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Gender Differences, Framing, and Responsibility in Investment Decision-Making: An Experimental Study

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Abstract

Research aims: This study aims to investigate the effect of gender, framing, and responsibility on investment decision-making.

Design/Methodology/Approach: This experimental study used a subject design of 2 x 2 x 2, in which 81 doctoral students participated. Furthermore, cross-tabulation was employed to analyze and examine the hypotheses.

Research findings: The results revealed that positive and negative framing and responsibility levels would affect investment decision-making. This research also uncovered differences in risk preferences in decision-making between men and women. Additionally, both genders had varying preferences in making similar decisions.

Theoretical contribution/Originality: Several studies have shown that when information is presented differently, here in after referred to as framing, it significantly influences decisions. However, the decision-making determination is influenced not only by framing but also by other variables. In this study, the framing variable, therefore, was tested jointly with the variables of responsibility and gender differences.

Keywords: Framing; Responsibility; Gender; Experiment

Introduction

Organizations need the information to enact effective decisions to achieve specific goals (Allen, 1996; Oyedokun et al., 2021). Allen (1996) also stated that to make effective decisions, organizations must determine what decisions need to be made and what information is necessary. In general, information is needed by internal and external parties of a company (Laudon & Laudon., 2018). Furthermore, the information generated from the accounting process is widely used by managers in decision-making (Botchway & Rashedi, 2020). Accounting duties require accountants to make judgments by gathering and providing information for managers to decide. Several possibilities exist where managers decide or justify their decisions based on the accounting information provided, regardless of the information content. Therefore, managerial decisions arising from such deviations may result in losses for the company (Hansen & Mowen, 2007). It has implications for company performance, which is necessary to

ensure that the organization is on the right track or in need of improvement (Maulid et al., 2021).

On the other side, information and communication technology development has hugely influenced human civilization (Wijayanto, 2020). In this regard, information is used as consideration by decision-makers; therefore, it is utilized by information providers to process information that can influence decision-makers' opinions. It may be from positive to negative or vice versa. In addition, information used by internal parties can be considered during decision-making involving current and future company strategies. In contrast, information used by external parties is a consideration in making decisions related to the investment to be made in the company concerned (Laudon & Laudon., 2018). Besides, the information generated from the accounting process is widely used by managers in decision-making (Floștoiu, 2019). Research conducted by Aprayuda et al. (2021) also explained that the order in which information is given could affect the quality of investment decision-making. Furthermore, according to its function, accounting provides relevant and timely information within an enterprise to assist internal and external users in making economic decisions.

Henceforth, identifying the impact of accounting information using framing is essential in understanding how accounting information should be collected and provided to maximize company value (Xie et al., 2017). Framing relates to how humans feel or structure decisions (Krueger et al., 2017; Rutledge & Harrell, 1994; Yeung, 2014). Framing can also be applied in a wide range of communication situations to understand the context of information. It makes the framing theory applicable at the intrapersonal, interpersonal, organizational, and inter-organizational communication levels, where the information conveyed can turn negative opinions positive and vice versa (Camerer, 2000; Sumarto, 2016). This phenomenon indicates that decision-makers respond differently to the same problem in different formats (Brainerd & Reyna, 2015; Kühberger & Tanner, 2009).

Many studies of differences in decision-making patterns have also been carried out. Slovic (2001) stated that individuals who have received training and are more experienced in risk-taking situations tend to select risky options compared to general individuals. In addition, a study on group shifts showed that group interactions reinforce previously held tendencies (Atanasov, 2012; Rutledge & Harrell, 1994). Furthermore, Rutledge and Harrell (1994) revealed a careful decision in additional investment in a project. Group decisions align with individual decisions, but groups tend to make more careful decisions under certain conditions. Thus, an individual will exhibit risk-averse behavior regarding additional investments, while the group will make decisions more cautiously in taking risks.

Nevertheless, previous research in differentiating decision-making yields has inconsistent results. Smedts and de Goeij (2008) found that female financial professionals appeared more conservative than males and concluded that males were likelier to issue positive stocks than females. Francis et al. (2014) stated that there was a direct relationship between risk-aversion and female Chief Financial Officers. Francis et al. (2014) also observed that female Chief Financial Officers tended to reduce all risky financial activities,

such as compensation based on capital and investment patterns, and reduced dividend payout rates. However, Schubert et al. (1999) refuted the stereotype with experimental results showing no significant difference between the female and male groups. Lin and Dilara (2022) supported the research and explained that women did not take fewer risks than men and that their approaches were different.

Moreover, the initial responsibility for an investment project increases the risk-taking preference of the decision-makers. It is because they will try to adjust the additional investment point. As observed by Bazerman et al. (1982), Neale and Bazerman (1985), and Wang et al. (2017), the responsibility level influences investment decisions in allocating resources. Responsibility also describes how they will see themselves (for example, guilt and self-blame if the project fails) and how others will see them (for example, pride when a project they are responsible for fails). This adjustment process begins with the psychological influence of responsibility and emotional factors caused by involvement in the design of an investment project (Agranov et al., 2013; Sutter, 2009).

Based on the descriptions above, the determination of planning and decision-making is strongly influenced by the level of risk-taking, framing, and responsibility. Therefore, this study was conducted to re-examine the level of risk-taking in males and females, especially in processing information into investment decision-making based on framing and responsibility differentiation.

For the development of management and behavioral accounting literature, the results of this study will provide an empirical explanation of the effect of framing and responsibility in making investment decisions. This study's results also illustrate that men and women have different risk preferences in investment decisions.

Practically, the contribution of this research's results is to provide additional insight for management in an organization to identify conditions that decide more risky or cautious investment policy. In addition, the results of this study call on management to provide the right information for different decision-makers according to their respective characteristics.

Literature Review and Hypotheses Development

Prospect Theory

Probability weights and reflection effects are the two most prominent deviations from expected utility theory (Kahneman & Tversky, 1979). Probability weighting explains that people do not linearly treat probabilities and are overly sensitive to the probability of ensuring a definite outcome. Meanwhile, the reflection effect means that risk attitudes are influenced by whether outcomes are framed as gains or losses: for losses, they generally take risks, but for gains, they avoid risk.

Prospect theory explains decision-making under risk and uncertainty and combines research by showing deviations from the expected utility theory. Prospect theory is also used since this research focuses on investment decision-making. It aligns with the definition of prospect theory that involves risk when deciding by looking at good prospects or particular situations.

The choice regularities incorporated in prospect theory have been confirmed by previous studies (Bonem et al., 2015), mainly using students as a sample. Furthermore, behavior in line with prospect theory has also been verified for general populations (Booij et al., 2009), military decision-makers (Haerem et al., 2010), politic (Linde & Vis, 2016), physicians (Verma et al., 2014), patients (Rouyard et al., 2018), and taxpayers (Piolatto & Rablen, 2016). Also, the prospect theory explains many real-world examples of deviations from the expected utility theory (Ruggeri et al., 2019; Wang et al., 2017).

Gender

Several studies on gender in decision-making (Byrnes et al., 1999; Harris et al., 2006; Maxfield et al., 2010; Lin dan Gurcu, 2019; Schubert et al., 1999) have shown inconsistent results. Byrnes et al. (1999) conducted a meta-analysis of 150 studies comparing males and females in risk-taking preferences regarding task type, task content, and five age levels. Primarily, indications show that male participants had a higher level of risk-taking than females. Harris et al. (2006) also explained that sensitivity feelings owned by females were higher in facing the possibility of poor outcomes and lower positive expectations. This perception then makes females less likely to take risky actions.

Maxfield et al. (2010) also stated that females tended to be more risk-averse than males regarding physical health, investment (including finance), gambling, risk, and strategic decision-making. In addition, Chen (2005) suggested that females were more risk-averse than males through individual characteristics and systematic factors, as females were observed to be more conservative in financial markets than males. Other studies also refuted experimental results, revealing that men and women did not have significant differences (Schubert et al., 1999). The research is supported by Lin and Dilara (2022), who explained that women did not take fewer risks than men and that their approaches were different.

Responsibility

The initial responsibility for an investment project increases the risk-taking preference of the decision-makers. It is because they will try to adjust the additional investment point. As observed by Bazerman et al. (1982), Neale and Bazerman (1985), Wang et al. (2017), and Bazerman et al. (1982), responsibility influences investment decisions in terms of allocating resources.

When making a decision, responsibility ensures that the decision taken will be successful (Wang et al., 2017). Furthermore, Wang et al. (2017) explained that in justifying an initial investment, an individual increases the available resources as a psychological effect of

responsibility and the social effect seen by other parties as a responsible party. According to Van Herpen et al. (2005), the perceived responsibility of a decision-maker increases his preference to invest additional resources even though the risk overshadows that the investment will fail. Another study by Staw (1976) demonstrated that respondents with different responsibilities would have different decisions on the resources used to take action.

Based on the description above, this study compared how individuals made decisions when they were responsible for the investment and when they were not responsible for the project.

Framing

Tversky and Kahneman (1981) used the problem of Asian disease to explain the effect of framing.

Problem 1:

Imagine that the United States is preparing to eradicate a hazardous Asian disease, which is thought to have killed 600 people. Two alternative programs have been proposed, each with the following consequences:

If program A is selected, 200 people will be saved.

If program B is selected, the probability for 600 people to be saved is $1/3$, while the probability that no one will be saved is $2/3$.

Which alternative of the two programs do you prefer?

Problem 2:

It has the same situation as the first problem, but the alternative programs offered are:

If program C is selected, 400 people will die.

If program D is selected, the probability that no one dies is $1/3$, while the probability that all will die is $2/3$.

Which alternative of the two programs do you prefer?

In problem 1, which uses positive wording (will be saved), Tversky & Kahneman (1981) noted that most subjects (72%) preferred program A, saving 200 people. This option is in the gain domain; therefore, they will be saved. Hence, their participants preferred program A (without risk) to B (at risk), offering a one-third ($1/3$) probability of saving 600 people (28%). Under prospect theory, programs C and D in problem 2, which use negative wording (will die), are the same as Programs A and B in problem 1. However, most participants preferred program D (78%) over program C (22%). It is called the framing effect when the same problem with different framing can result in a reversal of options or different options. Tversky and Kahneman (1981) used prospect theory as a framework to explain this phenomenon.

Hypotheses Development

The hypothesis is derived through a theory, which is a temporary answer to the problem but still must be tested empirically. The hypotheses developed in this study are as follows. According to Kühberger (1995) and Tykocinski et al. (2016), the wording of the option

(“saved” or “died”) outcome defines the problem area (i.e., “profit” or “loss”) and relates to the effect of reflection. Conversely, problem framing (i.e., “positive” or “negative”) depends on the use of an omitted “no” associated with the framing effect. Tykocinski et al. (2016) added that adding an option to the sentence can change the problem framing from positive to negative or vice versa without changing the problem area (i.e., the loss or gain area). For example, in the Asian disease problem, the possible combination of problem domains and frames emphasizes risky options by eliminating “no,” as presented in Table 1, namely in program revisions A and C.

The combination of the problem domain with the problem frame perceived by the decision maker is the gain domain/positive frame and the loss domain/negative frame that should be noted in the Asian disease problem. Consequently, the Asian disease test confounds the framing and reflection effects. Separating the two effects requires the creation of other combinations, i.e., gain domain/negative-frame and loss-domain/positive-frame (Chang et al., 2002). By comparing the results of setting two different combinations, one will understand the framing and reflection effects more clearly.

“Problem: Imagine that the United States is preparing to eradicate a hazardous Asian disease, which is thought to have killed 600 people. Two alternative programs have been proposed, each with the following consequences:”

Table 1 Framing Effect Analysis in Asian Disease Problems

Program	Problem Frame	Problem Domain
A: 200 will be saved.	Positive	Gain
B: 1/3 chance that 600 will be saved and 2/3 chance that 0 will be saved.	Mixed	Gain
C: 400 will die.	Negative	Loss
D: 1/3 chance that 0 will die and 2/3 chance that 600 will die.	Mixed	Loss
Revised Program:		
A*: 400 people will not be saved.	Negative	Gain
C*: 200 people will not die.	Positive	Loss

Then, this study examined the perception of decision-making by men and women. The level of risk taken in decision-making is expected to be different if given positive and negative treatment frames and in various responsibility levels.

Before, Palvia et al. (2014) explained that male and female CEOs had distinctive characteristics in making decisions when faced with a crisis. It indicates that gender has differences when faced with high responsibilities, for example, as CEO or chairman/chairwoman. Women also tend to be conservative or risk-averse, whereas men tend to be more risk-taking. However, when people are faced with low responsibility, their risk preferences tend to be the same.

Powell and Ansic (1997) added that when faced with framing gain or positive framing, men and women did not have differences in decision-making. However, it would be different when faced with framing loss or negative. Men tend to be more daring in making

risky decisions than women (Huang & Wang, 2010). This difference is because women are more effective at receiving information when framing loss, while men are the opposite.

Based on the explanation above, this study proposed hypotheses on how prospect theory explains the effect of the information or facts presented. The influence of information presented in positive-frame and negative-frame directs the individual's decision.

In this study, there are 12 hypotheses: four tested males' decision-making preferences (H_{1a} , H_{1b} , H_{1c} , H_{1d}), four examined females' decision-making preferences (H_{2a} , H_{2b} , H_{2c} , H_{2d}), and four compared decision-making preferences between males and females (H_{3a} , H_{3b} , H_{3c} , H_{3d}).

***H_{1a}**: When information in decision-making is presented in high responsibility and positive framing, males are more risk-takers than risk-averse.*

***H_{1b}**: When information in decision-making is presented in low responsibility and positive framing, males are more risk-averse than risk-taker.*

***H_{1c}**: When information in decision-making is presented in high responsibility and negative framing, males are more risk-taker than risk-averse.*

***H_{1d}**: When information in decision-making is presented in low responsibility and negative framing, males are more risk-taker than risk-averse.*

***H_{2a}**: When information in decision-making is presented with high responsibility and positive framing, females are more risk-averse than risk-taker.*

***H_{2b}**: When information in decision-making is presented with low responsibility and positive framing, females are more risk-averse than risk-taker.*

***H_{2c}**: When information in decision-making is presented with high responsibility and negative framing, females are more risk-averse than risk-taker.*

***H_{2d}**: When information in decision-making is presented with high responsibility and negative framing, females are more risk-averse than risk-taker.*

***H_{3a}**: When information in decision-making is presented with high responsibility and positive framing, females are more risk-averse than males.*

***H_{3b}**: When information in decision-making is presented with low responsibility and positive framing, females are more risk-taker than males.*

***H_{3c}**: When information in decision-making is presented with high responsibility and negative framing, males are more risk-taker than females.*

H_{3d}: When information in decision-making is presented with low responsibility and negative framing, males are more risk-taker than females.

To test these issues, the complete hypotheses are presented in Table 2.

Research Method

Data Collection

The data were collected from management and accounting doctoral students using experimental methods. The total participant in this experiment was 81 participants. The experiment was carried out simultaneously to avoid internal validity threats, such as different hours, air temperature, noise level, participant fatigue, and others. The implementation was assisted by participant assistants who were divided within the room. Next, the assistant was assigned to distribute case questions sequentially to participants in the first and second stages to ensure the regularity of the case questions at each stage and then recalled the case questions.

Table 2 Hypotheses

		Male		Female
Positive Frame (+)	High Responsibility	<i>risk-taker</i>	H3a	<i>risk-averse</i>
		H1a	↔	H2a
	Low Responsibility	<i>risk-averse</i>	H3b	<i>risk-averse</i>
		H1b	↔	H2b
Negative Frame (+)	High Responsibility	<i>risk-taker</i>	H3c	<i>risk-averse</i>
		H1c	↔	H2c
	Low Responsibility	<i>risk-taker</i>	H3d	<i>risk-averse</i>
		H1d	↔	H2d

Participants

The participants in this study were doctoral students of the Economics Program at Universitas Sebelas Maret (UNS), consisting of management and accounting doctoral students who already had experience and understanding of decision-making and investment. Several sources stated that students are expected to represent themselves in the existing situation because they are not significantly different from business people in completing decision-making tasks (Chu et al., 2017; Wang et al., 2017). Using student samples in several previous studies was considered appropriate for two main reasons. Besides their ability to represent themselves as decision-makers, students also facilitated the treatment of experimental studies in one room, where internal validity could be maintained

Table 3 Experimental Design

		Male	Female
Positive Frame	High Responsibility	Positive Frame/High Responsibility/Male (Group 1)	Positive Frame/High Responsibility/Female (Group 2)
	Low Responsibility	Positive Frame/Low Responsibility/Male (Group 3)	Positive Frame/Low Responsibility/Female (Group 4)
Negative Frame	High Responsibility	Negative Frame/High Responsibility/Male (Group 5)	Negative Frame/High Responsibility/Female (Group 6)
	Low Responsibility	Negative Frame/Low Responsibility/Male (Group 7)	Negative Frame/Low Responsibility/Female (Group 8)

Experimental Design

A controlled laboratory experiment was conducted to test the hypothesis using a 2 x 2 x 2 factorial design between subjects. The framing variable consisted of a positive and negative frame; responsibility included high and low responsibility, while gender comprised male and female. The detailed experimental design is shown in Tables 3 and 4.

Table 4 Question Code

Question Code	Treatment
A	High Responsibility and Positive Frame
B	High Responsibility and Negative Frame
C	Low Responsibility and Positive Frame
D	Low Responsibility and Negative Frame

Experimental Procedure

This experiment was carried out on doctoral students of the Economics Program at Universitas Sebelas Maret (UNS). Eighty-one (81) students participated in this study, divided into four treatment groups. The number was guided by Sekaran (2003) that for a simple experimental study with strict control, it would be successful with a small sample size of between 10 and 20. The following guideline was also according to Fraenkel and Wallen (2012), who suggested a minimum sample size for experimental studies of 30/15 per group. The implementation was then assisted by 12 assistants who distributed case questions sequentially to participants, ensuring the orderliness of the case questions at each stage and the withdrawal of the questions afterward.

In general, the experimental procedure was to divide the participants into four different treatments. They answered the case studies according to experience and ended with manipulation check questions. Specifically, the first process was to give participants four treatments in the case questions given to A to D randomly, as shown in Table 4.

Participants were then randomly assigned a research instrument for each treatment to fill out the instruments. Before filling out the questions, the research assistant emphasized

to the participants to carefully read the case study illustrations provided and to perceive themselves as managers as stated in the case. Participants were also asked not to discuss the decisions to be taken with other participants because there were no right or wrong answers in the cases given.

Filling in the instrument started on the instructions of the research assistant. Each participant began to read the illustration of the case study provided and then continued by making recommendations on the two options provided and determining the confidence level in the recommendations. In the next stage, participants could write any comments on this experiment. After that, they filled out demographic questions and ended by answering the manipulation check questions: (1) What is your role in this case? Manager/Employee. (2) Will you get a reward if you succeed and punishment if you fail in the project? Yes No. After all research documents were submitted to the research assistant, the researchers then explained the experiments that had been conducted.

Data Analysis

Data from experiments were then analyzed descriptively for each participant using cross-tabulation with the SPSS program. Cross-tabulation was conducted to examine the causality relationship of framing to investment decisions. Gender differences were also included in the independent variables to see their effect on investment decisions with positive framing, negative framing, high responsibility, and low responsibility treatment. Participants would answer that decision-makers tended to take the risk (risk taking) or avoid the risk (risk averse).

Results and Discussion

This study examined the causal relationship between framing and responsibility in decision-making compared between males and females. The experiment had two treatments: positive and negative framing for the framing variable and high and low responsibility for the responsibility variable.

The first treatment was carried out involving positive-frame information and high responsibility. The analysis was conducted to determine the risk preferences of the respondents as contained in hypotheses 1a, 2a, and 3a. It can be seen in Table 5.

In this treatment, there were 22 participants, consisting of 10 males and 12 females. Four male participants, or 18.2%, selected option A (less risky/less risky), and six others, or 27.3%, selected option B (risk-taker). In H1a and H2a, males and females tended to make risk decisions when information was presented on positive framing and high responsibility. These results indicate that in positive information framing and high responsibility, males tended to select an alternative or option that involved taking a risk (option B). In this regard, due to the custom in everyday life, men are the family's primary breadwinners, so they are always tied to risky situations in seeking income (Shosaidova et al., 2012). Therefore, these results support hypothesis 1a, but H2a was not supported.

These results are consistent with Byrnes et al. (1999), Harris et al. (2006), Lin and Dilara (2022). Thus, females are less likely to take risky actions when the information presents low outcomes.

Table 5 Experimental Results

Framing	Responsibility	Gender	
		Male	Female
Positive Framing (+)	High Responsibility	Risk-Averse 4 (18.2%)	Risk Averse 4 (18.2%)
		H1a	H2a
	Risk Taker 6 (27.3%)	Risk Taker 8 (36.4%)	
	H3a		
Low Responsibility	High Responsibility	Risk Averse 5 (23.8%)	Risk Averse 6 (28.6%)
		H1b	H2b
	Risk Taker 3 (14.3%)	Risk Taker 7 (33.3%)	
	H3b		
Negative Framing (-)	High Responsibility	Risk Averse 2 (10.5%)	Risk Averse 5 (26.3%)
		H1c	H2c
	Risk Taker 5 (26.3%)	Risk Taker 7 (36.8%)	
	H3c		
Low Responsibility	High Responsibility	Risk Averse 3 (15.8%)	Risk Averse 5 (26.3%)
		H1d	H2d
	Risk Taker 5 (26.3%)	Risk Taker 6 (31.6%)	
	H3d		

Table 5 also presents hypothesis 3a analysis, comparing males and females in the risk preferences taken in decision-making. The analysis revealed that females prefer to make riskier decisions (36.4%) than males (27.3%). These results did not support hypothesis 3a. This result suggests that females tended to make riskier decisions than males when the information presented a positive framing of high responsibility. In line with Schubert et al. (1999), there was no significant difference in the tendency to make riskier decisions.

Moreover, Lin and Dilara (2022) asserted that females did not make less risky decisions than males. This result is also in line with research by Huang and Wang (2010), explaining that women tended to make more risky decisions under a positive frame, while men were the opposite.

The second treatment provides positive framing and low responsibility. Based on Table 5, displaying the cross-tabulation analysis results of the second treatment, 23.8% (five respondents) of males selected option A, while the rest, 14.3% (three respondents), preferred option B. Meanwhile, in the female, 28.6% (six respondents) selected option A, and 33.3% (seven respondents) chose option B. Based on previous results, male decision-makers tended to be risk-averse, supporting hypothesis 1b. These findings are in harmony with Iqbal and Baek (2006), Bliss and Potter (2002). Shosaidova et al. (2012) also explained that low-responsible males tended to make fewer risk decisions when information was presented in a gain frame.

However, female decision-makers uncovered different results and tended to make riskier decisions; it did not support hypothesis 2b. Shosaidova et al. (2012) explained that there was a negative relationship between responsibility and the tendency to make risky decisions. When the responsibility for the consequences of the decisions was low, the tendency to make risky decisions was higher.

Furthermore, the third hypothesis compared males and females in terms of risky decision-making. The results showed that the preference of female respondents (33.3%) in making risky decisions was greater than that of male respondents (14.3%). Therefore, hypothesis 3b was supported. Baixauli-Soler et al. (2015) have elucidated that women were more conservative than men. Conservative means being careful of the risk of responsibility in decision-making. In this condition, women tend to take advantage of the low responsibility that must be borne for riskier decision-making when positive information is presented, thus encouraging women to be more risk-takers.

Moreover, the third treatment was analyzed to provide negative framing and high responsibility. Based on Table 5, 10.5% of male respondents chose option A, while 26.3% selected option B. These results indicate that males preferred risky decision-making over less risky ones in this third treatment. Therefore, hypothesis 1c was supported. These results support Powell and Ansic (1997), Palvia et al. (2014), which explained that men with high positions (company executives) would tend to be brave in making risky decisions.

Meanwhile, 26.3% of female respondents selected option A, while 36.8% preferred option B. These results mean that hypothesis 2c was not supported, which states that females would prefer to make risky decisions or risk takers in this treatment. This result differs from previous studies (Faccio et al., 2016; Palvia et al., 2014). Previous research explained that women with high responsibility for framing loss tended to avoid a too-high risk.

Furthermore, hypothesis 3c examined gender differences for negative framing and high-responsibility treatment. The analysis demonstrated that option B, or risky decision, was

preferred by 26.3% (five respondents) of male respondents and 36.8% (seven respondents) of female respondents. Based on these data, gender significantly influenced decision-making, and females had a higher preference for making risky decisions than males; hence, hypothesis 3c was not supported. This result is consistent with the findings of Iqbal and Baek (2006), showing that female executives did not tend to be more risk-averse than male executives in terms of selling diversified stocks.

The last treatment test was for respondents with negative framing and low responsibility. Table 5 shows that 15.8% of male respondents preferred option A, and 26.3% selected option B. These results indicate that in the negative framing and low responsibility treatment, males preferred risky decisions more than those without risk; therefore, hypothesis 1d was supported. These results reinforce the research of Huang and Wang (2010), which found that men did not have a difference in risky decision-making in both positive and negative framing.

Likewise, 26.3% of female respondents selected option A, while 31.6% chose option B. It means that these results did not support hypothesis 2d. In other words, females preferred making decisions at risk of negative framing and low responsibility. This result contradicts the research by Huang and Wang (2010), explaining that women tended to avoid a significant risk in negative framing.

Then, hypothesis 3d investigated the differences between males and females in risk-taking decision preferences. The analysis showed that option B was selected by 26.3% of male respondents and 31.6% of female respondents. Based on these data, gender was influential in decision-making, and females had a higher preference than males for negative framing and low responsibility; thereby, the 3d hypothesis was not supported. These results corroborate the research of Bliss and Potter (2002), which found that in some cases, women were more likely to take risks than men.

Therefore, the results of this study showed that females had a higher tendency to make riskier decisions than males, both when information was presented in positive or negative framing with high or low responsibility. In contrast to this study, Byrnes et al. (1999), Chen (2005), and Maxfield et al. (2010) suggested that males tended to make more risky decisions than females. However, in the case of low risk-averse, when information was presented in a positive framing with low responsibility, the risk-averse level for females was higher than for males. Table 5 reveals the experimental results.

Conclusion

Based on the experimental study of framing as an attempt to determine the most appropriate one to use, this study predicts and explains the influence of responsibility in decision-making by men and women. The findings revealed a significant difference in decision-making based on the type of responsibility when using a positive framing-high or low responsibility and negative framing-high or low responsibility. Both males and females made risky decisions, whereas individuals avoided risk when positive framing

with low responsibility was presented. However, in this study, females were more risk-takers and were more willing to take risks than males. It signifies that there are anomalies or differences from the results of previous studies.

The results of this study are expected to provide insight into how management presents information; knowing the factors influencing individuals in making decisions is hoped that they can make higher-quality decisions. One of the ways to improve this quality is by framing information that is more aligned with the goals and decisions to be achieved. Management can also positively present information if it wants a more risk-averse decision and vice versa. Likewise, the decision type is vital because, in the business, decision-making is not carried out by individual managers but is a collective agreement that ultimately becomes the decision of a group of managers. Hence, it will be interesting if the subsequent study compares whether there are differences in decision-making preferences based on that type of decision.

Further, the results of this study contribute to the management and behavioral accounting literature and management practice. For academics, this study adds to the literature on the influence of framing and responsibility in investment decision-making. The results of this study also provide additional insight that the risk preferences of men and women are different in decision-making.

For management practice, this study provides additional information that management needs to adapt to conditions that can influence investment decisions, whether riskier or cautious. The adjustment is to provide information in diverse ways to a decision-maker with a different character and gender.

This research cannot be separated from its limitation. This study's limitation is that the respondents involved in this experiment were college students. Even doctoral students, it would be better if the subsequent research conducts experiments on real managers or employees, or further research can use mixed methods.

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