Journal of Accounting, Entrepreneurship, and Financial Technology (JAEF) p-ISSN: 2686 - 4479
Volume 08, Number 01, October 2026 e-ISSN: 2686 - 5505

Understanding the Formation of Irrational Financial Behavior in Stock Investment Decisions

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Abstract: By addressing the fundamental psychological biases that affect investors, this study seeks to understand how irrational financial behavior manifests in stock investment decisions. Data were collected quantitatively using questionnaires with 20 attribute statements, and Exploratory Factor Analysis (EFA) was used to analyze the results, with 263 stock investors as respondents. The findings suggest that seven factors, including anchoring bias, familiarity bias, risk aversion bias, representativeness bias, overconfidence, conservatism bias, and loss aversion, can be used to classify illogical financial behavior. The results show that investors' decisions are heavily impacted by cognitive and emotional biases rather than being entirely rational. Familiarity bias indicates a preference for well known investments, while anchoring and conservatism biases reflect reliance on historical data. Overconfidence and representativeness reflect subjective judgments and beliefs about one's own abilities, while risk aversion and loss aversion emphasize emotional reactions to potential losses. These biases influence investors' perceptions of risk, information processing, and decision making. By providing empirical evidence of the multifaceted nature of irrational behavior in stock investment decisions, this study contributes to behavioral finance. The results also have useful implications for improving investor knowledge and financial literacy, especially regarding identifying and mitigating behavioral biases.

Keywords: investment decision, irrational behavioral finance, exploratory factor analysis, psychological biases

Received: *17 April 2026,* ***Revised:*** *2 August 2026,* ***Accepted:*** *6 September 2026*

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INTRODUCTION

The capital market is essential to promoting economic growth. This makes it easier for investors to allocate their money to profitable industries. The number of retail investors in Indonesia has increased significantly, driven by the rapid development of the country's stock market, especially among younger generations. Technological developments, financial inclusion programs, and improved access to internet trading platforms have all contributed to this expansion. Alongside this growth, concerns have surfaced about the quality of investment choices made by private investors, many of whom lack adequate financial knowledge and expertise (Otoritas Jasa Keuangan, 2024). However, because many investors rely more on unofficial information sources and limited understanding than on thorough financial analysis, increased retail investor participation also raises questions about decision making quality (Yudhistira & Dalimunthe, 2025).

Conventional financial theories, such as the Efficient Market Hypothesis (EMH), assume that investors absorb information and make investment decisions rationally (Memarista et al., 2026). However, recent behavioral finance research indicates that psychological biases, rather than rational factors alone, frequently influence investor decisions. Behavioral finance emphasizes that cognitive biases such as overconfidence, herding, and loss aversion significantly affect investment decisions. It does this by combining knowledge from psychology and economics to explain departures from rational behavior (Asbaruna et al., 2023).

Irrational financial behavior in stock investing can take many forms, such as social influence, heuristic driven decisions, and emotional reactions. Empirical data from Indonesia demonstrate that heuristics, market information, and herding behavior positively influence individual investment decision making, suggesting that investors' behavior is not entirely rational (Usman et al., 2023). These results support the claim that behavioral and psychological factors significantly influence investment choices in emerging economies.

Furthermore, new research shows that Indonesian retail investors are particularly prone to biases such as loss aversion, mental accounting, and overconfidence. These biases may lead to suboptimal investment methods, excessive trading, and vulnerability to market anomalies. Behavioral biases significantly affect investment decisions, and demographic characteristics further moderate these effects, according to research on Indonesian retail investors (Ishfaq et al., 2020). In the digital age, irrational investment tendencies are further reinforced by new behavioral factors like FOMO (Przybylski et al., 2013).

Therefore, understanding how irrational financial behavior manifests in stock

investment decisions is crucial, especially in Indonesia, where the share of retail investors continues to grow. Behavioral finance provides a useful framework for understanding the psychological and cognitive factors that influence investor behavior. This study aims to improve financial education, investment strategies, and regulatory frameworks by analyzing these characteristics to encourage logical decision making and strengthen market stability (Asbaruna et al., 2023). Given retail investors' growing influence on market dynamics, understanding these behavioral patterns is more crucial than ever.

Behavioral finance continues to challenge the notion of rational investors. Investors often rely more on emotions and mental shortcuts than on objective analysis. Emotional and cognitive biases, including herding, loss aversion, and overconfidence, significantly skew market outcomes and investment decisions (Jaber, 2025). This suggests that irrational financial conduct is persistent and increasingly significant, especially given the growth of retail investors in developing economies.

Anchoring bias remains a major factor influencing investment decisions. Because investors frequently rely on initial price information, valuation is distorted and irrational holding behavior results. Studies show that anchoring leads investors to hold losing assets because they are more attached to the original purchase price than to current fundamentals (Gao, 2023). As a result, investors may not adjust their expectations in response to new market information.

Familiarity bias contributes to under diversification, particularly among retail investors (Ahmad, 2020; Ishfaq et al., 2020). Concentration risk arises from investors' tendency to invest in familiar assets. Digital platforms reinforce investors' preference for well known stocks, where information exposure is uneven. As a result, investors may miss out on potentially lucrative opportunities outside their comfort zone.

Representativeness bias causes investors to overreact to current trends because they believe past performance predicts future returns. Representativeness bias strongly influences investment choices, especially for individual investors who rely on basic pattern recognition (Itzkowitz & Itzkowitz, 2017). One of the most studied behavioral biases is overconfidence (Memarista, 2016a). Overconfidence substantially affects financial markets, as shown by its large effects on trading volume, stock returns, and market liquidity. Overconfident investors often overestimate their predictive ability, leading to excessive trading and lower returns (Bouri et al., 2025).

Investor behavior is still dominated by heuristic driven decision making. Availability, representativeness, and anchoring biases influence investment decisions, particularly among

millennial investors (Murhadi, 2024). This suggests that heuristic bias remains a major driver of irrational financial behavior in contemporary markets. These mental shortcuts can make difficult financial decisions easier to understand, but they can also lead to less accurate decisions.

One of the main emotional biases influencing investment behavior is loss aversion. Investors are more sensitive to losses than to gains, leading them to make less than ideal choices, such as avoiding risk and holding onto losing assets. All investment groups exhibit the same behavior (Memarista, 2022). This propensity may undermine long term investment performance and impede portfolio optimization.

Uncertainty often increases risk aversion, particularly during market volatility. Behavioral studies suggest investors are overly risk averse, leading to cautious investment strategies and missed opportunities for higher returns (Ahmad, 2020). This prejudice is especially noticeable among novice investors. In times of market uncertainty, their lack of investment expertise often heightens perceived risk.

Emotional bias still heavily influences financial decision making. According to recent research, emotions such as fear and greed significantly influence trading behavior and often take precedence over logical reasoning (Raheja & Dhiman, 2020). Emotional responses to market fluctuations partly cause irrational investment patterns and volatility. During periods of market stress, these emotional responses may lead to excessive buying or selling.

Herding is still common, especially in developing nations. Rather than depending on independent analysis, investors typically follow peer or market trends. Herding significantly reduces market efficiency and increases volatility, particularly during periods of uncertainty (Ah Mand et al., 2023; Memarista & Prasetio, 2025). Such behavior may contribute to asset mispricing and the formation of speculative market bubbles.

Based on the literature review, this study suggests that several behavioral biases significantly influence investors' irrational financial behavior when making stock investment decisions (Yunus & Tanesia, 2026). Loss aversion may lead investors to resist realizing losses and hold losing equities longer than is prudent (Gupta & Shrivastava, 2022; Memarista, 2022). Instead of conducting thorough evaluations, investors may rely too heavily on readily available information due to availability and representativeness biases (Itzkowitz & Itzkowitz, 2017; Murhadi, 2024). Representativeness bias may encourage investors to form opinions based on historical trends or preconceptions that may not accurately predict future market conditions. Overconfidence can lead investors to overestimate their knowledge and abilities, resulting in less than ideal choices (Bouri et al., 2025; Budiman et

al., 2025; Rabbani et al., 2024). Meanwhile, when assessing investment prospects, investors may overrely on preliminary data or references because of anchoring bias (Murhadi, 2024). These biases can skew rational decision making and increase the likelihood that investors will act irrationally.

Despite the growing behavioral finance literature, a significant gap remains in understanding the underlying structure of irrational financial behavior among Indonesian retail investors. Prior research has mostly examined preconceived links between specific biases and financial choices or treated behavioral biases in isolation. Few studies have empirically examined how indicators linked to loss aversion, availability bias, representativeness bias, overconfidence, and anchoring cluster among Indonesian retail investors, even though the literature discusses these biases extensively (Adhytya & Rafik, 2026; Cuandra et al., 2025; Murhadi, 2024). Given the quick rise in retail investor involvement and the growing availability of digital investing platforms, which may expose investors to a variety of information sources and behavioral factors, this study's challenge is more pertinent.

As a result, this study does not assume that the five theoretically established biases form a fixed or preconceived factor structure. Instead, Exploratory Factor Analysis (EFA) examines the underlying structure of these indicators and identifies the latent dimensions that emerge from the empirical data (Bouri et al., 2025; Deka et al., 2023). These five biases provide an initial theoretical foundation for selecting relevant behavioral indicators. Using an exploratory approach, the study aims to better understand the structure of irrational financial behavior among Indonesian retail investors and to add empirical data to the behavioral finance literature in emerging markets.

METHOD

Population and Sample

The study's population consisted of Indonesian stock investors who actively trade on the Indonesia Stock Exchange (IDX) and hold a Single Investor Identification (SID). To ensure respondents met the predetermined requirements, the study used purposive sampling. Of the 300 responses initially collected, 263 met the eligibility requirements and were retained for further analysis. Individual stock investors holding a Securities Sub Account registered under their own Single Investor Identification (SID) at KSEI (Kustodian Sentral Efek Indonesia) were eligible to participate. Because respondents admitted using their parents' or husbands' securities accounts and SIDs for investment

activity, the remaining 37 responses were disqualified. As a result, these respondents did not meet the study criterion that the investment account and SID be registered under the individual respondent. As a result, the final dataset included 263 qualified respondents.

Data Collection and Measurement Instrument

This study used a quantitative methodology and used Google Forms to distribute an online survey to participants. The study assessed 20 statements on the development of irrational financial behavior in stock investment decisions using a 5 point Likert scale, ranging from strongly disagree (1) to strongly agree (5). These characteristics were designed to capture factors that might influence how stock investors exhibit irrational financial behavior when making investment decisions. The researchers developed a structured questionnaire by adapting measurement instruments from prior studies, including (Asbaruna et al., 2023; Ishfaq et al., 2020; Usman et al., 2023; Yudhistira & Dalimunthe, 2025). To ensure the measurement tools produced precise and reliable data, the study also conducted validity and reliability tests.

The study investigated five behavioral biases. First, loss aversion reflects investors' tendency to prioritize preventing losses over potential gains. Four indicators, fear of losses, risk avoidance, discomfort with dropping investment values, and the desire to protect asset value, were used to quantify loss aversion (attribute code 01-04) (Gupta & Shrivastava, 2022; Memarista, 2022). Second, availability bias refers to investors basing their decisions on readily available information (Asbaruna et al., 2023; Kahneman & Tversky, 1979). We used preferences for local stocks, confidence in local investments, reliance on information from close friends, and reliance on easily accessible information to quantify availability bias (attribute code 05-08) (Ahmad, 2020; Jaber, 2025). Third, representativeness bias refers to investors' tendency to assess stocks based on historical patterns and popularity (Ishfaq et al., 2020). We used preferences for well known stocks, avoidance of underperforming stocks, preference for high performing stocks, and reliance on technical analysis to gauge representativeness bias (attribute code 09-12). Fourth, overconfidence reflects an investor's confidence in their own skills and expertise (Memarista, 2016a, 2022). We used perceptions of superior investment performance, prediction skills, investing experience, and knowledge of stock price movements to gauge overconfidence (attribute code 13-16). Lastly, anchoring bias is the tendency to base financial judgments primarily on initial or prior data (Gao, 2023). We used reliance on past stock performance, past prices, holding behavior based on historical values, and prior prices as benchmarks to quantify anchoring bias (attribute code

17-20). Table 1 summarizes the components to give a clear picture of the operational variables in this investigation.

Table 1 Variables Operationalization

Construct	Attribute	Indicator
Loss Aversion Bias	AT1	Fear of losses relative to gains
	AT2	Avoidance of high risk investments
	AT3	Discomfort with declining investment values
	AT4	Desire to retain asset value
Availability Bias	AT5	Preferences for accessible information on local stocks
	AT6	Greater trust in local investments
	AT7	Reliance on information from close friends and family
	AT8	Dependence on readily available information
Representative Bias	AT9	Preference for well known stocks
	AT10	Avoidance of underperforming stocks
	AT11	Preference for well performing stocks
	AT12	Reliance on technical analysis
Overconfidence Bias	AT13	Belief in superior investment performance over others
	AT14	Confidence in the ability to predict profitable stocks
	AT15	Perceived superior investment experience
	AT16	Belief in superior knowledge of stock price movements
Anchoring Bias	AT17	Influence of past stock performance
	AT18	Belief that past prices predict future profits
	AT19	Holding stocks relative to historical values
	AT20	Using past prices as benchmarks for target prices

Source: (Asbaruna et al., 2023; Gupta & Shrivastava, 2022; Ishfaq et al., 2020)

Research Design

Factor analysis is a versatile statistical method for investigating the underlying causes of investment choices. Condensing a large number of observed variables (attribute statements) into a smaller, more manageable set of representative elements helps identify latent components within behavioral processes. While preserving crucial information, this data reduction technique helps identify potential correlations between variables. The extraction technique used is Principal Component Analysis (PCA), which effectively combines variables with minimal information loss and captures significant, otherwise concealed, components. Because each component maximizes explained variance and remains

uncorrelated with the others, PCA yields distinctive and reliable results. Consequently, no additional weighted combination of the variables in the dataset can replicate the structure formed by the extracted components. The factor analysis model in this study can therefore be formally expressed using the following equation:

$$X_j = \alpha_{j1}F_1 + \alpha_{j2}F_2 + \ldots + \alpha_{jp}F_p + \delta_j \quad (1)$$

$$\delta_j = \mu_j + \upsilon_j \quad (2)$$

$$\dot{F}_p = b_{p1}X_1 + b_{p2}X_2 \ldots + b_{pq}X_q \quad (3)$$

Note:

X_j is the attribute statement j

α_{jp} is the loading coefficient of statement j on the latent factor p

F_p is a latent common factor p

δ_j is the unexplained variance in statement j

υ_j is a random error for statement j

μ_j is the unique variance of statement j

$\dot{F}_p$ is the estimated score of factor p

b_{pq} is a weight assigned to variable q in forming the factor score p

X_q is the number of observed variables

RESULTS

This study presents the survey results from 263 respondents. Demographic criteria describe respondents' characteristics and support the discussion. Male respondents made up the majority of the sample (64%), and 39% were younger than 30. Most respondents (55%) had a bachelor's degree, and 38% earned between Rp 500 million and Rp 5 billion a year. These demographic traits offer crucial background information for understanding the study's behavioral trends.

The data used in this study are both valid and reliable, as indicated by the validity and reliability tests. Significant Pearson correlation values ($p < .050$) confirm each attribute's validity. Additionally, the Cronbach's Alpha score of .798 indicates strong internal consistency and exceeds the acceptable threshold of .600. As a result, each attribute item is

suitable for measuring the fundamental elements examined in this study.

Table 2 KMO and Bartlett's Test

Kaiser Meyer Olkin Measure of Sampling Adequacy.		.695
Bartlett's Test of Sphericity	Approx. Chi Square	2309.269
	df	190
	Sig.	.000

Table 2 reports the KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity, which assess whether factor analysis is appropriate for the variables' correlation matrix. The sample is sufficient for factor analysis because the KMO value of .695 exceeds the minimum threshold of .500. Additionally, Bartlett's Test of Sphericity shows a significance level of .000, which is below .050, confirming that the variables are sufficiently correlated to proceed with further analysis. As a result, factor analysis is appropriate for the data.

To assess a variable's eligibility for component analysis, the Measure of Sampling Adequacy (MSA) evaluates the degree of intercorrelation among variables (Memarista, 2016b). According to Table 3, all variables have MSA values greater than .500. All 20 attribute statements are suitable for incorporation into the factor analysis procedure, as they indicate that each variable is significantly correlated with the others. As a result, the dataset meets the prerequisites for doing an exploratory factor analysis.

Table 3 Measures of Sampling Adequacy (MSA)

Attribute	Value	Attribute	Value	Attribute	Value	Attribute	Value
AT1	.604	AT6	.770	AT11	.592	AT16	.577
AT2	.675	AT7	.791	AT12	.657	AT17	.797
AT3	.577	AT8	.757	AT13	.565	AT18	.846
AT4	.670	AT9	.633	AT14	.535	AT19	.780
AT5	.696	AT10	.593	AT15	.557	AT20	.779

The Total Variance Explained in Table 4 presents the number of component factors retained in this study. This step is crucial in factor analysis, as it determines the underlying structure and relationships between variables and factors by applying Principal Component Analysis (PCA) to the correlation matrix. A factor is retained if it has an eigenvalue greater than or equal to 1. The number of rows shown in the Extraction Sums of Squared Loadings

represents the number of components preserved. Based on the 20 attribute statements, this study extracted 7 new components. The results indicate that the retained factors have initial eigenvalues greater than 1, supporting their selection.

Table 4 Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Var	Cum %	Total	% of Var	Cum %	Total	% of Var	Cum %
1	4.360	21.801	21.801	4.360	21.801	21.801	3.253	16.265	16.265
2	2.530	12.649	34.450	2.530	12.649	34.450	2.802	14.008	30.273
3	2.251	11.257	45.708	2.251	11.257	45.708	2.096	10.480	40.753
4	1.969	9.845	55.553	1.969	9.845	55.553	1.958	9.790	50.543
5	1.584	7.920	63.473	1.584	7.920	63.473	1.786	8.928	59.471
6	1.056	5.280	68.753	1.056	5.280	68.753	1.687	8.436	67.907
7	1.039	5.197	73.950	1.039	5.197	73.950	1.209	6.044	73.950
8	.893	4.464	78.414						
9	.628	3.142	81.556						
10	.599	2.997	84.553						
11	.533	2.664	87.217						
12	.446	2.228	89.445						
13	.396	1.978	91.423						
14	.337	1.685	93.108						
15	.293	1.466	94.575						
16	.265	1.327	95.902						
17	.247	1.236	97.138						
18	.226	1.131	98.269						
19	.203	1.013	99.282						
20	.144	.718	100.000						

Extraction Method: Principal Component Analysis.

From the 20 attribute statements, this study identified seven new factor groupings, as shown in Table 5. The factors retained are suitable for inclusion, as their total initial eigenvalues exceed 1. 16.265% (New Factor01), 14.008% (New Factor02), 10.480% (New Factor03), 9.790% (New Factor04), 8.928% (New Factor05), 8.436% (New Factor06), and 6.044% (New Factor07) are the percentages of variance explained by each factor. New Factor01 is the most significant factor in understanding the development of irrational

financial behavior in stock investment decisions, as it accounts for the largest share of the variance. All told, these seven factors account for 73.950% of the variance, leaving 26.050% unaccounted for.

Table 5 Rotated Component Matrix[a]

Attributes	Component						
	1	2	3	4	5	6	7
AT1							.651
AT2			.756				
AT3			.852				
AT4			.770				
AT5		.849					
AT6		.843					
AT7		.665					
AT8		.813					
AT9							.662
AT10				.838			
AT11				.869			
AT12							
AT13					.866		
AT14					.877		
AT15						.721	
AT16						.848	
AT17	.873						
AT18	.862						
AT19	.906						
AT20	.886						

Notes: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
[a] Rotation converged in 15 iterations.

Table 5 shows the distribution of attribute statements across the seven components, with rotation converging after 15 rounds. This study used Kaiser Normalization with Varimax rotation to provide a clearer, more transparent structure. For the detected attributes, Varimax produces a new pattern of factor loadings, but the overall proportion of variance explained by each component remains constant. This rotation improves each component's clarity and interpretability by reducing high loadings across multiple variables. The analysis thus produces seven factors, arranged by each variable's highest factor loading.

Because all of item AT12's loadings across the extracted components were around .100 - .400, below the designated minimum loading threshold, and were thus suppressed in the SPSS output, it did not display a factor loading in the Rotated Component Matrix. This suggests that AT12 did not load sufficiently on any extracted component to be a significant factor. The remaining items with sufficient factor loadings were retained for further analysis, while AT12 was excluded from subsequent factor construction and interpretation.

The investigation extracted seven fundamental factors. The factor loadings indicate how each original variable contributed to its corresponding component, and the components were arranged in order of each attribute's highest factor loading. According to the results, attributes 17, 18, 19, and 20 make up Factor 01; attributes 05, 06, 07, and 08 make up Factor 02; attributes 02, 03, and 04 make up Factor 03; attributes 10 and 11 make up Factor 04; attributes 13 and 14 make up Factor 05; attributes 15 and 16 make up Factor 06; and attributes 01 and 09 make up Factor 07. Overall, the research effectively separated the original 20 variables, or attribute statements, into seven factor groupings.

According to the study's findings, creating new variables is both feasible and supported by empirical evidence. This study's main goal was to understand how irrational financial behavior manifests in stock investment decisions. Unlike earlier research, this study used Exploratory Factor Analysis (EFA) to examine manifest variables (attribute statements) and derive new factors that align with the study's goals. The researchers identified seven new criteria that distinguish the results from previous studies.

Seven factors were taken out of the initial set of twenty attribute statements by the EFA. The final factor structure did not match the behavioral biases' original theoretical classification. Because all four elements in Factor 1 (AT17-AT20) reflect the use of prior stock prices and past performance as benchmarks in investment decisions, it is interpreted as Anchoring Bias. The items in Factor 2 (AT5-AT8) are interpreted as Familiarity Bias because they jointly indicate preferences for easily accessible, local investment information and dependence on information from well known social networks. The items in Factor 3 (AT2-AT4) are interpreted as Risk Aversion Bias because they show a desire to maintain asset value, discomfort with declining investment values, and avoidance of high risk investments. Because both items reflect assessments based on recent stock performance, Factor 4 (AT10-AT11) represents Representativeness Bias. AT13-AT14 make up Factor 5, which represents Overconfidence Bias and reflects investors' confidence in their ability to make profitable stock predictions. AT15-AT16 make up Factor 6, which is considered conservatism. This bias stems from the items' dependence on prior investment knowledge

and experience when assessing changes in stock prices. Lastly, AT1 and AT9 make up Factor 7, which is read as Loss Aversion Bias. However, AT9 should be taken cautiously because its focus on well known equities may theoretically overlap with familiarity. These results reveal that investors' irrational financial behavior may be multidimensional and that certain behavioral indicators may overlap across theoretically defined constructs because the observed indicators do not precisely replicate the original theoretical five bias structure.

DISCUSSION

The discovery of seven factors is significant because it suggests that Indonesian retail investors' irrational financial conduct may be more complex than the traditional five bias classification implies. Based on earlier behavioral finance studies, the original five bias frameworks create loss aversion, availability, representativeness, overconfidence, and anchoring that offers a theoretically validated classification. Nevertheless, the EFA results show that the observed behavioral indicators do not fully replicate this predefined structure. Anchoring, familiarity, risk aversion, representativeness, overconfidence, conservatism, and loss aversion are the seven empirically identifiable dimensions that the indicators formed instead. This result implies that, among Indonesian retail investors, some behavioral characteristics become more distinct. Specifically, familiarity, risk aversion, and conservatism emerged as separate dimensions that the original five bias framework did not adequately capture. The results show how investors' reliance on preexisting knowledge, risk perceptions, prior investment experience, and preferences for local information shape their financial behavior.

The development of the seven factor structure offers a more sophisticated understanding of how Indonesian retail investors exhibit irrational financial behavior. These results imply that behavioral indicators may be arranged differently when analyzed experimentally in the context of Indonesian investors, rather than replacing the initial five bias framework. Thus, the discussion that follows examines each of the seven extracted factors, emphasizing the conceptual similarity of the items within each factor, their theoretical interpretation, and their connection to the behavioral biases found in earlier research.

Factor 1 illustrates anchoring bias, which occurs when investors base their judgments primarily on past benchmarks. Factor 1 consists of these factors: the impact of past stock performance (.873), the belief that past prices predict future profits (.862), the propensity to hold stocks despite price declines relative to historical values (.906), and the use of past

prices as benchmarks for target prices (.886). This aspect includes the impact of prior stock performance, the belief that past prices can forecast future profits, the tendency to hold equities despite declines relative to historical levels, and the use of prior prices as benchmarks for target prices (Ishfaq et al., 2020). These actions show that investors base their decisions on past price levels, which may make it harder for them to react impartially to new market data.

Factor 2 represents familiarity bias, a predilection for investments that are easier to understand or more familiar. Factor 2 comprises the following factors: preference for local stocks due to easily accessible information (.849), increased trust in local investments (.843), reliance on information from close friends and family (.665), and decision making based on readily available information (.813). This element involves relying on information from close friends and family, making decisions based on readily available information, preferring local equities for easier access, and having greater confidence in local investments. This suggests that investors often choose options within their comfort zone, missing out on better but less well known opportunities (Asbaruna et al., 2023).

Factor 3 captures risk aversion bias, in which investors prioritize safety over potential gains. Factor 3 consists of avoidance of high risk investments despite high returns (.756), discomfort with declining investment values (.852), and a desire to retain asset value (.770). It includes a strong desire to maintain asset value, discomfort with declining investment values, and avoidance of high risk investments despite the potential for higher returns (Ahmad, 2020; Yao & Rabbani, 2021). This suggests that investors are more likely to limit losses than to maximize gains, which could lead to overly cautious investment decisions.

Factor 4 illustrates representativeness bias, which occurs when investors base their decisions on recent performance or observable trends. Factor 4 consists of avoiding underperforming stocks, as they are expected to continue declining (.838), and favoring well performing stocks, on the assumption that they will continue to grow (.869). This component comprises the inclination to select high performing stocks on the presumption that their strong performance will continue, as well as the avoidance of underperforming companies on the anticipation that they will continue to deteriorate. As such, investors may overgeneralize historical trends without considering fundamental research (Jaber, 2025).

Overconfidence bias, or overestimating one's own skills and judgment, is represented by factor 5. Factor 5 comprises their investment performance being superior to others' (.866) and their confidence in their ability to predict profitable stocks (.877). This aspect includes confidence in their ability to find successful stocks and the conviction that their

investment performance is better than others' (Memarista, 2016a). As a result, investors may take excessive risks or underestimate market uncertainty.

Conservatism bias, in which investors rely on preexisting assumptions and underreact to new information, is captured by factor 6. Factor 6 comprises the perception of having superior investment experience (.721) and the belief in their superior knowledge of stock price movements (.848). This characteristic includes perceiving greater investment expertise and believing one is more knowledgeable about stock price changes (Usman et al., 2023). These tendencies may lead investors to hold outdated views despite new evidence.

Loss aversion is seen in factor 7, where investors react more emotionally to losses than to wins. Factor 7 consists of fear of losses relative to gains (.651) and Preference for well known stocks (.662). This aspect includes a preference for well known stocks as a safer option and a greater fear of losses than of gains. This suggests that investors are more driven to avoid losses than to seek profits, which could lead to more cautious and less varied investment practices (Hristov et al., 2023).

Together, the seven elements identified by the EFA provide an empirical depiction of the behavioral inclinations reflected in respondents' investment choices. The factor specific discussion shows that while some extracted factors represent more distinct or specific behavioral tendencies not separated in the original five bias categorization, others closely match the behavioral biases in the original theoretical framework. These results suggest that different investor groups and contextual circumstances may exhibit behavioral biases in different ways. Given its conceptual significance, contribution, and implications for understanding irrational financial behavior among Indonesian retail investors, the seven factor structure merits further examination in relation to the original theoretical framework.

Therefore, the seven factor structure should be viewed as an exploratory empirical modification of the existing five bias paradigm rather than as a substitute for it. While the EFA shows how these indicators are empirically arranged in the current sample, the original framework remains a useful theoretical basis for identifying relevant behavioral indicators. Behavioral biases may not always function as distinct categories across populations and circumstances, as the discrepancy between the theoretical and empirical frameworks suggests. While some behavioral tendencies may manifest as more distinct characteristics across investor groups, others may overlap conceptually. Thus, by offering a preliminary empirical depiction of irrational financial behavior among Indonesian retail investors, the seven factor structure adds to the body of knowledge. However, because EFA was used to

determine the structure, the resulting factors should be considered exploratory and further investigated and verified in future studies using independent samples and confirmatory factor analysis.

It is crucial to stress that the seven factor structure found in this study does not indicate causal linkages; rather, it indicates the correlational structure among the observed behavioral markers. The factor loadings show that items within each factor share similar patterns of association. Still, they don't show how one behavioral bias influences or causes another behavioral bias or investment decision making. As a result, interpret the results as an exploratory account of respondents' empirical organization of behavioral markers. Future studies may examine the stability of the revealed factor structure using confirmatory, longitudinal, or experimental methods. Future research may also explore causal links between behavioral factors and investment decision making.

Conclusion, Limitations, and Suggestions

By examining the underlying psychological biases that drive investors, this study seeks to understand how irrational financial behavior develops in stock investment decisions. The results show that irrational financial conduct can be categorized into seven components using Exploratory Factor Analysis (EFA) of 20 attribute statements: anchoring bias, familiarity bias, risk aversion bias, representativeness bias, overconfidence, conservative bias, and loss aversion. These results provide empirical evidence that multiple behavioral biases influence stock investors' decisions.

The findings show that investors don't always behave rationally, as cognitive and emotional biases significantly affect their choices. This includes reliance on prior knowledge (anchoring and conservatism), emotional reactions to risk and uncertainty (risk aversion and loss aversion), and subjective judgment and confidence (overconfidence and representativeness). Each identified factor represents a distinct aspect of irrationality. By providing empirical evidence that multiple biases simultaneously influence stock investment decisions, particularly among Indonesian investors, these findings contribute to behavioral finance.

Despite its merits, this study has several shortcomings. First, the study relies on self reported data collected via questionnaires, which may be subject to social desirability and response bias. Second, because the factor structure is data driven and may vary across samples or settings, using exploratory factor analysis limits the generalizability of the results. Third, the study may not accurately reflect the broader population of stock market

participants because it focuses on a specific subset of investors. Fourth, it is difficult to determine the true impact of these biases on financial outcomes because the study does not examine the causal linkages between the identified characteristics and actual investment success.

To improve generalizability, future studies should use Confirmatory Factor Analysis (CFA) to evaluate the observed factor structure and include larger, more diverse sample sizes. To better understand how these biases affect investment decisions over time and across different market conditions, longitudinal or experimental approaches are also advisable. Further insights may come from examining the link between these behavioral biases and actual investment success. By incorporating behavioral finance into financial education programs, practitioners can help investors identify and mitigate biases such as loss aversion, anchoring, and overconfidence. To support more logical investment decision making, financial institutions and regulators should also encourage clear, easily accessible information.

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