

## End of Sequence Presentation Pattern and Mitigation of Order Effects on Investment Decision-Making

Khilmiyatul Hanimah, Luciana Spica Almilia

University of Hayam Wuruk Perbanas, Accounting Department,  
Faculty of Economics and Business,  
Jl. Wonorejo Utara No. 16, Surabaya, Indonesia

### ABSTRACT

Investment is a form of investment activity that develops a business that is expected to provide high returns for the company. This test tests investment decisions based on the belief adjustment model. The research method used in this study is 2x2 which consists of a sequence of evidence (good news followed by bad news or bad news followed by good news) and a series of information (long or short) on the End of Sequence presentation pattern. Participants in this study were students majoring in Accounting at Private University X in Surabaya. The number of participants in this study was 126 participants. The purpose of the study was to test whether there were differences in investment decisions between participants who received good news followed by bad news compared with participants who received bad news followed by good news at the End of the Sequence pattern and long or short series and to examine the effect of the order of evidence (good news followed by bad news or bad news followed by good news) and information series (long or short) on investment decision-making using experienced the End of Sequence presentation pattern. Based on this research, the results obtained are if the information is presented with a Sequence presentation pattern with simple information and a sequence of evidence of good news followed by bad news or bad news followed by good news there is no difference (no order effect) both in the grouping of information series (length or short) and there is no effect of the order of evidence (good news followed by bad news or bad news followed by the good news) in making investment decisions, however, different results are shown by the information series (long or short) where the information series influences investment decision making.

**Keywords:** belief adjustment model; end of sequence presentation patterns; evidence sequences; information series; investment decision making.

### INTRODUCTION

Investment is a form of investment activity that develops a business that is expected to provide high returns for the company. Fluctuating stock price index changes provide opportunities for investors. The development of investment in Indonesia is currently experiencing a good condition, this is indicated by the positive growth in the Indonesian capital market. Until September 2023, number of Indonesian capital market investors based on single investor identification (SID) has reached 11.72 million.

An investor must have information that is used as a consideration in making investment decisions. Accounting information and non-accounting information are the types of information that investors will need in making investment decisions. The company's financial and annual reports are a form of accounting information needed by investors, while the implementation of company Corporate Social Responsibility (CSR), corporate governance, and auditors' reputation is non-accounting information

In making investment decisions, several factors can be influenced, this can be explained through the belief model revision. This model was very well known until 1988 by Ashton & Ashton (1988) as well as research conducted by Schafer, Pinsky, & Pennington (2005) which explains that the Bayes Theorem

is a model that is not fully comprehensive because this model cannot predict revisions. intuitive when used as a descriptive model of belief revision. Ashton & Ashton (1988) state that the belief adjustment model from Hogarth & Einhorn (1992) explains two important aspects that Bayes Theorem ignores but still needs to consider, namely: the pattern of presentation and the order of evidence. The focus of this research lies in the End of Sequence (EoS) presentation pattern. The End of Sequence (EoS) presentation pattern is a pattern of presenting information obtained totally at one time when investors carry out stock trading transactions based on complex information, for example, the information in this presentation pattern is a complete annual report.

The Belief Adjustment Model predicts that there is no influence in decision-making on a consistent sequence of evidence (bad news or good news) but the effect of new sequences is proven to occur when a person receives multiple evidence sequences (good news followed by bad news and bad news followed by good news). Good news is information about the performance of a company that is presented as a good thing that can be used as a factor in making investment decisions, for example, an increase in profits and an increase in sales, while bad news is a company's performance information that explains the company's condition is not good or has experienced some decline in its performance. for example, a decrease in profits and a decrease in sales.

In making investment decisions, an investor does not only look at the factors of the information presentation pattern and the order in which the information evidence is obtained, but investors also need a series of information. Information series are of two types. A long information series consists of more than 17 pieces of information while a short information series is d' 12 pieces of information.

Research conducted by Pravita & Almilialia (2015) shows that there is a significant difference in End of Sequence (EoS) participants who receive the order of evidence Good News followed by Bad News compared to participants who receive the order of evidence Bad News followed by Good News also the recency effect occurs in making investment decisions, whereas according to research conducted by Almilialia & Supriyadi (2013) it shows that in the End of Sequence presentation pattern, there is no significant difference in decision making between participants who receive a sequence of evidence (good news followed by bad news and bad news followed by good news ). This indicates that the End of Sequence presentation pattern can mitigate the effect of sequences on investment decision-making. Based on the inconsistencies in the results of previous studies, researchers are interested in conducting research with the following title: "Testing the Belief Adjustment Model with an End of Sequence Presentation Pattern in Investment Decision Making"

## **Hypotheses Development**

### ***Belief Adjustment Model***

According to Hogarth & Einhorn (1992), the belief adjustment model explains how information can be interpreted and processed. This model was developed by Hogarth and Einhorn, which assumes that data is processed sequentially and has memory limitations and that each individual can change their beliefs based on anchoring and judgment. The Belief Adjustment Model has three important aspects in Bayes' Theorem, including direction, strength, and type.

The direction of this evidence shows whether or not the evidence supports an individual's current beliefs. There are two types of evidence, The first is positive evidence (good news), this evidence is stated by the presence of good information from the company. Both negative evidence (bad news) evidence is stated by the presence of bad information from the company. Then there is the strength or level of evidence that may or may not support the existence of current beliefs. And the last is a type of evidence

that can be said to be consistent or combined evidence. Current research uses consistent evidence where this evidence displays accounting information. Accounting information is information obtained from financial reports (Sharralisa, 2012).

### Primacy Effect and Recency Effect

The Primacy Effect and Recency Effect are two possible sequence effects on the combined evidence in the Belief Adjustment model (Jogiyanto, 2004). A person's limitations in processing the information obtained so that they will tend to choose the first information compared to the last information obtained is called the Primacy Effect. In contrast, if someone receives evidence of combined information (good news followed by bad news and bad news followed by good news), then the last information received has a greater impact than the first information received is called the Recency Effect.

**Table 1. Effect** expectations based on the belief adjustment model

	<i>Simple</i>		<i>Complex</i>	
	<i>End of Sequence (EoS)</i>	<i>Step by Step (SbS)</i>	<i>End of Sequence (EoS)</i>	<i>Step by Step (SbS)</i>
<i>Mixed Information Set</i>				
<i>Short</i>	<i>Primacy</i>	<i>Recency</i>	<i>Recency</i>	<i>Recency</i>
<i>Long</i>	<i>Primacy</i>	<i>Primacy</i>	<i>Primacy</i>	<i>Primacy</i>
<i>Consisten Information Set</i>				
<i>Short</i>	<i>Primacy</i>	<i>No Effect</i>	<i>No Effect</i>	<i>No Effect</i>
<i>Long</i>	<i>Primacy</i>	<i>Primacy</i>	<i>Primacy</i>	<i>Primacy</i>

Sources: Hogarth & Einhorn (1992)

Table 1 shows that when a set of information is combined (sequence ++ - or - ++), the predicted effect of the sequence that occurs in the End of Sequence (EoS) presentation pattern is:

1. In simple information, the End of Sequence presentation pattern and the short information series Primacy Effect occurs.
2. In simple information, the End of Sequence presentation pattern and a long series of information occurs Primacy Effect.
3. In complex information, the End of Sequence presentation pattern and short information series, the Recency Effect occurs.
4. In complex information, the End of Sequence presentation pattern, and long series of information, the Primacy Effect occurs.

Table 1 also shows the predicted sequence effects that occur when a set of information is consistent (order ++++ or --) namely:

1. In simple information, the End of Sequence presentation pattern and the short information series Primacy Effect occur.
2. In simple information, the End of Sequence presentation pattern and a long series of information occurs Primacy Effect.
3. In complex information, the End of Sequence presentation pattern and short information series do not have sequence effects.
4. In complex information, End of Sequence presentation patterns, and long information series, the Primacy Effect occurs.

Almilia, Dewi, & Wulanditya (2019) examined the influence of visualization factors and task complexity in investment decisions. The results showed that the effect of visualization in decision-making had an effect only when the decision-maker received an assignment with a low assignment complexity, while the effect of complexity of the assignment affected good decision-making as measured by the level of accuracy, level of confidence, and level of calibration. Haryanto (2018) compares decision making (individual-group). The results of this study prove that framing can affect audit assessment and the interaction between framing and the type of decision making affects audit assessment decisions.

Almilia, Wulanditya, & Nita (2018) examined the factors in the presentation order, presentation pattern, and investment decision frame that are predicted to cause bias in decision-making. The results of this study indicate that there is no different response between participants who receive accounting information (financial decision frame) and participants who receive non-accounting information (expressive decision frame) in the End-of-Sequence presentation pattern. However, when participants are provided in the form of accounting information compared to participants who are provided in the form of non-accounting information in a step-by-step presentation pattern, it shows a difference in response. Nisa (2017) examined different investor assessments by using a confidence adjustment model to consider presentation patterns, order of evidence, and types of information. The results of this study indicate that the recency effect occurs in the Step-by-step presentation pattern and types of accounting and non-accounting information, the recency effect also occurs in the End of Sequence presentation pattern and the type of accounting information, while there is no order effect on the types of non-accounting information.

Rofiyah & Almilia (2017) examined the effect of the confidence adjustment model, which consists of presentation patterns (Step by Step and End of Sequence), sequence of evidence (good news followed by bad news and bad news followed by the good news), and information series on investment decision making. The results of this study explain that there is a novelty effect on the Step-by-step presentation pattern for long and short information series, but the End of Sequence presentation pattern shows the opposite that there is no novelty effect that occurs in a long series, novelty occurs in the short series. Hanafi (2017) examined the effect of belief-adjustment models and the framing effect on investment decision-making for non-professional investors. The results of this study indicate that there is a significant variance in decision making and the emergence effect occurs between investors who receive good news followed by bad news and those who receive bad news followed by good news in a Step-by-step disclosure pattern with framing conditions. The result also shows that the superior effect occurs between investors who receive good news followed by bad news and investors who receive bad news followed by good news in a Step-by-step disclosure pattern by framing the information conditions upside down and showing that the End of Sequence presentation pattern is in a different order + + - (good news followed by bad news) compared to - ++ (bad news followed by good news) there is no order effect, in other words, there is no significant difference in the average final judgment.

Almilia & Wulanditya (2016) examined the effect of overconfidence and experience on increasing or decreasing the order effect in investment decision-makers. The results of this study are consistent with the prediction that individuals who have a high level of self-confidence tend to ignore the available information, this means that individuals with a high level of self-confidence avoid the order effect. Kusumawardhani & Almilia (2015) examined the difference between the investment decisions of participants who received good news followed by bad news and participants who received bad news followed by good news on the Step-by-step presentation pattern and long information series. The results of this study indicate that there is no difference between the decisions of investment participants who get good news followed by bad news from participants who get bad news followed by good news in the SbS

presentation pattern.

Ayunanda & Utami (2015) examined the effect of reviews on the order, presentation method, and form of information on audit decision-making when information is presented sequentially or simultaneously. The results of this study indicate that there is a recency effect on SPI decisions when information is presented in a sequential pattern, and audit decision-making, there is a recency effect in chart form. Pravita & Almilia (2015) re-examine whether there are differences in investment decisions between participants who get good news followed by bad news from participants who get information about bad news followed by good news on the End of Sequence pattern and short information series. This study shows that there is a significant difference in End of Sequence participants who receive good news followed by bad news compared with participants who receive information about bad news followed by good news as well as the recency effect occurs in making investment decisions.

Almilia & Supriyadi (2013) examined the effect of sequence effects and presentation patterns (Step by Step and End of Sequence) or the Belief Adjustment model in making investment decisions. This study shows that there is a significant difference in investment decision-making between participants who receive a sequence of evidence (good news followed by bad news and bad news followed by good news) in the Step by Step presentation pattern, while in the End of Sequence presentation pattern, there is no significant difference in decision making between participants who receive the order of evidence (good news followed by bad news and bad news followed by good news).

Almilia et al. (2013) examine the effect of patterns of information presentation, and order of evidence, and examine types of information (accounting information and non-accounting information) in making investment decisions. This research uses the t-test as a data analysis technique. This study shows that there is a recency effect in making investment decisions if the information is presented sequentially (Step by Step), whereas there is no sequential effect in making investment decisions if the information is presented simultaneously (End of Sequence).

Investors tend to experience difficulties in making investment decisions to be taken because they must be able to analyze and evaluate the evidence that has been obtained. According to previous research, namely Almilia et al., (2013) stated that in the Step by Step presentation pattern, there is a recency effect in every investment decision-making. However, according to research conducted by Ashton & Ashton (1988) and Tubbs, Messier Jr., & Knechel (1990), it is explained that if participants obtain a consistent order of information evidence (++++ or --) then the recency effect cannot valid, but the difference in results shows that if the sequence of evidence obtained by the participants is combined information (++ - or - ++ ) then the recency effect applies.

Based on the phenomena and previous studies, the researcher formulated the following hypothesis:

H<sub>1</sub>: The End of Sequence presentation pattern can mitigate the effect of sequence on investment decision-making in short information series.

H<sub>2</sub>: The End of Sequence presentation pattern can mitigate the effect of sequence on investment decision-making in long information series.

## **METHOD, DATA, AND ANALYSIS**

### **Research subject**

The subjects in this study were students of S1 Accounting STIE Perbanas Surabaya who had or are currently taking the course Investment Management and Capital Markets or Financial Statement Analysis. The treatment in this study is based on:

1. Order of Evidence: The order of evidence of good news followed by bad news (++) or bad news followed by good news (- ++).
2. Information Series: Long or Short.

There were a total of 126 participants and all of them passed the manipulation checks and general questions. Overall, the 126 participants can be categorized as follows: 64 participants received information with sequences of evidence (++ - and - ++) and a long series of information; 62 participants received information using an evidence sequence (++ - and - ++) and a short information series.

## **Experimental Design**

This study uses experimental research which is a method that examines the causal relationship of two or more variables with the control, manipulation, and treatment of researchers using empirical data to answer a problem. The experimental design of this research is 2x2, namely the sequence of evidence (++ - and - ++) and the information series (long and short) mixed design (between and within the subject) with a Sequence presentation pattern.

## **Experimental Procedure**

Experimental research in this study uses paper based, which is an experiment conducted by providing research instruments in the form of questions and then answered by participants or research subjects manually. The participant's task is to re-evaluate a share of PT. KHA is a fictional company but the data shown is real data. The data is obtained from the company website and the Indonesia Stock Exchange (BEI) website. Participants are given information about the company's background with an initial stock value of Rp 42,750 as the reference value.

Participants are asked to make a decision to invest on the accounting information that has been received and the End of Sequence presentation pattern with an initial stock value of IDR 42,750 then the participant gives a Likert scale to determine the desire to invest from VERY DON'T WANT TO INVEST (1) to VERY WANT TO INVEST (7). After all the information above has been understood and responded to by the participants, then the participants fill out a manipulation check and questions about knowledge in the field of Investment Management and Capital Markets and Financial Statement Analysis. The procedures that will be carried out by participants to carry out the End of Sequence presentation pattern are as follows:

1. Read the company background
2. Information is given about the initial value of the company's shares (using a share value of Rp42,750)
3. Accounting information related to the financial statements is provided which consists of:
  - a. A long information series (18 items), namely nine good news and nine bad news in the order of good news, followed by bad news in scenario I and bad news followed by good news in scenario II.
  - b. Short information series (six items), namely three good news and three bad news in the order of good news, followed by bad news in scenario III and bad news followed by good news in scenario IV.
4. Judging once in scenario I, II, III and IV.
5. Participants are asked to respond to manipulation check questions and basic accounting knowledge to measure the basic skills of participants in the course Investment Management and Capital Markets and Financial Statement Analysis.
6. Debriefing Session

Some related information will be given to participants to be able to fill out the questionnaire, such as: PT. KHA was formerly known as PT. MRN is a company in the consumer goods industry that was founded on December 5, 1933. On January 11, 1982, PT. KHA received an effective statement from Bapepam-LK to conduct an Initial Public Offering (IPO) of 9,200,000 shares with a nominal value of Rp 3,175 per share. The initial value of the company's shares in 2018 was IDR 42,750 as a reference value.

In the current study, 18 information came from the company's financial statements, which were divided into nine good news and nine bad news. Here are nine good news information and nine bad news information in a long information series:

1. Total company assets (in million rupiah) increased from Rp 10,526,125 in the first quarter (Q1) to Rp 20,526,125 in the second quarter (Q2) of 2018.
2. The company's Fixed Asset Value (in million rupiah) has increased from the first quarter (Q1) of Rp 10,387,975 to Rp 15,387,975 in the second quarter (Q2) of 2018.
3. The company's total debt (in million rupiah) decreased from the first quarter (Q1) of Rp 15,514,356 to Rp 8,514,356 in the second quarter (Q2) of 2018.
4. The company's total equity (in million rupiah) has increased from the first quarter (Q1) of Rp 7,012,519 to Rp 22,012,519 in the second quarter (Q2) of 2018.
5. The company's net profit value (in million rupiah) has increased from the first quarter (Q1) of Rp 1,839,131 to Rp 3,691,531 in the second quarter (Q2) of 2018.
6. The company's sales value (in million rupiah) increased from the first quarter (Q1) of Rp 10,746,621 to Rp 21,183,734 in the second quarter (Q2) of 2018.
7. The company's return on assets (ROA) has increased from the first quarter (Q1) 0.09 to 1.10 in the second quarter (Q2) of 2018.
8. The company's Return on Equity (ROE) has increased from the first quarter (Q1) 0.26 to 1.50 in the second quarter (Q2) of 2018.
9. The company's Total Debt to Asset Ratio (DAR) has decreased from the first quarter (Q1) 1.15 to 0.50 in the second quarter (Q2) of 2018.
10. The company's total assets (in million rupiah) decreased from the third quarter (Q3) of Rp 20,526,125 to Rp 10,526,125 in the fourth quarter (Q4) of 2018.
11. Fixed Asset Value of the company (in million rupiah) decreased from the third quarter (Q3) of Rp 15,387,975 to Rp 10,387,975 in the fourth quarter (Q4) of 2018.
12. The company's total debt (in million rupiah) has increased from the third quarter (Q3) of Rp 8,514,356 to Rp 15,514,356 in the fourth quarter (Q4) of 2018.
13. The company's total equity (in million rupiah) decreased from the third quarter (Q3) of Rp 22,012,519 to Rp 7,012,519 in the fourth quarter (Q4) of 2018.
14. The company's net profit value (in million rupiah) decreased from the third quarter (Q3) of Rp 3,691,531 to Rp 1,839,131 in the fourth quarter (Q4) of 2018.
15. The company's sales value (in million rupiah) decreased from the third quarter (Q3) of Rp 21,183,734 to Rp 10,746,621 in the fourth quarter (Q4) of 2018.
16. The company's return on assets (ROA) decreased from the third quarter (Q3) 1.10 to 0.09 in the fourth quarter (Q4) of 2018.
17. The company's Return on Equity (ROE) decreased from the third quarter (Q3) 1.50 to 0.26 in the fourth quarter (Q4) of 2018.
18. The company's Total Debt to Asset Ratio (DAR) has increased from the third quarter (Q3) 0.50 to 1.15 in the fourth quarter (Q4) of 2018.

Here are three good news and three bad news in a short information series, namely:

1. Total company assets (in million rupiah) increased from Rp 10,526,125 in the first quarter (Q1) to Rp 20,526,125 in the second quarter (Q2) of 2018.
2. The company's net profit value (in million rupiah) has increased from the first quarter (Q1) of Rp 1,839,131 to Rp 3,691,531 in the second quarter (Q2) of 2018.
3. The company's return on assets (ROA) has increased from the first quarter (Q1) 0.09 to 1.10 in the second quarter (Q2) of 2018.
4. Total company assets (in million rupiah) decreased from the third quarter (Q3) of Rp 20,526,125 to Rp 10,526,125 in the fourth quarter (Q4) of 2018.
5. The company's net profit value (in million rupiah) decreased from the third quarter (Q3) of Rp 3,691,531 to Rp 1,839,131 in the fourth quarter (Q4) of 2018.
6. The company's return on assets (ROA) decreased from the third quarter (Q3) 1.10 to 0.09 in the fourth quarter (Q4) of 2018.

### Research variable

The dependent variable in this study is an investment decision. The independent variables in this study are the sequence of evidence (++ - and - ++) and information series (long and short).

### Data analysis technique

The data analysis technique in this study used the normality hypothesis test. Normality test aims to determine and test whether the data is normally distributed or not. After the data is tested using the normality test, then the data is tested using the parametric sample t-test (for data that is normally distributed), if there is data that is not normally distributed, the next step is to test the data using the non-parametric Mann-Whitney U test. This was done to compare the two groups that had no relationship with each other, while the Mann-Whitney U test was performed to determine the level of difference in the median of the two independent groups with data not normally distributed.

The statistical criteria or hypothesis used to perform the t-test and the Mann-Whitney U test are as follows:

- a. Data that has a significance level  $< 0.05$ , the hypothesis is accepted, this indicates that there is a difference.
- b. Data that has a significance level of  $e'' 0.05$ , the hypothesis is rejected, this indicates that there is no difference.

**Table 2.** Hypothesis Testing Cells

Information Type	Information Series	Information Order	Presentation Pattern (End of Sequence)
Financial Report	Long Information Series	Good News - Bad News (++--)	Cell 1
		Bad News - Good News (--++)	Cell 2
	Short Information Series	Good News - Bad News (++--)	Cell 3
		Bad News - Good News (--++)	Cell 4

This hypothesis testing is done by making comparisons between one cell and another, the hypothesis is said to be supported if there is a significant difference in investment decisions between participants



who receive the sequence of evidence (++) (cell 1 or cell 3) and participants who receive the sequence. evidence (-++) (cell 2 or cell 4) on long and short information series.

The next hypothesis testing using the Analysis of Variance test is used to test the similarity of the mean (average) of more than two population samples. This ANOVA test is one of the parametric tests which requires that the data must be normally distributed. If it is found that the data is not normally distributed, an alternative non-parametric test can be used, namely the Kruskal-Wallis H test. The Kruskal-Wallis H test is used to test whether two or more sample means from the population have the same value. The statistical criteria or hypothesis used to perform the ANOVA test and the Kruskal-Wallis H test are as follows: if the probability value is significant <0.05, then there is an influence between variables; if the probability value is significant  $e''$  0.05, then there is no influence between variables.

## RESULTS AND DISCUSSION

### Results

Participants who can be used as subjects in this study based on the subject criteria include S1 Accounting students at STIE Perbanas Surabaya who know the field of financial statement analysis and/or investment management and capital markets. Table 3 shows the data on the number of participants based on the experimental scenario.

**Table 3.** Data on the number of participants based on the experimental scenario

Scenario	Presentation Pattern	Information Order	Information Series	Number of Participants	Explanation
I	End of Sequence	++--	Long	32	Mixed Design
II		--++		32	Mixed Design
III		++--	Short	31	Mixed Design
IV		--++		31	Mixed Design
Total of Participants				126	

Table 3. presents information about the distribution of research subjects into four scenarios. The number of participants who took part in the current study based on demographic data was 63 students with the experimental design in the current study, namely the mixed design where one participant can work on two different scenarios so that the total participant data that can be used is 126 data.

A total of 32 participants were in scenario I and II and 31 students were in scenario III and IV with an End of Sequence presentation pattern. Current research uses a mixed design so that participants can work on more than one given scenario, namely the End of Sequence presentation pattern and the order of evidence ++ (good news followed by bad news) and -++ (bad news followed by good news).

**Table 4.** The results of the Mann-Whitney U Test Difference Test for H1 for Long Series Information

Presentation Pattern	Information Order	Information Series	Number of Participants	Mean	Z	Sig.
End of Sequence	++--	Long	32	4.13	-0.146	0.884
	--++		32	4.13		

Table 4 shows the results of different tests using Mann-Whitney on the End of Sequence presentation pattern for 64 participants. Table 5 shows that the final judgment level of the group of participants who obtained the order of evidence ++ (good news followed by bad news) and the order of evidence -++ (bad news followed by good news) is the same as 4.13 for the information series. long. Based on the

Mann-Whitney difference test with the End of Sequence presentation pattern, it shows a Z value of -0.146 and a probability of 0.884 for scenarios I and II. This means that there is no difference in the average final judgment between participants who receive the order of evidence ++ - (good news followed by bad news) and the order of evidence - ++ (bad news followed by good news) because the probability is 0.884 so this study shows that End of Sequence presentation pattern occurs No Order Effect. These results do not provide support for the current research hypothesis.

**Table 5.** The results of the Mann-Whitney U Test Difference Test for H1 for Short Series Information

Presentation Pattern	Information Order	Information Series	Number of Participants	Mean	Z	Sig.
<i>End of Sequence</i>	++--	Short	31	3.58	-1.274	0.203
	--++		31	3.23		

Table 5 shows the results of different tests using Mann-Whitney on the End of Sequence presentation pattern for 64 participants. Table 6 shows that the final judgment level of the group of participants who obtained the order of evidence ++ - (good news followed by bad news) was 3.58 higher than the group of participants who obtained the order of evidence - ++ (bad news followed by good news). Based on the Mann-Whitney test with the End of Sequence presentation pattern, it shows a Z value of -1.274 and a probability of 0.203 for scenario III and scenario IV. This means that there is no difference in the average final judgment between participants who receive the order of evidence ++ - (good news followed by bad news) and the order of evidence - ++ (bad news followed by good news) because the probability is 0.203, so this study shows that End of Sequence presentation pattern occurs No Order Effect. These results do not provide support for the current research hypothesis.

**Table 6.** Result of Kruskal-Wallis H Effect Test for H2 of Evidence Sequence Variables

Presentation Pattern	Information Order	Number of Data	Mean	Sig.
<i>End of Sequence</i>	<i>Good News followed Bad News</i>	63	3.86	0.309
	<i>Bad News followed Good News</i>	63	3.68	

Table 6 shows the results of the Kruskal-Wallis effect test on the End of Sequence presentation pattern for 126 participants. Table 7 shows that the final judgment level of the group of participants who obtained the order of evidence ++ - (good news followed by bad news) was 3.86 higher than that of the group of participants who obtained the order of evidence - ++ (bad news followed by good news). news) of 3.68. The difference between groups of variables is known to be 0.18, so that the average results of the two groups do not show a significant difference in investment decision-making. These results are supported by the Kruskal-Wallis H effect test on the End of Sequence presentation pattern which shows a probability value of 0.309 in the entire scenario. This means that there is no effect of the final judgment between the participants receiving the order of evidence ++ - (good news followed by bad news) and the order of evidence - ++ (bad news followed by good news) because the probability is 0.309. This study shows that the End of Sequence presentation pattern with the independent variable sequence of evidence (good news followed by bad news and bad news followed by good news) does not affect investment decision-making. So it does not provide support for the current research hypothesis.

**Table 7.** Result of Kruskal-Wallis H Effect Test for H2 of Information Series Variables

Presentation Pattern	Information Order	Number of Data	Mean	Sig.
<i>End of Sequence</i>	Long	64	4.12	0.010
	Short	62	3.40	

Table 7 shows the results of the Kruskal-Wallis effect test on the End of Sequence presentation pattern for 126 participants. Table 8 shows that the average level of final judgment for the group of participants who received a long information series was 4.12 higher than that for the group of participants who received a short information series of 3.40. The difference between groups of variables is known to be 0.72 so the average results of the two groups indicate a significant difference in investment decision making. These results are supported by the Kruskal-Wallis H effect test on the End of Sequence presentation pattern which shows a probability value of 0.010 in the entire scenario. This means that there is an effect on the final judgment between participants who receive a long information series and a short information series because the probability is 0.010. This study, it shows that the End of Sequence presentation pattern with the independent variable long information series and short information series influences in making investment decisions. So that it provides support for the current research hypothesis.

## Discussion

Hypothesis  $H_1$  examines whether there are differences in investment decisions between participants who get the order of evidence for good news followed by bad news compared to the order of evidence for bad news followed by good news on the End of Sequence presentation pattern and long information series, while hypothesis  $H_1$  also examines whether there are differences. investment decisions between participants who get the order of evidence of good news followed by bad news compared to the order of evidence of bad news followed by good news in the End of Sequence presentation pattern and short information series. Table 8 will explain the test results for the hypothesis ( $H_{1a}$ ) and hypothesis ( $H_{1b}$ ) of this study.

The results of hypothesis testing  $H_1$  based on a sequence of evidence and a long series of information show that there is no difference in the final judgment when participants receive a sequence of evidence of good news followed by bad news or bad news followed by the good news in the End of Sequence presentation pattern as well as the results of hypothesis testing  $H_1$  Based on the sequence of evidence and a short series of information, it also shows that there is no difference in the final judgment when participants receive a sequence of evidence of good news followed by bad news or bad news followed by the good news in the End of Sequence presentation pattern. The results of this study are different from Hogarth & Einhorn's (1992) Belief Adjustment model theory, which predicts that a simple information Primacy Effect will occur with an End of Sequence presentation pattern. The Primacy Effect occurs when the order of evidence received at the beginning is considered more than the sequence of evidence received at the end.

**Table 8.** Hypothesis Testing Results ( $H_1$ )

Presentation Pattern	Hypothesis	Information Series	The effect that happened
<i>End of Sequence</i>	H1	Long	<i>No Order Effect</i>
	H1	Short	<i>No Order Effect</i>

The cognitive ability (knowledge) of investors when interpreting and processing information has an important role in shaping the behavior of each investor. The level of knowledge will determine a person's sensitivity to the information that appears and in turn will affect the level of confidence. The level of knowledge and confidence level of a person will then influence his behavior in making investment decisions. When an investor receives overall information at a time, they tend to give a more objective judgment, because investors use all the information they receive in making the final decision. End of

Sequence processing strategy with good news and bad news is filtered before being integrated with previous beliefs. Filtering mixed evidence sequences (good news followed by bad news and bad news followed by good news) can reduce the impact of each individual's positive and negative information.

This argument is also supported by research conducted by Luciana, Putri, & Riski (2018); Farita & Luciana (2017); Aulida & Luciana (2017); Taufan (2017); Luciana & Putri (2016); Luciana & Supriyadi (2013); and Luciana Spica et al. (2013) which states that there is no difference in the final judgment when participants receive a sequence of evidence of good news followed by bad news and bad news followed by good news in the End of Sequence presentation pattern. Furthermore, there are the results of previous research that contradict the results of the current research conducted by Nirwana & Luciana (2015) which shows that there is a significant difference in End of Sequence participants who receive good news followed by bad news compared to participants who receive information about Bad news is followed by good news as well as the recency effect in making investment decisions. Ashton and Kennedy (2002) state that there is no difference in the End of Sequence presentation pattern, which means that the End of Sequence presentation pattern can be an effective method to reduce the order effect in making investment decisions.

While the hypothesis (H<sub>2</sub>) tests whether the sequence of evidence (good news followed by bad news and bad news followed by good news) and information series (long and short) affect investment decision making with the End of Sequence presentation pattern

**Table 9.** Research Result – Hypotheses 2

Presentation Pattern	Hypotheses	Variable	The effect that happened
<i>End of Sequence</i>	H2	Order of Evidence Information Series	Hypotheses not supported Hypotheses supported

The results of H<sub>2</sub> based on the evidence sequence variable prove that there is no effect of the final judgment when participants receive a sequence of good news evidence followed by bad news or bad news followed by good news in the End of Sequence presentation pattern. This test shows that the order of evidence does not affect investment decision making.

The results of the current study are supported by several previous studies, including: Research by Aulida & Luciana (2017); Taufan (2017); Luciana & Putri (2016); Luciana & Supriyadi (2013); and Luciana Spica et al. (2013) which shows that there is no difference in investment decision making when participants receive a sequence of evidence (good news followed by bad news or bad news followed by good news) in the End of Sequence presentation pattern. However, this research contradicts the results of research conducted by Nirwana & Luciana (2015) which shows that there is a significant difference in End of Sequence participants who receive good news followed by bad news compared to participants who receive information about bad news followed by good news. also the recency effect occurs in making investment decisions.

The information series variable shows different results where there is an influence in making investment decisions based on the long and short information series received in the End of Sequence presentation pattern, so that the information series variables have an influence on investment decision making. If the information provided to investors is too long, this will result in investors being unable to properly absorb the information they receive. On the other hand, investors will find it easier to absorb the entire information if the information provided is quite concise. This is because an investor has cognitive limitations in the information processing process so that it has an impact on investment decision making.

The results of the current study are supported by several previous studies, including: Farita & Luciana (2017) and Anita's (2017) research which shows that there is an effect of investment decisions between participants on the End of Sequence presentation pattern and long information series, while other results show no There is an effect of investment decisions among participants on the End of Sequence presentation pattern and short information series. So that from the results of the description of the hypothesis above the effect that occurs on the hypothesis ( $H_2$ ) with the evidence sequence variable is that there is no influence between the order of evidence for good news followed by bad news and bad news followed by good news on investment decision making in the End of Sequence presentation pattern, while for variables information series, namely the effect of long and short information series on investment decision making in the End of Sequence presentation pattern.

## CONCLUSION AND SUGGESTIONS

### Conclusion

This study aims to test whether there are differences in investment decisions between participants who get good news followed by bad news compared to participants who get bad news followed by good news on the End of Sequence presentation pattern and long and short information series. In addition, this study also aims to test whether the sequence of evidence (good news followed by bad news and bad news followed by good news) and information series (long and short) have an effect on investment decision making with the End of Sequence presentation pattern.

Based on the explanation of hypothesis testing and discussion, the following conclusions can be drawn: First, the findings of this study indicate that there is no difference in investment decisions between participants who receive a sequence of good news evidence followed by bad news and bad news followed by good news in a long information series on the presentation pattern End of Sequence. Second, the findings of this study indicate that there is no difference in investment decisions between participants who receive a sequence of evidence of good news followed by bad news and bad news followed by good news in a short information series on the End of Sequence presentation pattern. Third, the findings of this study indicate that the independent variables of the order of evidence (good news followed by bad news and bad news followed by good news) have no effect on investment decision makers with the End of Sequence presentation pattern. Fourth, the findings of this study indicate that the independent variables of the information series (long and short) have an influence in making investment decisions with the End of Sequence presentation pattern.

Overall the results of this study indicate that the revised belief model of Hogarth & Einhorn (1992) is partially hold in investment decision making. The prediction of Hogarth & Einhorn's (1992) belief revision model which is not supported in this study is that this study does not succeed in providing support that the End of Sequence presentation pattern will cause a primacy effect when receiving simple information with mixed information sets and long information series and short information series.

### Research Limitation and Suggestions

This study has several research limitations which will be described as follows:

1. In the process of finding participants, there were difficulties caused by the experimental implementation schedule which coincided with the Midterm Examination schedule, so that researchers had to find the right schedule in order to attract enough students to become participants.

2. At the time of the experiment, there were several participants who could not attend the research activities so that the researcher had to find replacements with other participants, besides that there were several participants who were late so the research team agreed to wait for these participants within a predetermined time limit.
3. On the day, interactions between participants still occurred and there were still some participants who opened the next sheet before there was an order from the experimenter so that in this case the experimenter reprimanded the participants concerned and tightened the supervision assisted by other committee colleagues.

Based on some of the obstacles faced by the researcher, the researcher provides several suggestions that can be done so that this research can be developed, including:

1. Looking for backup participants or waiting lists to make it easier to find replacements when there are participants who suddenly cannot attend or are late.
2. Pay attention to the selection of days during the implementation of the research instrument, because it involves a large number of participants so that more participants can attend.
3. Emphasize the rules so that all participants obey them, so that the entire experimental process runs according to the desired manipulation goals.
4. Periodically remind participants at least D-1 before the implementation and advance the implementation time for at least 20 minutes to anticipate participants who arrive late.

## REFERENCES

- Almilia, Luciana S., Dewi, N. H. U., & Wulanditya, P. (2019). The effect of visualization and complexity tasks in investment decision making. *HOLISTICA – Journal of Business and Public Administration*. <https://doi.org/10.2478/hjbpa-2019-0006>
- Almilia, Luciana S., & Wulanditya, P. (2016). The Effect of Overconfidence and Experience on Belief Adjustment Model in Investment Judgement. *International Research Journal of Business Studies*. <https://doi.org/10.21632/irjbs.9.1.39-47>
- Almilia, Luciana Spica, Hartono, J., Supriyadi, & Nahartyo, E. (2013a). Examining the effects of presentation patterns, orders, and information types in investment decision making+. *Gadjah Mada International Journal of Business*. <https://doi.org/10.22146/gamaijb.5701>
- Almilia, Luciana Spica, Hartono, J., Supriyadi, & Nahartyo, E. (2013b). Examining the Effects of Presentation Patterns, Orders, and Information Types in Investment Decision Making. *Gadjah Mada International Journal of Business*, 15(2), 171–182.
- Almilia, Luciana Spica, & Supriyadi, N. A. (2013). Examining belief adjustment model on investment decision making. *International Journal of Economics and Accounting*. <https://doi.org/10.1504/ijea.2013.055171>
- Almilia, Luciana Spica, Wulanditya, P., & Nita, R. A. (2018a). The Comparison of Investment Decision Frame and Belief-adjustment Model on Investment Decision Making. *Jurnal Keuangan Dan Perbankan*, 22(3), 405–417.
- Almilia, Luciana Spica, Wulanditya, P., & Nita, R. A. (2018b). The Comparison of Investment Decision Frame and Belief-adjustment Model on Investment Decision Making. *Jurnal Keuangan Dan Perbankan*. <https://doi.org/10.26905/jkdp.v22i3.1880>
- Anggraeni, A., & Almilia, L. S. (2017). Model Belief Adjustment dalam Pengambilan Keputusan Investasi Berdasarkan Informasi Nonakuntansi. *Jurnal Ekonomi Dan Bisnis*. <https://doi.org/10.24914/jeb.v20i1.923>

- Ashton, A. H., & Ashton, R. H. (1988). Sequential Belief Revision in Auditing. *Accounting Review*. <https://doi.org/10.2307/247903>
- Ashton, R. H., & Kennedy, J. (2002). Eliminating Recency with Self-Review: The Case of Auditors' "Going Concern" Judgments. *Journal of Behavioral Decision Making*. <https://doi.org/10.1002/bdm.412>
- Ayunanda, T. I., & Utami, I. (2015). Model Revisi Keyakinan dan Keputusan Audit: Suatu Pengujian Eksperimental. *Jurnal Akuntansi Dan Keuangan Indonesia*, 12(2), 210-224.
- Hanafi, T. (2017). The Testing of Belief-Adjustment Model and Framing Effect on Non-Professional Investor's Investment Decision-Making. *The Indonesian Accounting Review*, 7(1), 1-14. <https://doi.org/10.14414/tiar.v7i1.945>
- Haryanto. (2018). PENGARUH FRAMING DAN URUTAN BUKTI TERHADAP AUDIT JUDGMENT: KOMPARASI DAN INTERAKSI KEPUTUSAN INDIVIDU-KELOMPOK. *Jurnal Akuntansi Dan Auditing*, 15, 1-36.
- Hogarth, R. M., & Einhorn, H. J. (1992). Order effects in belief updating: The belief-adjustment model. *Cognitive Psychology*. [https://doi.org/10.1016/0010-0285\(92\)90002-J](https://doi.org/10.1016/0010-0285(92)90002-J)
- Jogiyanto. 2004. *Psychology of Finance: How, Why and When Investor Revise their Beliefs to Company Information and their Implications to Firm's Announcement Policy*. Yogyakarta, Indonesia: Penerbit Andi.
- Kusumawardhani, H., & Almilia, L. S. (2015). Pola Penyajian Informasi Dan Keputusan Investor Yang Irasional. *Jurnal Bisnis Dan Ekonomi (JBE)*, Vol. 22 No, Hal, 140 - 153.
- Movanita, A. N. K. (2019). Pertumbuhan Investor Pasar Modal Indonesia. Retrieved from Kompas.com website: <https://money.kompas.com/read/2019/06/26/141032126/per-mei-2019-investor-pasar-modal-indonesia-mencapai-19-juta>
- Nisa, A. K. (2017). Belief Adjustment Model Test in Investment Decision Making: Experimentation of short information Series. *The Indonesian Accounting Review*. <https://doi.org/10.14414/tiar.v7i1.943>
- Pravita, N. P., & Almilia, L. S. (2015). Pengaruh Pola Penyajian End of Sequence (EoS) dan Seri Informasi Pendek dalam Pengambilan Keputusan Investasi. *Jurnal Bisnis Dan Ekonomi (JBE)*, 22(2), 129-139.
- Rofiyah, F. D., & Almilia, L. S. (2017). The Examination Belief Adjustment Model against Overconfidence Investor Decision Making Investments. *The Indonesian Accounting Review*. <https://doi.org/10.14414/tiar.v7i2.952>
- Schafer, J. K., Pinsky, R., & Pennington, R. R. (2005). Belief Revision in Accounting: A Literature Review of The Belief-Adjustment Model. *Advances in Accounting Behavioral Research*, 8, 1-40.
- Sharralisa. (2012). Analisis Pengaruh Faktor Informasi Akuntansi dan Non Akuntansi Terhadap Return awal pada Penawaran Perdana Saham di Bursa Efek Indonesia. *Jurnal Akuntansi Dan Keuangan*, 4(1).
- Tubbs, R. M., Messier Jr., W. F., & Knechel, W. R. (1990). Recency Effects in the Auditor's Belief-Revision Process. *Accounting Review*.