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The testing of the effect of belief-adjustment model and framing effect on investment decision making by using long series accounting information

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A B S T R A C T

The objective of this research is to examine the differences in investment decisions made by non-professional investors when the information provided is presented in some different ways. Belief-adjustment model (information order and disclosure pattern) and framing effect are pretended in some factors, which influence investors to make different decisions. Design of experiment for this research is 2×2×2. Participants involved in this research are 111 undergraduate students of STIE Perbanas Surabaya majoring in Accounting and Management. The statistical method used in this study is independent sample t-test or mann-whitney u-test. The results show that either step-by-step or end-of-sequence presentation patterns can cause recency effect, and it is greater for sequential condition than simultaneous condition. But, the result is inconsistent for end-of-sequence pattern which in some conditions can caused no order effect. In another side, the result also proves that framing effect can influence investor's consideration in decision making.

A B S T R A K

Tujuan dari penelitian ini adalah untuk menguji perbedaan dalam keputusan investasi yang dibuat oleh investor non-profesional ketika informasi yang tersedia disajikan dalam beberapa cara yang berbeda. Model penyesuaian keyakinan (urutan informasi dan pola pengungkapan) dan efek pembingkaian diasumsikan dalam beberapa faktor, yang mempengaruhi investor untuk membuat keputusan yang berbeda. Desain eksperimen untuk penelitian ini adalah 2 × 2 × 2. Partisipan yang terlibat dalam penelitian ini adalah 111 mahasiswa strata satu STIE Perbanas Surabaya jurusan Akuntansi dan Manajemen. Metode statistik yang digunakan dalam penelitian ini adalah independent sample t-test atau mann-whitney u-test. Hasil penelitian menunjukkan bahwa baik pola presentasi langkah-demi-langkah (step-by-step) atau akhir-urutan (end-of-sequence) dapat menyebabkan efek kebaruan, dan lebih besar untuk kondisi sekuensial daripada kondisi simultan. Tetapi, hasilnya tidak konsisten untuk pola end-of-sequence yang dalam beberapa kondisi dapat menyebabkan efek urutan. Di sisi lain, hasilnya juga membuktikan bahwa efek framing dapat memengaruhi pertimbangan investor dalam pengambilan keputusan.

1. INTRODUCTION

In 2016, there were 537 public companies listed on the Indonesia Stock Exchange (IDX). In general, companies include financial statements in their annual reports to help investors get key financial data. However, some companies present their financial statements separately from the annual reports. Financial statements and annual reports are useful to investors as one of the basic considerations in making investment decisions.

The problem that needs to be investigated is the fact that the information obtained, either from the internal companies (financial report or annual report) or from external companies (mass media, stock analysts, etc.), presents the same information but in a different way. This occurs due to the shift in the tendency of investors in determining investment decisions. The same information but in different presen-

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tation may result in the investor being irrational. The existence of such differences makes the presentation of information very important to note.

In the belief-adjustment model, there are two possible sequence effects, that is, primacy effect (the first information received will tend to be considered more than the last information received) and recency effect (the last information received will tend to be considered more than the first information received). Differences in the presentation of the information order on mixed information (good news followed by bad news and bad news followed by good news) and sequence effects will affect individual judgments. For example, the research conducted by Hogarth and Einhorn (1992) predicts that there is a primacy effect on the information presentation pattern of Step-by-Step and long information series. If the available information presentation order is good news followed by bad news, then the good news will be considered more than the bad news.

The next factor that influences investment decision making is framing effect. In general, an individual will interpret the information obtained in accordance with his reference to the advantages or disadvantages he will get on the decision he chooses. The decisions made on the options he faces tend to follow how strong the belief in the reference. Good news that is presented as good news or otherwise does not require too much consideration. An individual will tend to choose an option that obviously benefits him. However, if the good news is presented negatively, it is likely that the individual will interpret it differently. So, it can be concluded that different interpretations will lead to different decisions.

Related to the testing of the influence of information presentation patterns on the investment decision-making process, the results of the studies conducted by Pinsker (2007), Pinsker (2011), Luciana Spica et al. (2013), and Luciana Spica and Supriyadi (2013) show that the last information received is considered more than the first information received. Recency effect occurs greatly on presentation pattern of Step-by-Step. However, the results of previous research did not fully support the existing theory, that is, belief-adjustment model by Hogarth and Einhorn (1992), where it is predicted that the effect occurring is primacy effect which is used for testing on long series information and mixed information. The studies conducted by Panasiak and Terry (2013), and Mbaluka et al. (2012) on the framing effect show that framing effect has an influence on the decisions taken by individuals. So, based on the description, it can be concluded that information presentation pattern, information order, and framing effect will give different results on investment decisions.

Therefore, the researcher is interested to re-examine the effect of belief-adjustment model on investment decision and the effect of information framing on investment decision especially for non-professional investor. This research includes the information presentation pattern (Step-by-Step and End-of-Sequence), the information order (good news followed by bad news and bad news followed by good news) and information framing on long series accounting information. The targeted finding in this research is to find out the difference of investment decision caused by different presentation of information based on belief adjustment model and framing effect.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS

Belief-Adjustment Model

Hogarth and Einhorn (1992) developed a belief-adjustment model based on the assumption that individuals process information sequentially and have limited memory capacity, where the individuals change their beliefs based on anchoring and adjustment processes. The model also presents on how, why, and when the order can revise individual beliefs. In addition, this model also considers the characteristics of the information presentation order and the information presentation pattern. One of the extensions of Bayes' theorem here is the types of evidence that can be categorized as either consistent evidence or mixed evidence. When all the additional evidence has the same direction (either positive or negative), the evidence is categorized as a consistent evidence. Conversely, when some evidence is negative and some evidence is positive, the evidence is categorized as mixed evidence.

The components developed in this belief-adjustment model include: 1) Sequential process, where sequential process is the assumption underlying belief adjustment, 2) Task variables, consisting of task complexity, length of information series, and information presentation patterns. The task complexity is a function decrease in task familiarity. The length of the information series indicates the amount of information to be evaluated. The task that evaluates information from 2 to 12 items of information is classified as short series of information. Meanwhile, if the number of information items consists of more than 16 items, it is classified as long series of information. The information presentation pattern is a procedure on how the evidence will be evaluated. There are two information presentation patterns

Table 1
Expectation of Sequence Effect Based on Belief-Adjustment Model

	Simple		Complex	
	End of Sequence	Step by Step	End of Sequence	Step by Step
Mixed information set				
Short	Primacy	Recency	Recency	Recency
Long	Primacy	Primacy	Primacy	Primacy
Consistent information set				
Short	Primacy	No Effect	No Effect	No Effect
Long	Primacy	Primacy	Primacy	Primacy

Source: Hogarth and Einhorn (1992).

introduced in the belief adjustment theory: Step-by-Step (SbS) or sequential presentation pattern and End-of-Sequence (EoS) or simultaneous presentation pattern.

In the information presentation pattern of Step-by-Step (SbS), if the individual is given some simple information items, the information will be evaluated one by one in sequence so that there will many times assessment of the number of information items available conducted by the individual concerned as in the interim financial statements. While in the information presentation pattern of End-of-Sequence (EoS), if the individual is given more complex information and all information received at that moment, all items of information will be evaluated at the same time so that there will be only one time assessment conducted by individual concerned as in the company's annual report.

Primacy effect occurs when the first information received is considered more important than the last information received. Conversely, recency effect occurs when the last information received is considered more than the first information received. Hogarth and Einhorn (1992) state that there is a sequence effect on the belief adjustment model with the presence of simple and complex information and mixed and consistent information as shown in Table 1.

Framing Effect

There are several theories that explain the framing effect, among others, prospects theory, probabilistic mental model, and fuzzy trace theory. The prospect theory developed by Kahneman and Tversky (1979) states that framing adopted by a person can influence decision making. Probabilistic mental model is developed by Gigerenzer et al. (1991). While fuzzy trace theory is proposed by Brainerd and Reyna (1990) where this theory assumes that one would prefer to reason on the presentation of information that has been simplified compared with the information presented in detail.

According to prospect theory, in decision-making activities, humans undergo two stages consisting of editing and evaluation process. During the editing process, the decision result will be packaged in a certain heuristic. Someone will decide the reference point as a reference to make decisions which will give lower yields as the losses gained and the greater yield for profit. The loss and profit are irrelevant without an initial reference point. From the idea it appears that a person will act in accordance with his terms of reference, which means that in decision-making, the person not only refers to the results they know, but also refers to the conditions that exist at the time and how those results may affect his territory.

Whereas, according to the probabilistic mental model (PMM), when an individual is given two alternative assignments, the first thing he/she will do is to build a local mental model (LMM) of the assignment, then use it to solve the problems with long-term memory and basic logic operations. In general, LMM will be successfully constructed if (1) the appropriate figures can be drawn from long-term memory to compare existing alternatives, (2) the range/features contained in information about those alternatives are not overlapping, (3) basic logic operations can compensate for missing information. If LMM can not directly solve the problem, the PMM will reconstruct using probabilistic information generated from long-term memory. The majority of issues in accounting and management use PMM because the second and third requirements in LMM to resolve business issues cannot be used.

In the fuzzy-trace theory (FTT) within the context of framing effect, when quantitative information is presented, the essence relating to the information will be reviewed automatically (an idea that one choice is more or less than the other). However, if the choice points to the choice containing versus or no versus, it will allow more than one result. In short, fuzzy-trace theory predicts a qualitative relationship between numerical values compared to the value itself on decision making, except when one cannot simplify the choice of decision because of the complexity of the information presented. Or in other words, when a person is faced with a choice that is

described using a favorable domain/positive frame or unfavorable domain/negative frame, FTT predicts that someone will make a decision by simplifying it in a single digest so that a framing effect occurs.

Order Effect Testing

In belief-adjustment model, the aspect of order effect will occur if the individual decision turns out to be different after receiving a set of information with different order. The order is the information presentation order where the available information is mixed information between positive information (good news) and negative information (bad news). There are two effects that may occur: primacy effect and recency effect. Primacy effect occurs when the first information received is considered more in making investment decisions. While recency effect occurs when the last information received is considered more by individuals in decision making.

The recency effect will not occur if the information available is positive information only or negative information only. The effect will occur when the information available is mixed information between negative information and positive information (Ashton and Ashton, 1988). While research conducted by Hogarth and Einhorn (1992) mentions that primacy effect will occur if participants are presented with long series of information either in the model of Step-by-Step or End-of-Sequence. It is in contrast to the research conducted by Pinsker (2011) that does not support the results of the research conducted by Hogarth and Einhorn (1992), where recency effect occurs in all conditions, either given information simultaneously or sequentially, so the hypothesis for the testing of order effect is:

H1a: There is a difference in investment decision between the participants receiving accounting information presentation order of good news followed by bad news (++--) and the participants receiving accounting information presentation order of bad news followed by good news (--++) on presentation pattern of step-by-step and framing in line with information.

H1b: There is a difference in investment decisions between the participants receiving accounting information presentation order of good news followed by bad news (++--) and the participants receiving accounting information presentation order of bad news followed by good news (--++) on presentation pattern of step-by-step and framing in reverse information

H1c: There is a difference in investment decision between the participants receiving accounting information presentation order of good news followed by bad news (++--) and the participants receiving accounting information presentation order of bad news followed by good news (--++) on presentation pattern of end-of-sequence and framing in line with information.

H1d: There is a difference in investment decisions between the participants receiving accounting information presentation order of good news followed by bad news (++--) and the participants receiving accounting information presentation order of bad news followed by good news (--++) on presentation pattern of end-of-sequence and framing in reverse information.

Information Presentation Pattern Testing

In testing of the presentation pattern of SbS and EoS, there are two effects that may occur. The first is recency effect, where the last information received will be considered more in decision making. Then the second is primacy effect where the first information received will be considered more in decision making. This is due to limitations on the ability of individuals to process the information they receive. Hogarth and Einhorn (1992) predicted the occurrence of primacy effects on mixed information series testing (presentation order ++-- or --++) with long information series, both simple and complex information, and end-of-sequence and step-by-step. So in the long series of information, both on simple and complex information, and in SbS and EoS presentation patterns, the individuals will consider more on the first information they receive.

From the results of the research conducted by Pinsker (2007) on long information series, it can be concluded that there is a greater confidence revision when the information presentation pattern is done sequentially compared with the simultaneous presentation pattern. In the research conducted by Pinsker (2011), it is stated that by adding the amount of information provided, there is a recency effect on the presentation of gradual information compared with simultaneous information presentation on long series of information. This is due to the fact that participants are more sensitive to the last information presented. However, it also applies when the information presentation is done simultaneously, in which the participants also show that the recency effect applies to simultaneous and gradual information presentation. Meanwhile, the results of the studies conducted by Luciana Spica and Supriyadi (2013) and Luciana Spica et al. (2013) show that gradual information presentation will lead to recency effects

compared with simultaneous information presentation. While in simultaneous information presentation, the participant's response does not show any primacy or recency effect. To see if there will occur different effect or not, it is reflected in the form of an investment decision. In this study, the testing is done using the hypotheses as follows:

H2a: There is a difference in investment decisions between the participants receiving accounting information presentation pattern of step-by-step and the participants receiving accounting information presentation pattern of end-of-sequence in information presentation order of good news followed by bad news (++--) and framing in line with information.

H2b: There is a difference in investment decisions between participants receiving accounting information presentation pattern of step-by-step and the participants receiving accounting information presentation pattern of end-of-sequence in information presentation order of bad news followed by good news (--++) and framing in line with information.

H2c: There is a difference in investment decisions between then participants receiving accounting information presentation pattern of step-by-step and the participants receiving accounting information presentation pattern of end-of-sequence in information presentation order of good news followed by bad news (++--) and framing in reverse information.

H2d: There is a difference in investment decisions between the participants receiving accounting information presentation pattern of step-by-step and the participants receiving accounting information presentation pattern of end-of-sequence in information presentation order of bad news followed by good news (--++) and framing in reverse information.

Framing Effect Testing

In addition to the presentation pattern and presentation order of information, other factors that affect the investment decision-making process is the framing effect. Individuals will tend to prefer options that contain more positive information. Such is human nature that individuals will consider a lot on profit they will gain or loss aversion. The research conducted by Mbaluka et al. (2012) indicates that the selection of decisions that are not consistently significant between positive information (gains) and negative information (loss) on the respondents is the respondents' response in loss aversion type. They will tend to choose to bear losses rather than profit. The result is caused by the information which is presented differently so that ultimately the respondents who choose the profits will undoubtedly alter their decision to allow them to lose. Others choose to make decisions that allow them to gain certain profit, but to change their decisions by choosing to bear a certain loss. Thus it can be seen that decision makers will tend to change their decisions if the available information is presented differently.

The same result is also expressed by Panasiak and Terry (2013), where individuals will tend to be risk averse if uncertain outcomes are positively framed, but will tend to be risk-seeking if the the information that support decision is negatively framed. Research done by Negina Kencono et al. (2012) also explains that participants involved tend to take non-risky decisions when information is presented in the form of positive frame. Then participants who make decisions on conditions that have a more positive risk will not change their decisions in the direction that causes their profits to be reduced. From these earlier studies, we can see that decision makers will be influenced by how the information is conveyed, positive information may be delivered negatively or otherwise.

In this research, the framing to be tested are: (1) positive information will be in positive frame, (2) positive information will be in negative frame, (3) negative information will be in positive frame, and (4) negative information will be in negative frame, where framing effect testing will be divided into two, namely framing according to information and framing in reversed information. Hypotheses in this research are as follows:

H_{3a}: There is a difference in investment decisions between the participants receiving accounting information with framing in line with information and the participants receiving accounting information with framing in reverse information in presentation pattern of step-by-step and information order of good news followed by bad news (++--).

H_{3b}: There is a difference in investment decisions between the participants receiving accounting information with framing in line with information and the participants receiving information with framing in reverse information in presentation pattern of step-by-step and information order of bad news followed by good news (--++).

H_{3c}: There is a difference in investment decisions between the participants receiving accounting information with framing in line with information and the participants receiving accounting

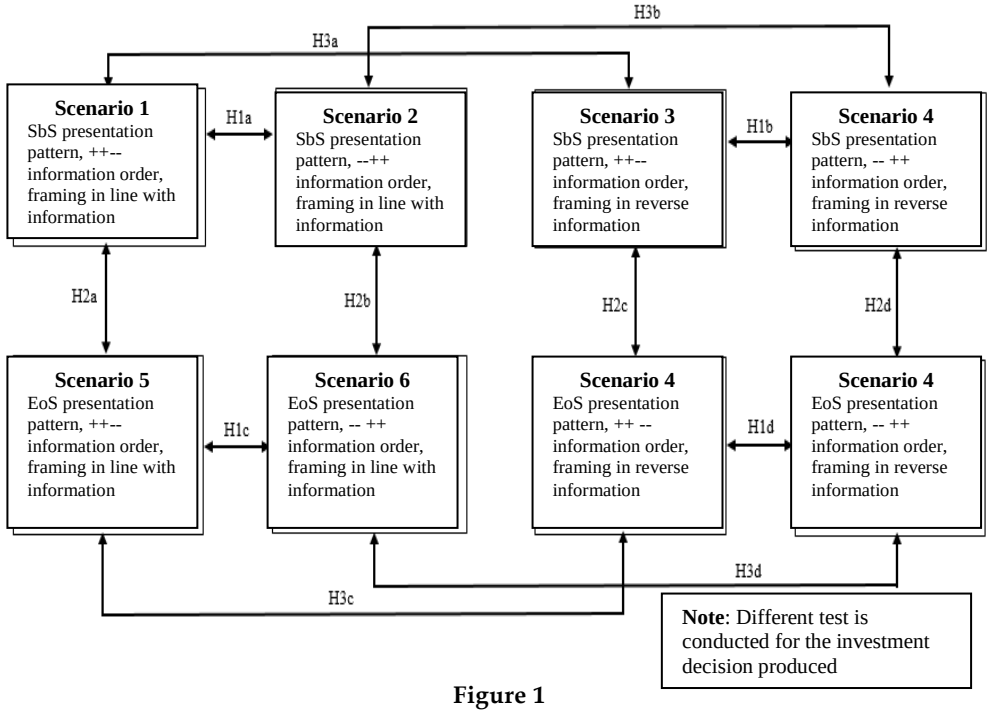

Figure 1
Framework

information with framing in reverse information presentation order of end-of-sequence and information order of good news followed by bad news (++--).

H_{3d}: There is a difference in investment decisions between the participants receiving accounting information with framing in line with information and the participants receiving accounting information with framing in reverse information in presentation pattern of end-of-sequence and information order of bad news followed by good news (--++).

The framework underlying this research can be described as shown in Figure 1.

3. RESEARCH METHOD

Research Design

This research is a quantitative research using primary data. The instrument research is filled manually/paper and pencil experiment. Participants in this study are undergraduate students of STIE Perbanas Surabaya majoring in Accounting and Management who have/are taking the course of Financial Statement Analysis and/or have/are taking the course of Investment Management and Capital Market or Investment Management and Portfolio. The experimental design used is 2 (information order of good news followed by bad news and bad news followed good news) × 2 (presentation pattern of step-by-step and end-of-sequence) × 2 (framing according to information and framing in reversed information).

Research Variable

Variables used in this study are independent variables, consisting of information order, information presentation pattern, and framing effect, and dependent variable consisting of investment decisions.

Variable Operational Definition

Information Presentation Order

The information presentation order consists of good news followed by bad news and bad news followed by good news.

Information Presentation Pattern

The information presentation pattern consists of Step-by-Step (SbS), an information presentation pattern when investors make stock trading transactions based on the information received sequentially, and End-of-Sequence (EoS), an information presentation pattern when investors make stock trading transactions based on complex information and simultaneously gained instantly.

Framing Effect

Information framing is divided into two categories: the first is framing in line with information (good news is presented positively, good news is presented negatively), and the second is the framing in reverse information (bad news is presented positively, and bad news is presented negatively).

Investment Decision

Investment decision is the placement of the current

Table 2
Summary of the Results of Normality Test and Hypothesis Test

Hip.	Testing				KS	T-test	U-test	H1
	Cell	Order	Pattern	Framing	Sig	Sig (2-tailed)	Sig (2-tailed)	
1a	Cell 1 Cell 2	+ + - - - - + +	SbS SbS	In line Reverse	0.187	0.000	-	Accepted
1b	Cell 3 Cell 4	+ + - - - - + +	SbS SbS	Reverse Reverse	0.200	0.000	-	Accepted
1c	Cell 5 Cell 6	+ + - - - - + +	EoS EoS	In line In line	0.006	-	0.051	Rejected
1d	Cell 7 Cell 8	+ + - - - - + +	EoS EoS	Reverse Reverse	0.025	-	0.032	Accepted
2a	Cell 1 Cell 5	+ + - - + + - -	SbS EoS	In line In line	0.162	0.001	-	Accepted
2b	Cell 2 Cell 6	- - + + - - + +	SbS EoS	In line In line	0.050	0.000	-	Accepted
2c	Cell 3 Cell 7	+ + - - + + - -	SbS EoS	Reverse Reverse	0.036	-	0.018	Accepted
2d	Cell 4 Cell 8	- - + + - - + +	SbS EoS	Reverse Reverse	0.108	0.116	-	Rejected
3a	Cell 1 Cell 3	+ + - - + + - -	SbS SbS	In line Reverse	0.200	0.000	-	Accepted
3b	Cell 2 Cell 4	- - + + - - + +	SbS SbS	In line Reverse	0.143	0.000	-	Accepted
3c	Cell 5 Cell 7	+ + - - + + - -	EoS EoS	In line Reverse	0.007	-	0.055	Rejected
3d	Cell 6 Cell 8	- - + + - - + +	EoS EoS	In line Reverse	0.015	-	0.029	Accepted

amount of funds to be transferred to a productive asset over a period of time in the hope of making a profit in the future (Abdul Halim 2005: 4).

Analysis Tool

To test whether there are differences between investment decisions, the researcher uses SPSS 21.0 for Windows. Data analysis technique used in this research to test the research hypothesis is Normality Test. Normality test aims to test whether in the regression model, independent variables and dependent variable have a normal distribution or not. The data can be said to be normally distributed if the significance value is > α 0.05. If the data is normally distributed, a simple parametric t-test is performed, and if the data is not normally distributed then non-parametric Mann Whitney testing is performed.

After knowing that the available data is normally distributed then it is continued with different test of a t-test. This test is used to determine whether there is a difference between two free samples having different mean. The provision used for different test t-test is: if the level of significance is <0.05 then H0 is rejected which means there is a difference. Meanwhile, H0 is accepted if the test results show a significance level > 0.05 which means there is no difference

4. DATA ANALYSIS AND DISCUSSION

Table 2 is a summary of the results of normality test and hypothesis test:

The Discussion of Information Order Testing

Information order testing is divided into four hypotheses which aim to see whether there are differences in investment decisions between the participants receiving good news followed by bad news information (++--) and the participants receiving bad news followed by good news information (--++). Only one hypothesis is rejected (see Table 2). From Table 2 it is seen that the investment decision of participants who receive good news followed by bad news information (++--) with the presentation pattern of End-of-Sequence and framing in line with information do not differ significantly from participants who receive bad news followed by good news information (--++) with End-of-Sequence presentation pattern and framing in line with information (Hypothesis 1c) and no order effect. While the investment decisions of participants who receive good news followed by bad news information (++--) with the presentation pattern of Step by Step and framing in line with information differ significantly from participants who receive bad news followed by good news information (--++) with End-of-Sequence presentation patterns and framing in line with information

(hypothesis 1a). Similarly, participants who receive good news followed by bad news information (++--) with the presentation pattern of Step-by-Step and framing in reverse information compared to participants who receive bad news followed by good news information (--++) with the presentation pattern of Step-by-Step and framing in reverse information (hypothesis 1b). Then the investment decisions of participants who receive good news followed by bad news information (++--) with End-of-Sequence presentation pattern and framing in reverse information are significantly different from participants who receive bad news followed by good news information (--++) with End-of-Sequence presentation pattern and framing in reverse information (hypothesis 1d).

The results indicate that participants tend to perform greater belief revision in the presentation pattern of Step-by-Step so that the effect occurring is the recency effect, where the last information received is considered more than the first information received, except in hypothesis 1c, that is, the condition when participants receive good news followed by bad news information (++--) with End-of-Sequence presentation pattern and framing according to information compared to participants who receive bad news followed by good news information (--++) with End-of-Sequence presentation pattern and framing in line with information. In contrast to the Belief-adjustment model proposed by Hogarth and Einhorn (1992) on the order effect in which the theory mentions that for long series information and mixed information (++-- or --++), individuals will tend to pay more attention to the first information received than the last information received or primacy effect (see Table 2). However, the test results support the previous research conducted by Pinsker (2011) that recency effect occurs in all experimental conditions both in Step-by-Step and End-of-Sequence presentation patterns and in the long information series.

However, there is no order effect in End-of-Sequence condition with framing in line with information (hypothesis 1c). Such result is due to the fact that when participants are given information simultaneously, the participants will tend to process more information and consider it to make a decision. The testing result of hypothesis 1c is consistent with the research conducted by Ashton and Kennedy (2002) that there is no difference in the decision in the condition where the information is presented simultaneously (End-of-Sequence). In addition, these results are also consistent with previous studies conducted by Luciana Spica and Supriyadi (2013) where there is no significant difference between participants who receive good news followed by bad news information (++--) and framing in line with information and participants who receive bad news followed by good news information (--++) and framing in line with information. And the Participants tend to pay more attention to the latest information received than the first information received (recency effect) on presentation pattern of End-of-Sequence.

The Discussion of Information Presentation Pattern Testing

The testing of information presentation pattern consists of four hypotheses that aims to see whether there is a difference between participants receiving information with Step-by-Step representation pattern and those receiving End-of-Sequence presentation pattern, where there is one unsupported hypothesis, that is, the hypothesis 2d. Investment decisions made by participants who receive bad news followed good news information (--++) with a Step-by-Step presentation pattern and the framing in reserved information significantly do not differ from participants who receive bad news followed by good news information (--++) with End-of-Sequence presentation pattern and framing in reverse information (hypothesis 2d). Meanwhile, hypothesis 2a, hypothesis 2b, and hypothesis 2c are supported statistically.

The test result of independent sample T-test shows that H1 is accepted, or in other words, there are differences in investment decisions between groups of participants who receive the presentation pattern of Step-by-Step with the information order of good news followed by bad news (++--) using framing in line with information and groups of participants who receive End-of-Sequence presentation pattern with information order of good news followed by bad news (++--) using the framing in line with information. The differences are caused by the cognitive limitations of individuals in processing the information received.

In the Step-by-Step presentation pattern, individuals have more chances to make adjustments. Providing information sequentially and performing judgment of each received information lead individuals to make adjustments toward certain items of information. The participants' limited ability to remember long information is also the cause of individuals making decisions based on items of information received at the end. While providing information simultaneously causes the individual to consider or conduct a thorough review of the information received so that the resulting decision is based on

comprehensive consideration of all available information.

The results of hypothesis 2b testing shows that there is a difference of investment decision between the group of participants who receive the presentation pattern of Step-by-Step with information order of bad news followed by good news (--++) using framing in line with information and the group of participants who receive the presentation pattern of Step-by-Step with the information order of bad news followed by good news (--++) using framing in line with information. The difference is caused by the cognitive limitations of individuals in receiving information, especially if the information provided in sequential form. Sequentially received information tends to cause individuals to make confidence adjustments toward the last received information items. Then for groups of participants who receive information simultaneously, they tend to comprehensively process all the information received so that it can cause judgment differences between groups of participants who receive the scenario with the presentation pattern of Step-by-Step and the group of participants who receive the scenario with the presentation pattern of End-of-Sequence.

The results of hypothesis 2c testing show that there is a difference of investment decision between the participants who receive the scenario with the presentation pattern of Step-by-Step with the information order of good news followed by bad news (++--) using the framing in reverse information and the group of participants who receive the scenario with the presentation pattern of End-of-Sequence with the information order of good news followed by bad news (++--) using framing in reverse information. The difference is caused by individuals' cognitive limitations as well as individual responses to the information they receive. In the Step-by-Step presentation pattern, the individuals will tend to revise their beliefs depending on the direction or sequence of available information items. While in the End-of-Sequence presentation pattern, the individuals will tend to make judgments and consider all the information they receive. Thus, it is highly probable that the individuals receiving Step-by-Step representation pattern have a different decision than the individuals receiving End-of-Sequence presentation pattern. Like the results of hypothesis 2c testing, there is a difference in decisions caused by the differences in individual belief-adjustments in the information received.

The results of hypothesis 2d testing show that there is no difference of investment decision between group of participants receiving scenario of presentation pattern of Step-by-Step with information order of bad news followed by good news (--++) using framing in reverse information and group of participants receiving scenario of presentation pattern of End-of-Sequence with information order of bad news followed by good news (--++) using framing in reverse information. The absence of such difference is due to the equality of individual's belief adjustment in the information they receive. Individuals who receive information sequentially undergo the same belief revision as individuals who receive information simultaneously, where the individual's belief revision with simultaneous information is pursued by an assessment of the overall information received. Similarly, there is a similar trend towards the belief revision of the two groups of participants so that the test results show no difference in investment decision.

The testing results of hypothesis 2a, hypothesis 2b and hypothesis 2c support the belief adjustment model of Hogarth and Einhorn (1992) where the results of this study indicate that in the presence of simultaneous presentation patterns, the individual will conduct a comprehensive review of the information received thus the decision taken is based on a thorough assessment of the available information so that the decision made will be different if the pattern of information presentation is done sequentially. The results also support previous research of Ashton and Kennedy (2002), Pinsker (2007), and Luciana Spica and Supriyadi (2013) which also mention the same indication when the information presentation pattern is in End-of-Sequence.

The Discussion of Framing Effect Testing

Framing effect testing aims to see whether there is a difference in investment decisions when the information provided is using framing in line with information or framing in reverse information. In this framing effect testing, there are four hypotheses, in which one hypothesis is not supported statistically, that is, hypothesis 3c. While the other three hypotheses, that is, hypothesis 3a, hypothesis 3b, and hypothesis 3d are supported statistically.

The results of hypothesis 3a testing show that there is a difference of investment decision between group of participants receiving scenario with framing according to information, information order of good news followed by bad news (++--), using presentation pattern of Step-by-Step and group of participants receiving scenario with framing in reversed information, information order of good news followed by bad news (++--), using the presentation pattern of Step by Step. Differences in investment

decisions are caused by the trapping of individuals in the framing effect so that the judgments made become different from they should be. In scenario 1, the mean final judgment of participants is IDR 13,000.00 which means the individuals in the group are over-adjustment towards bad news information items (last received information). But in scenario 3, participants receiving information order (++--) have mean judgment of IDR 17,750.00. It shows that participants will over-adjust toward the last items of information received, then the individuals within the group of participants for scenario 3 assume that the last information they receive is good news. Framing effect causes the individual receiving negative information to regard it as positive information, and vice versa. Thus there will be differences in investment decisions between groups of participants with framing according to information and group of participants with framing in reversed information.

The results of hypothesis 3b testing show that there is a difference in investment decisions between groups of participants who receive scenario with framing in line with information, information order of bad news followed by good news (--++), as well as presentation patterns of Step-by-Step and group of participants who receive scenario with framing in reverse information, information order of bad news followed by good news (--++) using presentation pattern of Step-by-Step. The difference is due to the presence of framing effect where the group of participants, with scenario 4 (framing in reverse information), assume that the positive information received is negative information and the negative information received is positive information. The result can be seen from the mean value of the final judgment of the group of participants with scenario 2 (framing in line with information), that is, IDR 18,066.67 and the mean value of final judgment of the group of participants with scenario 4 (framing in reversed information) is IDR 13,384.62. Thus, the existence of a particular framing can lead to differences in individual investment decisions.

Mann Whitney U-test test result for hypothesis 3c shows that H1 is rejected, which means that there is no difference of investment decision between group of participants receiving scenario with framing in line with information, information order of good news followed by bad news (++--) with presentation pattern of End-of-Sequence and group of participants who receive scenario with framing in reverse information, information order of good news followed by bad news (++--) with End-of-Sequence presentation pattern.

This is because framing has no effect on the information. Individuals involved in the groups of participants for both scenario 5 (framing in line with information) and scenario 7 (framing in reverse information) are not trapped in the framing effect. Participants involved for both scenario 5 and scenario 7 have belief revision in the same order from one to another, causing no difference in investment decisions between the two groups of participants. The same belief revision is evidenced by the average final judgment of the group of participants for scenario 5, that is, IDR 15,133.33 and the average final judgment of the group of participant for scenario 7 is 16,214. 29. Thus there is no difference in investment decisions between the two groups.

The result of hypothesis 3d testing shows that there is a difference of investment decision between group of participants who receive scenario with framing in line with information, information order of bad news followed by good news (--++), with End-of-Sequence presentation pattern and group of participants who receive scenario with framing in reverse information, information order of bad news followed by good news (--++), with End-of-Sequence presentation pattern. The existence of the difference is caused by the effect arising from the different ways of presenting information. Framing effect causes the individual to have a different picture of certain information. This happens to the group of participants who receive scenario 8 (framing in reverse information), evidenced by the difference in individual's belief-adjustment based on the information order. The average value of final judgment of the group of participants with scenario 6 is IDR 16,133.33 and the average value of final judgment of the group of participants with scenario 8 is IDR 14,916.67. Thus there is a difference in investment decisions between group participants with scenario 6 (framing in line with information) and group of participants with scenario 8 (framing in reverse information).

For the reversed information framing, the positive information they receive is considered negative information while the negative information they receive is considered positive information. This difference in perception leads to differences in investment decisions. Finally, hypothesis 3a, hypothesis 3b, and 3d hypothesis show that the recency effect occurs both in sequential and simultaneous conditions and information-based framing and reversed information framing. The testing results of hypothesis 3a, hypothesis 3b, and hypothesis 3d support the prospect theory which gives an idea that when a similar problem is given a different frame, it will result in different choices. According to fuzzy trace

theory and probabilistic mental model, individuals will tend to simplify the information they receive and also more sensitive to negative information.

The testing result of hypothesis 3c shows that there is no difference in investment decisions caused by the tendency of individuals in processing information, where in the simultaneous conditions, individuals will tend to simplify the information received and tend to be more sensitive at risk or negative information. In comparison, hypothesis 3c is a comparison between information-based framing and reversed information framing, with information order of good news followed by bad news (++--) and End-of-Sequence presentation pattern. Individuals have a similar tendency in considering information received.

While in the 3d hypothesis, in the comparison between information-based framing and reversed information framing, with the information order of bad news followed by good news (--++) with End-of-Sequence presentation pattern, the individual is more sensitive to negative information that causes the investment decision to be different . This is evidenced by the lower average value of judgment on the framing in reverse information compared to the framing in line with information. Hence hypothesis 3a, hypothesis 3b, hypothesis 3c, and hypothesis 3d support theories that explain that the framing effect consists of prospect theory, probabilistic mental model, and fuzzy trace theory.

Several previous studies such as Mbaluka et al. (2012) also states that framing gives different perceptions to individuals so that it can cause different decisions. In addition, research conducted by Negina Kencono et al. (2012) also states that individual decisions are influenced by framing whereby when the individual is provided with information that has been in certain framing, it will cause the individual's choice to be different. With basically the same information, if given a different framing from the nature of the information (positive information is presented negatively or negative information presented positively), the possibility of different investment decisions will be greater. It proves that framing really affects the individual decisions that include the decision to invest.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

The results of this study are as follows:

Firstly, there is a difference in investment decision between participants who receive information order of good news followed by bad news (++--) and participants who receives information order of bad news followed by good news (--++) for all experimental conditions based on information order except under conditions with End-of-Sequence presentation pattern and framing in line with information.

Secondly, there is a difference in the investment decision between the participants who receive Step-by-Step presentation pattern and the participants who receive End-of-Sequence presentation pattern for all experimental conditions based on the presentation pattern except on the condition with information order of bad news followed by good news (--++) and framing in reverse information.

Thirdly, there is a difference in investment decisions between the participants who receive framing in line with information and the participants who receive framing in reverse information for all experimental conditions except for information order of good news followed by bad news (++--) and End of Sequence presentation pattern.

Taking into account that framing factor has an effect on testing based on the information order, the recency effect can occur either in sequential or simultaneous conditions. However, under sequential conditions with framing in line with information, no order effect occurs. Then if it does not consider the framing effect factor on testing based on the information order, then the recency effect only occurs in sequential conditions with framing in reverse information.

Meanwhile, primacy effect occurs in sequential and simultaneous conditions with reversed information framing. Then in sequential conditions with the framing in line with information, no sequence effect occurs. This study shows different results from belief-adjustment model by Hogarth and Einhorn (1992) predicting that primacy effect occurs on all experimental conditions over long series of information. In this study, however, the results obtained are the recency effect and there is no order effect (taking into account that framing influences individual decisions).

On the other hand, the results of this study support the prospect theory, probabilistic mental model, and fuzzy trace theory where the results show that the framing of information gives influence to individual decision making that causes differences in decisions taken by the individual concerned.

This study has limitations, among others: 1) Some participants arrived late during the completion of the instrument, even though the researcher had tolerated the delay for the participants and some participants were not in accordance with the confirmation of attendance (not coming) despite having filled the participant's willingness, thus resulting in

the reduction of the number of participants. 2) The mix design ultimately caused the analysis of the order effect to be divided into two conditions in which the framing effect is considered to have an effect and to have no effect

Based on the results of the study, the future researchers are expected to: 1) Find other participants as replacement in case any participants are late or absent; 2) Create different experimental designs so that at the same testing, order effect analysis can be more focused and precise.

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