

A Comprehensive Analysis of the Influence of Big Five Personality Traits on Women's Investments Behavior: Exploring the Moderating Effects of Cognitive Biases

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Abstract

The study seeks to understand the most influential personality dimensions shaping investment decision-making while elucidating the intricate mechanisms through which cognitive biases interact with these traits, ultimately shaping investment strategies and outcomes within financial contexts. A quantitative research approach was employed, surveying 100 female investors in urban areas. Psychological scales measured the Big Five personality traits, while self-reported data captured investment decisions, strategies, and preferences. Cognitive biases were assessed through scenario-based evaluations of susceptibility to common financial biases. Statistical tools such as regression analysis and moderation tests were applied to examine the data. The research identified correlation between women's investment behavior and their personality traits. Additionally, cognitive biases played a crucial moderating role in these associations, with loss aversion and overconfidence exerting a notable influence. This research contributes to the understanding of psychological factors influencing investment behavior, particularly among women, and highlights the importance of considering personality traits and cognitive biases in financial planning. This will help them to develop a personalized and relevant portfolio for themselves by understanding and mitigating their biases while taking investment decisions which will lead them to take wiser investment decisions, thereby reducing the risk and maximizing opportunities of returns. Comprehension of these factors is crucial for enhancing financial advisory services, training programmes and promoting effective investment strategies tailored to the distinct predispositions and inclinations of female investors. This study is first and novel one to examine the moderating aspect of cognitive biases among women and their profound influence on financial investment behaviour covering the impact of big five personality traits on investment behaviour.

Keywords: Big Five Personality Traits, Cognitive Biases, Financial Decision-Making, Moderating Role, Women's Investment Behavior.

Introduction

Investment behavior is a multifaceted domain influenced by an array of psychological factors, among which personality traits and cognitive biases are paramount (1). Investment behavior constitutes an interplay of psychological dimensions, wherein intrinsic personality traits and pervasive cognitive biases exert profound influence on the behaviour of an individual, shaping financial decision-making paradigms and risk appetites of the investor. These psychological constructs play a pivotal role in shaping investor's risk perceptions, guiding their investment selections, and conditioning their adaptive responses to market fluctuations (2). The insightful concept and aspect of behavioral finance to be taken in focus is personality traits. A significant relationship between personality traits and financial behaviour is evident in the literature

(3). Further, Behavioral finance not only covers personality factors but also explores different aspects of cognitive biases that precipitate deviations from rationality, compelling investors toward suboptimal and often irrational financial choice (4).

There are many personality models which exhibit the traits of an individual. Amongst them, the Big Five Personality Traits delineate an integrative taxonomy for expositing the multidimensional understanding of an individual personality. Amidst the vast compendium of personality paradigms in the interdisciplinary field of Psychology and Management research, the Big Five model is pervasive and extensively acknowledged (5). The Big Five personality traits—conscientiousness, agreeableness, extraversion, openness, and neuroticism—offer a thorough framework for

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comprehending behavioral traits variations across individuals, particularly those related to financial decision-making. This study explores the complex interactions between these personality traits and cognitive biases, concentrating on how they affect women's investing behavior as a whole. The Big Five personality traits have been extensively studied in relation to various life outcomes, including financial behaviors. Openness to experience,

characterized by imagination and insight, may lead individuals to explore diverse investment opportunities. Conscientiousness, denoting high levels of thoughtfulness and goal-directed behaviors, is often associated with prudent and disciplined investment strategies. Extraversion, involving sociability and assertiveness, might influence risk tolerance and the propensity to seek novel investment avenues. Agreeableness, reflecting trust and altruism, could impact collaborative investment decisions or susceptibility to external advice. Neuroticism, associated with emotional instability, may lead to heightened sensitivity to market fluctuations and impulsive decision-making.

This behavioral ecosystem is very vast and complex, underlying aspects other than personality traits as well as multiple cognitive biases. Different types of cognitive biases cause irrational decision making which distorts perceptions, creates variations in the abovementioned personality traits and ignore contradicting information. In this study, cognitive biases taken into consideration are like loss aversion and overconfidence, which distort judgment and result in less-than-ideal investing decisions. "Overconfidence may also refer to over-optimism about future events and the illusion of control" (6). Overconfidence as a pervasive and extensively documented cognitive bias that engenders an exaggerated self-assessment of one's knowledge and abilities, leading individuals to disregard the inherent risks associated with investment decisions (7). Loss aversion as another prominent investor biases in in which investors manifests as a predisposition toward risk avoidance and exhibit a heightened sensitivity to potential losses and prioritize investments that offer a perceived guarantee of positive returns (8). Investment decisions can be greatly impacted by cognitive biases, which are regular patterns of

judgmental divergence from the norm or from rationality. Investors that suffer from overconfidence bias tend to overestimate their expertise or forecasting skills, which frequently leads to excessive trading and an underestimating of dangers. Recently, the study explained the bias of overconfidence prevails in the investment decision making among U.S. CFOs (9). Research gave evidence through mediation effect of psychological biases, and financial overconfidence on the relationship between personality traits of individual investors (10). The results proved that the personality traits of individual investors are related with their financial overconfidence and perceived investment performance. The findings of another study suggests that financial literacy, along with positive attitudes and overconfidence, equips individual investors with the knowledge and skills necessary for effective investment decision-making (11). Prospect theory's idea of "loss aversion" refers to the propensity to favor avoiding losses above realizing comparable gains, which can lead investors to sell winning assets too quickly or hang onto losing assets for too long. Loss aversion is one of the most widely used concepts in behavioral economics (12). The results depicted that with respect to Investor's trading frequency loss aversion have statistically significant and negative impacts over it (13). These biases have a complicated impact on investing habits because they interact with individual personality factors rather than acting alone.

Apart from isolated linkages of personality traits and cognitive biases on the investment behaviour, research also evident the mutual relationship among the traits and biases. Studies indicates that personality traits can predict susceptibility to certain cognitive biases. For instance, individuals high in extraversion and openness may exhibit greater overconfidence, while those high in neuroticism may be more prone to loss aversion. Certain traits significantly influence the propensity to exhibit biases like overconfidence and loss aversion (14). In the similar study it was stated that the conscientiousness trait exhibited a significant correlation with the disposition effect and tendencies toward overconfidence, while neuroticism demonstrated a pronounced association with herding behavior (15).

Understanding these relationships is crucial, as they can inform the development of tailored financial advisory services that account for individual differences in personality and cognitive bias susceptibility.

The study primarily focuses on the gender-based aspect considering women's personality and biases in order to understand their investment behaviour as such studies are still lesser in number and demands more research into this domain. There has been good amount of literature review focusing on gender differences in the personality traits. Women reported higher Big Five Extraversion, Agreeableness, and Neuroticism scores than men (16). The study formed a General Sex Difference Index (GSDI) as the mean average of sexual differentiation on four dimensions—Neuroticism, Extraversion, Agreeableness, and Conscientiousness and found that women, on average, scored higher than men did (17). Thus, In 17 cultures including India gender differences in neuroticism were moderate to large in magnitude. Since women exhibits differential trait system thereby making them a way different personality, this study tried to focus this gap of differential traits of women with respect to finances and developing an approach towards investment behaviour with respect to cognitive biases in a non-generic way.

The emphasis on how women invest is significantly relevant. Women historically have been underrepresented in investing activities, and there may be specific psychological and sociocultural element that impact their financial actions. In order to close a gap in the research and offer insights that might improve financial planning and advising services for women, this study will examine the particular ways in which the Big Five personality characteristics and cognitive biases impact women's investing decisions. The goal of this study is to clarify the intricate connections that exist between women's investing behavior, cognitive biases, and personality factors. The study intends to inform the creation of more successful, individualized investment strategies and advance a more sophisticated knowledge of the psychological foundations of financial decision-making by looking at these elements together.

The relationship between personality traits and investment behaviour has been widely

investigated, with scholars consistently emphasizing the role of the Big Five personality dimensions in shaping financial decision-making. Prior studies highlight that neuroticism tends to exert a negative influence on investment intentions, while traits such as conscientiousness and openness positively contribute to prudent and innovative financial choices (18, 19). Conscientious investors are often associated with analytical and rational decision-making, whereas extraversion and emotional stability enhance risk tolerance and willingness to engage in financial opportunities (18, 20). Similarly, openness to experience has been linked to investments in innovative products, while agreeableness has been associated with socially responsible investment preferences (21). These findings underscore the significant role of personality traits in shaping individual differences in investment approaches.

In addition to personality, contextual factors such as age, income, and education further moderate the relationship between personality and risk-taking behaviour, suggesting that demographic attributes interact with psychological factors in influencing financial decisions (22). Scholars have also shown that extraverted individuals are more prone to heuristic biases, while openness and conscientiousness positively influence risk tolerance and decision outcomes (23-25). Collectively, these studies affirm the necessity of examining how personality traits directly and indirectly impact investment behaviours.

Parallel to personality-focused research, behavioural finance literature highlights the profound influence of cognitive biases on investment decision-making. Loss aversion has emerged as one of the most dominant and extensively debated biases, with elevated levels consistently leading to conservative and risk-averse investment choices (26-28). Meta-analyses further reveal gaps in understanding its true magnitude, calling for renewed empirical investigation (29). Overconfidence, another widely studied bias, has been shown to significantly affect investment outcomes across various contexts, including cryptocurrency markets (30) and traditional stock exchanges (31). Moreover, newer studies have demonstrated that biases such as fear of missing out (FOMO) can amplify the effects of loss aversion, leading to irrational investment choices (32).

Recent research has increasingly explored the intersection of personality traits and cognitive biases, revealing that traits such as extraversion and conscientiousness are associated with higher susceptibility to overconfidence, while neuroticism predisposes investors to herding and disposition effects (33-35). Similarly, openness has been linked to both herding and overconfidence, while conscientiousness tends to mitigate biased behaviours (36-38). These findings emphasize the need to consider personality-bias interactions when analysing investment decision-making.

Despite these contributions, important gaps remain in the literature. Most existing studies have focused on general investor populations, often neglecting gender-specific dimensions of investment behaviour. Research exploring the unique role of personality traits and cognitive biases among women investors remains limited (14,19). Furthermore, while the impact of cognitive biases such as overconfidence and loss aversion is well documented, their moderating role in the relationship between personality traits and investment behaviour requires deeper investigation (24).

This study seeks to address these gaps by examining the interplay between the Big Five

personality traits and women's investment behaviour, while also analysing how cognitive biases such as loss aversion and overconfidence moderate this relationship. By identifying the most influential traits and their interactions with cognitive biases, the research aims to generate actionable insights for financial advisors and policymakers, contributing to more personalized and effective financial strategies for women investors.

This study bridges the gap by examining how cognitive biases interact with personality traits to shape women's investment behavior, offering insights for financial advisors and policymakers. Each bias, inherently grounded in psychological predispositions, possesses the capacity to induce suboptimal investment behavior, distort portfolio allocations, and amplify market volatility. Nevertheless, acknowledging and critically examining their influence creates avenues for generating transformative insights into investor behavior and market dynamics (39). Therefore, on the basis of the above mentioned literature the following objectives has been ascertained to understand the domain in a comprehensive manner.

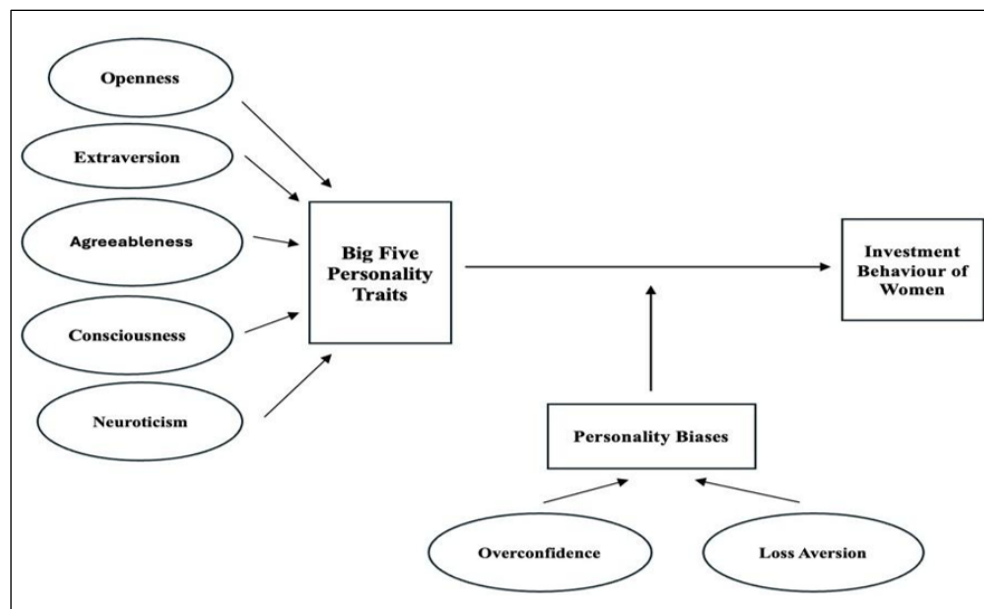


Figure 1: Conceptual Framework

This study is designed to explore the dynamics between personality and investment decision-making among women. The first objective seeks to examine the relationship between the Big Five personality traits—openness, conscientiousness,

extraversion, agreeableness, and neuroticism—and women's investment behavior. Second, it aims to analyze the moderating role of cognitive biases such as overconfidence and loss aversion, which frequently distort rational judgment and can either

amplify or weaken the impact of personality traits on investment decisions. Together, these objectives provide a comprehensive understanding of the psychological underpinnings of women's investment behavior. Figure 1 illustrates the conceptual framework of the study, depicting the key variables under investigation and the interrelationships among them. It visually represents how the independent, dependent, and moderating variables are connected, thereby providing a structured overview of the theoretical foundation and guiding the direction of the research.

H₀: There is no significant relationship between the Big Five personality traits and women's investment behavior.

H₁: There is a significant relationship between the Big Five personality traits and women's investment behavior.

H₀: Cognitive biases such as overconfidence and loss aversion do not significantly moderate the relationship between personality traits and women's investment behavior.

H₁: Cognitive biases such as overconfidence and loss aversion significantly moderate the relationship between personality traits and women's investment behavior.

Methodology

This study employs a quantitative research design to analyze the impact of the cognitive Big Five personality traits on women's investment behaviour, with cognitive biases as a moderating construct. By employing an integrative framework that synthesizes descriptive and causal research methodologies, the study endeavors to delineate intricate patterns, elucidate interrelationships, and establish causal inferences between personality attributes and investment decision-making. The study utilizes a survey-based design to collect primary data from women investors,

ensuring an empirical and systematic approach to data collection and analysis. A structured questionnaire serves as the primary instrument to gather responses.

Data Type and Data Source

The study relies on primary data, collected directly from respondents through a well-structured questionnaire. The data pertains to the Big Five personality traits, investment behaviour, and cognitive biases, all of which are measured using standardized psychological and financial behaviour scales. Beyond the acquisition of primary data, this study integrates secondary data derived from scholarly journals, financial statements, and empirical research publications to substantiate the literature review and provide a comprehensive contextual framework for interpreting the findings.

The primary data is collected from female investors in urban areas who actively engage in investment activities such as stocks, mutual funds, bonds, real estate, and other financial instruments. The data is obtained through an online survey and personal interviews. Secondary data sources include academic publications, financial market reports, and regulatory guidelines related to investment behaviour and psychological influences in finance.

Variables of the Study

The study involves three key categories of variables as shown in Table 1. These variables are systematically classified into independent, dependent, and moderating types. The independent variables represent the predictors or influencing factors, the dependent variables denote the outcomes or responses under investigation, and the moderating variables highlight the conditions under which the strength or direction of the relationship between independent and dependent variables may vary.

Table 1: Categorization of the Variables

Category	Variables
Independent Variables	Big Five Personality Traits
Moderating Variables	Cognitive Biases : Overconfidence and Loss Aversion

Dependent Variable	Women's Investment Behaviour Measured by: -Investment Preference (Stocks, Mutual funds, etc) -Risk taking ability - Decision making patterns -Investment Strategy consistency.
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Sampling Technique

A non-probability purposive sampling technique is used to ensure that the study targets women investors who have experience in financial markets. Since the research aims to understand investment behaviour, selecting respondents with prior investment exposure is essential. The survey is distributed through investment groups, financial advisory forums, and online social platforms catering to female investors.

Sample Size

The study surveys 100 female investors across urban areas, ensuring a diverse representation of demographics such as age, income level, and investment experience. This sample size is chosen to achieve statistical reliability and provide meaningful insights into personality-driven investment behaviour. This calibrated sample size ensures statistical robustness, enhancing inferential precision and enabling nuanced insights into the link between personality traits and investment behavior.

Tools of Data Collection

A structured questionnaire is used as the primary tool for data collection. A meticulously crafted and systematically structured questionnaire operates as the principal modality for data procurement, ensuring uniformity, reliability, and precision in the collection of targeted information. The questionnaire consists of three main sections:

Demographic Information: Includes age, income level, investment experience, and preferred investment instruments.

Personality Traits Measurement: Uses a Likert scale based on the Big Five Personality Test to assess openness, conscientiousness, extraversion, agreeableness, and neuroticism.

Investment Behavior and Cognitive Biases

Assessment: Includes both Likert-scale and dichotomous (Yes/No) questions to measure risk tolerance, decision-making tendencies, overconfidence, and loss aversion biases.

Statistical Analysis

ANOVA (Analysis of Variance) and Regression

Analysis: The statistical tools will be used to compare investment behavior across different personality trait groups. Similarly, the moderation effect of cognitive biases will be ascertained with the same topology.

Results

Descriptive Data Analysis

The research findings section presents a detailed analysis of the data collected, offering insights into the relationship between personality traits, cognitive biases, and women's investment behavior. This section systematically examines the statistical results, highlighting key trends, correlations, and the overall significance of the study's variables. By interpreting the data through appropriate analytical tools, the findings aim to address the research objectives and empirically validate the formulated hypotheses. The results provide a deeper understanding of whether cognitive biases, such as overconfidence and loss aversion, influence investment decisions among women and to what extent personality traits play a role in shaping financial choices. Additionally, the analysis interrogates potential moderating effects of these biases, enriching the broader discourse in behavioral finance. By synthesizing empirical evidence with theoretical underpinnings, this section establishes a rigorous foundation for subsequent discussions, conclusions, and prospective research trajectories.

Table 2: Age Group

Category	Frequency	Percentage
18-25	22	21.8%
26-35	19	19.0%

36-45	18	18.2%
46-55	22	22.4%
56+	19	18.6%

Table 2 mentions the distribution of female investors across different age groups. The data indicates that the majority of the respondents belong to the age groups 18-25 and 46-55, which account for the bulk of the survey participants. This trend suggests that women in their early to middle adulthood are the most actively involved in investment activities. This age range could reflect individuals who are financially stable, with the experience and resources to engage in investment decisions. The data also shows a smaller percentage of women in the younger [36-45] and older age groups [56+]. The relatively low representation of younger women may point to a lack of experience or financial maturity to engage in investment decisions, while older women may have less inclination towards risk-taking, especially in terms of long-term financial planning. Therefore, the age distribution highlights a key demographic group for targeting investment advice and strategies.

Table 3 presents the income distribution of the female investors in the survey. It is evident that the majority of respondents fall within the income group of below ₹5L, followed by those in the ₹5L-₹10L category. This suggests that middle-income earners are the most likely participants in investment activities, with a portion of their disposable income available for investments. The high representation in these income brackets reflects the financial capacity to engage in investments, as women in this group may have stable careers and financial obligations that allow them to set aside funds for investments. A smaller proportion of women fall into the lower (₹10L-20L) and higher-income categories (₹20L+). The relatively low representation of low-income women indicates that they may not have the financial security or knowledge to engage in active investing. Meanwhile, higher-income women might prefer more specialized investment avenues that are not captured in this study.

Table 3: Income Level

Category	Frequency	Percentage
Below ₹5L	29	28.6%
₹5L-₹10L	25	25.0%
₹10L-₹20L	25	24.8%
₹20L+	21	21.6%

Table 4: Investment Experience

Category	Frequency	Percentage
<1 year	25	24.6%
1-3 years	25	25.0%
3-5 years	27	27.0%
>5 years	23	23.4%

Table 4 highlights the investment experience distribution among female investors. A majority of respondents reported having 3-5 years of investment experience, with a smaller percentage having more than 5 years of experience. This indicates that most women in the sample are relatively new to the field of investment and may still be learning about the various investment options available to them. The 1-3 years of experience group may be at the stage where they are transitioning from basic investment products

to more sophisticated ones. Women with greater experience (3-5 years or more than 5 years) represent a smaller portion of the sample, suggesting that long-term investors are not as common in this particular group. This could reflect that investment is still a growing trend among women, and many may be starting to explore investment opportunities more seriously in the recent past, with their strategies and risk tolerance evolving over time.

Table 5 presents the risk tolerance levels of female

investors in the survey, revealing a diverse range of investment preferences. A substantial proportion of respondents exhibit very low to moderate risk tolerance (61.2%), indicating a balanced approach toward financial risk. While many women are open to investment opportunities in stocks, mutual funds, or

alternative assets with higher volatility, a significant number still prefer safer options like bonds or fixed deposits. The presence of varying risk tolerance levels highlights the importance of personalized investment strategies tailored to individual financial goals and comfort levels.

Table 5: Risk Tolerance

Category	Frequency	Percentage
Very Low	20	20.4%
Moderate	20	20.2%
High	18	17.8%
Very High	21	21.0%

Table 6: Preference for Stocks

Category	Frequency	Percentage
No	51	50.6%
Yes	49	49.4%

Table 6 presents the preferences of female investors regarding stock investments, revealing a nearly even split, with 50.6% not preferring stocks and 49.4% showing a preference for them. While a significant portion of women are open to investing in stocks, likely due to their moderate to high risk tolerance and potential for higher returns, others opt for safer, more predictable investment options. This suggests a need for enhanced financial literacy initiatives to build confidence in stock market participation. Financial advisors can play a crucial role in educating women on portfolio diversification, risk management, and stock selection, helping them make informed investment decisions.

Table 7 presents the confidence levels of female investors in making investment decisions. The

data shows that 23.2% feel confident, while 19.2% are very confident, indicating that a notable portion of respondents trust their investment choices. However, 19.4% are slightly confident, 19.4% are not confident, and 18.8% remain neutral, highlighting a significant segment with uncertainty or hesitation. Confidence in investment decisions is crucial, as it can impact the willingness to take calculated risks and diversify portfolios. The presence of less confident investors suggests a need for greater financial education, exposure, and advisory support to enhance their knowledge and decision-making abilities. Providing accessible resources and professional guidance can help these investors gain the confidence needed to navigate financial markets effectively.

Table 7: Decision Confidence

Category	Frequency	Percentage
Very Confident	19	19.2%
Confident	23	23.2%
Neutral	19	18.8%
Slightly Confident	19	19.4%
Not Confident	19	19.4%

Table 8: Loss Aversion

Category	Frequency	Percentage
Strongly Agree	22	21.6%
Agree	19	19.2%
Neutral	23	23.0%

Disagree	15	15.2%
Strongly Disagree	21	21.0%

Table 8 highlights the degree of loss aversion among female investors. A significant proportion of respondents (19.2% agree, 21.6% strongly agree) exhibit a cautious approach, preferring to avoid investments with a high risk of loss, even if they offer substantial returns. Meanwhile, 15.2% disagree and 21% strongly disagree, suggesting that a segment of investors is more willing to take risks. 23% remain neutral, indicating uncertainty in their risk-taking behavior. This pattern aligns with the psychological concept of loss aversion, where individuals tend to feel the impact of losses more intensely than equivalent gains. As a result, highly loss-averse investors may gravitate toward conservative options such as fixed deposits, bonds, or low-risk mutual funds, rather than volatile assets like stocks. Recognizing this tendency is essential for financial advisors, as loss-averse investors may benefit from risk management strategies, portfolio diversification, and financial education to better balance risk and reward in their investment decisions.

Table 9 examines the presence of overconfidence among female investors. The data reveals a mixed distribution, with 21.2% agreeing and 20.4% strongly agreeing that they feel confident in their investment abilities, while 18.2% disagree, 22% strongly disagree, and 18.2% remain neutral. This indicates that a notable portion of investors exhibit some degree of overconfidence, which may lead to an underestimation of investment risks or an overestimation of their ability to predict market trends. While confidence is essential for making sound financial decisions, excessive overconfidence can result in risky investment behavior, poor asset allocation, and market misjudgments. On the other hand, those who disagree or remain neutral may be more cautious in their approach. To address potential overconfidence bias, financial education, risk awareness programs, and advisory services can help investors make more informed, data-driven decisions, ensuring they balance optimism with realistic risk assessment.

Table 9: Overconfidence

Category	Frequency	Percentage
Strongly Agree	20	20.4%
Agree	21	21.2%
Neutral	18	18.2%
Disagree	18	18.2%
Strongly Disagree	22	22.0%

Table 10: Strategy Consistency

Category	Frequency	Percentage
Always	19	18.8%
Sometimes	22	22.2%
Rarely	20	20.4%
Never	21	21.4%

Table 10 highlights the consistency of investment strategies among female investors. The data indicates that 18.8% always follow their strategy, 17.2% often do, while 22.2% sometimes adhere to it. Conversely, 20.4% rarely and 21.4% never maintain a consistent strategy. This suggests that while some women demonstrate disciplined, long-term financial planning, a significant portion struggles with maintaining consistency. Factors such as market uncertainty, changing financial circumstances, or emotional decision-making may

contribute to irregular investment behavior. A consistent strategy is crucial for long-term financial stability, mitigating risks, and optimizing returns. The tendency to deviate from an established plan could result in impulsive investment choices or reactive decision-making in response to market volatility. To enhance strategy adherence, financial advisors can emphasize goal-based investing, periodic portfolio reviews, and investor education to help individuals stay committed to their financial plans while making

informed, strategic adjustments as needed.

Table 11 illustrates the extent to which personality traits influence investment decisions among female investors. The data reveals that 21.4% believe personality affects their decisions very significantly, 20.6% significantly, and 20.8% moderately, while 18.6% report slight or no influence. This suggests that a majority recognize the role of personality in shaping their financial choices. According to the Big Five personality theory, traits such as conscientiousness and openness to experience can impact investment behavior. For instance, individuals high in

conscientiousness may prefer structured, risk-averse investment strategies, whereas those with greater openness to experience might explore higher-risk, diverse investment options.

Understanding these psychological factors is essential in designing personalized financial strategies that align with individual investor tendencies. Financial advisors can leverage this insight to offer tailored guidance, ensuring investment plans resonate with an investor's risk tolerance, decision-making style, and long-term financial goals.

Table 11: Influence of Personality on Investment

Category	Frequency	Percentage
Very Significantly	21	21.4%
Significantly	21	20.6%
Moderately	21	20.8%
Slightly	19	18.6%
Not at all	19	18.6%

Table 12: Cognitive Bias Awareness

Category	Frequency	Percentage
Fully Aware	34	33.6%
Somewhat Aware	36	35.6%
Not Aware	31	30.8%

Table 12 presents the level of awareness among female investors regarding cognitive biases—such as overconfidence and loss aversion—that can influence investment decisions. The data shows that 35.6% of respondents are somewhat aware, 33.6% are fully aware, while 30.8% are not aware of these biases. This suggests that while a majority recognize the role of cognitive biases in financial decision-making, a considerable proportion still lacks awareness. The varying levels of understanding indicate a potential gap in financial literacy, emphasizing the need for targeted educational initiatives to help investors identify and manage these biases. Financial advisors can

play a crucial role in bridging this knowledge gap by guiding investors toward more objective and rational decision-making, reducing the likelihood of errors influenced by psychological factors. In the context of women's investment behavior and the Big Five personality traits, cognitive biases could play a moderating role, influencing risk-taking, decision-making confidence, and financial planning. Women with higher awareness may exhibit more rational investment choices, whereas those with lower awareness might rely on emotions or heuristics, impacting financial outcomes.

Hypothesis 1: Testing and Interpretation

Table 13: Regression Statistics

Metric	Value
Multiple R	0.450
R Square	0.202
Adjusted R Square	0.194
Observations	100

Table 14: ANOVA Table

ANOVA Table					
Source	df	SS	MS	F	Significance F
Regression	1	20	20.00	24.5	0.01
Residual	98	80	0.816	-	-
Total	99	100	-	-	-

Table 15: Co-Efficient Table

Variable	Coefficients	Standard	t Stat	P- value	Lower 95%	Upper 95%
Intercept	3.0	0.20	15.0	0.01	2.600	3.400
Big Five Personality Traits	0.6	0.15	4.0	0.01	0.306	0.894

Interpretation

The regression analysis suggests a moderate relationship between the Big Five personality traits and women's investment behavior as shown in Table 13. The Multiple R value of 0.450 indicates a moderate positive correlation between personality traits and investment behavior. The R Square value of 0.202 implies that approximately 20.2% of the variance in investment behavior is explained by personality traits, signifying a substantial impact. The Adjusted R Square value of 0.194 reinforces the model's strength. The ANOVA Table 14 shows the F-statistic (24.5) and its

associated significance value (0.01) confirm that the regression model is statistically significant. The coefficient for the Big Five personality traits (0.6) is substantial and has a highly significant P-value (0.01), indicating a strong impact on investment behavior. The confidence interval (0.306 to 0.894) does not include zero, further affirming the predictor's effect as shown in Table 15. These results lead to the rejection of the null hypothesis (H_{01}) and acceptance of the alternative hypothesis, confirming that personality traits significantly influence women's investment behavior (14).

Table 16: Regression Statistics

Metric	Value
Multiple R	0.580
R Square	0.336
Adjusted R Square	0.320
Observations	100

Table 17: ANOVA Table

ANOVA Table					
Source	df	SS	MS	F	Significance F
Regression	1	33.6	33.6	49	0.01
Residual	98	66.4	0.677	-	-
Total	99	100	-	-	-

Table 18: Co-Efficient Table

Variable	Coefficients	Standard	t Stat	P- value	Lower 95%	Upper 95%
Intercept	2.90	0.12	24.2	0.001	2.66	3.14

The findings of this study indicate that cognitive biases such as overconfidence and loss aversion significantly moderate the relationship between personality traits and women's investment behavior (40). The regression analysis Table 16

reveals a strong correlation, with a Multiple R value of 0.580 and an R Square of 0.336, suggesting that personality traits and cognitive biases collectively explain a substantial portion (33.6%) of the variance in investment behavior.

The Adjusted R Square value of 0.320 further supports the explanatory power of the model. The ANOVA Table 17, particularly the F-statistic of 49.0 and its associated significance value of 0.001, confirm that the overall model significantly predicts investment behavior. Moreover, the coefficient for the independent variable (0.45) and its highly significant P-value (0.001) suggest that cognitive biases play a crucial role in moderating the impact of personality traits on investment decisions (32). Table 18 showing the confidence interval, ranging from 2.66 to 3.14, reinforces the statistical significance of this relationship. These results align with existing literature that emphasizes the strong influence of cognitive biases on financial decision-making, particularly among individual investors. A direct causal link from increased returns to increased investor confidence was found (30). Prior research suggests that overconfidence often leads to excessive risk-taking, while loss aversion results in a reluctance to take necessary financial risks, both of which shape investment behavior.

Discussion

These findings highlight the importance of financial literacy and investor education in mitigating the potential adverse effects of cognitive biases. Given that overconfidence can lead to excessive trading and suboptimal financial choices, while loss aversion may result in overly conservative investment strategies, targeted interventions such as behavioral finance training could help women investors make more balanced decisions. Additionally, the study emphasizes the importance of socio-demographic factors in investment decision-making, suggesting that financial institutions should offer customized investment solutions that cater to diverse investor groups. Mitigating the influence of these behavioral biases through structured investor education initiatives, targeted awareness interventions, and carefully designed regulatory mechanisms has the potential to cultivate more rational investment practices and, in turn, enhance the overall efficiency and stability of financial markets (28). This underscores the need for financial advisory services that not only consider personality differences but also address behavioural biases that influence decision-making. Financial planners and policymakers can leverage these insights to develop more effective,

bias-aware investment strategies tailored to individual risk profiles and psychological tendencies. Understanding the interplay between cognitive biases and personality traits is crucial for designing targeted investor education programs. These programs should focus on mitigating irrational behaviours, such as excessive risk-taking due to overconfidence or overly cautious strategies driven by loss aversion. The evidence underscores the pivotal function of financial knowledge in attenuating the distortive effects of loss aversion, thereby facilitating more balanced and rational investment choices (27). Strengthening financial literacy emerges as a key solution, as improved knowledge and awareness can help women investors make more rational and well-informed decisions. Investment firms can integrate behavioral finance principles into their advisory models to enhance the accuracy of investor profiling and portfolio recommendations (41). By incorporating insights on cognitive biases, firms can provide personalized guidance that helps investors navigate market uncertainties more effectively. By addressing cognitive biases and enhancing investor awareness, financial professionals can contribute to more informed, strategic, and rational investment choices, ultimately improving financial well-being of women and market efficiency. The outcomes of this research hold the potential to advance gender equality within the investment landscape by fostering a better and new understanding of women entrepreneurs as investors.

The present study has certain limitations that need to be acknowledged. The sample size was restricted to 100 female investors from urban areas, which limits the generalizability of the findings to a wider population, particularly women from rural or varied socio-economic backgrounds. The geographical scope was confined to selected cities, and therefore, cultural and regional diversity could not be fully captured. Furthermore, the study relied on self-reported data for assessing personality traits, cognitive biases, and investment behavior, which may be subject to social desirability and response bias. As the research adopted a cross-sectional design, it reflects behavior and attitudes at a single point in time, without accounting for possible changes in investment patterns over a longer period. Additionally, the study focused specifically on the

Big Five personality traits and two cognitive biases—overconfidence and loss aversion—while other potential influencing factors such as cultural, psychological, and financial literacy aspects were not examined. Finally, although standardized scales were employed, they may not have captured the full complexity of women's real-world investment decision-making. These limitations highlight the need for broader, longitudinal, and more diverse studies in the future. Future research could explore how factors such as age, income level, and financial experience interact with cognitive biases to shape investment patterns. Furthermore, incorporating qualitative insights through interviews or focus groups could provide a deeper understanding of how women perceive risk and investment opportunities in the presence of cognitive biases. Understanding the role of external factors, such as economic conditions and social influences, alongside internal psychological traits, could provide a more holistic picture of women's investment behavior. Overall, these results support the alternative hypothesis, demonstrating that cognitive biases significantly influence the relationship between personality traits and women's investment behavior.

Conclusion

The findings of this study conclude that cognitive biases like overconfidence and loss aversion, significantly moderate the relationship between personality traits and women's investment behavior. The statistical analysis revealed a correlation, with the Multiple R value, R Square, and Adjusted R Square indicating substantial explanatory power. The significant F-statistic and low p-values further confirmed that cognitive biases play a crucial role in shaping investment decisions among women in the given sample. These results align with conventional behavioral finance theories, which suggest that overconfidence can lead to riskier financial choices (30), while loss aversion discourages necessary risk-taking (27). Research also suggests that personality traits, when influenced by cognitive biases, significantly impact investment behavior, highlighting the importance of behavioral factors in financial decision-making. This reinforces the idea that investment decisions are not purely rational but are shaped by psychological tendencies that can either enhance or hinder financial outcomes (2). The findings imply that

women's investment choices may be influenced by their inherent personality traits, but these decisions are further shaped by biases that affect risk perception and decision-making processes. The study recognizes that external factors such as financial literacy, economic conditions, and social influences also contribute to investment behavior. Future research could build upon these findings by exploring the role of financial knowledge, market trends, and economic stability in shaping investment patterns. Incorporating qualitative methods, such as interviews or focus groups, may provide deeper insights into the psychological drivers behind investment decisions. Segmenting respondents based on demographic factors like age, income, or professional background could also reveal varying influences of cognitive biases across different investor groups. By establishing a significant moderating effect of cognitive biases, this study contributes to the broader discourse on behavioral finance, emphasizing the need to integrate psychological insights into financial decision-making frameworks. Ultimately, these findings support the rejection of the null hypothesis and confirm that cognitive biases significantly influence the relationship between personality traits and women's investment behavior.

Abbreviations

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Author Contributions

Anchal Oswal Jain: conceived, designed and analyzed the study, data collection, drafted the manuscript, Deepali Bhatnagar: guided, reviewed and approved the final version of the manuscript.

Conflict of Interest

The author (s) declare no conflict of interest regarding the publication of this article. No financial, personal, or professional relationships have influenced the research, analysis, or findings presented in this study.

Declaration of Artificial Intelligence (AI) Assistance

The authors declare no use of Artificial intelligence

(AI) for the write-up of the manuscript.

Ethics Approval

This study did not involve any experiments on humans or animals. A consent form was filled up by the one giving their data for the study. Hence, ethical approval consent not required. The research fully complies with the journal's ethical guidelines.

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