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DOES RISK PROPENSITY INFLUENCE INVESTMENT DECISION BIAS?: AN EXPLORATORY STUDY ON INDONESIAN STOCK EXCHANGE INVESTORS

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Abstract

This study aims to analyze the influence of risk propensity on various cognitive biases in investment decision-making among investors in Indonesia. The research method uses a quantitative and exploratory approach with questionnaires distributed to 110 individual investors. The results of the study show that risk propensity has a significant positive influence on belief perseverance bias and information processing bias. Furthermore, the study found that risk propensity is also associated with several dimensions of cognitive bias, such as conservatism bias, confirmation bias, representativeness bias, and cognitive dissonance bias. However, the influence of risk propensity was not significant on illusion of control bias, self-attribution bias, and outcome bias. These findings provide important implications for investment management firms in identifying clients' risk profiles to help them overcome cognitive biases in investment decision-making.

Keywords: decision bias, risk propensity, investor

INTRODUCTION

In the field of investment, decision-making plays a vital role and is influenced by a wide range of factors. These decisions are shaped not only by rational analysis of market data and information but also by psychological and social influences. A key element in this process is the ability of financial investment consultants to understand their clients' risk tolerance, enabling them to offer advice on investment options that align with the clients' capacity to bear risk (Wahl & Kirchler, 2020). However, assessing an investor's risk tolerance presents a significant challenge, as it involves psychological traits that are not directly observable (Yao & Curl, 2011).

Several studies in recent years have revealed a link between risk propensity and cognitive biases in investment decision-making. These studies provide both theoretical and empirical foundations for understanding the complex relationship between individual psychological traits and financial behavior. For example, Abdin et al. (2022) found that the illusion of control bias has a direct influence on risk propensity, which in turn affects investment performance. Their study indicates that an individual's overconfidence in their ability to control investment outcomes can lead to a greater willingness to take on risk. In a study by Gulzar and Ali (2023), it was demonstrated that anchoring, availability, self-control, illusion of control, and representativeness biases have a negative impact on investment decisions. Only overconfidence bias was found to have a positive influence. Additionally, emotional stability was shown to moderate the relationship between cognitive biases and investment decisions — with the exception of representativeness bias.

On the other hand, a study on bias in the banking sector conducted by Dimitriadou (2024) found that underreaction is more prevalent than overreaction in the context of banks responding to exchange rate news. Investors or banks tend to be slow in reacting to new information, such as exchange rate announcements, resulting in minimal changes to investment decisions or hedging strategies.

A study by Hussain et al. (2023) examined the relationship between availability bias and anchoring bias on investment decisions, with risk propensity serving as a mediating variable. The findings revealed that risk propensity significantly mediates the influence of these biases on the investment behavior of retail investors. In a separate study, Combrink and Lew (2019) investigated the effects of overconfidence and potential underdog bias on investors' risk propensity. Their research found that overconfident investors tend to exhibit higher levels of risk propensity, which in turn leads to more aggressive investment decisions.

Ahmed et al. (2022) also highlighted that risk perception and risk propensity play a crucial role in mediating the relationship between cognitive biases and investment decisions. Their study underscores the importance of understanding internal factors such as risk propensity, particularly in the context of investor education and training. Furthermore, a study by Rastogi et al. (2022), which explored AI-assisted decision-making through experimental methods, revealed that biases such as confirmation bias and anchoring remain highly prevalent in high-risk situations — especially among individuals with high risk propensity.

Furthermore, studies from various countries have reinforced the relationship between risk propensity and cognitive biases. For example, research by Cao et al. (2021) in Vietnam concluded that behavioral factors have a significant impact on individual investors' decision-making and investment performance in the Vietnamese stock market. Similarly, a study by Abideen et al. (2023) conducted in Pakistan evaluated how financial biases such as hindsight and self-attribution influence investment behavior. The findings revealed that the impact of these biases becomes significantly stronger among individuals with high risk propensity.

Building upon the previous studies discussed, this research aims to analyze the influence of risk propensity on cognitive biases in investment decision-making. Additionally, it seeks to identify the most dominant cognitive biases that emerge as a result of varying levels of risk propensity among investors in Indonesia.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Risk propensity refers to an individual's tendency to take risks in uncertain situations (Islam et al., 2024). In the Nepalese stock market, Sitaula and Uprety (2024) conducted a study in which four bias-related variables—*overconfidence, loss aversion, risk perception, and risk tolerance*—were positioned as independent (predictor) variables that directly influence investment decisions. The study examined these influences through direct testing, rather than treating the variables as mediators of one another. *Risk propensity* and psychological factors—such as *overconfidence* and *loss aversion*—have been shown to significantly influence investment decisions, with *overconfidence* emerging as the dominant factor (Sitaula & Uprety, 2024). Although Sitaula and Uprety (2024) did not explicitly examine *risk propensity* as a measurable variable, the concept serves as a theoretical foundation for understanding how psychological biases impact investment decision-making. *Risk propensity* is closely related to biases such as *overconfidence*, which leads investors to become overly self-assured and more willing to make high-risk decisions. Conversely, *loss aversion* reflects the opposite side of *risk propensity*, in which investors are overly averse to losses and tend to adopt a

more conservative approach. Based on the study by Sitaula and Uprety (2024), it can be concluded that *risk propensity* may be understood as the outcome or expression of a combination of cognitive and affective biases that shape an individual's investment behavior patterns.

Theoretically, there are several types of biases in investment decision-making, including:

1. *Belief Perseverance Bias* - refers to an individual's tendency to irrationally and illogically maintain their initial beliefs. In this context, investors persist in holding onto and justifying their convictions due to bias toward their own beliefs and abilities (Pompian, 2012). This concept is discussed in detail in Pompian's book (2012). Based on the above explanation, the proposed hypothesis is: H1: Risk Propensity has a positive influence on Belief Perseverance Bias. Belief perseverance bias can be divided into several sub-biases, namely:
    a. *Conservatism Bias* - This is a type of *belief perseverance bias* in which individuals tend to cling to their initial beliefs or predictions and are less responsive to new information. This bias leads a person to place more trust in initial information while ignoring or being slow to react to conflicting data that emerges later, even when, from a rational standpoint, they should be updating their views and beliefs. H1a: *Risk Propensity* has a positive influence on *Conservatism Bias*.
    b. *Confirmation Bias* - This is a form of *belief perseverance bias* in which individuals tend to seek out, focus on, and place greater trust in information that supports their existing beliefs, while ignoring or downplaying information that contradicts them. This bias reflects a pattern of selective perception, in which people are more easily convinced by what they already want to believe. However, Poletiek and Berndsen (2000) critiqued the classical definition of *confirmation bias*, which is commonly understood as the tendency to seek evidence that supports a hypothesis rather than refutes it. In their two experimental studies—in scientific and legal contexts—they found that individuals are often more inclined to maximize the *evidential value* of information. H1b: *Risk Propensity* has a positive influence on *Confirmation Bias*.

    c. *Representativeness bias* - This is a form of *belief perseverance bias* in which individuals tend to categorize new information based on past experiences or existing classifications, even when the information does not accurately fit the chosen category. In decision-making processes, this bias arises when a person uses an intuitive "best-fit" approach to interpret new data, which can ultimately lead to misinterpretation. In the context of investing, investors or *financial market participants* often place excessive emphasis on new or limited data samples, for example, the short-term performance of a fund manager. In addition, *representativeness bias* can also lead investors to simplify the classification of information in order to avoid the cognitive burden caused by complex data. For example, when there is a change in accounting reports that is difficult to interpret, investors may immediately conclude that the company's outlook is deteriorating and decide to sell the stock — even though such a decision is not fully supported by *fundamental analysis*. This is supported by research from *Hasan et al. (2023)*, which states that *representativeness bias* has a significant effect on *risk perception* and indirectly influences decision-making in investment. H1c: *Risk Propensity* has a positive influence on *Representativeness Bias*.

    d. *Illusion of control bias* - This is a form of *cognitive bias* in which individuals believe that they have control or influence over the outcome of an event, even though, objectively, they do not. This *false sense of control* can be reinforced by several factors such as task familiarity, active involvement, competition, and freedom of

choice. In the financial context, this bias can lead *market participants*, especially *investors* and *traders*, to engage in *excessive* trading due to the belief that they can control their investment outcomes. It can also result in *poor portfolio diversification* decisions. According to studies by Alruwaitea (2022) and Riasudeen et al. (2022), *illusion of control bias* and *overconfidence* were identified as significant moderators that strengthen the relationship between *risk perception* and *entrepreneurial intention*, thereby influencing the decision to start a new venture. However, this relationship was not mediated by *risk perception*. Meanwhile, Schütze, Schmidt, Spitzer, and Wichardt (2024) linked *risk propensity* to *sensation seeking*, showing that individuals with high *sensation seeking* scores are more willing to take risks. Their experiment revealed that participants with high levels of *sensation seeking* were more likely to purchase additional lottery tickets when they were allowed to choose the winning number themselves (*Choice treatment*) before the dice were rolled. This greater risk-taking behavior occurred before the realization of random outcomes and was especially pronounced among individuals with high *sensation seeking* levels. H1d: *Risk Propensity* has a positive influence on *Illusion of Control Bias*.

e. *Hindsight bias* - This is a cognitive tendency in which individuals perceive past events as having been more predictable and reasonable than they actually were. This bias leads people to believe that they "knew it all along," even though their original predictions were not as accurate as they now perceive them to have been. This occurs due to memory distortion, in which individuals fill gaps in their recollection with information that aligns with the actual outcome, rather than with the original facts or perceptions. For instance, when an investment yields a profit due to unexpected factors, an investor may unconsciously adjust their memory to believe that the gain was anticipated from the beginning. This leads to an inflated sense of foresight, potentially fostering *overconfidence* and prompting excessive risk-taking in future decisions. H1e: *Risk Propensity* has a positive influence on *Hindsight Bias*.

f. *Cognitive Dissonance Bias* - This is a psychological bias that arises when individuals experience mental discomfort due to a conflict between newly acquired knowledge or beliefs and their existing understanding or convictions. In psychology, *cognitive dissonance* reflects an imbalance between various forms of cognition—such as attitudes, values, beliefs, and emotions—that are in conflict with one another. In the context of financial behavior, investors experiencing *cognitive dissonance* often refuse to acknowledge poor investment decisions and continue to hold on to losing positions simply to avoid admitting their initial judgment was flawed. They may also increase their investment in underperforming assets (*averaging down*) as a way to justify prior decisions, without objectively reassessing the current condition of the asset. Additionally, this bias can trigger irrational *herding behavior*, in which investors ignore negative information until a tipping point is reached—resulting in a wave of panic-driven sell-offs. This is supported by the empirical findings of Acharjya, Kumar, and Mohapatra (2022), which show a positive correlation between risk propensity and the level of exposure to several cognitive biases. H1f: Risk Propensity has a positive influence on Cognitive Dissonance Bias.

2. Information Processing Bias - is a bias in information processing that causes information to be used or interpreted in an illogical or irrational manner. Unlike biases related to the irrational maintenance of beliefs, this bias is more associated with the way information is

processed and interpreted. H2: *Risk Propensity* has a positive influence on *Information Processing Bias*. Within *information processing bias*, several sub-biases can be identified:

a. Anchoring and adjustment bias - is a form of bias in information processing in which individuals use a psychological heuristic to estimate a value or probability based on an initial number (*anchor*), and then adjust that number as new information becomes available. However, this adjustment is often insufficient, causing the final estimate to be biased and not fully reflective of objective conditions. Although this bias is related to *conservatism bias*, *conservatism bias* emphasizes the reluctance to update old information, whereas *anchoring bias* focuses on the excessive reliance on the initial number as a reference point. However, slightly differently, research by *Hasan et al. (2023)* proves that *anchoring bias* significantly affects *risk perception*, and indirectly influences decision-making in investment. H2a: *Risk Propensity* has a positive influence on *Anchoring and Adjustment Bias*.

b. Mental accounting bias - is a form of bias in information processing in which an individual treats certain amounts of money differently from others of the same value, depending on which *mental account* the money is placed into. This approach contradicts rational economic thinking, as in theory, money is interchangeable and its value does not change based on its categorization. One serious issue caused by *mental accounting bias* is the tendency to place investments into separate "buckets" without considering the correlation between those assets. H2b: *Risk Propensity* has a positive influence on *Mental Accounting Bias*.

c. *Framing bias* - is a form of bias in information processing, where a person's decision or response to a question is influenced by how the question is presented or framed. This bias occurs because individuals do not only consider the content of the information, but also the way it is delivered—something that is strongly influenced by social norms, habits, and the personal characteristics of the decision-maker. In the financial context, framing bias significantly affects the behavior of market participants, including how they assess risk tolerance and choose their investment portfolios. H2c: Risk Propensity has a positive influence on Framing Bias.

d. *Availability bias* - is a form of *information processing bias* in which individuals estimate the likelihood of an event based on how easily that event comes to mind. This bias arises when people rely on mental shortcuts *(heuristics)* to assess the probability of an outcome, depending more on memory accessibility than on objective evaluation. Events or information that are more recent, striking, or emotionally charged are usually easier to recall, and therefore are perceived as more likely to occur. In the financial context, *availability* bias heavily influences market participants when making investment decisions. For example, an investor might easily recall a mutual fund frequently featured in advertisements and choose it without thoroughly analyzing other available options—leading to investment decisions based on popularity or exposure rather than fundamental performance or portfolio suitability. H2d: *Risk Propensity* positively influence on *Availability Bias*.

e. *Self attribution bias* - also known as *self-serving attribution bias,* is a cognitive bias in which individuals tend to attribute successes to internal factors such as personal ability, intelligence, or persistence, while blaming external factors like bad luck or market conditions for failures. In the context of investing, this bias can significantly influence irrational decision-making. It often leads to *overconfidence*, pushing

investors to take greater risks without sufficient analysis. Additionally, it can result in *excessive trading*, as investors believe their past successes are a reflection of their skill in selecting assets or timing the market. H2e: *Risk Propensity* positively influence on *Self-Attribution Bias.*

f. *Outcome bias* - is a type of information processing bias in which individuals make decisions (such as investing in a mutual fund) based solely on past outcomes without considering the underlying process or strategy that led to those outcomes. For instance, an investor may judge the performance of a fund manager based only on high returns over the past five years, without evaluating whether those results were achieved through a consistent and sustainable investment approach or merely due to short-term luck. H2f: *Risk Propensity* positively influence on *outcome Bias.*

g. *Recency bias* - is a cognitive information processing bias in which individuals place greater emphasis on and more easily recall recent events compared to those that occurred further in the past, whether recent or more distant. This bias significantly affects investment decision-making, as investors tend to form perceptions and expectations based on short-term data, even when such data is not sufficiently representative. For example, if a stock price or the performance of an asset class has been rising consistently over the past few months, investors affected by *recency bias* tend to believe that this positive trend will continue, without considering market fundamentals or historical cycles. In investing, this bias often leads to inaccurate predictions, unbalanced asset allocation, and emotional, speculative decisions when choosing investments. H2g: *Risk Propensity* positively influence on *Recency Bias.*

RESEARCH METHODS

This study adopts a quantitative and exploratory approach, with data collected in numerical form from 110 individual investors through a structured questionnaire. The questionnaire was distributed privately using a 7-point scale and administered via Google Forms. Prior to analysis, the data was carefully verified and cleaned to remove any invalid responses that might affect the accuracy and reliability of the research findings.

RESULTS AND DISCUSSION

The influence of *risk propensity* on *belief perseverance bias* and *information processing bias* is explained and visually presented in Figure 1.

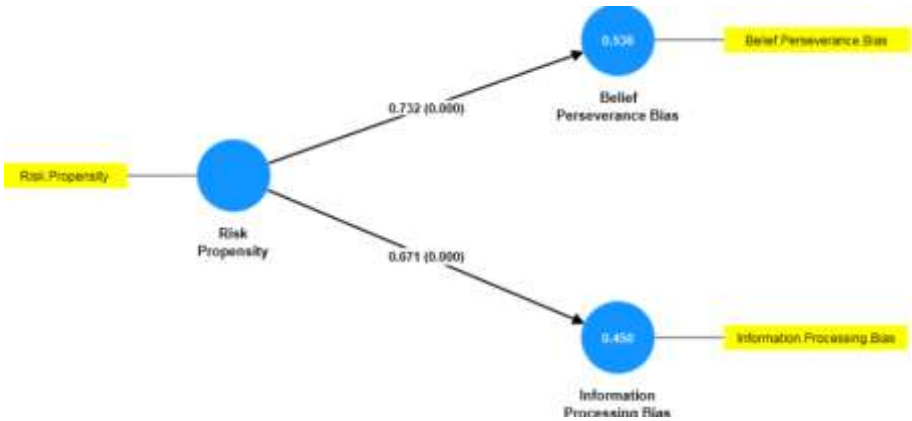

Figure 1. The influence Risk Propensityon bias decision

The model suggests that risk propensity positively influences both belief perseverance bias and information processing bias. The values on the paths (0.732 and 0.671) represent the strength and direction of the relationships. The accompanying p-values (0.000) suggest these relationships are statistically significant.

Risk Propensity refers to an individual's tendency to take or avoid risks. Studies in psychology and behavioral economics often explore the impact of *risk propensity* on decision-making and cognitive biases (Wahl & Kirchler, 2020). A high level of *risk propensity* indicates a stronger tendency or willingness to take risks. Individuals with high *risk propensity* are generally more comfortable with uncertainty and the possibility of loss, and they are more willing to engage in risky actions in pursuit of potential gains or favorable outcomes. They are typically more open to uncertain situations and experience less fear or anxiety about possible failure compared to those with lower *risk propensity*. This trait is measured based on past behavior in financial decision-making. Therefore, a high score indicates that the individual has taken more risks in the past.

Belief Perseverance Bias is the tendency to maintain one's initial beliefs even when presented with evidence that contradicts them. Cognitive psychology literature frequently explores how and why this bias occurs, including its role in risk-related decision-making. Individuals with high *risk propensity* may be more inclined to make decisions based on their initial beliefs, even when those decisions involve greater risk. They often hold on to these beliefs as a way to justify the choices they've made. A study by *Lord, Ross, and Lepper (1979)* demonstrated that people exhibit *belief perseverance bias* by continuing to cling to their original beliefs despite contrary evidence. Although this study does not directly address *risk propensity*, it provides a foundational understanding of how and why individuals maintain their beliefs.

Information Processing Bias refers to distortions in how individuals interpret and evaluate information, often influenced by their prior beliefs and preferences. Numerous studies in psychology have examined how this bias affects decision-making, particularly in relation to risk. In the context of information processing, a person's tendency to take risks can shape how they process information. Individuals with higher *risk propensity* may focus more on information that supports their existing beliefs while ignoring contradictory evidence. This selective attention further reinforces *belief perseverance bias*.

Furthermore, we attempt to explore how risk propensity influences each dimension of bias. Ther results of hypothesis test display on figure 2. As is known, the variable belief perseverance bias is divided into six dimensions: conservatism bias, confirmation bias, representativeness bias, illusion of control bias, hindsight bias, and cognitive dissonance bias.

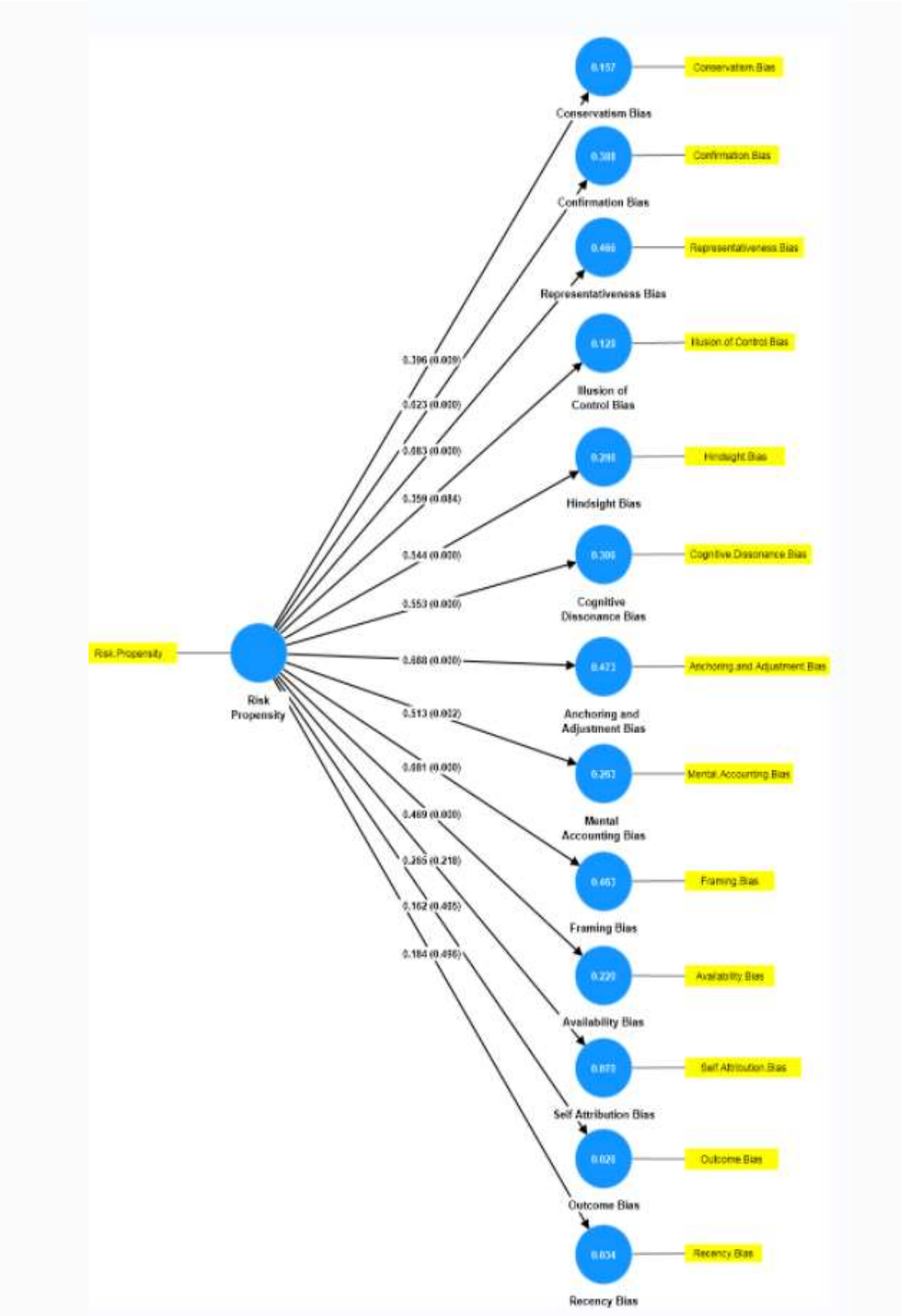

Figure 2. The influences of risk propensity on each dimension of bias

H1a: Risk Propensity has a positive influence on Conservatism Bias.

The hypothesis testing results indicate that risk propensity has a significant positive effect on conservatism bias. Conservatism bias refers to investors' tendency to update their beliefs too slowly when presented with new evidence. In other words, they tend to underreact to new information and stick to their pre-existing views.

Individuals with low risk propensity are generally more conservative in their investment behavior. They may prefer to maintain the status quo and show reluctance to adjust their investment strategies—even when new information suggests that changes are necessary. These individuals also tend to be more selective in processing information, often giving more weight to data that confirms their existing beliefs while disregarding contradictory evidence. This behavior reinforces their conservatism bias. The findings of this study align with prior research on individual investor behavior, which shows that investors with low risk propensity are typically slower to adjust their portfolios in response to changing market conditions or new information (Kaustia & Knüpfer, 2012).

H1b: Risk Propensity has a positive influence on Confirmation Bias.

The hypothesis regarding the positive influence of risk propensity on confirmation bias is also supported. Individuals with high risk propensity are more susceptible to confirmation bias, as they tend to actively seek information that supports their risky decisions while ignoring or rejecting information that contradicts them. They may overlook potential risks and negative consequences, focusing instead on the perceived chances of success. This selective attention reinforces their existing beliefs and reduces their openness to alternative viewpoints. These findings are consistent with the study by Moscovici & Vignoles (2019), which examined the relationship between risk-taking and confirmation bias. Their research showed that individuals with high risk propensity are more likely to reinforce their initial beliefs and disregard opposing evidence.

H1c: Risk Propensity has a positive influence on Representativeness Bias.

The representativeness bias is the tendency to evaluate the probability of an event based on its similarity to a familiar prototype or mental image, rather than considering actual statistical likelihoods (Tversky & Kahneman, 1974). This bias leads individuals to irrationally view specific events as representative of a broader category. Individuals with high risk propensity are more vulnerable to representativeness bias because they often rely on mental shortcuts or stereotypes when assessing risky situations. They tend to place trust in perceived similarities and optimistic expectations drawn from examples they consider "representative," while ignoring statistical facts or objective data that contradict these impressions. This study also provides evidence of a positive and significant relationship between risk propensity and representativeness bias. The findings support previous research suggesting that individuals with high risk propensity are more likely to trust representative images or stereotypes when making investment decisions, while disregarding statistical information (Smith, Petel, & Lee, 2018). Similarly, experimental findings by Chen & Zhou (2019) indicate that high-risk participants are more likely to fall into representativeness bias when evaluating the success probability of a project based on seemingly "similar" success stories—even when actual data points to a different likelihood.

H1d: Risk Propensity has a positive influence on Illusion of Control Bias.

The illusion of control is the subjective perception that one has more control over a situation than they actually do, even when the situation is random or beyond their control (Langer, 1975). This bias commonly arises in contexts such as gambling, investing, and decision-making. The results of this study found evidence of a positive but not significant influence of risk propensity on the illusion of control. These findings differ from those presented by Schutze, Schmidt, Spitzer, and Wichardt (2024), who provided empirical evidence that risk propensity, measured through sensation seeking, is positively associated with the illusion of control in financial decision-making. According to them,

individuals who are more inclined to take risks (sensation seekers) are more likely to perceive control over random outcomes, particularly when they are actively involved in the process.

One possible explanation for the insignificant effect of risk propensity on the illusion of control is that the two are driven by different psychological mechanisms. An individual may have a high tendency to take risks but not necessarily perceive control over outcomes that are inherently random, such as in investments. On the other hand, someone with low risk propensity might still experience an illusion of control due to other contributing factors, such as a strong understanding of the task, active engagement, competitive environments, or the autonomy to make choices.

In addition, there are other factors that influence the illusion of control. This bias is more strongly affected by elements such as self-confidence, understanding of the situation, or personal experiences in controlling one's environment. In other words, the tendency to take risks and the belief that one can control investment outcomes are two distinct constructs. An individual may be willing to take greater risks without feeling in control of the outcome, or conversely, may feel confident in their control despite being unwilling to take significant risks.

H1e: Risk Propensity has a positive influence on Hindsight Bias.

Hindsight bias, also known as the after-event bias, refers to the tendency of individuals to perceive the outcomes of events as having been more predictable and inevitable than they actually were once the outcome is known. This phenomenon distorts how people interpret and evaluate past events, often reducing their awareness of the uncertainty that existed at the time decisions were made. Individuals with high risk propensity may be more prone to hindsight bias because they are more likely to rationalize favorable outcomes and downplay the uncertainty or risks that were present at the outset (Fischhoff et al., 2000). In contrast, individuals who are more risk-averse tend to demonstrate lower levels of hindsight bias, as they are generally more aware of and accepting of the uncertainty involved in decision-making processes.

H1f: Risk Propensity has a positive influence on Cognitive Dissonance Bias.

Cognitive dissonance bias refers to the psychological tension that arises when an individual is faced with two or more conflicting beliefs, values, or actions. To reduce this dissonance, individuals often: 1) Seek information that supports their decisions (confirmation), 2) Rationalize poor decisions, and 3) Change their perception of the decision to avoid feelings of guilt or discomfort. Harmon-Jones, Harmon-Jones, and Levy (2015) explain that when risky actions fail to meet expectations, they can create intense cognitive dissonance, particularly in individuals with a high risk orientation. These individuals experience internal stress and often engage in psychological strategies to preserve a sense of self-consistency. The greater a person's risk propensity, the more likely they are to experience cognitive dissonance bias. This is because those with high risk propensity are more prone to making bold decisions—such as investing in speculative stocks, abruptly changing careers, or launching new business ventures. When the outcome of a decision does not meet expectations, individuals may experience internal dissonance (e.g., "Did I make the wrong choice?"). To reduce this tension, they tend to exhibit cognitive dissonance bias by twisting logic, blaming external circumstances, or seeking emotional justification for their decisions.

Shefrin and Statman (2000) linked risk propensity to two opposing poles: security vs. potential, which are reinforced by aspiration level and framing—two core elements of cognitive bias. They stated that, *"The goal of risk-averse people is security. The goal of risk-seeking people is potential. Aspiration levels are, in effect, reference points, and reference points are a key feature of prospect theory."*

H2a: Risk Propensity has a positive influence on Anchoring and Adjustment Bias.

Anchoring and Adjustment Bias is a cognitive bias in which individuals rely too heavily on initial information (the anchor) when making estimates or decisions, and fail to sufficiently adjust in

response to new information (Tversky & Kahneman, 1974). This study demonstrates that risk propensity has a significant influence on anchoring and adjustment bias. Theoretically, this can be explained by the idea that the level of risk propensity affects how strongly a person is influenced by the anchor. Individuals with high risk propensity are more likely to disregard the initial anchor and make larger adjustments, as they tend to be more open to risk and new information. In contrast, individuals with low risk propensity are more conservative and tend to cling to the initial anchor, even when that anchor is irrational or statistically irrelevant.

The managerial implication of this finding is that conservative investors are more vulnerable to anchoring bias, which can lead to overvaluation of assets that are no longer fundamentally sound.

H2b: Risk Propensity has a positive influence on Mental Accounting Bias.

Mental Accounting Bias is a cognitive bias in which individuals mentally separate money into different categories based on its source, intended use, or type of expenditure, even though economically, all money should be treated the same (Thaler, 1985). For example, someone may be more willing to "spend" a bonus on a vacation but reluctant to use their regular salary for the same purpose. Prospect Theory (Kahneman & Tversky, 1979) explains that individuals are not always rational and often make decisions based on mental framing. In the context of mental accounting, people evaluate outcomes within separate "accounts." Individuals with high risk propensity tend to view mental accounts as experimental spaces. For example, they are more willing to take risks with "bonus" money, perceiving it as "unexpected funds" — a phenomenon known as the house money effect. In contrast, individuals with low risk propensity treat all accounts with equal caution. Even small amounts from "extra" sources are managed carefully. In essence, risk propensity influences how individuals utilize and respond to mental accounts.

Those who are more willing to take risks tend to mentally separate assets for speculative purposes and take greater risks within accounts they consider "less important." In contrast, risk-averse individuals treat all accounts equally, which helps them minimize mental accounting bias in asset allocation. Shefrin and Statman (2000) provide an explanation of this through the integration of Prospect Theory, stating that "Investors frame monies into a variety of distinct mental accounts, and attach utility to each mental account in isolation from other mental accounts."

H2c: Risk Propensity has a positive influence on Framing Bias.

This study also found a significant positive influence of risk propensity on framing bias. This aligns with the views of Shefrin and Statman (2000) in their article *"Behavioral Portfolio Theory,"* which explicitly discusses the relationship between risk propensity and bias, particularly through the concepts of layered portfolio structures, cognitive biases, and approaches to risk. They stated that investors hold inconsistent and variable risk attitudes depending on the goals of each portfolio layer. This suggests that risk propensity is not a fixed trait but is shaped by biases and mental framing related to investment objectives. Furthermore, Shefrin and Statman (2000) use the γD/γU parameter as an indicator of risk propensity. *"An investor with a high γD/γU ratio considers the goal of downside protection more important relative to the goal of upside potential."* Investors with a high γD (risk-averse investors) tend to focus on loss protection, while those with a high γU (risk-seeking investors) prioritize the potential for high returns. This parameter illustrates how differences in risk attitudes stem from distinct biases and mental framing across the various layers of a portfolio.

H2d: Risk Propensity positively influence on Self-Attribution Bias.

Availability Bias is a cognitive bias in which individuals assess the likelihood or frequency of an event based on how easily they can recall similar instances (Tversky & Kahneman, 1973). The easier an event is to remember—due to its recency, surprising nature, or emotional impact—the more likely it is to be judged as common, even if it is statistically rare.

This study demonstrates that risk propensity has a significant positive influence on availability bias. This finding is consistent with the perspective of Prospect Theory (Kahneman & Tversky, 1979) and heuristic theory, which suggest that individuals use cognitive shortcuts to expedite decision-making, with availability bias being one such heuristic. Risk propensity plays a role in shaping an individual's sensitivity to readily accessible information. Theoretically, individuals with high risk propensity are more likely to rely on easily available information to make quick decisions, as they are more tolerant of the risks associated with estimation errors. Conversely, individuals with low risk propensity tend to seek out more information, are more skeptical of recent or emotionally charged data, and are less influenced by availability bias.

H2e: Risk Propensity positively influence on Self-Attribution Bias.

In relation to self-attribution bias, the findings of this study indicate that risk propensity does not have a significant effect on self-attribution bias. This is consistent with the findings of Abdin, Qureshi, Iqbal, and Sultana (2022), who stated that *"Among the cognitive biases studied, illusion of control and optimism had significant effect on risk propensity, whereas self-attribution bias did not."* Self-attribution bias is a cognitive mechanism used to protect self-esteem: individuals attribute success to their own abilities and blame external factors for failure. Risk propensity does not determine whether someone will attribute positive outcomes to themselves (self-serving bias), as outcome attribution is more strongly influenced by ego, self-esteem, and perceived personal control. Individuals with high risk propensity may, in fact, be more realistic about negative outcomes and may not display attribution bias—because they are more aware of the consequences associated with taking risks.

H2f: Risk Propensity positively influence on outcome Bias.

The results of this study provide evidence that there is no significant effect of risk propensity on outcome bias. A possible explanation for this is as follows: Risk propensity refers to an individual's tendency to take or avoid risks when making decisions under uncertainty. In contrast, outcome bias is the tendency to judge the quality of a decision based on its final outcome, rather than on the process or information available at the time the decision was made. Risk propensity operates prior to decision-making, influencing how a person approaches uncertainty, while outcome bias occurs after the outcome is known, shaping how the decision is evaluated in hindsight. Thus, risk propensity influences actions, while outcome bias affects post-decision evaluation. As a result, both high and low risk propensity individuals are equally susceptible to outcome bias, since this bias arises from judgment after the fact, rather than from one's attitude toward risk.

H2g: Risk Propensity positively influence on Recency Bias.

The results of this study indicate that recency bias does not have a significant effect on risk propensity. Recency bias is a form of cognitive bias in which individuals tend to give greater weight to recent information when making decisions, thereby neglecting older historical data (Kahneman & Tversky, 1979). Risk propensity is more closely related to an individual's confidence in managing risk and does not directly influence how one processes recent versus older information.

This bias is closely related to short-term memory and a preference for recent data. Theoretically, recency bias is more associated with cognitive and memory-related aspects, while risk propensity is linked to motivational and personality traits. Therefore, a person may be conservative or aggressive in risk-taking but still be influenced by recency bias when processing new information.

An interest in risk does not automatically change the way someone weighs information based on its timing.

For example, an investor with an aggressive profile (high risk propensity) may still exhibit recency bias when making investment decisions. If the market suddenly drops, they might place too much emphasis on the most recent news and data about the downturn, even though historically, markets tend to recover from previous declines. Conversely, a conservative investor may continue to believe that the market will remain low, even when recent data indicates a recovery, because recency bias causes them to focus too heavily on the most recent negative events. In general, risk personality does not determine whether a person is more or less susceptible to recency bias—this bias is a cognitive process more closely tied to information processing and memory functions.

CONCLUSION

This study concludes that risk propensity has a significant influence on belief perseverance bias and information processing bias among investors in Indonesia. Specifically, risk propensity is positively correlated with conservatism bias, confirmation bias, representativeness bias, and cognitive dissonance bias. However, no significant influence was found between risk propensity and illusion of control bias, self-attribution bias, outcome bias, and recency bias. These results indicate that investors' psychological characteristics—particularly their risk tendencies—play an important role in how they process information and make investment decisions.

Suggestions for Future Research

1. Moderating Factors:
   Future research could explore moderating variables that may strengthen or weaken the relationship between risk propensity and cognitive biases, such as financial literacy, investment experience, or investor demographics.
2. Mixed Methods Approach:
   Combining quantitative methods with qualitative techniques (e.g., in-depth interviews) could provide deeper insights into how risk propensity influences investment decision-making processes.
3. Longitudinal Study:
   Conducting a longitudinal study would allow researchers to track how risk propensity and cognitive biases change over time, and how these changes impact investment performance.
4. Mediating Variables:
   Future studies could examine other mediating variables that might explain the relationship between risk propensity and cognitive biases, such as emotional stability or overconfidence.
5. Cross-Market Testing:
   Testing these findings in other investment markets with different characteristics may offer external validation and cross-cultural insights.

Practical Implications

1. Client Risk Profile Identification:
   Investment management firms should carefully assess the risk profiles of their clients. This information can be used to tailor investment strategies and provide recommendations that align with each client's risk preferences.
2. Education and Bias Awareness:
   Firms should educate investors about various types of cognitive biases and how these biases can affect their investment decisions. Training programs focused on flexible decision-making and bias awareness can help investors make more rational choices.

3. Technology-Based Decision Tools:
   Developing technology-driven decision support tools can help investors recognize and reduce the impact of cognitive biases. For example, apps that issue alerts about potential biases or present information in a neutral and objective manner.
4. Personalized Consultation:
   Investment consultants should be trained to identify and address clients' cognitive biases. A personalized advisory approach that considers each investor's unique psychological characteristics can enhance investment outcomes and client satisfaction.

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