

RESPONSIBILITY ON RISKY CHOICE: FRAMING EFFECT ON INVESTMENT DECISION MAKING OF INDIVIDUAL WITHIN THE GROUP

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ABSTRACT

Management requires data and information as the basis of consideration in decision making. Several decision-making alternatives and its impacts also affect individual's decision making. The effect of framing occurs when a problem/information/choice presented in a particular framing can affect an individual's perception of a problem/choice that will influence an individual's decision making. Previous research divided framing into positive and negative domain. There are several factors other than framing that affect group decision making. Responsibility has an important role in individual decision making within the group. Several economics studies find evidences that individuals decrease their preference for risky choices when they are responsible for other people's outcomes. We investigate the effect of responsibility on risky choice by doing experiment. In this experiment, we empirically analyze the differences of investment decision making between individuals who have responsibility within the group with individuals who have no responsibility within the group when information is presented in either positive or negative framing. 95 participants divided into four groups with different levels of framing and responsibility. This research uses One Way Anova to test whether there are differences in investment decision making between groups. Our experimental results show that responsibility affect risky decision-making preferences, when individuals responsible for group's risky choice, they tend to be more cautious and have lower risk preferences in both positive and negative framing. However, individuals who have no responsibility within the group show a higher risk preference on negative framing rather than positive framing, this finding in line with prospect theory

Keywords: decision making, framing effect, responsibility, individual within group.

INTRODUCTION

Management requires data and informations as the basis of consideration in decision making. Such information includes financial information, legal aspect information, environmental impact analysis, and other information. When making decisions, an individual will arrange the information around him as a consideration. Several decision-making alternatives and its impacts also affect individual's decision making. Kahneman and Tversky (1979) describes the role of information in decision making with prospect theory. According to prospect theory, a decision maker is influenced by the framing of information adopted in the decision-making process. Individuals as decision makers use information arounds. The information chosen by the individual should be relevant in decision making process. An information can be delivered in many ways and presentations. When there is a possibility that information is delivered in multiple ways, then framing can influence individuals' decision-making process. The way in which information is presented has an effect on decision making. Framing is a concept that a decision maker has about the actions, outcomes, and possibilities associated with a particular decision. The effect of framing occurs when a problem/information/choice that presented in a particular framing can affect an individual's perception of a problem/choice that will influence an individual's decision making. Related to investment decision making, the information presented by various stakeholders may cause framing effects to occur. Prospect theory suggests that framing effects result risk-averse decisions on the profit situation and risk-seeking decisions in loss situations (Kahneman & Tversky, 1979). Group decision making recognizes the existence of group polarization concepts that suggest a more extreme decision-making tendency than the original individual decision (Moscovici & Zavalloni, 1969). There is also another theory that explains the decision making of individuals in groups. According to the diffusion of responsibility theory, the shift of decisions from individual to group decision occurs because no one is individually responsible for a group decision that has been made. (Wallach, Kogan, & Bem, 1964; Darley & Latané, 1968). Past research focuses on individual investment decisions and rarely discusses individual investment decision making within groups. In the real situation, decision making as a group is more often than decision making as an individual. For example, capital investment decision-making of PT Unilever Tbk's new plant establishment is conducted by the Board of Directors that consist of the President Director, Chief Financial Officer Director, Director of Home Care & Foods, Personal Care Director, Refreshment & Marketing Service Director, Supply Chain Director, Customer Development, Director of Human Resources, Director & Corporate Secretary (PT Unilever Tbk Annual Report, 2015). The proof of investment decision making at PT Unilever Tbk becomes the argument that research on the influence of framing in individual's decision making within groups becomes an important thing to be done.

LITERATURE REVIEW

Prospect Theory

One alternative in the descriptive approach of decision making is the prospect theory that proposed by Kahneman and Tversky (1981, 1979). Prospect theory is a theory that criticize the expected utility theory proposed by Friedman & Savage, 1948. Kahneman and Tversky's research finds the deviation of expected utility theory and concludes that the expected utility theory can not be accepted as a descriptive model to explain the decision-making principle. They then develop an alternative model of

individual risky decision making called the prospect theory. Prospect theory states that the outcomes are expressed as positive or negative deviations (gains or losses) from a neutral reference point set at zero. According to this theory a choice that is assured of no risk at all will be preferred over options that still carry risks although the slightly likelihood of risk. The tendency to choose such a riskless option is called a certainty effect, which gives the risk aversion in the choice of profits and the risk taking on the options that inevitably result in a loss. Adopted framing depends on the formulation of the problems faced, the norms, habits, and characteristics of the decision maker itself (Kahneman and Tversky, 1979). Bazerman (1984) concludes that adopted framing may help clarify decisions taken by decision makers

Group Polarization

Prospect theory suggests that framing effects result in individual preferences to avoid risky choices in a profit situation and take risky choices in a loss situation. In group situations, however, there will be a tendency for group polarization, in which group decision making will tend to a more extreme position than the previous individual decision. The effect of group discussion on group decision making found that group decision making after group discussion would tend to be more risky than individual decision making (Cheng & Chiou, 2008). Group polarization is an event in which there is a shift in decisions between individuals and group decisions in a risk-taking process, Isenberg argues that individual preference in pre-discussion may influence the discussion of group members in the decision-making process. (Isenberg, 1986)

Diffusion of Responsibility Theory

The concept of diffusion of responsibility was first proposed by Darley & Latané (1968), the responsibility is shared or dispersed between several people, which diminishes the sense of responsibility of each individual. One of the result is known as bystander apathy: the situation in the crowd, when a person gets into trouble, then the people in the crowd often fails to show helpful actions because they think that there will be another person that will help the person in trouble. Basically, group members share responsibility for the consequences of group action that results negatively, while the individual has fully responsible for the negative consequences of his actions. Therefore, an individual who takes full responsibility for himself will feel a greater degree of responsibility than the group members. (Feldman & Rosen, 1978)

In the workgroup, this divided responsibility sometimes occurs in the form of social loafing: that is, each member of the group slows down their rhythm and lets others work harder. Social loafing is more likely to happen when individual group members are not individually responsible for the work they do: when a person feels that working harder will overlap with other co-workers: when one feels that the other person will simply be a "free-rider" or when the job is unattractive. When an individual feel that no one else is capable of performing the task, they will show responsibility and will work harder to redeem it (Ciccarelli & White, 2015; Lilienfeld et al., 2017). This theory explains that in group decisions, each individual will feel that the impact of a group-made decision is not the personal's responsibility. This will lead to a shift in decisions in groups when compared to individuals.

Responsibility on Risky Decision

Mancini & Gangemi, (2003) examine the consequences of the intervention of moral values in the decision-making process. The results indicate that guilty individuals tend to choose riskless options. In contrast, individuals who feel victimized tend to choose risky options. Mancini & Gangemi (2003) assume that individuals who faced risky options considering the moral implications of outcomes other than monetary expectations of the outcomes. When choosing between negative results on the interests of others, the responsibilities of individuals will increase the risk exposure of decision makers. When a person is responsible for a negative outcome, the individual will experience negative consequences, including punishment by another party. Responsibility for results that endanger others will increase the possibility of individuals experiencing psychological distress in the form of guilt and regret, (Leonhardt, Keller, & Pechmann, 2011)

RESEARCH MODEL AND HYPOTHESES

The results of research on group decision making suggest that framing effects will be more extreme for groups than individuals. Paese, Bieser, & Tubbs, (1993) found that if the same framing is offered to individual and group subjects, the framing effect becomes greater in groups than individuals. Positive framing encourages individual's behavior to avoid risk. In a positive framing, individuals are expected to show a reduction in preference to risk as well as in the group, group decision will show a more extreme risks decline than individual. Decision making on positive framing conditions (profit / savings), individuals and groups have a risk averse tendency. Several previous research results on group decision making consistently show that decisions taken in groups are affected by framing factors with a more extreme inclination compared to individual decisions. When compared between decisions made in groups with decisions made by each individual, decisions within the group have a greater tendency to avoid risk if information is presented in a positive framing

Previous research has found that individuals will lower their preference for risky choices when they are responsible for the outcomes of others. Individuals tend to be risk averse when they are responsible for other people's outcomes. (Girtz, Hill, & Owens, 2017). Thus, the role of responsibility in the group will strengthen the interaction of information framing on decision making. Decisions taken by individuals who are given the role of responsible group leader will tend to be more risk-averse compared to other individuals who act as members of the group. The influence of social responsibility and the tendency to adjust to the preferences of others leads to group risk taking more conservative than individual risk taking. (Bolton, Ockenfels, & Stauff, 2015) (Bolton et al., 2015). Research on group decisions generally finds that group interaction will enhance the early group members' decision decisions. Isenberg (1986) states that the decisions of individual group members are on average and tend to be close to neutral, group discussion results in a more extreme tendency in the same direction as individual group member decisions.

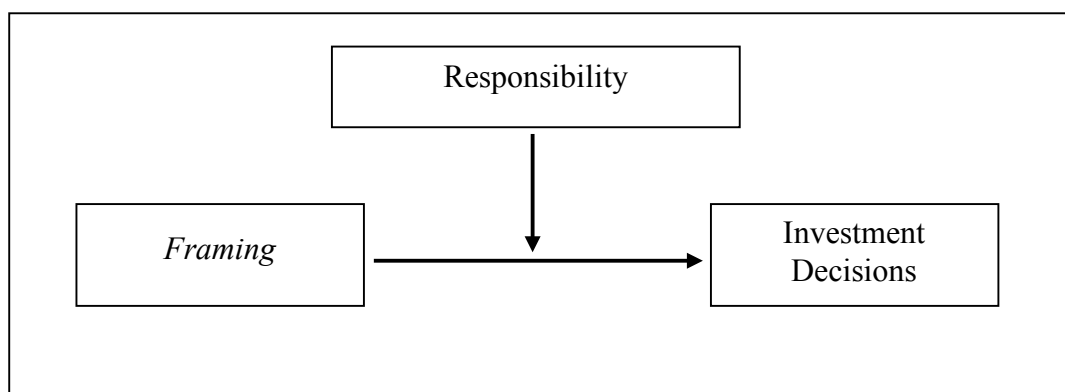
Negative framing or disadvantaged will encourage individual's behavior to make risky choices. Individuals in the group will also show a greater inclination toward risk than individual. The results of several studies on group decisions consistently show that decisions in the group are affected or impacted by larger / extreme framing factors than individuals. It was found that decisions within the group were more likely to approach risk when comparisons were made between group decision-making and individual decision-making. Although decisions in the group will tend to be closer to risk but this only applies to individuals who are not given responsibility in groups. Individuals in the group who have no responsibility will feel the existence of shared responsibility where the consequences for unexpected outcomes due to risky decisions will be shared equally with other individuals in the group. The greater the number of group members the less risk will incur in the group. This is different from the individuals who are given responsibility in the group. Individuals will lower their preference for risky choices when they are responsible for other people's outcomes. The role of responsible group leader will create a psychological burden that he / she will be blamed for unfavorable results when choosing risky options. Thus, it can be said that the existence of individual responsibilities within the group will weaken the negative framing relationship to risky investment decisions. When people faced situations in which they act as the group leader who responsible for group choice will tend to be more careful and choose decisions with lower risk preferences.

Based on the above explanation, this research proposes:

H1: When information is presented in positive framing, decision makers with responsibilities in the group will tend to choose the less risky option than the one who have no responsibility in the group

H2: When information is presented in negative framing, decision makers who do not have responsibilities will tend to choose risk-seeking decisions rather than individuals with group responsibilities

Figure 1. Research Model



METHODOLOGY

Participants

This research involved Soegijapranata Catholic University accounting students as participants. Total of 121 students were divided into four groups. The first group is given responsibility and positive framing scenario. Second, responsibility and negative framing scenario. Third, no responsibility and positive framing. Fourth, no responsibility and negative framing. All groups start with practice session following by the experiment session. All the subjects requested to choose between two options in seven-points likert scale. Out of the 121 participants, 95 were taken as a data to be processed, while 26 datas can not be used because the participants did not respond correctly to the manipulation checks.

Measurement of variables

Dependent Variable

Investment decisions are defined as a condition of the subject decision making process whether to invest in project A or project B. Measurement of investment decisions is based on 7 point scale of an investment decision-making questionnaire including choice of project A or project B. The scale is divided by two sides, (A) 1 < 4 side which selects project A and (B) 4 < 7 the side that choose project B.

Independent Variable

Framing effects relate to how a fact or information is expressed. Framing consists of two levels: positive framing and negative framing. Positive framing is described in terms of potential benefit (profit) and negative framing depicted in potential loss (loss) terminology. Framing of information is manipulated for all subjects so that subjects act on one level (positive framing or negative framing). The framing effect variable will use binominal encoding (1 and 0). Cases with positive framing will be coded 0, whereas for cases with negative framing it will be coded 1.

Moderating Variable

Responsibility within groups is defined as the role of individuals' responsibility within groups. Responsibility in the group consists of two levels, 1) Responsibility as group leader, and 2) No responsibility as a member of the group. Levels of responsibility manipulated for all subjects so that subjects act on one level (with responsibility or without responsibility).

Responsibility variable will use binominal encoding (numbers 1 and 0). Subjects with responsibilities as group leaders will be coded 0, while subjects with no responsibilities as group members will be coded 1.

Hypotheses Testing

The hypotheses in this study were tested using one-way ANOVA. The test was conducted in order to determine whether there were differences in investment decisions between the subjects. The level of significance was set at 5%. If the significance value was less than 0.05 indicated that there were differences between groups. Conversely, if the significance value was more than 0.05, indicated that there were no differences between groups

RESULTS

There are two hypotheses to be tested in this study. The first hypotheses is that when information is presented in positive framing, decision makers with responsibilities in the group will tend to choose the less risky option than the one who have no responsibility in the group. The second hypotheses to be tested is that when information is presented in negative framing, decision makers who do not have responsibilities will tend to choose risk-seeking decisions rather than individuals with group responsibilities. Table 4.4 below shows the results of hypotheses testing

Table 1 : The results of hypotheses testing

	Sig	Investment Decisions Mean
H1 : Inv Dec_Framing Positive	0.004	L (0) : 2.60 M (1) : 4.11
H2 : Inv Dec_Framing Negative	0.000	L (0) : 2.60 M (1) : 5.94

Based on Table 1 the significance value for hypothesis 1 is 0.004, this proves that in a positive framing there was a difference between the investment decisions made by the responsible group leader and the group members who were not responsible. Associated with its preference for risk can be seen from the mean of investment decisions between 2 groups of subjects. The group that has the responsibility as leader has an average investment decision of 2.60, this value is closer to the scale point 1 which is a less risky investment choice compared to the mean of second group value of 4.11. It can be concluded that when information is presented in a positive framing, individuals with group responsibilities will tend to choose less risky choice than individuals who have no responsibility within the group, therefore hypothesis 1 is accepted

Hypothesis 2 which examines the differences of decision making in negative framing has a significance value of 0.000. This indicates that there is a significant difference between the decision taken by the group leader as the responsible one within the group with the subjects who have no responsibility. The investment decision shows mean value of 5.94 indicates that the subjects who acted as members of the group with no responsibility had a riskier decision than the subjects who acted as group leaders with a mean of 2.60. These results indicate that hypothesis 2 is accepted, when information is presented in negative framing, individuals with no responsibility in the group prefer to choose risk-seeking decisions than the individuals who have responsibilities.

In positive framing, individuals with group responsibilities will tend to choose less risky decisions than the individuals who have no responsibility within the group. Positive framing encourages individual behavior to avoid risk. In a positive framing, individuals are expected to show a reduction in preference to risk as well as individual decisions in the group that will also show a decrease in preference for more extreme risks than individual decisions. The theory of group polarization (Cheng & Chiou, 2008) describes this effect, coupled with the theory of the diffusion of responsibilities which says that the responsibility is shared or dispersed between several people, which diminishes the sense of responsibility of each individual. (Darley & Latané, 1968)

When individuals faced the situations in which he / she acts as the group leader who responsible for group choice, they will tend to be more careful and choose decisions with lower risk preferences. This supports previous research that found that individuals will lower their preference for risky choices when they are responsible for other people's outcomes. (Girtz, Hill, & Owens, 2017). The role of the responsible leader in the group will strengthen the interaction of information framing on decision making. Decisions taken by individuals who are given the role of responsible group leader will tend to be risk-averse when compared to other individuals who act as members of the group with no responsibilities. The influence of social responsibility and the tendency to adjust to the preferences of others leads to group risk taking being more conservative than individual risk taking. (Bolton et al., 2015)

In negative framing, individuals who do not have group responsibilities will tend to choose risk-seeking decisions rather than individuals with group responsibilities. Negative framing or disadvantaged domain will encourage individual behavior to make risky choices. Individuals in the group will also show a greater inclination toward risk than their individual individuals. Individuals within the group who have no responsibility will feel the existence of shared responsibility where the consequences for unexpected outcomes due to risky decisions will be shared equally with other individuals in the group.

The greater the number of group members the less risk will incur in the group. Although decisions in the group tend to risk-seeking but this only applies to individuals who are not given responsibility in groups. Individuals in the group who have no responsibility will feel the existence of shared responsibility where the consequences for outcomes that are not expected due to risky decisions will be shared equally with other individuals in the group. The greater the number of group members the less risk he will incur in the group. This is different from the individuals in the group who are given responsibility in the group.

Individuals will lower their preference for risky choices when they are responsible for other people's outcomes. The role of group leader will create a psychological burden that he / she will be blamed for unfavorable results when choosing risky options. When individual faced the situations in which he/she acts as the group leader who is responsible for group choice, they will tend to be more careful and choose decisions with lower risk preferences.

To provide a more in-depth discussion, the researcher re-examined the investment decision, a different test will be done in the level of responsibility (leader and member) to compare positive framing with negative framing. The results of this test can be seen in table 2

Table 2: The compare means result of positive framing and negative framing

	Sig	Investment Decisions Mean
Inv Dec_Leader	1.000	Positive (0) : 2.60
		Negative (1) : 2.60
Inv Dec_Member	0.000	Positive (0) : 4.11
		Negative (1) : 5.94

The first test on the level of responsibility as leader shows the significance results of 1,000, it shows that there is no difference in investment decision between the information presented in the positive framing and the information presented in the negative framing. The mean investment decision also shows the same result between positive framing and negative framing, that is at point 2.60. This investment decisions mean tends to less risky (1-4 indicates less risky decisions, 4-7 indicates risky decisions).

Subsequent testing at the level of responsibility as a member of the group shows a result of significance of 0.000, it shows that there were significant differences between the two groups of positive and negative framing. With an average investment decision in a positive framing of 4.11 indicates risky investment decisions even though they tend to be moderate. Investment decisions mean in negative framing of 5.94 shows high risk preferences when information is presented in negative framing.

The responsibilities between group leaders and group members can be explained by the theory of diffusion of responsibility. Test results on subjects with responsibilities as leader with positive framing and negative framing indicated that there was no significant difference between the group leaders who were informed by positive framing compared to the group leader who given the information in negative framing. This further supports the theory of the diffusion of responsibilities which states that the responsibility borne by a person is able to influence the risk preference for the decision to be taken. Framing no longer has an effect when someone is burdened with responsibility, subjects tend to choose less risky decisions when they have responsibility as group leader.

While on a subject without responsibility (acting as a member of the group), framing has a significant impact. There were significant differences between groups with positive framing and groups with negative framing. The average investment decision of 4.11 on the positive framing and 5.94 on the negative framing supports the prospect theory which states that when information is presented in negative framing it will lead to decisions that tend to be more risky than the decisions taken when information is presented with positive framing. According to prospect theory, positive framing encourages individuals' behavior to avoid risk, otherwise framing with negative or disadvantaged domains will encourage individual behavior to make risky choices. However, when framing is influenced by group responsibilities, it shows different results.

Table 3 : Means comparison of four groups

	Investment Decisions Mean
Positive Framing, as a Leader	2.60
Negative Framing, as a Leader	2.60
Positive Framing, as a Member	4.11
Negative Framing, as a Member	5.94

Furthermore, the researchers present Table 3 which contains the means comparison of the investment decisions for each group to know what combination of framing and responsibilities that will result in the riskiest investment decisions. The results of the means comparison indicate that individuals' investment decisions are at the riskiest when information is presented in negative framing with the role as a member of the group that have no responsibilities within the group

CONCLUSION

This study shows that:

1. When information is presented in positive framing, decision makers with responsibilities within the group will tend to choose the less risky option than the one who have no responsibility in the group. Otherwise, when information is presented in negative framing, individuals with no responsibility in the group prefer to choose risk-seeking decisions than the individuals who have responsibilities within the group
2. The responsibility borne by a person is able to influence the risk preference for the decision to be taken. Framing no longer has an effect when someone is burdened with responsibility, subjects tend to choose less risky decisions when they have responsibility as group leader. While on a subject without responsibility (acting as a member of the group), framing has a significant impact. This result in line with previous research by Feldman & Rosen, 1978; Leonhardt, Keller, & Pechmann, 2011; Girtz, Hill, & Owens, 2017 that individuals tend to be risk averse when they are responsible for other people's outcomes.

3. Individuals' investment decisions are at the riskiest when information is presented in negative framing with the role as a member of the group that have no responsibilities within the group

REFERENCES

- Bazerman, M. H. (1984). The Relevance of Kahneman and Tversky's Concept of Framing to Organizational Behavior. *Journal of Management*, 10. Retrieved from <https://doi.org/10.1177/014920638401000307>
- Bolton, G. E., Ockenfels, A., & Stauf, J. (2015). Social responsibility promotes conservative risk behavior. *European Economic Review*, 74, 109–127. <https://doi.org/10.1016/j.euroecorev.2014.10.002>
- Cheng, P.-Y., & Chiou, W.-B. (2008). Framing effects in group investment decision making: role of group polarization. *Psychological Reports*, 102, 283–292. <https://doi.org/10.2466/PRO.102.1.283-292>
- Ciccarelli, S. K., Gulf C. S. C., & White, J. N. (Georgia C. (2015). *Psychology* (Fourth Edition). Pearson Education, Inc.
- Darley, J. M., & Latané, B. (1968). Bystander Intervention in Emergencies: Diffusion of Responsibility. *Journal of Personality and Social Psychology*, 8(4), 377–383. <https://doi.org/10.1037/h0025589>
- Feldman, R. S., & Rosen, F. P. (1978). Diffusion of Responsibility in Crime, Punishment, and Other Adversity. *Law and Human Behavior*, 2(4), 313–322. Retrieved from <http://www.jstor.org/stable/1393835>
- Friedman, M., & Savage, L. J. (1948). The Utility Analysis of Choices Involving Risk. *The Journal of Political Economy*, 56(4), 279–304. Retrieved from <http://www.jstor.org/stable/1826045>
- Girtz, R., Hill, J., & Owens, M. (2017). Risk preferences, responsibility, and self-monitoring in a Stag Hunt. *Journal of Behavioral and Experimental Economics*, 68, 53–61. <https://doi.org/10.1016/j.socec.2017.03.004>
- Hartono, J. (2010). *Metodologi Penelitian Bisnis : Salah Kaprah dan Pengalaman-Pengalaman*. Yogyakarta: BPFE.
- Isenberg, D. J. (1986). Group Polarization : A Critical Review and Meta-Analysis. *Journal of Personality and Social Psychology*, 50(6), 1141–1151. <https://doi.org/10.1037/0022-3514.50.6.1141>
- Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Econometrica*, 47(2), 263–292. <https://doi.org/10.1017/CBO9781107415324.004>
- Kahneman, D., & Tversky, A. (1981). The framing of decisions and the psychology of choice. *Science*, 211(4481), 453–458. <https://doi.org/10.1126/science.7455683>
- Laporan Tahunan PT Unilever Tbk. (2015).
- Leonhardt, J. M., Keller, L. R., & Pechmann, C. (2011). Avoiding the risk of responsibility by seeking uncertainty: Responsibility aversion and preference for indirect agency when choosing for others. *Journal of Consumer Psychology*, 21(4), 405–413. <https://doi.org/10.1016/j.jcps.2011.01.001>
- Lilienfeld, S. O. (Emory U., Lynn, S. J. (Binghamton U., Namy, L. L. (Emory U., Woolf, N. J. (University of W., Cramer, K. M. (University of W., & Schmaltz, R. (MacEwan U. (2017). *Psychology* (Third Cana). Pearson Canada Inc.
- Mancini, F., & Gangemi, A. (2003). Responsibility, guilt, and decision, 1077–1079. Retrieved from <https://doi.org/10.2466/pr0.2003.93.3f.1077>
- Moscovici, S., & Zavalloni, M. (1969). The group as a polarizer of attitudes. *Journal of Personality and Social Psychology*, 12(2), 125–135. <https://doi.org/10.1037/h0027568>
- Nahartyo, E., & Utami, I. (2016). *Panduan Praktis Riset Eksperimen*. Jakarta: Indeks.
- Paese, P. W., Bieser, M., & Tubbs, M. E. (1993). Framing Effects and Choice Shifts in Group Decision Making. *Organizational Behavior and Human Decision Processes*. <https://doi.org/10.1006/obhd.1993.1049>
- Wallach, M. A., Kogan, N., & Bem, D. J. (1964). Diffusion of Responsibility and Level of Risk Taking in Groups. *Journal of Abnormal and Social Psychology*, 68, 263–274. Retrieved from <http://dx.doi.org/10.1037/h0042190>

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