

## ***“High Tech And Low Tech” Industries as Moderating The Value Relevance of Accounting Information Research and Development (R&D) Costs***

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**Abstract:** *Accounting information contained in financial statements must be able to influence the decision making of users (investors). The concept of value relevance of financial statements developed by Ohlson (1995) emerged, namely how big the role of accounting information in influencing investor decision making which in turn affects stock prices. Information on the R&D costs of companies belonging to high tech industries may be priced higher than companies belonging to low tech industries. So it is expected that the relevance of information on the R&D costs of companies belonging to high tech industries is higher than companies belonging to low tech industries. This study aims to examine the value relevance of research and development (R&D) cost accounting information and to examine the value relevance of research and development (R&D) accounting information for companies belonging to high tech industries, which are higher than companies belonging to low tech industries. The population in this study were all companies listed on the Indonesia Stock Exchange in 2015-2017. The sampling technique used purposive sampling with company criteria that revealed research and development (R&D) costs in 2015-2017. The number of companies that meet the sample criteria are 47. Data analysis in this study uses Partial Least Square (PLS) with Warp PLS 6.0 application. The results of this study prove that research and development (R&D) accounting information has a positive and significant effect on firm value. However, the results of the study failed to prove that the value relevance of research and development (R&D) accounting information for companies included in high tech industries was higher than companies included in low tech industries.*

**Keywords:** *Accounting Information, Research and development (R&D) costs, Type of Industry, High Tech Industries, Low Tech Industries, stock price and firm value*

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## Introduction

In the era of the industrial revolution 4.0, the use of technology in every field is increasing to help every human activity. Not only emphasizing technology, but also various added values that come from human creativity to get special outputs. One way to produce special output is by conducting research and

R&D is a research and development activity that has commercial interests in relation to pure scientific research and applicative development in the field of technology. R&D is one approach where businesses can experience future growth by developing new products or processes to improve and expand the company's operations. Most people define the research and development function within the company with the discovery of new products. Even though it is not only the discovery of new products, R&D activities often also produce intangible assets (Kieso et al., 2007).

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Information about intangible assets generated internally by the company through R&D activities is very important to be included in the company's annual report (Weiss, Falk, and Zion, 2013). However, the presentation of such information in the financial statements tends not to be recognized as an asset. Standard-setting bodies are reluctant to recognize matters relating to intangible assets as assets, especially for some

development (R&D). With R&D, the company will produce special output according to current consumer trends. Thatcher and Pingry (2009) which state that companies in order to gain a competitive advantage engage in expensive R&D activities to develop innovation.

assets resulting from R&D activities (Lisvery and Ginting, 2004).

Based on the Statement of Financial Accounting Standards (PSAK) 19 (revised 2015) intangible assets produced during the research stage should not be recognized, because at the research stage the company has not been able to demonstrate that an intangible asset has been generated that will generate future economic benefits. Thus, expenditures for the research phase should not be recognized as assets, but are recognized as costs when incurred as described in paragraphs 54 & 55 of PSAK 19. In paragraph 57 of PSAK 19, intangible assets arising from development activities are recognized if, and only if, fulfilled: 1) technical feasibility of completion; 2) intention to complete and use or sell it; 3) ability to use or sell; 4) it is probable that future economic benefits will be generated; 5) availability of technical, financial and other resources to complete and, use or sell them; and 6) the ability to measure reliably the expenditure related to the asset.

In accordance with these criteria, costs incurred for R&D activities and intangible assets generated internally through R&D activities can only be recognized as assets if the six criteria can be met, but these criteria are not easy to be fulfilled by the company. So expenditures on research activities and intangible assets resulting from R&D activities are recognized as R&D costs in the financial statements of most companies.

Accounting information contained in financial statements must be able to influence the

decision making of users (investors). In this case, investors must first review the accounting information before making a decision to buy or sell shares. From here emerged the concept of value relevance of financial statements developed by Ohlson (1995), namely how big the role of accounting information in influencing investor decision making which in turn affects stock prices.

In recent years there have been claims that accounting information has lost some of its relevance to investors (Francis and Schipper, 1999). The decline in the value relevance of accounting information is often associated with changes in the current business environment. Theoretically, one factor causing the decline in the relevance of financial statements is the increasingly significant number of intangible assets owned by the company (Canibano et al., 1999; Lev and Zarowin, 1999). Several value relevance studies have tried to test this and found that value relevance can be associated with intangible assets, including changes and R&D costs as drivers of change (Lev and Zarowin, 1999), information on patents (Hirschey et al., 2001), brands (Kallapur and Kwan, 2004), and changes in brand attitude in the computer industry (Aaker and Jacobson, 200). Based on the results of the study, R&D cost accounting information is thought to have value relevance.

Companies that are included in high tech industries will certainly continue to carry out R&D activities aimed at creating high-tech products and services. R&D activities for companies belonging to high tech industries are the dominating activity, which contributes greatly and plays a very decisive role in the success of the company. Meanwhile, for companies that are included in low tech industries, R&D activities may not contribute much and are not so important because the main driving force in carrying out company

operations is the availability of sufficient capital and the possession of equipment and machines that will be used to produce products.

Information on R&D costs for companies belonging to high tech industries and companies belonging to low tech industries will certainly be valued or valued differently by the market. Information on the R&D costs of companies belonging to high tech industries may be priced higher than companies belonging to low tech industries. So it is expected that the relevance of information on the R&D costs of companies that are included in high tech industries is higher than companies that are included in low tech industries.

### **Literature Review**

The relevance of the value of accounting information is a large role of accounting information in influencing decision making which in turn affects the value of the company. The value of the company is reflected in the market price of the company's shares (Ohlson, 1995).

Ohlson's (1995) model is a strong theoretical framework for evaluating markets based on basic accounting variables (book value and earnings), and other types of information that may be relevant in predicting firm value. Research and Development is an activity that has commercial interests in relation to pure scientific research and applicative development in the field of technology. According to Lu, et al., (2010) R&D can increase firm value through better company prospects in the future (Lu, et al., 2010).

In accordance with PSAK No. 19, most companies recognize expenses for R&D activities as R&D costs in their financial statements. Lako (2007) states that financial statements that disclose R&D costs have higher value relevance than financial statements that do not disclose R&D costs. Therefore, the researcher proposes the following hypothesis:

H1: R&D cost accounting information has value relevance.

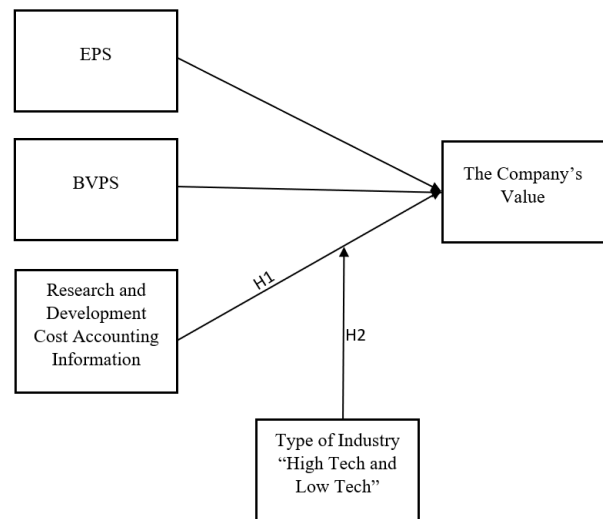
“High Tech And Low Tech” Industries as Moderating The Value Relevance of Accounting Information  
Research and Development (R&D) Costs

The type of industry in this study is divided into 2 industrial groups, namely high tech industries and low tech industries or traditional industries (Bozzolan et al., 2003). R&D activities for companies belonging to high tech industries are the dominant activities, which contribute greatly and play a very important role in determining the success of the company.

On the other hand, for companies belonging to low tech industries, R&D activities may not contribute much and are not so important because the main driving force in carrying out company operations is the availability of sufficient capital and the possession of equipment and machinery that will be used to produce products.

Due to the different roles of R&D activities for each industry, “high tech industries and low tech industries,” making the same information that is information about R&D activities captured by the market (investors) is different. The market will value the R&D activity more highly by companies belonging to high tech industries, compared to companies belonging to high tech industries. The market response shows that R&D information is used by investors to make decisions. Therefore, the researcher proposes the following hypothesis:  
H2: The relevance of the value of R&D cost accounting information for companies belonging to high tech industries is higher than companies belonging to low tech industries.

Figure 1. Research Model



**Method**

The population in this study are all companies listed on the Indonesia Stock Exchange. The sampling technique used purposive sampling with company criteria. companies that disclose research and development (R&D) costs in 2015-2017. The number of companies that meet the sample criteria are 47. Firm value as proxied by stock prices (Ohlson, 1995). In accordance with Batara (2015), the share price used is the share price obtained from the 2015-2017 IDX Fact Book. R&D costs in this study were measured by:

$$R\&D\ Cost = \frac{R\&D\ Cost}{Out\ Standing\ Stock}$$

The grouping of industrial types into high tech industries and low tech industries refers to the grouping carried out by Bozzolan et al. (2003). This variable is measured by assigning a score of 1 to companies belonging to high tech industries and a score of 0 to companies belonging to low tech industries.

The analytical method used in this study is the structural equation modeling (SEM) method and the analytical tool used is partial least squares (PLS) software. SEM is one type of multivariate analysis in the social sciences. The software used as an analysis tool is WarpPLS version 6.0.

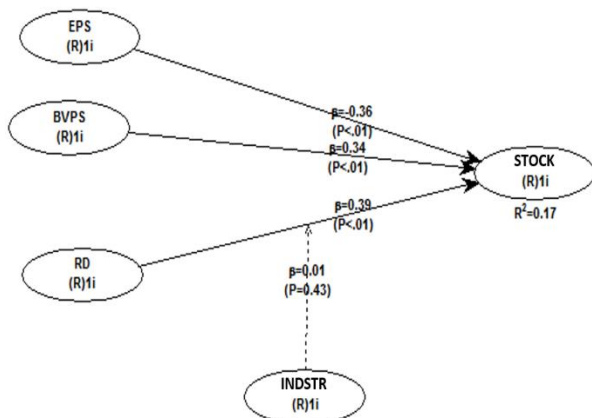
**Result and Discussion**

The Analysis is used to calculate the value of the goodness of fit model, which is calculated by looking at the Average R-Squared (ARS) to show the suitability of the model, the Average Path Coefficient (APC) to show the relationship between variables and the Average Variance Inflation Factor (AVIF) to show the multicollinearity between variables independent variable.

Analy ze	Prob	Criteria	Result
APC = 0.257	P < 0.001	Good If P < 0,05	Supported
ARS = 0.175	P = 0.009	Good If P < 0,05	Supported
AVIF = 3.258		P < 5	Supported

Source: Processed Data, 2019

Figure 2. Hypothesis Testing



**Hypothesis Testing Result**

Variable	Hypothesis	Prediction	Path Coef.	P-Value	Significance	Result
EPS → STOCK			0,36	<0,01	Significant	
BVPS → STOCK			0,34	<0,01	Significant	
R&D → STOCK	H1	+	0,39	<0,01	Significant	Supported
EPS → STOCK						
BVPS → STOCK						
R&D → STOCK	H2	+/-	0,01	=0,43	Not Significant	Rejected

Source: Processed Data, 2019

The results of testing the first hypothesis in this study show that the P-value (< 0.01) is smaller than the predetermined significance level ( $\leq 0.05$ ) and the path coefficient value is positive 0.39. This shows that R&D costs have an effect on firm value (proxied by stock price). This means that R&D cost accounting information has value relevance so that the results of the first hypothesis are accepted.

R&D has an effect on firm value. According to Lu, et al. (2010) which states that research and development has a positive influence on firm value (value of the firm). The results of this study support the research conducted by Zhao (2002) and Lako (2007).

Based on the second hypothesis testing in this study, it can be seen that the P-value (0.43) is greater than the predetermined significance level ( $\leq 0.05$ ) and the path coefficient value is positive 0.01.

This shows that the type of industry "high tech industries and low tech industries" does not moderate the value relevance of R&D cost accounting information, so the results of testing the second hypothesis are rejected.

The results of the study prove that the type of industry "high tech industries and low tech industries" strengthens the value relevance of R&D cost accounting information but does not

succeed in proving that the relevance of R&D cost accounting information for companies included in high tech industries is higher than companies included in low tech industries.

### Conclusions and Suggestion

Based on the analysis that has been carried out in this study, it can be concluded that R&D cost accounting information has value relevance and the research results prove that the type of industry "high tech industries and low tech industries" strengthens the value relevance of R&D cost accounting information but does not succeed in proving that the relevance of accounting information The R&D costs of companies belonging to high tech industries are higher than companies belonging to low tech industries.

This study has limitations that can be taken into consideration for further research, namely this study does not compare with companies that do not conduct R&D, does not compare the value relevance of companies that are included in high tech industries and low tech industries and this study only uses one moderating variable, namely types of high tech and low tech industries.

Future research is expected to use panel data analysis, adding data on companies other than Indonesia, for example all countries in Asia, adding other variables that affect company value such as cash flow, ERM disclosure, and dividend policy because dividends distributed by companies tend to affect investors in investing, and adding other moderating variables such as financial performance, CSR and ERM disclosure.

This research has implications for interested parties. For investors. Investors have several considerations in choosing a company to invest in. Investors can use information on earnings per share, book value per share and R&D costs as sources of information that are

relatively easy to obtain for consideration in decision making. However, it is better for investors to consider other factors because the relationship between the book value of equity and company profits in influencing stock prices is not strong enough so that there are still other variables that affect the formation of company value. For companies. Companies need to pay attention to R&D within the company, by increasing the company's R&D can increase the value of the company. Companies are expected to disclose more detailed and complete information regarding R&D in the financial statements. Adding empirical evidence and it is hoped that it can enrich research references in the field of financial accounting, especially regarding the relevance of the value of accounting information on earnings per share, book value per share and R&D costs.

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