model. The model fit indices in the Table 4 summary also point to an overall model fit that is acceptable. The Standardized Root Mean Square Residual (SRMR) values were 0.102 for the saturated model, and 0.119 for the estimated model, both of which fall within the acceptable criteria (<0.12) which means that the model is a good fit for the data. The Chi-square values (375.298 and 381.382) and NFI values (0.685 and 0.680) also provides sufficient evidence for the model fit to be considered moderate, in line with other behavioral finance models (Hair et al., 2021), and the same for the NFI values. The explanatory power of the model is considerable as demonstrated in Table 5, particularly the coefficient of determination (R^2) values. Investment Attitude, for example, has an R^2 value of 0.350 which means that Financial Literacy explains 35% of the variance in Investment Attitude.

As for Investment Decision, its R^2 value was 0.667, which means that 66.7% of its variance is explained together with Investment Attitude, Risk Perception, and their interaction term (Risk Perception × Investment Attitude). The values of adjusted R^2 (0.343 and 0.652, respectively) also testify to the reliability and stability of the model. The results also show that the measurement model completed the required reliability, convergent validity, and discriminant validity tests. The findings also justify that the constructs of Financial Literacy, Investment Attitude, Investment Decision, and Risk Perception are sufficient for potential evaluation of the structural connections outlined in the study.

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Financial Literacy	0.725	0.729	0.824	0.541
Investment Attitude	0.819	0.821	0.874	0.581
Investment Decision	0.874	0.881	0.909	0.667
Risk Perception	0.871	0.874	0.906	0.659

Table 1: Reliability

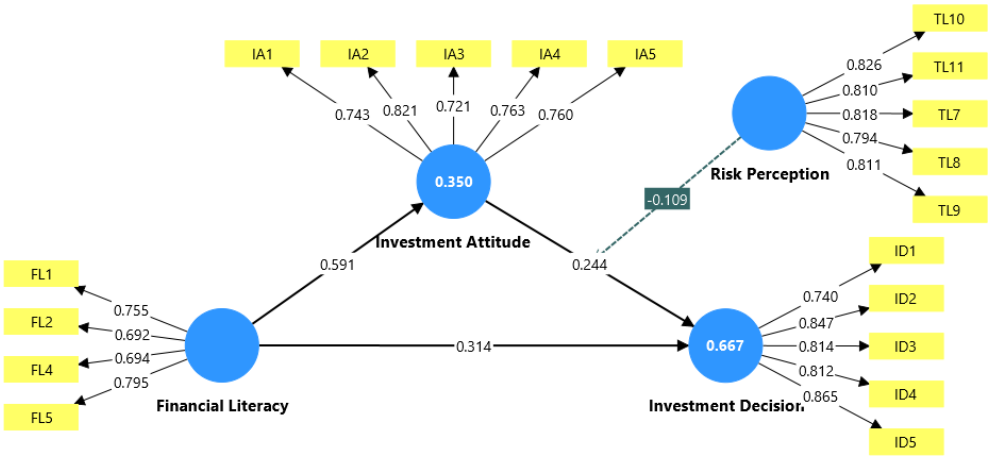


Figure 1 Measurement Model

	Financial Literacy	Investment Attitude	Investment Decision	Risk Perception	Risk Perception x Investment Attitude
Financial Literacy					
Investment Attitude	0.729				
Investment Decision	0.802	0.792			
Risk Perception	0.686	0.705	0.795		
Risk Perception x Investment Attitude	0.258	0.400	0.459	0.396	

Table 2: HTMT (Discriminant validity)

	Financial Literacy	Investment Attitude	Investment Decision	Risk Perception
Financial Literacy	0.735			
Investment Attitude	0.591	0.762		
Investment Decision	0.678	0.675	0.817	
Risk Perception	0.583	0.597	0.703	0.812

Table 3: Fornell and Larcker Criterion

	Saturated model	Estimated model
SRMR	0.102	0.119
d_ULS	1.972	2.691
d_G	0.689	0.730
Chi-square	375.298	381.382
NFI	0.685	0.680

Table 4: Model Fit Criterion

	R-square	R-square adjusted
Investment Attitude	0.350	0.343
Investment Decision	0.667	0.652

Table 5: R^2

The structural model is aimed to test the relationships proposed between the constructs of Financial Literacy, Investment Attitude, Investment Decision, and Risk Perception. The data in the Table 6 shows that all proposed paths were confirmed at the 0.05 level, hence the effectiveness of the model. In particular Financial Literacy → Investment Attitude (β = 0.591, t = 8.900, p = 0.000) shows the positive effect that is strong and significant, meaning that people who are financially literate have positive view to investments. This supports H1, as it proves that the knowledge of finance helps investors to think and feel more about the financial decision.

Additionally, Investment Attitude → Investment Decision (β = 0.244, t = 3.197, p = 0.001) supports H2 as it proves that there is a positive relationship between them. This suggests that there is a positive investment attitude, and that investors are likely to make appropriate investment decisions. The same goes for Financial Literacy → Investment Decision (β = 0.314, t = 3.548, p = 0.000) and H3, where it is proven that financial literacy has a direct and indirect relation to investment decision making. People who are financially informed are more confident in complex decisions about the risk–return trade-offs and thus, more systematic in making investments.

The reverse impact of Financial Literacy → Investment Attitude → Investment Decision (β = 0.144, t = 2.799, p = 0.005) supports H4 and shows partial mediation of investment attitude. This mediation is consistent with the Theory of Planned Behavior (Ajzen, 1991), in which the mental construct (financial literacy) fosters beliefs that guide action (making investments). The strong mediating pathway demonstrates that financial literacy in making investments is not direct but also through changed investor attitude.

Confirming H5, the moderation analysis additionally demonstrated the interaction effect of Risk Perception and Investment Attitude on Investment Decision was significant (β = -0.109, t = 2.707, p = 0.007). The negative coefficient suggests that, as risk perception increases, the risk of an investment attitude enhancing a decision becomes weaker. This means that investment attitude becomes less influential on the decision to act when the investor's perception of risk is high. On the other hand, the absence of risk my perception suggests that attitude to decision relationship is strong, indicating risk perception is an important moderator in the thinking and doing process. This is consistent with Prospect Theory (Kahneman & Tversky, 1979), which states people are risk averse when faced with loss, and under risk, they tend to act more carefully.

The data in Table 7 still shows the Q^2 predictive relevance (Q^2) and model accuracy statistics which confirm the structural model. Investment Attitude (0.312) and Investment Decision (0.556) and their corresponding Q^2 values confirm predictive relevance (positive Q^2 values) as indicated by Hair et al. (2021). The Investment Decision (0.686 RMSE and 0.502 MAE) results also speak to the model's accuracy and predictive validity. These results demonstrate that the constructs and their relationships to one another capture intent and action in the context of investment decision making. Overall, the structural model shows that Financial Literacy has both direct and indirect impacts on Investment Decisions through Investment Attitude, and the Risk Perception serves as a key moderating variable that weakens this effect. The proposed model offers a considerable amount of evidence in support of the proposed theory, pointing out that Financial Literacy and Attitude possess the strongest influence over investment behavior while Risk Perception may either help or restrain the degree to which Attitude behavioral Action Loop is engaged.

Hyp	Pathways	β	T statistics	P values	Results
H1	Financial Literacy -> Investment Attitude	0.591	8.900	0.000	Accepted
H2	Investment Attitude -> Investment Decision	0.244	3.197	0.001	Accepted
H3	Financial Literacy -> Investment Decision	0.314	3.548	0.000	Accepted
H4	Financial Literacy -> Investment Attitude -> Investment Decision	0.144	2.799	0.005	Accepted
H5	Risk Perception x Investment Attitude -> Investment Decision	-0.109	2.707	0.007	Accepted

Table 6: Direct and Indirect Effects

	Q^2predict	RMSE	MAE
Investment Attitude	0.312	0.856	0.676
Investment Decision	0.556	0.686	0.502

Table 7: Q^2

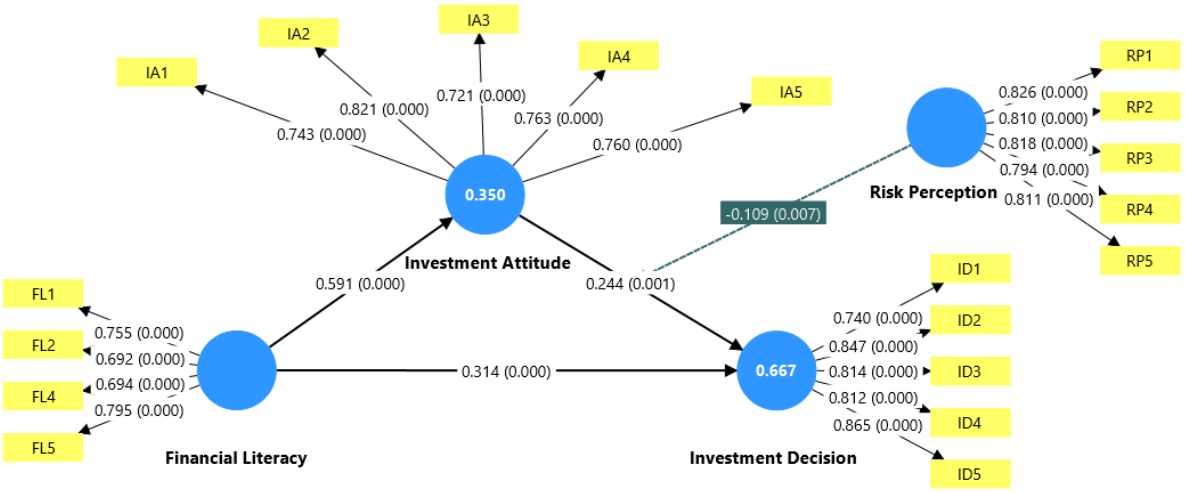


Figure 2Moderation

4.2 Results

The results of the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis are presented in Tables 6 and 7 and Figures 1 and 2. The findings reflect the relationships among Financial Literacy (FL), Investment Attitude (IA), Investment Decision (ID), and Risk Perception (RP), and provide evidence supporting all hypothesized associations, including both direct, indirect, and moderating effects.

4.3 Direct Relationships

The outcome breaks shows that Financial Literacy was confirmed to have a positive effect on Investment Attitude (β = 0.591, t = 8.900, p = 0.000) which supports H1. This shows that the more finances an individual has, the more confident, rational, and optimistic the individual becomes about decisions they need to make regarding investments. This proves that financial awareness helps shape the psychological attitudes investors' have, and therefore, more positive the psychological attitudes negative the Investment Attitude toward Investment Decision (β = 0.244, t = 3.197, p = 0.001) that was outlined next was also proven to be positive and, therefore, H2 was confirmed. This means that investors who have positive attitudes towards investment are likely to take actionable steps that are financial by the nature such as spending money to purchase stocks, putting money into funds, and even obligations of portfolio diversification. This means that positive attitudes assume when investors think that

investing money is not a difficult and beneficial process, they are likely to change the attitude they hold about investing money to practical actions.

The influence of Financial Literacy on an Investment Decision is very significant (β=0.314, t=3.548, p=0.000) which means H3 is supported. This means, Financial Literacy has a separate influence on the savings behavior, which influences the investment attitude. Financially literate savers have the capacity to rationally assess the risks, returns, and market signals and make decisions. This is consistent with the findings of Khan et al. (2021) and Ricci and Caratelli (2017) who pointed out that financially knowledgeable investors make more decisions under certainty.

4.4 Mediating Effect

The relationship of Financial Literacy → Investment Attitude → Investment Decision is indirect and was proved significant (β=0.144, t=2.799, p=0.005) which is H4 and confirms the investment attitude as a partial mediator. This means, Financial Literacy impacts Investment Decisions not only directly but also indirectly by the attitudinal route. This supports the theory of Planned Behavior (Ajzen, 1991) which states that attitudinal behaviors are determined by knowledge that is considered to be positive. Thus, people with high financial literacy have a positive attitude about investments which leads to a greater willingness to undertake them.

4.5 Moderating Effect

The interaction term between Risk Perception and Investment Attitude exhibited a significant negative moderating effect on Investment Decision (β = -0.109, t = 2.707, p = 0.007), satisfying H5. This means that the level of investment attitude and investment decision made is dependent on the level of risk that is being perceived. In other words, with a high perceived risk, there will be a less positive investment attitude towards decision making; while, with a low perceived risk, there will be a more positive investment attitude towards decision making. This corresponds with Prospect Theory (Kahneman & Tversky, 1979) and other works by Sajid et al. (2020) and Chitra and Jayashree (2014) which identified that more perceived risk tends to be associated with more aversion to investment, even if there is a positive attitude towards investment. This is further shown in Figure 2, which shows the moderating relationship between investment attitude and decision making. The interaction slope shows that less risk perception results in more positive behavioral reactions towards investment attitudes.

4.6 Predictive Relevance and Model Accuracy

Model relevancy pertains to predictive relevance which in this case derives from the Q^2 (cross-validated redundancy) values and model accuracy metrics (RMSE and MAE) in Table 7. According to Hair et al. (2021), the Q^2 values for Investment Attitude (0.312) and Investment Decision (0.556) predictive relevance as defined are well above zero. For Investment Decision, the RMSE and MAE values (0.686 and 0.502 respectively) lead to the accuracy conclusion of the model as predictive and the residual error low. The model adherence to the collected data indicates the observations are true. To sum up, the findings within the context of behavioral patterns in finance decision making support the conclusion that strong explanatory and predictive power are held by the structural model.

4.7 Model Explanation (R^2 Summary)

As presented earlier in Table 5, the robust model characteristics are also supported by the R^2 values. Investment Attitude attained an R^2 of 0.350 which meant that Financial Literacy accounts for 35% of the variance and so also Investment Decision which R^2 0.667 which means that 66.7 % of the variance is accounted from Financial Literacy, Investment Attitude, and the moderating effect of Risk Perception. These values are in the substantial range that Cohen (1988) and Hair et al. (2021) suggest, and therefore are indicative of strong model explanatory capability.

5. Conclusions

As a whole, the proposed relationships (H1–H5) were and confirmed with Financial Literacy having a direct impact on Investment Attitude and Investment Decision, and Investment Attitude

acting as a mediator. Investment Risk Moderation was critical as a moderator emphasizing the difference between positive attitude and actual investment behavior during high risk scenarios. Overall, the model has adequate reliability, validity, and predictive relevance and explains the blend of investment behavior in cognitive, emotional, and perceptual levels in developing countries such as Pakistan.

5.1 Discussion

Using the PLS-SEM method, the current study has investigated the association among Financial Literacy, Investment Attitude, Investment Decision, and Risk Perception. The results showed that all five proposed hypotheses (H1–H5) for the study were accepted, results that are critical in understanding the cognitive, attitudinal, and perceptual dimensions of investor behavior. Consistent with earlier studies (Lusardi & Mitchell, 2014; Khan et al., 2021), the research showed that Financial Literacy has a positive relationship with Investment Attitude. This means that, a person who has a higher financial literacy is more likely to hold positive and rational views about investments. This is in line with the Theory of Planned Behavior (Ajzen, 1991) which argues that positive attitudes that lead to intentions to act are formed by a well informed populace. A financial literacy educational initiative with a strong path coefficient (β = 0.591) will shift investor sentiment and confidence positively and enhance understanding of risk and return. The relationship between Investment Attitude and Investment Decision (β = 0.244) is also positive and significant, supporting Pompian (2012) and Zafar et al. (2025). This means that positive attitude has a propensity to target and transform latent intentions into investment action.

Attitude functions as psychological preparedness which encourages individuals to commit resources when there is an opportunity which they perceive as both profitable and manageable.

Also, the direct connection of Financial Literacy to Investment Decision (β = 0.314) indicates that finance literacy does not only create an impression but alters perceptions to actions. This dual relationship supports Ricci and Caratelli (2017) that financial knowledge gives power to an investor to make reasoned and consistent decisions, even in an uncertain environment. Investment Attitude's (β = 0.144) mediating effect strengthens the conceptual framework that knowledge shapes decisions through attitude formation. It indicates that financial literacy creates an assurance and belief in one's financial ability which results to her active investment. This mediation strengthens the TPB model and illustrates the psychological pathway which knowledge impacts behavior.

An interesting finding of this study is the negative moderating effect of Risk Perception (β = -0.109) on the linkage of Investment Attitude to Investment Decision. The finding suggests that perceived risk dilutes the strength of this linkage, which suggests that well-informed and optimistic investors may still postpone and shy away from making investments when the risk of uncertainty is substantially high. This is consistent with Prospect Theory (Kahneman & Tversky, 1979) and other literature (Chitra & Jayashree, 2014; Sajid et al., 2020) suggesting that investors are loss-averse and far too sensitive emotionally to losing investments. The moderation pattern (Figure 2) shows that at low-risk perceptions, the strength of the influence of the attitude to the decision-making process is greater, but at high-risk perceptions, this influence is weaker. It can also be concluded that investment behavior is still a complex and multifaceted process with rational thoughts (financial literacy), psychological factors (attitude), and emotional thoughts (risk) all playing some role. The model's strong explanatory power (R^2 = 0.667 for Investment Decision) and predictive relevance (Q^2 = 0.556) also assert the strength of the model and the validity of the relationship between the rational and emotional aspects of the decision.

5.2 Conclusion

The outcome of this research underlines that Financial Literacy is of utmost importance in the development of both Investment Attitude and Investment Decision. Hence, Financial Literacy is a critical behavioral driver. It has been observed that a person who understands the significance of

risk diversification, interest rates (Zafar et al 2025), and portfolio management is more likely to appreciate and exhibit a strong and positive attitude toward investing. This, in turn, enhances the likelihood of the person engaging in proactive financial behaviors. It was found that Investment Attitude serves as a moderator in the relationship between Financial Literacy and Investment Decision, which means that knowledge changes behavior not in the sense of direct application, but in the sense of altering perceptions, beliefs, and confidence. Thus, financial literacy is enabling on a psychological level, while investment attitude is enabling on a behavioral level.

Research also identified that this pathway is moderated by Risk Perception which indicates that how much uncertain an individual is about an issue has a distinct effect on whether positive attitude is went on to an investment decision. Those that have a lower level of risk perception have a greater tendency of acting on their investment positive attitude whereas those that have a higher level of risk perception tend to show sign of disinvestment, even with a strong investment attitude, even is there is a strong positive investment attitude, even investment literate. This strengthens behavioral finance by emphasizing that an investment action is not taken purely as a result of logical reasoning but also influenced by emotions and psychology. Also, Risk perception is high is positive attitude behavioral impacts is lower which suggest that both attitude management and emotion management is necessary to ensure that participation is active in the financial markets.

At the same time, this study also deepens the body of knowledge on behavioral models by framing them within the Theory of Planned Behavior (Ajzen, 1991), Prospect Theory (Kahneman & Tversky, 1979), and Behavioral Finance Theory into one coherent model. The integrated model shows the interplay of the cognitive (financial literacy), affective (investment attitude), and perceptual (risk perception) factors on the investment intention and action. This comprehensive approach integrates the gaps in economic models which focus on reasoning and decision behavior which is purely psychological....

To an author like myself, this study highlights the importance of teaching and providing the necessary psychology of an investor's finances, particularly in emerging countries like Pakistan, where untapped markets and unbalanced complex information act as disincentives to personal investment. It provides a starting point for banks, governments, and other educators to create holistic programs: programs that will enhance a market economy's technical financial skills along a behavioral ethos that includes reflexive overconfidence, loss aversion, miscalculated relationship of personal vs systemic risk, etc. The author's hope is that an approach that includes behavioral finance will enhance the understanding, confidence, and resilience of investors along with financial literacy.

To summarize, this study stated that the ability to make investment decisions is only achievable when balanced with an attitude that favors investment and a well-informed perception of risk. These three, coupled together, make the behavioral model wherein action is proportional to a certain investment knowledge, and this model is what the study claims to focus on. It broadens the existing literature by exhibiting why emerging economies are stagnant. Hyper financial literacy without accompanied emotional and risk awareness is a disbursement of finances, highlighted in the study, which proves the point that what is necessary for financial independence is not understood.

5.3 Recommendations

Based on the results of this study there are many recommendations which are viable and practical which can augment investor skill set, conduct and investment in the capital market. First, there is need for the development of financial education programs with investment promotion and the financial institution and education sector for the improvement of the public knowledge and the understanding of investment concepts such as risk, portfolio diversification and long-term investment. These programs should be innovative and focus on more than just theoretical knowledge by providing practical approaches such as workshops, e-learning, and investment

simulations which help the individual to use financial knowledge effectively and with ease in the market. These steps will greatly enhance financial literacy and by extension ? stronger cognitive perspectives of sound investment behavior.

Secondly, bespoke nationwide investor initiatives should be started, breaking down and clarifying complex financial topics to the public. Such initiatives using the mass media, other forms of social networking, and digital education may help clarify the investment process, alleviate some uncertainty, and help people plan financial portfolios with less anxiety about potential losses. Alongside this, investor behavioral conditioning should be incorporated and facilitated more within counseling and consulting services to help them deal with psychological issues of investment overconfidence, fear, and the emotional pull of perceived risks. Investment consultants should use behavioral coaching to help their clients identify and confront their cognitive biases, allowing for greater rationality and consistency within their behaviors. Also, the investment community would be further empowered with the incorporation of risk control on line trading platforms and within brokerage frameworks. Investors would be able to use risk management tools, portfolio analysis, investment simulators, and other instruments to see investment consequence estimations, helping them overcome illogical investment fears, and reinforcing action based confidence. Lastly, on the macro social approach, financial literacy deserves special policy approach to ensure it is standard operational procedure. Collaboration of the government, regulatory authorities, and academia should focus on integrating financial literacy into primary and secondary education and into university programs, so that competence is ingrained from very young ages.

This integration of policies will foster informed investors capable of responsible, evidence-based decision-making, thus stabilizing and diversifying the financial ecosystem.

5.4 The Scope of the Study

Like other studies, this one has some limitations. First, the data's cross-sectional nature limits the ability to make causal inferences and may also overlook changes in behavior of investors over a period of time. Second, as the study depended on self-reporting, the results may be swayed by social desirability bias. Third, the sample of the research consisted of investors of Pakistan and this narrows the applicability of the results to other cultural and/or economic situations. Furthermore, the study has one moderator, Risk Perception and one mediator, Investment Attitude, while other psychological and situational aspects, like financial anxiety, trust, or market volatility, could also impact the investment behavior of the individual.

5.5 Future Research Recommendations

To address these limitations, future research could use longitudinal designs to track changes over time in investment behavior and attitude formation. Incorporating investors from different countries and regions in a sample could strengthen the model's cross-cultural relevance. Other scholars may focus on additional moderators (e.g., financial stress, market confidence, and digital literacy) and serial mediators (e.g., perceived behavioral control, and investment motivation) to illuminate the behavioral aspects of financial decision-making. Moreover, the researchers could combine quantitative and qualitative approaches to explore investors' perceptions and the interplay of their cognitive-emotional mechanisms. Finally, researchers in this area should also assess the impact of the new age technological tools and AI-based investment platforms to enhance financial literacy and decision confidence among investors in the post-pandemic digital financial world.

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