

Big Five Personality Traits and Investment Decision-Making: The Mediating Role of Behavioural Biases

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HOW TO CITE:

Monika Saradhara, Nirav Vyas
(2026). Big Five Personality
Traits and Investment Decision-
Making: The Mediating Role of
Behavioural Biases
International Journal of Special
Education, 41(18s), 329-339

ABSTRACT:

Beyond conventional financial concerns, psychological and behavioral factors frequently impact investment decisions. Understanding how investor behavior is impacted by personality factors is becoming increasingly important in order to explain financial market decision-making tendencies. This study looks at the Big Five Personality Traits and how they affect investing decision-making and behavioral finance features. The study specifically investigates the function of behavioral finance elements as a higher-order construct that includes mental accounting biases, loss aversion, herding, overconfidence, and anchoring. The study uses a quantitative research design and uses a structured questionnaire to gather primary data from 200 individual investors. Using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS, the suggested model was examined. The findings show that personality qualities have a major impact on behavioral finance aspects, with extraversion showing the greatest influence of all the personality dimensions. Additionally, it was discovered that behavioral finance aspects significantly improved investment decision-making. The measurement and structural model evaluations supported the robustness of the suggested framework by confirming acceptable validity, reliability, and model fit. The results demonstrate the significance of investor psychology in financial decision-making and offer empirical proof that behavioral finance aspects are a key mechanism by which personality traits impact investment behavior. The study contributes to the body of literature on behavioral finance and offers useful information to investors, financial advisors, and regulators who wish to gain a deeper understanding of how investors make decisions by integrating personality traits and behavioral biases into a comprehensive framework.

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Keywords: Personality Traits, Behavioural Finance Factors, Investment Decision-Making, Behavioural Biases, Investor Behaviour

1. Introduction

Making investment selections has become more challenging in the present financial environment due to the financial markets' heightened volatility and uncertainty. Changing market conditions, unstable economies, inflationary pressures, and rapid technological breakthroughs all have an impact on investors' financial decisions. Conventional financial theories assume that investors make logical decisions based only on the available information and risk-return assessments. However, because investors are impacted by psychological, emotional, and cognitive aspects while making investment decisions, real-world financial behaviour frequently departs from these presumptions (Kahneman & Tversky, 1979). As a result, comprehending the behavioural aspects of investor decision-making has grown in importance in the literature on modern finance.

By elucidating how behavioural biases impact financial decision-making, behavioural finance has dramatically challenged the tenets of traditional finance. In order to comprehend irrational investor behaviour and cognitive constraints in financial markets, behavioural finance combines ideas from psychology and finance. Investors often rely on heuristics and subjective evaluations rather than objective financial research, which can result in biases like overconfidence, herding behavior, anchoring, loss aversion, and mental accounting (Shefrin, 2000). These biases reflect the concept of constrained rationality, which holds that humans make judgments based on inadequate knowledge and limited cognitive capacity. (Simon, 1955). Investment decisions may not always maximize financial returns due to emotional emotions including fear, greed, optimism, and regret. Therefore, in contrast to conventional financial theories, behavioural finance offers a more realistic understanding of investor behaviour.

Investor psychology and financial behaviour are significantly influenced by personality features in addition to behavioural biases. Extraversion, neuroticism, agreeableness, conscientiousness, and openness to new experiences are the Big Five Personality Traits model, which has been widely used to analyze individual behavioral patterns and decision-making proclivities (McCrae & Costa, 1997). Individuals' perceptions of financial risk,

information processing, uncertainty response, and decision-making regarding investments are all influenced by their personality traits. For instance, neurotic people may show greater emotional sensitivity during market swings, whereas highly conscientious people might use disciplined financial tactics. Similarly, because of their increased self-assurance and social influence, extroverted investors could exhibit more risk-taking behaviour. In order to explain differences in investor decision-making behaviour, it is crucial to comprehend the connection between behavioural finance elements and personality traits.

Although earlier research has examined personality characteristics and behavioral biases separately, few studies have examined the integrated link between these elements utilizing higher-order construct modeling inside the PLS-SEM framework. Most of the work currently in publication concentrates on the direct connections between investor psychology and financial behavior, with less focus on the mediating function of behavioural finance elements between personality traits and investment decision-making. Furthermore, there are comparatively few research that apply higher-order construct modelling to behavioural finance issues, especially in emerging financial markets. To bridge this gap in research, the current work uses Smart PLS and the PLS-SEM technique to look into how distinct personality characteristics affect behavioural finance aspects and how those factors then affect investment decision-making

Literature Review

According to behavioural finance, investors' judgments are impacted by emotional reactions and cognitive constraints. Consequently, they are not always entirely rational. The idea of bounded rationality was first presented by Simon in 1955. It postulates that people make decision when confronted with uncertainty and a limited ability to assimilate information. When making investing decisions in the financial markets, investors frequently rely on heuristics or mental shortcuts, which can result in systemic biases and irrational judgment. According to Kahneman and Tversky's Prospect Theory (1979), investors often experience losses greater than profits, which lead

them to act irrationally in volatile markets.

Behaviour Biases

The inclination of investors to overestimate their expertise, abilities, and capacity to forecast market success is referred to as overconfidence bias. As per to Barber and Odean (2001), overconfident investors frequently participate in extreme trading and higher risk-taking behaviour because they think they have better information and financial skill than others. Overconfidence has a substantial impact on investment choices and portfolio performance, according to earlier research. Overconfident investors are more inclined to ignore contradicting market information and participate in speculative trading. Previous studies have shown that overconfidence significantly affects investment decisions and portfolio performance. Investors that are overconfident are more likely to engage in speculative trading and disregard conflicting market information. According to study by Glaser and Weber (2007), overconfident investors trade more frequently because they think they understand the market better.

Due to uncertainty and a fear of making poor choices, investors who are influenced by herding behavior often follow market trends, public opinion, and crowd behavior (Banerjee, 1992). Herding behavior is linked to speculative booms and market inefficiencies, claim Bikhchandani and Sharma (2000). Due to their increased reliance on social information and lack of financial expertise, investors in new financial markets are more susceptible to herding behavior.

Among the most crucial behavioral biases in behavioral finance is loss aversion, which is strongly related to prospect theory. According to Kahneman and Tversky (1979), this bias explains why investors feel greater pain when they lose money than when they make comparable gains. In order to prevent suffering losses, loss-averse investors may hold failing investments for extended periods of time and typically favor safer investment options. According to earlier research, investor risk tolerance and portfolio management practices are strongly impacted by loss aversion. This tendency may lead to irrational investment decisions and poor financial outcomes.

Personality Traits

Individual behavior, emotions, and decision-

making patterns are influenced by personality traits, which are persistent psychological features. In psychology and behavioral research, McCrae and Costa's (1997) Big Five Personality Traits model is widely accepted. The model's five primary personality traits are conscientiousness, neuroticism, extraversion, agreeableness, and openness to new experiences. Investor psychology and financial behavior are greatly influenced by these personality factors.

Being agreeable is a sign of cooperative, trustworthy, and caring behavior. Conservative investment decisions may be impacted by agreeable investors' tendency toward caution and harmonious decision-making. Conscientiousness is a sign of duty, order, and discipline. Methodical financial planning and rational investment analysis are more common among conscientious investors. Anxiety, fear, and emotional instability are linked to neuroticism. High neurotic investors may respond emotionally to market swings and have a lower risk tolerance. Sociability, self-assurance, and aggressiveness are characteristics of extraversion. Outgoing investors are often more willing to take risks and participate actively in the financial markets. Being open to new experiences is a sign of inventiveness, curiosity, and a readiness to try new things. Innovative investing ideas and market knowledge is usually more welcomed by investors who exhibit high degree of openness.

The importance of personality factors in influencing investment behavior and financial risk perception has been emphasized in earlier research (Mayfield et al., 2008). Investors' have an impact on how they process information, evaluate uncertainty, and respond to financial market circumstances. As a result, investment behavior and financial decision-making are thought to be significantly influenced by personality factors.

Investment Decision-Making

Because of market volatility and uncertainty, investment decisions are getting more complicated in today's financial markets. Rational decision-making is impacted by the fear, greed, and uncertainty that investors frequently feel when making investing decisions. Previous studies demonstrated that behavioral and psychological aspects have a big impact on investor choices and portfolio management practices (Pompian, 2012).

Methodology

The current study a quantitative and explanatory research approach to examine how personality traits influence behavioral finance components and, consequently, how these factors affect investment decision-making. A systematic questionnaire with validated assessment items taken from the literature was used to collect primary data from individual investors. The Five personality traits—conscientiousness, neuroticism, extraversion, agreeableness, and openness to new experiences—were taken into account as independent variables in the study, whereas overconfidence, herding, anchoring, loss aversion, and mental accounting were conceptualized as higher-order constructs related to behavioral finance. Making investment decisions was considered the dependent variable. A five-point Likert scale, ranging from strongly disagree to strongly agree, was used to evaluate responses.

Using SmartPLS, partial least squares structural equation modeling (PLS-SEM) was used to analyze the suggested correlations. There were two phases of the analysis. First, reliability and validity tests, such as Cronbach's alpha, composite reliability, average variance extracted (AVE), and HTMT ratio, were used to evaluate the measurement model. The suggested hypotheses were then tested by evaluating the structural model using route coefficients, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and bootstrapping techniques. Because of its ability to analyze complicated models with higher-order constructs and mediation interactions, the PLS-SEM approach was chosen (Hair et al., 2022).

Hypotheses

H1: Agreeableness significantly influences Behavioural Finance Factors.

H2: Conscientiousness significantly influences Behavioural Finance Factors.

H3: Extraversion significantly influences Behavioural Finance Factors.

H4: Neuroticism significantly influences Behavioural Finance Factors.

H5: Openness to Experience significantly influences Behavioural Finance Factors.

H6: Behavioural Finance Factors significantly influence Investment Decision-Making.

Research Objectives

1.To examine the relationship between Big Five Personality Traits and investment decision-making.

2.To analyze the mediating role of behavioural biases in relation to big five personality traits and Investment decision making.

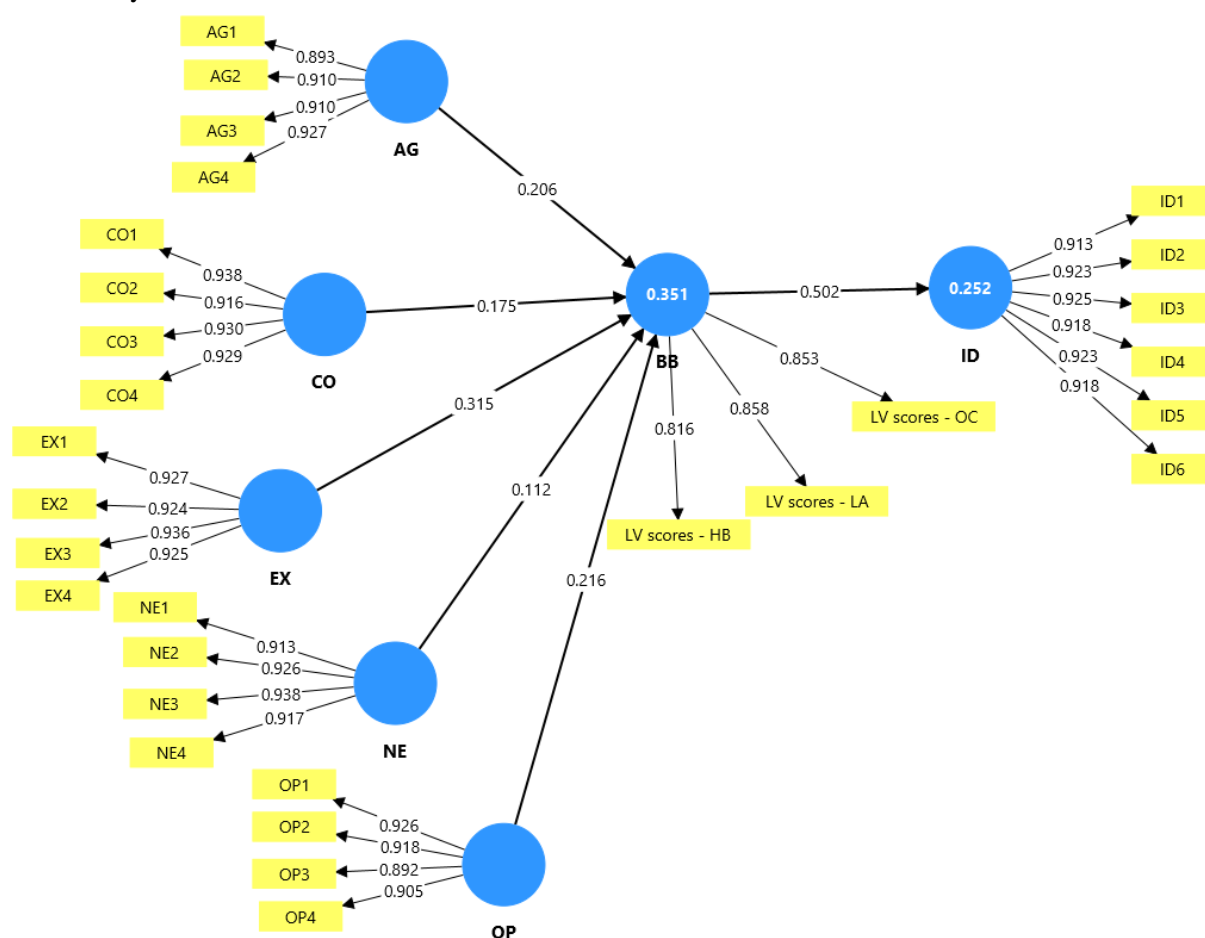
3.To recommend specific personality traits that exhibit behavioural biases in Investment decision making.

Research gap

Although behavioral biases and personality traits have been examined in relation to investment decision-making in the past, most of these studies have examined these elements independently rather than within an integrated framework. Prior study mostly focused on the direct effects of behavioral biases including overconfidence, herding, anchoring, and loss aversion on investor behavior, while other studies examined the influence of the Big Five Personality Traits on financial risk-taking and investor psychology (Mayfield et al., 2008; Shefrin, 2000). However, not much research has examined at how personality qualities impact behavioral finance aspects, which in turn impact how people make investing decisions. Furthermore, the mediating role of behavioral finance elements in understanding the relationship between personality traits and investing decisions has received comparatively less attention in earlier research.

Additionally, because behavioral biases have typically been studied as distinct constructs rather than as a higher-order construct representing total behavioral finance aspects, methodological shortcomings are also apparent in previous studies. Higher-order construct modeling utilizing the PLS-SEM approach has been used in a small number of empirical research to examine the combined impact of behavioral finance characteristics and personality traits on investment decision-making, especially in emerging market situations

Data Analysis



Measurement Model Assessment

The validity and reliability of the study's constructs were evaluated using the measurement model. Cronbach's Alpha, Composite Reliability (CR), and rho_A scores were used to assess reliability. Average Variance Extracted (AVE) and

factor loadings were used to evaluate convergent validity. The Heterotrait-Monotrait Ratio (HTMT) was used to assess discriminant validity, and the Variance Inflation Factor (VIF) values were used to investigate collinearity problems.

Reliability and Convergent Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AG	0.931	0.944	0.951	0.828
BB	0.797	0.804	0.880	0.710
CO	0.946	0.950	0.961	0.861
EX	0.946	0.947	0.961	0.862
ID	0.964	0.965	0.971	0.846
NE	0.943	0.954	0.959	0.853
OP	0.931	0.942	0.951	0.829

With Cronbach's Alpha, Composite Reliability, and rho_A values above the suggested threshold of 0.70, the findings show that all constructs attained adequate reliability. Additionally, convergent validity was confirmed by the indicators' factor loading being above the

permissible level and the AVE values exceeding 0.50.

Discriminant Validity

The Fornell-Larcker Criterion and the Heterotrait-Monotrait Ratio (HTMT) were used to evaluate discriminant validity.

Fornell–Larcker Criterion

	AG	BB	CO	EX	ID	NE	OP
AG	0.910						
BB	0.345	0.843					
CO	0.171	0.324	0.928				
EX	0.224	0.439	0.224	0.928			
ID	0.269	0.502	0.215	0.290	0.920		
NE	0.040	0.192	0.174	0.161	0.167	0.923	
OP	0.156	0.292	0.106	0.096	0.164	-0.042	0.910

The findings show that the associated inter-construct correlations were lower than the diagonal values that represented the square root

of AVE. As a result, the Fornell-Larcker criterion verifies that the study's conceptions have sufficient discriminant validity.

Heterotrait–Monotrait Ratio (HTMT)

	AG	BB	CO	EX	ID	NE	OP
AG							
BB	0.392						
CO	0.180	0.371					
EX	0.237	0.505	0.234				
ID	0.283	0.564	0.224	0.303			
NE	0.057	0.218	0.182	0.166	0.172		
OP	0.162	0.331	0.109	0.101	0.169	0.067	

Discriminant validity was further evaluated using the HTMT ratio. According to Henseler et al. (2015), a more severe level of discriminant validity is indicated by values below 0.85, while HTMT values should be below 0.90. All HTMT values

were below the suggested threshold level, according to the results, demonstrating satisfactory discriminant validity and verifying that the constructs are conceptually different from one another.

Collinearity Assessment

	VIF
AG1	3.225
AG2	3.458
AG3	3.055
AG4	4.351
CO1	4.817
CO2	3.608
CO3	4.511
CO4	4.176
EX1	4.076

EX2	4.024
EX3	4.556
EX4	4.028
ID1	4.315
ID2	4.791
ID3	4.759
ID4	4.393
ID5	4.954
ID6	4.582
LV scores - HB	1.658
LV scores - LA	1.840
LV scores - OC	1.638
NE1	3.908
NE2	3.865
NE3	4.382
NE4	3.734
OP1	3.891
OP2	3.443
OP3	3.236
OP4	3.155

All constructs' VIF values were below the permissible cutoff of 5.0, suggesting that the model did not have multicollinearity problems.

Structural Model Assessment

The suggested links between the constructs were

Hypothesis Testing

tested by evaluating the structural model after the measurement model's suitability was established. We looked at path coefficients, bootstrapping results, effect size (f^2), predictive relevance (Q^2), and coefficient of determination (R^2).

Path	Original sample (O)	T statistics (O/STDEV)	P values
AG -> BB	0.206	3.463	0.001
BB -> ID	0.502	9.825	0.000
CO -> BB	0.175	2.909	0.004

EX -> BB	0.315	5.257	0.000
NE -> BB	0.112	1.961	0.050
OP -> BB	0.216	3.739	0.000

In order to investigate how personality traits affect behavioral finance components and how behavioral finance factors subsequently affect investment decision-making, the bootstrapping process was used to evaluate the structural model. The findings show that behavioral finance parameters are positively impacted by agreeableness ($\beta = 0.206$, $p = 0.001$), conscientiousness ($\beta = 0.175$, $p = 0.004$), extraversion ($\beta = 0.315$, $p < 0.001$), openness to experience ($\beta = 0.216$, $p < 0.001$), and neuroticism ($\beta = 0.112$, $p = 0.050$). Extraversion is the personality trait that has the biggest impact on behavioral finance parameters, followed by agreeableness and openness. These results imply that individual personality traits have a major role

in the formation of investors' biases and behavioral proclivities.

The findings also show that investment decision-making is strongly and statistically significantly influenced by behavioral finance characteristics ($\beta = 0.502$, $t = 9.825$, $p < 0.001$). This result suggests that psychological and behavioral biases have a significant impact on investor decisions. Overall, the findings validate the suggested conceptual framework and show that personality traits have a significant impact on behavioral finance factors, which in turn affect investment decision-making behavior. The results emphasize how important investor psychology is to comprehending how people make financial decisions.

Coefficient of Determination (R^2)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
BB	0.351	0.372	0.055	6.365	0.000
ID	0.252	0.256	0.051	4.925	0.000

The suggested model's predictive ability was evaluated using the coefficient of determination (R^2). The findings show that personality traits have a modest amount of explanatory power, explaining 35.1% of the variance in Behavioural Finance Factors ($R^2 = 0.351$). Additionally, a weak to moderate degree of predictive power is

indicated by the fact that Behavioral Finance Factors account for 25.2% of the variance in Investment Decision-Making ($R^2 = 0.252$). These results imply that personality qualities have a major influence on behavioral finance aspects, which in turn help to explain how investors make decisions.

Effect Size (f^2)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
AG -> BB	0.060	0.068	0.038	1.571	0.116
BB -> ID	0.337	0.351	0.095	3.531	0.000
CO -> BB	0.043	0.050	0.033	1.318	0.188

EX -> BB	0.137	0.146	0.061	2.262	0.024
NE -> BB	0.018	0.024	0.021	0.861	0.390
OP -> BB	0.069	0.078	0.042	1.633	0.103

The contribution of each personality trait to Behavioural Finance Factors and the contribution of Behavioural Finance Factors to Investment Decision-Making were assessed using the effect size (f^2) analysis. The findings show that Behavioural Finance Factors have a significant impact on investor decisions, with a medium influence on Investment Decision-Making ($f^2 = 0.337$). While agreeableness ($f^2 = 0.060$), conscientiousness ($f^2 = 0.043$), openness to

experience ($f^2 = 0.069$), and neuroticism ($f^2 = 0.018$) show comparatively small effects on Behavioral Finance Factors, extraversion has a small but significant effect ($f^2 = 0.137$). These results imply that extraversion has the most practical influence among the personality qualities included in the study, even though all personality dimensions contribute to behavioral finance issues.

Model Fit

	Original sample (O)	Sample mean (M)	95%	99%
Saturated model	0.042	0.034	0.038	0.040
Estimated model	0.051	0.044	0.057	0.065

The Standardized Root Mean Square Residual (SRMR) was used to evaluate the overall model fit. The findings demonstrate that both the estimated model (0.051) and the saturated model (0.042) have SRMR values below the suggested cutoff of 0.08, suggesting a strong model fit. These results imply that the links between personality traits, behavioral finance elements, and investment decision-making are sufficiently represented by the suggested model. As a result, the model shows a good match and is suitable for investigating how personality traits affect behavioral finance components and how those factors then affect investment decision-making behavior.

Findings

The study's conclusions verify that the suggested model has enough measurement and structural characteristics. All constructs met the suggested threshold values for Cronbach's Alpha, Composite Reliability, Average Variance Extracted (AVE), Fornell-Larcker Criterion, and HTMT ratio, according to the reliability and validity evaluations, demonstrating the measuring

model's suitability. Additionally, the higher-order construct that represents Behavioural Finance Factors showed respectable validity and reliability, indicating that it is appropriate for additional investigation. Additionally, the SRMR values verified a strong overall model fit, and the VIF values were within the allowed range, suggesting the lack of multicollinearity problems.

The results of the structural model show that personality qualities have a considerable impact on Behavioral Finance Factors, with extraversion showing the highest effect of all the personality components. Investment decision-making was found to be significantly positively impacted by behavioral finance factors, underscoring the crucial role that behavioral biases play in influencing investor behavior. The R^2 values show that while behavioral finance factors significantly contribute to the explanation of investment decision-making behavior, personality qualities account for a considerable amount of variance in these factors. Overall, the results highlight the importance of psychological and behavioral elements in financial decision-making

and support the study's goals by showing that investor personality traits indirectly affect investment decisions through behavioral finance issues.

Conclusion

This study looked at how personality qualities affect behavioral finance elements and how those factors affect investment decisions. The results show that investors' behavioral patterns, which in turn influence their investment decisions, are significantly shaped by personality traits. Extraversion was shown to be the personality dimension that had the greatest impact on behavioral finance variables, and behavioral finance factors were found to have a significant positive impact on investment decision-making. These findings demonstrate that underlying psychological and behavioral elements have an impact on investment decisions in addition to

financial ones.

The study offers empirical support for the mediating function of behavioral finance elements between personality traits and investment decision-making and further validates the applicability of behavioral finance theory in understanding investor behavior. The suggested framework is strong and appropriate for comprehending investor choice behavior, according to the satisfactory reliability, validity, and model fit outcomes. Overall, by showing how investor personality traits affect behavioral biases, which in turn influence investment decision-making, the study adds to the expanding corpus of behavioral finance studies. The results could help investors, financial planners, and legislators create plans that take behavioral and psychological factors into consideration when making financial decisions.

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