

Joint Influence of Financial and Non-Financial Information on Investment – Relevant Decisions

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Abstract. This research integrates financial and non-financial information that is useful in investment decision-making. The financial information used in this study is book value per share (BVPS). While an environmental performance valuable information in decision making is used as non-financial information. This research aims to investigate how information types (financial and non-financial) affect investment decisions. This research is a laboratory experiment using a 2x2 between-subjects design. Participants of this study were 39 students with accounting and management background who acted as investors. Participants in this study respond to scenarios involving investment decisions. The data analysis used to test this research hypothesis is an analysis of variance (ANOVA). The results of this study show that BVPS and environmental performance influence investment decisions. Specifically, an investor who receives BVPS information is improved, and positive environmental performance tends to consider higher investment decisions than investors who receive decreased BVPS information and negative environmental performance. Finally, this study discusses the implications of research results for companies in designing business strategies and further research development opportunities.

Keywords: Financial Information, Environmental Performance, Accounting Information Systems, Investment Decisions

1 Introduction

The investment decision-making process is influenced by the information obtained by investors. Investors need to analyze the information generated when making investment decisions. This is because investments require considerable and strategic funds (long-term decisions). Therefore, investment decision-making needs to consider various things for the decisions taken to provide profit in the future. Most investors focus on the financial benefits of their investments [1]. Several studies have conducted investigations related to the influence of financial information on investment decisions [2][3][4][5][6].

Accounting information systems are a tool to deliver information. It has a function to collect, store and present relevant and reliable information data that is useful to investors in decision making [7]. However, when investors only emphasize the financial aspects of the company in making investment decisions, it can result in incorrect decisions. As a result, investors lose capital that has been invested and suffered losses. The change in social values and increased environmental awareness makes the focus shift of consideration of investors and managers of the company so that it begins to consider the non-financial aspects [8]. For novice investors, company information is very useful for decision-making. Therefore, information

related to performance and prospects of the company is very useful for investors in making investment decisions.

Currently, a performance measurement system has developed that focuses not only on financial information but also on non-financial information. Then Kaplan & Norton introduce a performance measurement system that accommodate both financial and non-financial information which is part of multidimensional performance measurement. Some previous research has examined investment decision-making. But most only emphasize one aspect, both financial and non-financial. Research with experimental studies that accommodate both aspects simultaneously i.e. finance and non-financial are still limited. Rahayu et al. [9] conducted experimental research by involving both aspects, namely book value information per share and social information. One of the financial information that influences investment decision-making is the book value per share. Social information is used in such research as a form of non-financial information. This research focuses on non-financial information in the form of environmental information as one of the useful information in decision making. Environmental information is useful in predicting the long-term business continuity of the company. Companies that pay attention to the environment tend to have a good image of the community. The relationship is explained by the theory of legitimacy and the theory of stewardship.

2 Literature Review

Investment is a deliberate sacrifice made by investors by calculating existing risks to generate a better return (return) in the future [9]. High returns are generated through high risk. In investment decision-making, investors need to take into consideration all aspects of the investment that are likely to affect better returns. All aspects that affect involve financial and non-financial aspects as well as psychological factors.

To achieve organizational objectives, accounting information systems collect, process, and store data to produce reliable, complete, and timely information [7]. The information is presented to interested parties in decision making, one of which is investment decision making. One of the pieces of information considered by investors in decision-making is accounting information that can be used in predicting the equity value of the market. Shafi [10] states that the value of levant recan be known using fundamental analysis on accounting information.

The book value per share (BVPS) has a relevant and linear relationship with the stock market price because BPVS shows how much money investors will receive if the asset is sold at book value. In addition, book value per share is also used to evaluate the share price [11]. If the market value per share is smaller than the company's book value per share then the shares are categorized as undervalued. Conversely, if the market value per share is greater then the price is categorized as overvalued. Indicators in book value per share are used based on investor consideration in investment decision-making. Concerning efficient market hypothesis theory, rational investors will perform fundamental analysis based on accounting information. Financial statements issued periodically must contain information about book value per share. If the capital market does not experience market pressure then investors tend to buy stocks when financial statements predict book value per share to increase [12].

In addition to the financial aspects, investors also consider environmental aspects. Environmental performance is an aspect of environmental management of an organization,

especially whether it is related to operational activities or company initiatives for environmental improvement [13]. Wynder et al. [14] stated that environmental performance is a concern for stakeholders, especially investors. This view consistent with a social legitimacy for those related to company's reputation. Therefore, it becomes a commitment of organizations related to the voluntary reporting of social and environmental performance. Several studies have also examined related to the effect of social and environmental performance reporting on the value or performance of the company [15][16][17]. These result show that good environmental performance can be competitive advantage of the organization.

Several proposed frameworks contain framing information on external stakeholders. One of them is the framework of Arnold and Sutton [18] in Rikhardsson and Holm [19].

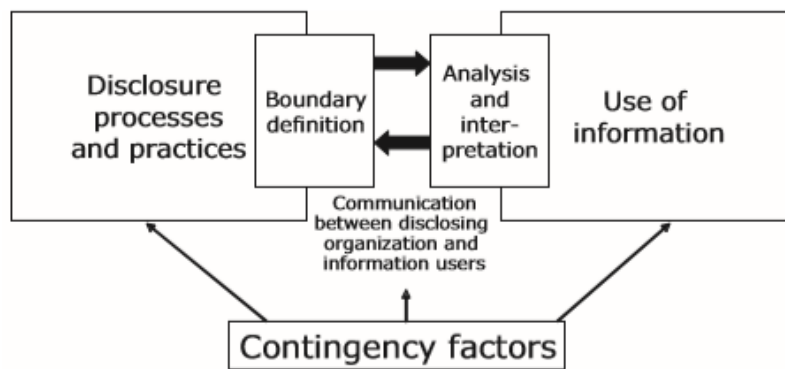


Fig 1. Disclosure Framework

The framework takes a point in the idea that the use of accounting information occurs through individuals and/or groups that fulfill institutional roles [19]. Environmental information has an important role for stakeholders in decision-making. The Company is not required in the event of disclosure of environmental information. Such disclosures are made voluntarily by the company. Companies that have good environmental performance will get a good image from the social community so that business continuity will be good. BVPS and environmental information is a signal for investors in assessing a company. Financial information shows the financial position of a company and the extent of organizational manage its resources efficiently [20]. Based on financial information, investors can perform fundamental and technical analysis to make investment decision. Companies which good financial information can attract investors to invest their capital. In addition, good environmental performance information becomes an intangible asset of the company. Investors concern with environmental issues because they are related to the company's sustainability. Investors consider both book value per share (BVPS) and environmental information in investment decision-making. Book value per share information disclosure plays a role in investor decision making, however, organizations that disclose environmental information remain effective in building sound corporate reputation [21]. Based on the above ideas, researchers formulated the following hypotheses:

H1: Investor who receives increased BVPS information tends to consider higher investment decisions than investors who receive decreased BVPS information.

- H2: Investors who receive positive environmental performance information tend to give higher investment decision considerations than investors who receive negative environmental performance information.
- H3: Investors who receive increased BVPS information and positive environmental performance tend to consider higher investment decisions than investors who receive decreased BVPS information and negative environmental performance.

3 Method

3.1 Participants

This research is laboratory experiment research with between subject design. There are two independent variables namely accounting information and environmental information. Each subject is asked to provide a performance assessment through investment decisions. The placement of the study subjects was done randomly.

Table 1. Experiment Design 2x2 *between subjects*

	BVPS Information	Increased	Decreased
Environmental Information			
Positive		Group 1	Group 3
Negative		Group 2	Group 4

The subjects in this study were undergraduate students of the Faculty of Economics. The subject is chosen as an investor proxy because students at the faculty of economics are expected to be able to make considerations and decisions in terms of investment. This study using purposive sampling with judgment sampling type. The sample criteria of this study are students from the faculty of economics who have been or are studying portfolio theory and investment analysis. There are thirty-nine participants. Each subject is asked to make decision of a case with information regarding the performance of a company.

3.2 Assignment

The assignment in this study was adopted from research Alewine et al. [7]. The type of data used in this study is primary data. Primary data is obtained directly by researchers by conducting experiments. Participants were given scenarios that illustrated companies whose main purpose was to be a company with good environmental business practices. In addition, the scenarios provided to participants contain both financial and environmental information. Participants are asked to act as investors who have the authority to invest their funds in the company. The experiments are voluntary. There are four case scenarios used by researchers. Each participant gets one case scenario from four existing case scenarios. Random grouping of experiment subjects into four groups was conducted to meet the needs of the experiment. The research procedure is depicted in Figure 2.

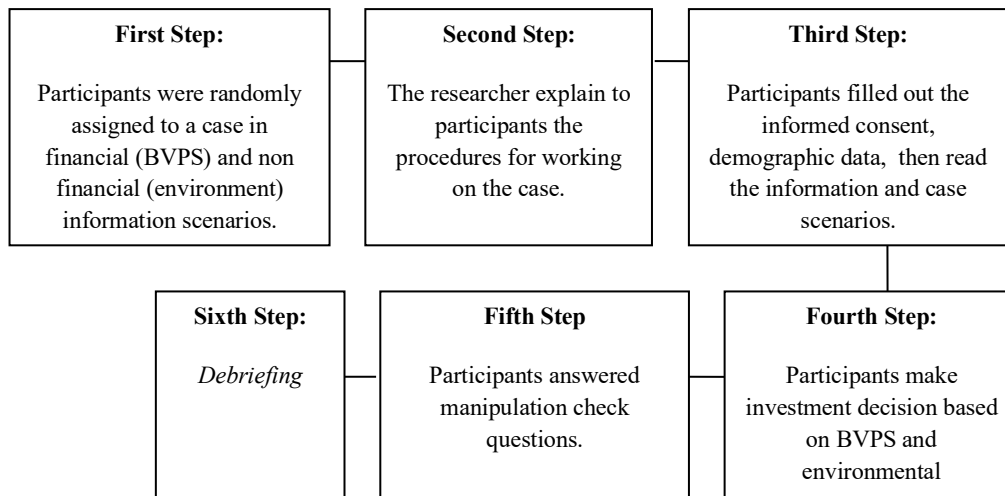


Fig 2. The Research Procedure

3.3 Research Variables

The dependent variable of this research is an investment decision. Participants are required to provide an assessment related to the amount of investment given to the company's business unit on a scale of 0-100. The independent variables of this study are financial (book value per share) information measured using measurements used by Rahayu et al. 2021 [9]; nonfinancial (environmental) information measured using measurements used by Alewine et al. [7]. While the measurement of investment decisions was adopted from [7].

3.4 Data Analysis

Analysis data used to test this research hypothesis is an analysis of variance (ANOVA). This study used SPSS version 23 application to conduct hypothesis testing.

4 Results

Before the hypothesis was tested using ANOVA, it was conducted first testing against homogeneity assumptions using Levene's test and assumption of normality using one-sample Kolmogorov Smirnov.

4.1 Hypothesis Testing

The test results of the ANOVA assumption show that the significance value of Levene's test is 0.652 and normality test results show a significance value greater than 0.05. Therefore, the fulfillment of both assumptions can be done by hypothesis testing using ANOVA.

Table 2. Descriptive Statistics of Investment Decisions

		BVPS Information		
		Increased	Decreased	Total
Environmental Information	Positive	Group 1 (N=10) <i>Mean</i> =72.50 <i>Std</i> =15.138	Group 2 (N=10) <i>Mean</i> =47.00 <i>Std</i> =18.288	N=20 <i>Mean</i> =59.75 <i>Std</i> =20.932
		Group 3 (N=10) <i>Mean</i> =25.80 <i>Std</i> =16.012	Group 4 (N=9) <i>Mean</i> =25.00 <i>Std</i> =22.361	N=19 <i>Mean</i> =25.42 <i>Std</i> =18.724
	Negative			
		Total		N=20 <i>Mean</i> =49.15 <i>Std</i> =28.354
				N=39 <i>Mean</i> =43.03 <i>Std</i> =26.216

Table 2 shows descriptive statistics for each experimental group relating to investment decisions. Of the 39 participants, the average gave investment decisions by investing 43.03 (from a scale of 0 - 100) with a standard deviation of 26.216.

Hypothesis 1 of this study tested the influence of financial information on investment decisions. Investors who receive financial information increase more giving a higher investment value than investors who receive financial information decreases. Meanwhile, hypothesis 2 of this study tested the influence of environmental performance information on investment decisions. Investors who receive positive environmental performance information provide a higher investment rating than investors who receive negative environmental performance information. Based on table 3 using 2x2 ANOVA shows significant results so that H1 and H2 are supported.

In addition, hypothesis 3 of this study tested the effect of the interaction of financial information and environmental performance on investment decisions. This study tested whether investors who received improved financial information and positive environmental performance tended to give higher investment decision assessments than investors who received declining financial information and negative environmental performance. Based on table 3, using 2x 2 ANOVA, the interaction test showed significant results ($F=4.564$; $p<0.040$). Therefore, H3 is supported.

Table 3. 2x 2 ANOVA Test Results

Source	<i>Df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
Corrected Model	3	4912.291	15.108	.000
Intersep	1	70545.624	216.966	.000
(Fin Inf)	1	1682.489	5.175	.029**
(Env Inf)	1	11480.327	35.308	.000***
Fin Inv * Env Inf	1	1484.003	4.564	.040**
Error	35	325.146		
Total	39			
Corrected Model	38			

Description: *** = significant at 1% level; ** = significant at 5% level
a. R Squared = .564 (Adjusted R Squared = .527)

5 Discussion

This research hypothesis investigates the influence of financial information and environmental performance on investment decisions. The results of the test using ANOVA support the hypothesis. Expanding previous research, this study can provide evidence that there are differences in investment decision assessment between investors who receive improved financial information (positive environmental performance) and declining financial information (negative environmental performance). Investors who receive financial information increase their investment higher than investors who receive financial information decreases. In addition, investors who receive positive environmental performance information invest higher than investors who receive negative environmental performance information. These findings support the study [12][19].

Company information is very useful for stakeholders, especially investors in making investment decisions. Positive value information can provide a signal for investors to capture the opportunity of return on investments invested in the company. The signal can convince investors to invest in companies that have positive information on both financial and environmental performance. The results of this study confirm the theory of legitimacy and signaling. Interestingly, when the company has improved financial performance (decrease) and negative environmental performance (positive) will be responded to differently by investors. Companies that have a high level of attention to environmental issues have a good image in the interested parties. Good environmental performance will take precedence by investors in terms of investment because of its emphasis on the long-term sustainability of the company.

These findings have implications that financial and environmental performance information has different weights for investors in determining investment decisions, especially in companies that have one of the business objectives of having good environmental business practices. The emphasis on sustainability issues today is also more highlighted by the public. Moreover, financial information is subject to various limitations, such as manipulate financial information to sustain a favorable corporate image among stakeholders namely creative accounting [22]. The findings of this study have implications for the preparation of corporate strategies to focus more on environmental aspects. In addition to financial performance, good environmental performance can provide a good image that boils down to the company's sustainability benefits going forward.

6 Conclusion

This study aims to investigate the influence of financial information and environmental performance on investment decision. This study investigates the combined effect of financial and non-financial information (in this case environmental performance). Based on the analysis of research data, several conclusions can be drawn from this study. First, financial information affects investment decisions. This test is significant at the level of 1%. Investors who receive increased usefulness information give higher investment valuations than investors who receive declining financial information. Second, environmental information affects investment decisions. This test is significant at the level of 5%. Investors who receive positive environmental performance information give a higher investment rating than investors who receive negative environmental performance information. Third, the combined effect of

financial and environmental information affects investment decisions. This test is significant at the level of 5%.

There are several limitations to this study. First, this study can not include all relevant information in the real world because use experimental approach. Second, it does not consider subject control concerning the understanding of subjects related to investment even though the participants involved in this study have taken investment courses.

Because there is still limited research involving the topic of investment decisions using experimental approaches involving environmental aspects, research with similar topics needs to be increased. Future research can conduct true experiment research by considering the understanding of subjects related to investment and involving corporate reputation. In addition, future research can be done by adding framing variables to measure investment decisions.

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