

Testing the effect of belief adjustment model and overconfidence on investment decision making

Farita Dewi Rofiyah¹, Luciana Spica Almilial²

^{1,2} STIE Perbanas Surabaya, Wonorejo Utara Street 16, Rungkut, Surabaya, 60296, East Java, Indonesia

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ABSTRACT

This study aims to examine the effect of belief adjustment models, consisting of presentation pattern (Step by Step and End of Sequence), information sequence, and information series, on investment decision making. In addition, this study also examines the effect of the level of overconfidence on investment decision making. The designs of experiment included in this study are presentation pattern $2 \times 2 \times 2 \times 2$ (Step by Step and End of Sequence), information sequences (good news followed by bad news and bad news followed by good news), information series (long series and short series), and the level of overconfidence. The research hypotheses are tested using Independent Sample t-test. The results of this study show that there is a recency effect on the presentation pattern of the Step by Step for long and short information series. This is also reflected in the End of Sequence which shows that there is no recency effect occurring in the long series, but there is recency effect occurring in the short series.

ABSTRAK

Penelitian ini bertujuan untuk menguji pengaruh model penyesuaian kepercayaan, yang terdiri dari pola presentasi (Langkah demi Langkah (Step by Step) dan Akhir Urutan (End of Sequence)), urutan informasi, dan seri informasi, pada pengambilan keputusan investasi. Selain itu, penelitian ini juga menguji pengaruh tingkat kepercayaan yang berlebihan terhadap pengambilan keputusan investasi. Desain percobaan yang termasuk dalam penelitian ini adalah pola presentasi $2 \times 2 \times 2 \times 2$ (Step by Step dan End of Sequence), urutan informasi (berita baik diikuti oleh berita buruk dan berita buruk diikuti oleh berita baik), seri informasi (panjang seri dan seri pendek), dan tingkat kepercayaan berlebihan. Hipotesis penelitian diuji menggunakan Independent Sample t-test. Hasil penelitian ini menunjukkan bahwa ada pengaruh kebaruan pada pola presentasi dari Step by Step untuk seri informasi panjang dan pendek. Ini juga tercermin dalam End of Sequence yang menunjukkan bahwa tidak ada efek kebaruan yang terjadi dalam seri panjang, tetapi ada efek kebaruan yang terjadi dalam seri pendek.

1. INTRODUCTION

Today's investment development in Indonesia is in favorable condition. This is a good condition for investors to invest, especially in the stock market. Investment is an activity carried out by all companies to develop into more advanced companies. Information needed by investors comes from disclosures made by companies listing on the Indonesia Stock Exchange (IDX). The information needed by investors consists of accounting and non-accounting information. Accounting information is information derived from the company's financial statements

(such as: net income, sales), whereas non-accounting information is information that is not included in the financial statements. This non-accounting information can be in the form of reports to shareholders, information for shareholders, discussion and analysis of management, corporate governance, and information on the implementation of Corporate Social Responsibility (CSR). However, the main focus of this research is on non-accounting information only, particularly Corporate Social Responsibility. The results of confirmation of identification and confirmation from researchers on the publication of non-

* Corresponding author, email address: ² lucy@perbanas.ac.id.

accounting reports contained on the Indonesia Stock Exchange website shows that in 2015 there were 63 companies that disclosed their non-accounting reports and in February 2016 there were 85 companies that disclosed their non-accounting reports. Thus, from 2015 to 2016 there was an increase in the number of companies that disclosed their non-accounting reports.

Hogarth and Einhorn (1992) include three main characteristics of evidence used in Bayes' Theorem (direction, strength and type). The Belief Adjustment model of Hogarth and Einhorn also extends Bayes' Theorem by including two additional characteristics that are ignored in Bayes' Theorem, that is, information sequence and information presentation pattern.

The information obtained by investors can have an impact on the attitude of overconfidence shown by these non-professional investors and can form a self-deception attitude. Self-Deception Theory by Trivers (2004) predicts that when a person perceives himself as having abilities above average and then his mindset directs and manages from the perceptions he makes in such a way that tends to seek information that supports his behavior, this person will be trapped in the formation of erroneous beliefs which will then lead to the formation of overconfidence behavior which has an impact on "self deception".

Based on the explanation above, the researchers are interested in conducting research entitled "Testing the Effect of Belief Adjustment Model and Overconfidence on Investment Decision".

2. THEORETICAL FRAMEWORK AND HYPOTHESIS

Belief Adjustment Model (1992)

Hogarth and Einhorn (1992) develop belief adjustment model to provide a comprehensive explanation of the way information is interpreted and processed. The belief adjustment model developed by Hogarth and Einhorn is based on the assumption that individuals process information in sequence and they have limited memory capacity. Individuals change their beliefs based on the anchoring and adjustment processes. This belief adjustment model considers three characteristics that also play an important role in the Bayes' Theorem, namely: direction, strength, and type. The direction of the evidence indicates whether the evidence supports or does not support an individual's current beliefs. Additional evidence that supports belief is positive evidence, while additional evidence that does not support belief is negative evidence. Positive evidence or good news is stated with information about good company per-

formance (such as increased assets, increased company performance), while negative news or bad news is stated with information about bad company performance (such as: decreased profitability, decreased company performance). The second characteristic is the strength or level of evidence that supports or not supports current beliefs. The third characteristic is the type of evidence, which can be categorized as consistent and combined evidence. Consistent evidence is evidence that only displays accounting information only or non-accounting information only. Whereas for combined evidence is evidence that displays both accounting information and non-accounting information.

The belief adjustment model broadens the Bayes' theorem by adding two new characteristics, namely sequence (++--/--++) and information presentation patterns (SbS and EoS). Presentation patterns used include Step by Step (SbS), End of Sequence (EoS) and Self Review. The Step by Step (SbS) pattern is a pattern of information presentation when an investor has transactions based on simple information and are carried out in sequence. Simple information is information that consists of only one type of information (for example, financial reports or quarterly non-financial information obtained from the mass media). The End of Sequence (EoS) pattern is a pattern of information presentation when an investor has a transactions based on complete information and all reports obtained are at a certain time line (for example, a complete annual report that is not only financial statements). While the Self Review Debiaser pattern is a pattern of information presentation when investors review the overall information they obtain in making investment decisions.

Primacy Effect and Recency Effect

The belief adjustment theory classifies two possible sequential effects on the combined evidence, namely: primacy effect and recency effect. Primacy effect occurs because of the limitations of individuals in processing the information they receive. So, when receiving information in a certain amount, the individual will be more likely to consider the information obtained first than the information obtained last. Whereas recency effect occurs because sequential information presentation (SbS) provides more opportunities to make adjustments, and investors often make excessive adjustments towards information items.

Primacy and recency predictions depend on the properties of the task variables. Recency effect is predicted to occur for presentation pattern of Step by Step (SbS) or sequentially with a short and simple

Table 1
Sequence Effect Expectations Based on Belief Adjustment Model

	Simple		Complex	
	End of Sequence (EoS)	Step by Step (SbS)	End of Sequence (EoS)	Step by Step (SbS)
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

information series.

The belief adjustment model developed by Hogarth and Einhorn (1992) can provide proportion of sequential effect expectation as shown in Table 1.

Table 1 shows that when a set of information mixes (++-- or --++), the sequence effect predictions that occur are:

1. In simple information, the presentation pattern of End of Sequence (EoS), and short information series, there will be a primacy effect.
2. In simple information, the presentation pattern of End of Sequence (EoS), and the long information series, there will be a primacy effect.
3. In simple information, the presentation pattern of Step by Step (SbS), and long information series, there will be a recency effect.
4. In simple information, the presentation pattern of Step by Step (SbS), and long information series, there will be a primacy effect.
5. In complex information, the presentation pattern of End of Sequence (EoS), and short information series, there will be a recency effect.
6. In complex information, the presentation pattern of End of Sequence (EoS), and long information series, there will be a primacy effect.
7. In complex information, the presentation pattern of Step by Step (SbS), and short information series, there will be recency effect.
8. In complex information, the presentation pattern of Step by Step (SbS), and long information series, there will be a primacy effect.

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

1. In simple information, the presentation pattern of End of Sequence (EoS), and short information series, there will be a primacy effect.
2. In simple information, the presentation pattern of End of Sequence (EoS), and long information series, there will be primacy effect.
3. In simple information, the presentation pattern of Step by Step (SbS), and short information series,

there will be no sequence effect.

4. In simple information, the presentation pattern of Step by Step (SbS), and long information series, there will be a primacy effect.
5. In complex information, the presentation pattern of End of Sequence (EoS), and short information series, there will be no sequence effect.
6. In complex information, the presentation pattern of End of Sequence (EoS), and long information series, there will be a primacy effect.
7. In complex information, the presentation pattern of Step by Step (SbS), and short information series, there will be no sequence effect.
8. In complex information, the presentation pattern of Step by Step (SbS), and long information series, there will be a primacy effect.

Self Deception Theory

Overconfidence behavior will cause the tendency of investors to carry out aggressive and excessive trading behavior strategies. The average overconfidence behavior in the capital market can cause harmful effects, but in some cases it may generate more profits than rational investors. Klaymen et al. (1999) stated that a combination of the level of knowledge and the level of confidence would determine a person's level of overconfidence. Differences in the levels of overconfidence will cause differences in interpreting and evaluating information so that it will produce differences in finding solutions. Almost all psychological findings conclude that overconfidence behavior tends to encourage decision makers to determine predictions inaccurately, resulting in higher prediction errors than those who are more rational. This conclusion confirms the Self Deception Theory developed by Trivers (2004).

Self Deception Theory (Trivers 2004) predicts that when an individual unconsciously prepares himself to have abilities above average and then his mindset exerts and manages his perception in such a way that tends to seek information that supports his behavior, the individual will be trapped in the for-

mation of false beliefs which will then lead to the formation of overconfidence behavior which has an impact on self deception.

Thought Framework

Basically, it takes a fairly difficult consideration in making decisions related to investment. Investors or individuals who will make decisions should be able to evaluate and analyze information presented based on supporting evidence so that the final decision is based on information and evidence obtained. The order of information presentation in a complex environment may also affect the final decision making that will be taken by each individual or investor, because the order of information is very influential on stock movements.

This study uses a simple type of information. The information series used is a long series and a short series, with the information presentation pattern ++- (good news followed by bad news) or --++ (bad news followed by good news). The study conducted by Luciana Spica et al. (2013) shows that there is a recency order effect if information is presented sequentially (Step by Step) in investment decision making. Pinsky (2007) concludes that belief revision and stock price decision are significantly larger or smaller in sequential conditions, when a series of short information is consistently positive or negative which is expressed sequentially (Step by Step) compared to simultaneous disclosure.

Based on the background and previous studies described earlier, this research hypothesis can be formulated as follows:

H1: There are differences in investment decisions between participants who get good news followed by bad news (++-) and participants who get bad news followed by good news (--++) on the presentation pattern of Step by Step (SbS) and long information series.

H2: There are differences in investment decisions between participants who get good news followed by bad news (++-) and participants who get bad news followed by good news (--++) on the presentation pattern of Step by Step (SbS) and short information series.

A study conducted by Gosh and Anne Wu (2012) shows that there is no influence in investment analysis recommendations when the measurement of financial and non-financial performance is not profitable, while the benefits on non-financial performance seem irrelevant when financial performance is not profitable. Pinsky (2011), who examined the response of investors to the long information provided with the presentation pattern of

either Step by Step (SbS) or End of Sequence (EoS), provides evidence that there is a recency effect on the disclosure of a series of long information and the recency effect is relatively more significant on the disclosure of step-by-step information than the simultaneous information disclosure (End of Sequence).

Based on the background and previous studies described earlier, this research hypothesis can be formulated as follows:

H3: There are differences in investment decisions between participants who get good news followed by bad news (++-) and participants who get bad news followed by good news (--++) on the presentation pattern of End of Sequence (EoS) and long information series.

H4: There are differences in investment decisions between participants who get good news followed by bad news (++-) and participants who get bad news followed by good news (--++) on the presentation pattern of End of Sequence (EoS) and short information series.

The schematic framework in this study can be described as shown in Figure 1.

3. RESEARCH METHOD

Research Design

The purpose of this study is to examine the effect of sequence and pattern of information presentation on investment decision making, the effect of information series (long information and short information), and the effect of the level of overconfidence of each individual on investment decision making.

This research is included in experimental research when viewed according to the characteristics of the problem. Experimental research is a research design aimed at investigating a phenomenon by engineering a situation or condition through a particular procedure and observing the results of the engineering and interpreting it (Ertambang 2012: 1). This research uses mixed design (between subject and within subject) experimental methods, by separating two different conditions, that is, Step by Step (SbS) and End of Sequence (EoS). The experimental design of this research is $2 \times 2 \times 2 \times 2$, that is, the Presentation Patterns (End of Sequence and Step by Step), Information Series (Long and Short), Evidence Sequence (good news followed by bad news or bad news followed by good news) and the level of overconfidence. This research is included in the research that uses primary data, when viewed according to the type of data collection. The data examined can be in the form of participants' opinions individually or in groups.

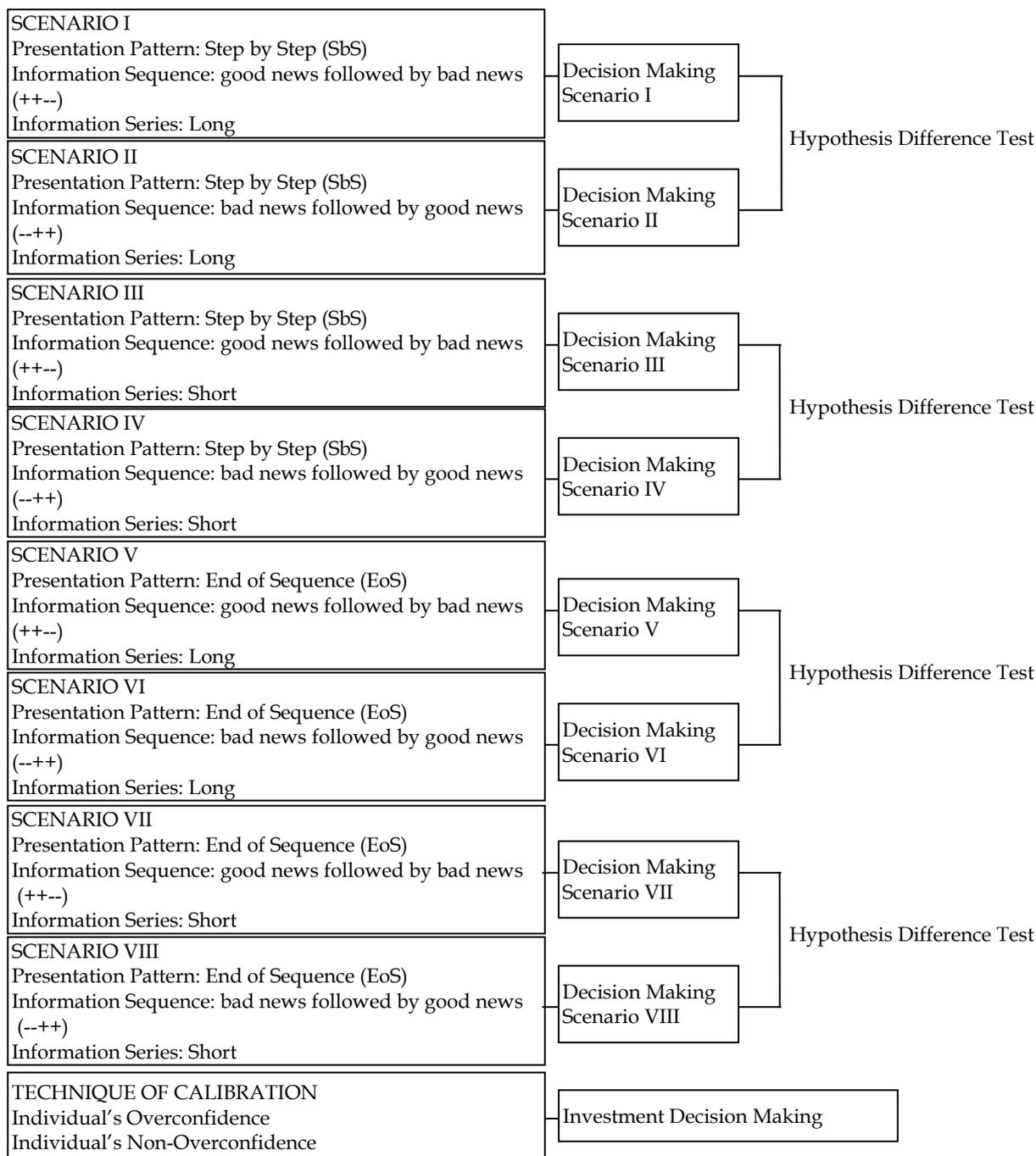


Figure 1
Thought Framework

Research Limitation

This study refers to the belief adjustment model developed by Hogarth and Einhorn in 1992. This belief adjustment model is divided into three patterns, namely: Step by Step (SbS), End of Sequence (EoS) and Self Review Debiaser. However, this study will only test two presentation patterns, namely End of Sequence (EoS) and Step by Step (SbS). The information used in this study is non-accounting information. This information will be presented in order

pattern of good news followed by bad news (++--) or bad news followed by good news (--++). The participants in this study are students of Bachelor's degree in Accounting and Management who have not had experience in terms of investment but had knowledge related to investment in the capital market and financial statement analysis.

Identification of Variables

The variables used in this study include dependent

and independent variables.

1. The independent variables are presentation pattern of End of Sequence (EoS) and Step by Step (SbS), Evidence Order, Information Series, and Level of Overconfidence.
2. The dependent variable is Investment Decision.

The experimental design in this study is $2 \times 2 \times 2 \times 2$, that is, the presentation pattern of Step by Step (SbS) and End of Sequence (EoS), information series, and evidence order (good news followed by bad news and bad news followed by good news) and the level of overconfidence.

Operational Definition

The operational definition of each variable in this study can be explained as follows:

1. Dependent Variable (Investment Decision). Investment decision is a decision that aims to get a large profit with manageable risks in the hope of optimizing the value of the company, which means increasing the prosperity of shareholders (Afzal and Rohman 2012). Investment decisions are results.
2. Independent Variables (Presentation Pattern of End of Sequence (EoS) and Step by Step (SbS), Evidence Sequence, Information Series, and the level of overconfidence.

The following is an explanation related to the independent variables used in this study:

1. Presentation patterns of End of Sequence (EoS) and Step by Step (SbS). Presentation pattern of End of Sequence (EoS) is a pattern of information presentation that is presented and evaluated simultaneously (Luciana Spica 2013). Meanwhile, the presentation pattern of Step by Step (SbS) is a pattern of information presentation when investors conduct stock trading transactions based on simple information and are carried out in stages
2. Information Sequence. There are two Information sequences used in this study, from ++- (good news followed by bad news) and -++ (bad news followed by good news). Good news is information about good company performance (such as: increased assets). Bad news is information about poor or bad company performance (such as decreased profitability).
3. Long Information Series and Short Information Series. The short information series includes the tasks that evaluate between two and 12 evidences, while the long information series includes the tasks that evaluate more than 17 evidences. This study uses both long information series and short information series.
4. The level of Overconfidence. Overconfidence is

the tendency of decision makers to over-evaluate the knowledge and information they have, beyond the actual reality, causing more mistakes (Mahatma Kufepaksi 2010). The measurement technique carried out is by giving a calibration test. In the test, participants will give a percentage of confidence from the selected answer. Furthermore, a comparison between the average correct answer and the average level of confidence (in percentage) will be carried out by the participants.

Research Participants

In this study the sampling method used is non-probability sample selection method, with purposive sampling technique, that is, taking samples from the population with certain criteria and the sample selection is based on judgment sampling, namely purposive sampling with criteria in the form of certain considerations (Jogiyanto 2014: 98). The participants are Students of Bachelor's degree in Accounting and Management who have not had experience in terms of investment but had knowledge related to investment in the capital market. The students used in this study are the students who have taken and/or are taking courses in financial report analysis and/or Investment and Capital Market Management or Portfolio Investment Management.

Procedure of Experiment

The procedure of this research uses Pencil-Base Experiment, an experimental method, which is done by using the questionnaire answered by the participants manually. The scenario that will be answered by participants consists of eight scenarios:

1. Scenario I. This scenario uses presentation pattern of Step by Step (SbS), long information series, evidence order of good news followed by bad news (++-), and the level of investor's overconfidence.
2. Scenario II. This scenario uses presentation pattern of Step by Step (SbS), long information series, evidence order of bad news followed by good news (-++), and the level of investor's overconfidence.
3. Scenario III. This scenario uses presentation pattern of Step by Step (SbS), short information series, evidence order of good news followed by bad news (++-), and the level of investor's overconfidence.
4. Scenario IV. This scenario uses presentation pattern of Step by Step (SbS), short information series, evidence order bad news followed by good news (-++), and the level of investor's overconfi-

Table 2
Procedures Performed by Participants based on Presentation Pattern

Presentation Pattern Step by Step	
1.	Reading the company background
2.	Provided with information regarding the initial value of the company's shares (using a share value of IDR 610.00)
3.	Provided with non-accounting information (Corporate Social Responsibility) according to information consisting of: <ol style="list-style-type: none"> Long information series (18 items), consisting of namely nine good news (++) information, nine bad news (-) information with the order of good news followed by bad news (++-) contained in scenario I, nine good news information (++) , nine bad news (-) information with the order bad news followed by good news (-++) contained in scenario II. Short information series (eight items), consisting of four good news (++) information, four bad news (-) information with the order of good news followed by bad news (++ -) contained in scenario III, four good news (++) information and four bad news (-) information contained in scenario IV.
4.	Conducting 18 times of judgment (for scenario I and scenario II) and eight times (for scenario III and scenario IV) on the value of the company's shares for each information provided which consists of non-accounting information (Corporate Social Responsibility).
5.	Participants are asked to respond to questions of manipulation check, psychological experiment questions (to measure the level of overconfidence) and questions to measure basic abilities in the field of financial statement and capital market analysis.
6.	Debriefing session
Presentation Pattern End of Sequence	
1.	Reading the company background
2.	Provided with information regarding the initial value of the company's shares (using a share value of IDR 610.00)
3.	Provided with one time information related to non-accounting (Corporate Social Responsibility) according to information consisting of: <ol style="list-style-type: none"> Long information series (18 items), consisting of nine good news (++) information and nine bad news (-) information with the order of good news followed by bad news (++-) contained in scenario V, and nine good news (++) information and nine bad news (-) information with the order of bad news followed by good news (--++) contained in scenario VI. Short information series (eight items), consisting of four good news (++) information and four bad news (-) information, with the order of good news followed by bad news (++-) contained in scenario VII, and four good news (++) information and four bad news (-) information contained in scenario VIII.
4.	Conducting one-time judgment (for scenario V, Scenario VI, scenario VII, and scenario VIII) on the value of the company's shares for the information provided which consists of non-accounting information (Corporate Social Responsibility).
5.	Participants are asked to respond to questions of manipulation check, psychological experiment questions (to measure the level of overconfidence) and questions to measure the basic abilities in the field of financial statement and capital market analysis
6.	Debriefing session
5.	Scenario V. This scenario uses presentation pattern of End of Sequence (EoS), long information series, evidence order of good news followed by bad news (++-), and the level of investor's overconfidence.
6.	Scenario VI. This scenario uses presentation pattern of End of Sequence (EoS), long information series, evidence order of bad news followed by good news (--++), and the level of investor's overconfidence.
7.	Scenario VII. This scenario uses presentation pattern of End of Sequence (EoS), short information series, evidence order of good news followed by bad news (++-), and the level of investor's overconfidence.
8.	Scenario VIII. This scenario uses presentation pattern of End of Sequence (EoS), short information series, evidence order of bad news followed by good news (--++), and the level of investor's overconfidence.

The task of the participants in this study is to assess the shares of PT FDR company which is a hypothetical (fictitious) company but taken from the example of companies listing on the Indonesia Stock Exchange (IDX). The company illustrated as PT FDR engages in the herbal medicine and pharmaceutical industry. In addition, this fictitious company is able to survive in economic conditions in Indonesia, which is facing new competition from domestic and

overseas. This fictitious company's shares have been listed on the Indonesia Stock Exchange since December 18, 2013.

In the early stage, participants receive information about company background and the initial value of the company's shares is determined as much as IDR 610.00 as a reference value. Participants are then asked to re-evaluate the investment value of the value of the company's shares in accordance with accounting information and the presentation pattern of End of Sequence (EoS) or Step by Step (SbS) with the initial value of the company's shares of IDR 610.00 and provide a scale for each disclosure in multiples price of 100. After reading and responding to the disclosure item, the participants respond to manipulation check, psychological experiment question (to measure the characteristics of overconfidence) and a statement to measure the ability of participants in the field of financial statement and capital market analysis (see Table 2).

Debriefing is the process of returning conditions like before by conducting an experimental assignment and allowing research subjects to honestly comment on experimenters (Christensen 1988). Debriefing session in this study is conducted after the participants have followed the experimental assignment and the researcher will contact the participants to explain the purpose of the experiment, request responses from participants about the experimental assignment and ask participants not to discuss various matters regarding experimental assignments. Company background information provided in this study is:

PT FDR is a company engaged in the herbal medicine and pharmaceutical industry that was established in 1951 under the name CV ASL and later changed to PT FDR in 1975. The company officially listed its shares on the Indonesia Stock Exchange on December 18, 2013 with the number of shares offered as many as 1,500,000 new shares or 10% of the capital issued and fully paid up after the IPO. PT FDR still survives to this day with new competitors that continue to emerge. The initial value of the company's shares in 2015 was IDR 610.00 as a reference value (see Table 2).

This study consists of two information series, that is, eight short information (good news/bad news) and 18 long information (good news/bad news). For short information consists of eight information as follows:

1. The company is in cooperation with the Indonesian Blind Association (Pertuni) to empower *Pertuni* members in cultivating farms where the company provides training and assistance.

2. The company provides services to the community in the form of clean water every dry season in some areas.
3. The company provides compensation for orphans from orphanages in several areas and basic packages for the poor.
4. The company provides health services for people suffering from leprosy.
5. The company faces demands from other parties regarding assistance in developing school education infrastructure that uses land that is still in dispute.
6. The company faces the demands from the surrounding community about the company's land use which disrupts the public interest.
7. The company has not linked the code of ethics as a basis for imposing reward and punishment for employees.
8. The company only reports sustainability reporting for the benefit of management and social services only as a form of accountability report.

For long information series consists of 18 information (good news/bad news) as follows:

1. The company is in cooperation with the Indonesian Blind Association (Pertuni) to empower *Pertuni* members in cultivating farms where the company provides training and assistance.
2. The company provides services to the community in the form of clean water every dry season in some areas.
3. The company provides compensation for orphans from orphanages in several areas and basic packages for the poor.
4. The company provides health services for people suffering from leprosy
5. The company provides free eye examination and glasses for students.
6. The company provides some assistance to the community in the form of natural disaster assistance, public infrastructure, assistance for places of worship and scholarship assistance given to students.
7. The company is active in developing environmental programs to utilize and maximize vacant lands by providing counseling and mentoring starting from the planting, maintenance, harvesting, post-harvest processing to raw materials according to factory standards and guidance on making organic fertilizers.
8. The company holds social service in the form of free cataract surgery to participate in the cataract blindness movement.
9. The company provides free homecoming as a form of corporate appreciation to the public and

Table 3
Normality Test Results

Variable	Respondent	Sig. Value	Explanation
Share Prices	College Students	0.200	Normal

Source: Processed.

Table 4
Independent Sample t-test Difference Test Results

Presentation Pattern	Information Series	Information Sequence	Number of Participants	Mean	T	Sig.2-tailed
Step by Step (SbS)	Long	++--	13	433.08	-5.234	0.000
		--++	10	870.00		

Source: Processed.

also wants to help the government in providing Lebaran transportation facilities.

10. The company faces demands from other parties regarding assistance in developing school education infrastructure that uses land that is still in dispute.
11. The company faces the demands of the surrounding community about the use of the company's land, which disrupts the public interest.
12. The company has not linked the code of ethics as a basis for imposing reward and punishment for employees.
13. The company only reports sustainability reporting for the benefit of management and social services only as a form of accountability report.
14. There are company employees who abuse education donations.
15. The company faces community demands related to the construction of factories in several regions.
16. The company experiences a crisis of public trust and a misperception because there is allegation that the product is deemed not in accordance with the procedure.
17. The company faces the demands of the surrounding community related to company waste which disrupts the public interest.
18. The company faces employee demands related to employee welfare.

Data Analysis Technique

Data analysis technique used to test the hypothesis of this research is Normality Test. After testing the data using the normality test to find out how the data is distributed (normal/not normal), a parametric sample t-test is performed. If the data is not normally distributed, the testing is done by using non-parametric Mann-Whitney test. The t-test is used to compare two groups that are not related to one another.

The provisions used to test independent sample t-test are: if the significance level is < 0.05 , the hypo-

thesis is rejected. Conversely, if the significance level is ≥ 0.05 , the hypothesis is accepted. While the mann-whitney test is used to determine the difference in the median of two free groups if the scale of the dependent variable data is ordinal or interval/ratio but not normally distributed.

4. DATA ANALYSIS AND DISCUSSION

The criteria of the subjects in this study are having knowledge in the field of financial statement analysis and/or investment and capital markets. Based on the criteria, the subjects in this study include: Students of Bachelor's degree in Accounting and Management who have knowledge in the field of financial statement or investment analysis and capital markets. The number of subjects who were willing to become participants is 112 students consisting of four (4) Management students and 108 Accounting students.

This difference in the number of participants between accounting students and management students is not intentional because when looking for participants, it is based on volunteerism and openness with regard to a minimum GPA of 3.25. So, Accounting students and Management students who have knowledge related to capital market investment management and/or financial report analysis are allowed to take part in this experimental activity.

The Testing of the Effect of Information Presentation Pattern Step by Step (SbS) on Investment Decision

This study examines the effect of information presentation pattern by using accounting information on investment decisions.

Based on Table 3, it can be seen that the Kolmogorov Smirnov test shows a significance value of $\alpha > 0.05$, it can be concluded that the data is normally distributed.

Testing using a different test of Independent

Table 5
Normality Test Results

Variable	Respondent	Sig. Value	Explanation
Share Prices	College Students	0.200	Normal

Source: Processed.

Table 6
Independent Sample t-test Difference Test Results

Presentation Pattern	Information Series	Information Sequence	Number of Participants	Mean	T	Sig.2-tailed
Step by Step (SbS)	Long	++-	13	440.77	-5.083	0.000
		--++	10	780.00		

Source: Processed.

Table 7
Hypothesis Test Results

Presentation Pattern	Hypothesis	Information Series	Effect
Step by Step (SbS)	1	Long	Recency Effect
	2	Short	Recency Effect

Source: Processed.

Sample t-test aims to determine whether there is an average difference between two groups or more. The average data for the two groups (Table 4) proves that the average final judgment of the group of subjects gets the information order ++- of 433.08 lower than the group of subjects who get the information order --++ of 870.00 for non-accounting information.

The results of the t-test on the presentation pattern of Step by Step (SbS) for student participants show T value of -5.083 and p value of 0,000 for 23 participants both scenario I and scenario II. This means that there is a significant difference in the average final judgment of participants who get information order ++- compared to participants who get information order --++.

In this study shows that the presentation pattern of Step by Step (SbS) causes Recency effect even in simple information. So, it provides support for the research hypothesis. This result is corroborated by Figure 2 which shows the indication of fishtail pattern in the belief revision taken by investors. Thus, it can be concluded that there is a difference in the final judgment of participants on investment decision making.

Based on Table 5, it can be seen that the Kolmogorov Smirnov test shows a significant value of $\alpha > 0.05$. So, it can be concluded that the data is normally distributed.

The average data for the two groups (Table 6) proves that the average final judgment of the subject group get the information order ++- of 440.77 which is lower than the group of subjects who get information order --++ of 780.00 for non-accounting information.

The results of the t-test on the presentation pattern of Step by Step (SbS) show T value of -5.083 and p value of 0.000 for 23 student participants. This means that there is a significant difference in the average final judgment of participants who get information order ++- compared with participants who get information order --++. This study shows that the presentation pattern of Step by Step (SbS) causes Recency effect even though it is simple information. So, this provides support for the research hypothesis. This result is corroborated by Figure 3 which shows the fishtale pattern indication in the belief revision taken by investors.

Discussion of the Effect of Information Presentation Pattern Step by Step (SbS) on Investment Decision

The test is carried out using the Independent Sample t-test because the data are normally distributed. This Independent Sample t-test is used to test whether the information order received by participants, such as (++-) and (--++), will result in a different final judgment or not.

The results of hypothesis test 1 based on the information sequence shows the difference in final judgment between participants from scenario I and participants from scenario II for the long information series. While the results of hypothesis 2 based on the information sequence indicate a difference in final judgment between participants from scenario III and participants from scenario IV in the short information series (see Table 7). The results of hypothesis 1 in this study are different from the belief adjustment model theory (Hogarth and Einhorn 1992) which

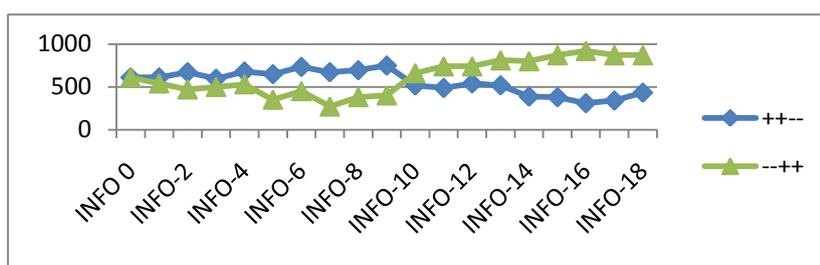


Figure 2
Fishtail pattern in the belief revisions taken by investors in the presentation pattern of Step by Step and Long Information Series

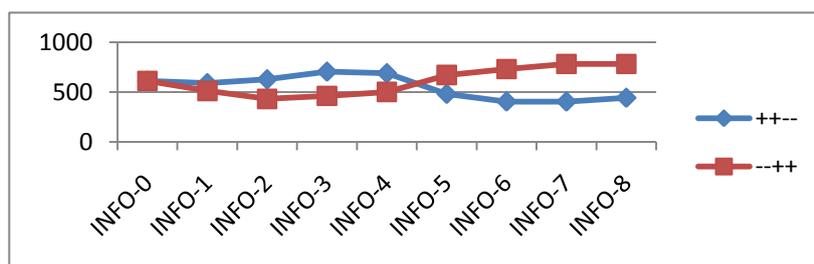


Figure 3
Fishtale pattern in the belief revision taken by investors in the presentation pattern of Step by Step and Short Information Series

Table 8
Normality Test Results

Variable	Respondent	Sig. Value	Explanation
Share Prices	College Students	0.180	Normal

Source: Processed.

predicts that the primacy effect will occur in the presentation pattern of Step by Step (SbS) and simple information. The primacy effect occurs because the evidence received at the beginning is more considered than the evidence received at the end. Whereas, in this study, the effect occurred is recency effect. Recency effect occurs because the evidence received at the end is more considered than the initial evidence received at the beginning. The results of hypothesis 2 support the Belief Adjustment model theory (Hogarth and Einhorn 1992) which predicts that the recency effect will occur in the presentation pattern of Step by Step (SbS) and simple information. The results of hypotheses 1 and 2 are also supported by Figure 2 for hypothesis 1, and Figure 3 for hypothesis 2 which shows fishtale pattern in the presentation pattern of Step by Step (SbS) in the participants' belief revision.

The results of hypothesis 1 indicate that participants will rate the share lower by 433.08 when receiving the information sequence of +++ compared to when receiving the information sequence of --++ of 870.00 in the presentation pattern of Step by Step (SbS) with long information series. The results of

hypothesis 2 shows that participants will rate the share lower by 440.77 when receiving the information sequence of +++ compared to when receiving the information sequence of --++ of 780.00 in the presentation pattern of Step by Step (SbS) with short information series. The results of this study are also supported by the results of the studies done by Pinsky (2007), Luciana et al (2013), Luciana Spica and Supriyadi (2013).

The Effect of Information Presentation Pattern End of Sequence (EoS) on Investment Decisions

This study examines the effect of information presentation pattern by using accounting information on investment decisions.

Based on Table 8, it can be seen that the Kolmogorov Smirnov test shows a significant value of $\alpha > 0.05$, it can be concluded that the data is normally distributed.

Testing using Independent Sample t-test different test aims to determine whether there is an average difference between two groups or more. The average data for the two groups (Table 9) proves that the average final judgment of the subject group

Table 9
Independent Sample t-test Difference Test Results

Presentation Pattern	Information Series	Information Sequence	Number of Participants	Mean	T	Sig,2-tailed
Step by Step (SbS)	Long	++-	13	571.54	-1.249	0.226
		--+	10	660.00		

Source: Processed.

Table 10
Normality Test Results

Variable	Respondent	Sig. Value	Explanation
Share Prices	College Students	0.094	Normal

Source: Processed.

Table 11
Independent Sample t-test Difference Test Results

Presentation Pattern	Information Series	Information Sequence	Number of Participants	Mean	T	Sig,2-tailed
Step by Step (SbS)	Long	++-	13	517.69	-2.222	0.037
		--+	10	710.00		

Source: Processed.

Table 12
Hypothesis Test Results

Presentation	Hypothesis	Information Series	Effect
End of Sequence	1	Long	No Order Effect
	2	Short	Recency Effect

Source: Processed.

receives information sequence ++- of 571.54 which is lower than the group of subjects who receive the information sequence --+ of 660.00 for non accounting information.

The results of the t-test on the presentation pattern of End of Sequence (EoS) for show T value of -1.2249 and p value of 0.226 for 23 student participants. This means that there is no significant difference in the average final judgment of participants who receive information sequence ++- compared to participants who received information sequence --+. This study shows that there is **no order effect** in the presentation pattern of End of Sequence (EoS). So, this result does not provide support for the research hypothesis.

Based on Table 10, it can be seen that the the Kolmogorov Smirnov test shows a significance value of $\alpha > 0.05$. It can be concluded that the data is normally distributed.

The average data for the two groups (Table 11) proves that the average final judgment of the subject group receives the information sequence ++- of 517.69 which is lower than the group of subjects who receive information sequence --+ of 710.00 for non accounting information.

The results of the t-test on the presentation pat-

tern of End of Sequence (EoS) for show T value of -2.222 and p value of 0.037 for 23 student participants. This means that there is a significant difference in the average final judgment of participants who receive information sequence ++- compared to participants who receive information sequence --+. This study shows that the presentation pattern of End of Sequence (EoS) causes Recency effect even though in simple information. So, this result provides support for the research hypothesis.

The Discussion of the Effect of Information Presentation Pattern of End of Sequence on Investment Decisions

The test is carried out using the Independent Sample t-test because the data are normally distributed. This Independent Sample t-test is used to test whether the information sequence received by participants, namely (++) and (--+), will result in a different final judgment or not.

The results of hypothesis test 3, based on the information sequence, shows that there is no difference in final judgment between participants from scenario V and scenario VI for the long information series. The results of hypothesis 3 in this study are different from the belief adjustment model theory

(Hogarth and Einhorn 1992) which predicts that the primacy effect will occur in the presentation pattern of End of Sequence (EoS) and simple information. In this study, there is No Order Effect occurred. The results of this study are supported by the results of the studies conducted by Pinsky (2007), Luciana Spica and Supriyadi (2013), Ashton and Kennedy (2002).

The results of hypothesis test 4, based on the information sequence, indicate the difference in final judgment between participants from scenario VII and scenario VIII in the short information series. The results of hypothesis 4 does not support the Belief Adjustment model theory (Hogarth and Einhorn 1992) which predicts that the primacy effect will occur in the presentation pattern of End of Sequence (EoS) and simple information. The results of this study are supported by the results of the study conducted by Nirwana Putri and Luciana Spica (2016).

The overall results of the study indicate that: **First**, the presentation pattern of Step by Step (SbS) and the short information series can cause recency effects. The cause of the recency effect is that the information presentation pattern (SbS) provides more opportunities for adjustment, and investors often make excessive adjustments to the items (Kennedy 1993). This is the excessive adjustment that causes the recency effect. The recency effect occurs in investment decision making if the information is presented in the Step by Step presentation pattern (Luciana Spica et al. 2013). **Second**, the presentation pattern of End of Sequence often results in an End of Sequence processing strategy, especially if the number of information items is small and not too complex. The End of Sequence processing strategy with positive and negative information is filtered before being integrated with previous beliefs (Kennedy 1993). A complex and/or long information series which is conveyed in the form of End of Sequence may not be accommodated by individual's cognitive capacity.

The results of this study indicate that the belief revision model of Hogarth and Einhorn (1992) is partially held in making investment decisions. The predictions of the belief revision model of Hogarth and Einhorn (1992) which are not supported in this study are: **First**, this study fails to provide support that the presentation pattern of Step by Step causes a primacy effect in the long information series. **Second**, this study fails to provide support that the presentation pattern of End of Sequence causes a primacy effect in both long information series and short information series.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study aims to determine whether there are differences in investment decisions between participants who obtain information sequence (++--) and (- -++) in the presentation pattern of Step by Step and End of Sequence with long and short information series

This research is classified as quantitative research using primary data. The samples used in this study are students of Bachelor's degree in Accounting and Management who act as investors. The test equipment used is the Independent Sample t-test in SPSS 22.0.

The conclusion that can be drawn from the results of the test and the discussion that has been done is that this research takes participants where the participants are overconfidence, and get results as follows: First, there are differences and the overconfident participants give more consideration to the final judgment than the beginning so that recency effects occur on the Step by Step presentation pattern and long information series. Second, there are differences and the overconfident participants give more judgment in the final judgment than in the beginning so that recency effects occur in the Step by Step presentation pattern and short information series. Third, there are no differences and the overconfident participants give the same final judgment so that there is no order effect on the End of Sequence presentation pattern and long information series. Fourth, there are differences and the overconfident participants give more judgment on the final judgment than the beginning so that recency effects occur on the End of Sequence presentation pattern and short information series.

The implication of the results of the research on the theory of Belief Adjustment model is that further testing is needed for not supporting the prediction of sequence effects based on the belief adjustment model. This is shown that: First, the results of the study show the presentation pattern of Step by Step does not cause a primacy effect in the long information series. Second, the results of the study do not provide support that the presentation pattern of End of Sequence causes primacy effect in both the long information series and the short information series.

The limitations of this study are: First, when the participants who are willing to become research participants have been obtained, it turns out that on the day of implementation the participants cannot attend due to personal matters. Second, the conducive atmosphere as expected by researchers only occurs from the beginning to the middle of the assignment.

But at the end of the assignment, participants begin to look a little bored and start making noise. However, in the end it can be overcome by experimenters. Third, the minimum criteria in the general knowledge test that participants should be able to give correct answers as many as three of the five questions given, in reality, the participants are only able to answer two of the five questions provided. Based on the conclusions and limitations, it is suggested that the next researchers pay more attention to the participants so that the atmosphere is more conducive and calm and prepare backup participants to substitute those who cancel their willingness. In addition, the criteria for participants should not only be on their knowledge, but also in his experience in the world of investment.

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