

The Effect of IT Investment on Financial Performance (Case Study on Manufacturing Sector Companies Listed on IDX Year 2013 - 2016)

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ABSTRACT : It is important for the company to determine the business strategy for the company in order to achieve a competitive advantage in the face of competition. One of the strategies undertaken by the company is information technology-based strategy, investment in information technology is used to support business activities so that it can affect the financial performance of the company. This research reveals the relationship of information technology investment with the company's financial performance. Information technology investments are measured using the ratio of information technology assets to total company assets, while financial performance is measured using Return on Assets. The sample in this research is 80 samples from manufacturing companies listed in Indonesia Stock Exchange period 2013-2016. The results showed that information technology investment affect the financial performance of the company.

Keywords - *information technology investment, financial performance, return on asset*

I. INTRODUCTION

The existence of a free market (MEA) that occurred in 2015 and the Asia Pacific-free market that will occur in 2020 resulted in business competition in Indonesia has increased quite high. Therefore, it is necessary for companies in Indonesia to be able to win or survive in existing business competition by doing business strategy planning. One of the many business strategies undertaken by companies is business strategy based on information technology, this strategy is expected to provide benefits for the company in the short term (Tallon, 2007), medium term (McFarlan, McKenney, & Pyburn, 1983) as well as long term. Information technology is used to improve efficiency, improve customer relationships, save costs, create products, and new business solutions. For the business world, the influence of information technology provides ease and fluency in doing business interests even though the business partner is in another country.

The importance of information technology to business strategy causes the importance of investment in information technology to support business activities so that it can affect the financial performance of the company. By investing in information technology, companies can improve the various information needed in business processes, so that better coordination among employees becomes better, product quality is increasing, and companies are more responsive (Brynjolfsson, 1993; Gurbaxani & Whang, 1991; Benjamin, Malone, & Yates, 1987; Malone, Yates, & Benjamin, 1989).

Griffith, Zammuto, and Aiman-Smith (1999) and Iansiti and Richards (2006) state that manufacturing companies are dominant companies in the use of information technology devices. This is because the business process in the manufacturing company is the most complex compared to other types of companies, and because of the high level of competition in manufacturing companies. As a result of this information technology investment that is a change in the company's business processes starting from product design, production process, to distribution to customers. With the existence of this information technology result in increasing profitability of company and improve company performance.

Previous research has found that, on average, IT increases productivity (Loveman, 1994; Lichtenberg, 1995; Brynjolfsson & Hitt, 1996; Dewan & Min, 1997; Rai, Patnayakuni, & Patnayakuni, 1997). However, the overall benefits of IT investments vary greatly from company to company. Some companies are very productive with high IT investment, but other companies are less productive with similar investments Brynjolfsson and Hitt (1998). To explain the difference, Brynjolfsson and Hitt (1995) examined the source of this variation using statistical techniques from the firm-effect model. They found that about half the benefits of IT investment come from the unique characteristics of each company. Compared to issues of increasing IT productivity, the question of whether IT contributes to financial performance has not been clearly addressed. Most previous studies have shown IT contributions to be minimal, negative, or mixed (Cron & Sobol, 1983).

Based on the background description, this research will explain about the relationship between information technology investment and financial performance at manufacturing companies listed in Indonesia Stock Exchange period 2013 - 2016. Financial performance will be measured using profitability ratio that is Return on Asset (ROA), where ROA is a measure of the effectiveness of companies in generating profits by utilizing assets owned. Practically, this research is expected to be useful for investors and potential investors to know what factors can improve the company's financial performance.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Previous empirical studies on IT and organizational performance

According to the resource-based perspective, firm's resources include the assets, capabilities, organizational processes, firm attributes, and knowledge that enable it to conceive of and implement strategies that improve its efficiency and effectiveness (Barney, 1991). Specifically, firms with resources that are valuable, difficult to imitate, rare, and cannot be easily substituted will enjoy a sustainable competitive advantages. Moreover, since these resources are heterogeneous across firms, different firms have control over different set of resources and capabilities (Barney, 1991; Rumelt & Lamb, 1984), resulting in different levels of firm performance.

Previous studies on the value of IT business have established a relationship between enterprise-level IT investment and real returns such as productivity output. Many studies have examined IT results, but the results are inconsistent, some suggesting that IT investments have a positive effect on business performance, some highlighting IT paradoxes from direct negative impacts but positive impacts left behind, and others finding no relationship between IT investment and company performance.

In the literature that supports the positive impact of IT investments, Kleis, Chwelos, Ramirez, and Cockburn (2012) suggest that IT is essential for intermediary processes such as generating intangible output and that its use in innovation and knowledge creation processes is the most important element for long-term success company length. By analyzing the annual data from 1987 to 1997 for a large panel of US manufacturing firms, the authors found that a 10% increase in IT input was associated with a 1.7% increase in innovation output for the level of expenditure associated with the given innovation.

Kwon found a direct positive relationship between IT investment and the five variables of company performance (company growth, market competition, customer relationships, partnerships with providers, operational efficiency), controlling the role of head information officers (CIOs), cellular technology adoption, IT support and maintenance, and outsourcing IT. Melville, Kraemer, and Gurbaxani (2004) summarizes how information technology can contribute to organizational performance, including increased productivity, increased profitability, cost reduction, competitive advantage, inventory reduction, and other performance measures.

In contrast to previous research results, some researchers (Ho, Wu, & Xu, 2011; Motiwalla, Khan, & Xu, 2005) did not find the impact of IT investment on firm performance. As mentioned, the debate about the impact of IT on business performance is ongoing. Surprisingly, in times of economic recession and regardless of controversial issues, IT investment has increased. One can ask whether IT investments should be measured as one element, that is, as a whole, or as multiple components divided into multiple categories of investment. In this study, we analyze investments based on the costs companies spend on purchasing information technology assets to gauge their impact on the company's business performance.

2.2 Hypotheses development

The influence of information technology investment on financial performance

IT investments provide a foundation for shared IT services that can be used by multiple applications such as servers, networks, databases (Weill & Aral, 2003). Many advantages are gained by using information technology, such as reducing costs through standardization and consolidation (eg server consolidation or data center), providing platforms to deliver enterprise-wide initiatives, such as shared customer databases, to enable future IT initiatives and flexibility such as modular architecture and also to reduce time to market for new business initiatives (Weill & Aral, 2004).

Other benefits of IT investment are business integration, business flexibility, reduced marginal cost and standardization (Weill & Broadbent, 1998). IT will facilitate relationships between companies and business partners, external infrastructure such as bank payment systems, and public infrastructure such as the Internet. Internally, enterprise managers can use the IT infrastructure to facilitate better business processes and management. Infrastructure IT is an important factor in determining the pace at which new business initiatives can be implemented (Weill & Woodham, 2002).

While investing in IT can create long-term cost and long-term benefits (Weill & Broadbent, 1998; Duncan, 1995), it also enables new applications and functionality and helps achieve long-term performance targets (Duncan, 1995). The use of machines and equipment digitally obviously different effect on the

company's operational activities than using machinery and equipment manual. If more firms automate, competitive pressure will force other companies to take similar action. For manufacturing companies, automation is the same as the struggle to stay alive. The effect of the use of machines and equipment that will automatically produce a much more optimal performance than using a machine and equipment manual. This of course affects the profitability that will be obtained by the company.

Based on the above theory it can be concluded that information technology investment has an influence on financial performance measured by ROA, where if the company increases and develops intellectual capital owned by the company then the financial performance of the company will increase, and vice versa if the company does not increase intellectual capital financial performance the company will decrease. Based on the description, the hypothesis in this study is :

H1: Investment in information technology is positively influences financial performance

2.3 Research Model

Based on the explanation in the literature review and hypothesis development, the research model is formulated in the following Figure 1.

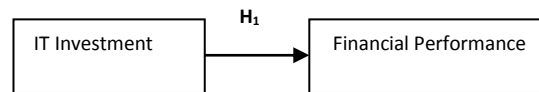


Figure 1: Research Model

III. METHODS

3.1 Population, sample and research instrument

The research model was created to show the relationship between IT investment and financial performance. The population in this study is a manufacturing company listed on the Indonesia Stock Exchange in the period from 2013 to 2016. Sample selection using purposive sampling technique, and obtained as much 80 companies. According Hartono (2013) purposive sampling method is done by taking samples from the population based on certain criteria. Criteria used can be a certain judgment or quota (quota). The criteria used in this sampling are:

1. Manufacturing companies that publish annual report from 2013 to 2016.
2. Companies that disclose data related to research variables and disclose information technology assets in annual reports.

3.2 Research variables

Independent Variables: Information technology investment

Brynjolfsson and Hitt (1996) use IT investment as an independent variable. Information technology investment is measured using an asset-measurement model of information technology conducted by Brynjolfsson and Hitt (1996). The measurement model is as follows :

$$\text{IT Investment} = \frac{\text{IT Asset}}{\text{Total Asset}}$$

Dependent Variables: Financial performance

The dependent variable in this study is the financial performance proxied by ROA. This ratio is used to determine the effectiveness and efficiency of the company in managing all its assets in generating profit.

$$\text{ROA} = \frac{\text{Earning After Tax}}{\text{Total Asset}}$$

The method of analysis used in this research is simple linear regression analysis. Linear regression analysis aims to obtain a comprehensive picture of the relationship between independent variables and dependent variables. Before performing multiple linear tests, the method requires to perform classical assumption test in order to get the best result (Ghozali, 2011). Regression model used in this research is formulated as follows:

$$\text{ROA} = \alpha + \beta_1 \text{ INVEST} + e$$

IV. RESULTS AND DISCUSSION

Table 1

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,360 ^a	,129	,118	,1100649

a. Predictors: (Constant), INVEST

b. Dependent Variable: ROA

The data analysis in this research uses simple linear regression with IBM SPSS 22 analytical tool. Table 1 shows that R square value is 12,9%, this means that information technology investment variable can explain variable of financial performance equal to 12,9%, while 87, 1% can be explained by other variables. The value of 12.9% here includes a weak relationship between information technology investment and financial performance.

Table 2

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,070	,018		3,893	,000
	INVEST	16,246	4,775	,360	3,403	,001

a. Dependent Variable: ROA

Based on table 2, the regression equation is obtained as follows:

$$ROA = 0.070 + 16.246 \text{ INVEST} + e$$

Based on regression test results obtained that the value of the significance of information technology investment of 0.001. The sig <0,05 value indicates that the hypothesis is accepted and if the sig value > 0.05 indicates that the hypothesis is rejected. With a value of 0.001 which means <0.05, then this indicates that information technology investment has a positive effect on financial performance. In table 3 is anova test table, obtained the value of F test (F arithmetic = 11578) and the value of probability (significant) 0.001 <0.05. because the probability value <0.05 then this regression model can be used to predict financial performance.

Table 3

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,140	1	,140	11,578	,001 ^b
	Residual	,945	78	,012		
	Total	1,085	79			

a. Dependent Variable: ROA

b. Predictors: (Constant), INVEST

To foster competitiveness and long-term competitive advantage, information technology investment is needed by the company. Companies that have superior competitiveness and competitive advantage will certainly be the basis to create economic value and achieve superior corporate performance. With technological investment in business flexibility in the company increasing and reducing the marginal cost (Weill & Broadbent, 1998), the company's productivity can increase and ultimately will affect the company's financial performance. IT will facilitate relationships between companies and business partners, external infrastructure such as bank payment systems, and public infrastructure such as the Internet. Internally, enterprise managers can use the IT infrastructure to facilitate better business processes and management. Infrastructure IT is an important factor in determining the pace at which new business initiatives can be implemented (Weill & Woodham, 2002). The results of this study are consistent with previous research results that have found that, on average, IT improves

productivity (Loveman, 1994; Lichtenberg, 1995; Brynjolfsson & Hitt, 1996; Dewan & Min, 1997; Rai et al., 1997). Companies can maximize the value gained from IT investments by aligning them with business strategies because IT improves the scope of the economy and coordination.

V. CONCLUSION

Based on the results of research that has been done, it can be concluded that information technology investment has a positive effect on financial performance. The results of this study are consistent with the research done by (Loveman, 1994; Lichtenberg, 1995; Brynjolfsson & Hitt, 1996; Dewan & Min, 1997; Rai et al., 1997). With the existence of information technology investment, business flexibility in the firm will increase, reducing marginal costs, improving productivity and improving the company's financial performance. And can increase the global knowledge for the company to be more responsive in dealing with problems that affect the existence of the company.

The writers realized that there were some limitations of this study. The limitations were identified as follows. Factors that influence company performance in this study are only seen from IT investment factors, while there are still many other factors that influence company performance and this study only involved 80 samples.

This study will be useful if it can contribute to the improvement and the development of the future research. Based on the limitation of the study, there are several suggestions as follows: future studies should involve more samples or other sectors of companies, the proposed research model can be adopted and re-tested using different independent variables and/or different research objects so that supporting research results can be obtained, future studies should examine the influence of other independent variables and mediating variables and/or moderating variables so that the relationship among those variables can be explained more clearly.

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