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EFFECT OF INVESTMENT IN INFORMATION TECHNOLOGY AND FIRM SIZE ON FINANCIAL PERFORMANCE

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ABSTRACT

The purpose of this study is to determine the effect of IT investment and firm size on the performance of the company either simultaneously or partially. This study uses 68 samples of manufacturing companies listed on the Indonesia Stock Exchange period 2013-2016 obtained from purposive sampling technique. The analysis method used is multiple linear regression analysis. Result of research indicate that IT investment influence to financial performance while firm size have no effect.

KEY WORDS

Financial performance, return on equity, IT investment, information system, firm size.

Financial statement is a basic measurement of company performance that we can get from BEI periodically especially for company go public. Financial statement analysis will obtain complete and accurate information about the company's performance. For stockholders, the financial statements are useful to see earnings from the investment returns. In addition, the financial statements can also be compared with other companies to see the performance of companies in the same industry.

The performance of a company can be measured by financial ratios such as liquidity, activity, profitability, solvency, and market ratios. Financial ratios that reflect the ability of the firm's performance in generating profits are called profitability ratios. Return on equity (ROE) is used to measure the company's effectiveness in generating profit by utilizing its own equity. ROE also means size to assess how much the rate of return of own capital invested in the business concerned. ROE is an important measure of corporate profitability that measures returns for shareholders (Jones et al., 2009). ROE can be a measure of the efficiency of own capital use that is operationalized within the company. The greater the ROE, the greater the company's ability to generate profits for shareholders.

Firm size also has a relationship with the company's financial structure. Wright et al. (2009) found that firm size had a positive effect on performance. This suggests that large enterprise performance firms tend to be better than small firms. Calisir et al. (2010) also found a positive effect of firm size on the performance of firms in the information and communication technology sector in Turkey. Huang (2002) finds that there is no effect of firm size on the performance of Taiwanese companies residing in China. Similarly, Talebnia et al. (2010) did not find the effect of firm size on firm performance listed on *Tehran Stock Exchange*.

For manufacturing companies, information technology has become a necessity to support the production process. Information technology support provided one of them with the use of company assets related to the production process or manufacturing-based information technology. Utilization of information technology in all phases of product making from design phase, production process, up to distribution, fundamentally change the process of product making, and information system used by management in managing factory. In other words, what is going on in production can be known in an instant. The problem phenomenon that occurs in manufacturing companies in Indonesia is the ability to respond to changes in the business world. Competition between manufacturing companies can reduce the level of profitability of each company. If the level of profitability is low it will lead to significant losses and financial performance of the entity may decrease.

Research Poston and Grabski (2001) found that IT negatively affect the profitability of the company. While research Davis et al. (2003) support that IT investment provides a more competitive advantage, in this case IT is not always associated with short-term profit but rather refers to how IT maturity level so as to improve the performance of the company. In addition, the existence of firm size also affects the performance of a company, Wright et al. (2009) and Calisir et al. (2010) concludes that firm size has a positive effect on firm performance, while Huang (2002) and Talebnia et al. (2010) states that firm size has no effect on financial performance.

LITERATURE REVIEW

Investment in information technology is a segment that is costly and labor intensive. Costs incurred by the company to adopt information technology is not small, ranging from information technology procurement to operational costs which periodically must be removed for these investments is used. Information technology asset management company can do by performing portfolio. With the portfolio, the company can determine how much investment the company to determine the right business strategy in achieving the objectives or expected performance. Manufacturing information technology assets in this study with more emphasis on information technology assets related to the production process, such as a combination of tools (machines) and production systems (computers) and other automated manufacturing equipment.

The size of the company is divided into three categories: large companies (large firm), medium (medium-size), and small companies (small firm). The size of the company is a large-scale to small companies classified according to various ways sepertitotal assets, log size, the value of the stock market, and others. Weston and Brigham (1985) stated that in selecting the means of financing, large companies are owned by a lot of people will choose additional common stock sales because these sales will not have much affect control of the company. Instead of small companies may prefer to avoid the issuance of common shares in an attempt to keep control of the company entirely.

A company's performance is a measure of the manager's success in running the company. Information on the company's performance required by the parties with an interest in the company, such as shareholders, creditors, government and society, in particular the shareholders. The information is used to determine the suitability of corporate objectives with the management of the company by the manager. The company's financial performance is measured by using Return on Equity (ROE). Return on equity (ROE) was used to measure the effectiveness of the company in generating profits by exploiting its equity. ROE means also measure to assess how much the rate of return (percentage) from its own capital invested in the business in question

Bryson and Ko (2004) examine the relationship of IT investment with firm performance. Investment in IT has a statistically significant effect on productivity, or that there is a paradox of 'productivity'. This suggests that the relationship between IT investment and organizational performance is much more complex than that found in some other studies. These results can also provide guidance to managers who are responsible for determining the allocation of organizational resources.

Dandago and Farouk (2012) examine the impact of investment in information technology on the return of selected bank assets in Nigeria for the period 2000-2010. This study uses secondary data generated from annual reports and selected bank statements cited on the Nigerian Stock Exchange (NSE). Data were analyzed by using multivariate regression analysis. The results show that IT investment has a significant effect on the financial performance of banks in Nigeria as measured by ROA.

The results of Farouk and Dandago's (2015) research on the effect of IT investment on banks in Nigeria suggest that increased IT spending causes a decline in the financial performance of Nigerian banks, which means heavy IT investment does not increase bank profitability.

Research of Wu et al. (2017) conducted in China shows that during the period of financial crisis, Chinese firms with superior IT capability tended to outperform control company samples with average earnings ratio but not on cost ratio, even after adjusting for previous performance. The study also found that the performance effects of profits from IT capabilities can be sustained over long periods of economic downturn.

HYPOTHESIS DEVELOPMENT

The use of machines and equipment digitally obviously different effects on the company's operational activities than using machinery and equipment manual. Automated manufacturing implementation has features such as Just-in-Time (JIT) and responds to improved quality requirements and shorter response times. If more firms automate, competitive pressure will force other companies to take similar action. For manufacturing companies, automation equals the struggle to stay alive (Hansen and Mowen, 2000). 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 ROE, 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:

H₁: Investment in Information Technology has an effect on financial performance.

Wright et al. (2009) found that firm size had a positive effect on performance which meant that larger companies promised better performance than small enterprises. Calisir et al. (2010) also found a positive effect of firm size on the performance of the information and communications technology sector in Turkey, but Huang (2002) found that there was no effect of firm size on the performance of Taiwanese firms in China. Similarly, Talebnia et al. (2010) did not find the effect of firm size on firm performance listed on Tehran Stock Exchange.

The capital structure and size of the firm may also affect the firm's performance through agency cost as an intervening variable, which means that higher levels of debt and firm size may affect the firm's performance if it is associated with the agency cost proxied by the discretionary expense ratio on net sales. That is if the debt increases the interest burden the discretionary expense can increase and consequently decrease the performance. But if the interest expense saves taxes then performance may increase. Debt may also increase productivity so sales increase. Thus the ratio of discretionary expense to net sales that is the proxy of agency cost is reduced. Reduced ratios lead to increased profits, and consequently increased performance. Likewise, if the size of the firm increases the economies of scale then the likelihood of performance will increase through discretionary expense reduction. Conversely, if a large size causes an increase in load, then performance will decrease. Based on the description, the hypothesis in this study:

H₂: Firm size has an effect on financial performance

The linkage of investment in information technology and firm size to the financial performance of the manufacturing sector can be seen in the research model as shown below

Figure 1 – The Research Model

METHODS OF RESEARCH

Population and Sample. The type of data used in this study is quantitative data. Sources of data in the study are secondary data in the form of financial statements of all manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2013 to 2016 and can be downloaded at www.idx.co.id and company website. This research belongs to causal research that is causal relationship. The purpose of causal research to obtain evidence of causal relationships so it can be known which variables affect and which variables are affected.

The population of this study are companies in the manufacturing sector listed on the Indonesia Stock Exchange (IDX). The sample used in this research is a manufacturing company listed on the Indonesia Stock Exchange (IDX) in 2013-2016. Sampling technique using purposive sampling technique that is determination of the sample on the basis of the suitability of certain characteristics and criteria (Sugiyono, 2012: 78). The criteria used in this sampling are: companies that publish annual financial statements on the company website or BEI website during the period 2013-2016; disclose data relating to research variables and disclose information technology assets in annual reports.

Variables, Operational Definitions, and Technical Analysis. In this research, there are three operational variables that will be measured. The dependent variable (Y) is financial performance, independent variable (X) is investment in information technology (X1), and firm size (X2).

The measurement model of Hitt and Brynjolfsson (1996) was chosen to be adopted as an instrument of measuring the variable portfolio of information technology assets manufacturing. The selection of this measurement model is due to the researchers wanting to replicate the measurement model of the asset portfolio of information technology from an internal process perspective from (Chwelos et al. 2010; Hitt and Brynjolfsson 1996) to examine its effect on operational efficiency. The measurement model is as follows:

$$\text{Investment in information technology} = \frac{\text{IT Asset}}{\text{Total Asset}}$$

Weston and Brigham (1985) says that in the selection of financing ways, large companies whose stocks are owned by many will opt for additional common stock sales because these sales will not affect much of the company's control. Conversely, small companies may be more likely to avoid issuing common shares in their business to keep control of the company completely. Firm size in this study is guided by the stock market price as a determinant indicator of firm size.

$$\text{Firm size} = \ln(\text{Total Asset})$$

Dependent variable in this research is financial performance which proxy with ROE. Return on equity (ROE) is used to measure the company's effectiveness in generating profit by utilizing its own equity. ROE also means size to assess how much the rate of return (percentage) of own capital invested in the business concerned.

$$\text{ROE} = \alpha + \beta_1 \text{ITINVESTMENT} + \beta_2 \text{FIRMSIZE} + e$$

RESULTS AND DISCUSSION

In analyzing existing data, this study has fulfilled the classical assumption requirements and yielded the Best Linear Unbiased Estimator (BLUE) estimation value. The test results indicate that the data has met the assumption of normality and free from problems of heteroskedasticity and autocorrelation. Based on the above table, obtained the regression equation as follows:

$$\text{ROE} = -0.348 + 30,841 \text{ IT Invest} + 0,013 \text{ Firmsize} + e$$

Table 1 – Results of Multiple Linear Regression Analysis

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	-,348	,396		,879
	IT_INVES	30,841	5,592	,818	,000
	FIRMSIZE	,013	,014	,138	,930

a. Dependent Variable: ROE

Based on regression test results obtained results that investment in information technology have significance value of 0.000 and firm size of 0.368. The value <0.05 indicates that the hypothesis is accepted and if > 0.05 indicates that the hypothesis is rejected, so it can be interpreted that investment in information technology has an effect on the financial performance while firm size has no effect on financial performance.

Table 2 – Result of F Test

ANOVA ^b					
Model		Sum of Squares	df	Mean Square	F
1	Regression	,932	2	,466	15,738
	Residual	,415	14	,030	
	Total	1,347	16		

a. Predictors: (Constant), FIRMSIZE, IT_INVES

b. Dependent Variable: ROE

From the above data analysis can be known that the next regression model test done by comparing the significance of F with a significance level of 0.05. If the significance value $F < 0.05$ means that the independent variable can explain the variation of the dependent variable.

The result show that investment in information technology has an effect on financial performance. Investment behavior can increase the alignment between business strategy with the objectives to be achieved through the company's IT asset portfolio (Aral and Will, 2007). The portfolio relates to investor estimation of risk and return expectation, measured statistically to make investment portfolio. The results of this study are in line with Wu et al. (2017). However, the results of this study contradict with Farouk and Dandago's research (2015).

CONCLUSION

Based on the findings in the research, it can be stated that the results of this study are as follows:

Simultaneously, investment in information technology and firm size on financial performance. Partially, investment in information technology has an effect on financial performance, while firm size variable has no partial effect on financial performance

The suggestions that can be put forward are management should be more careful in managing the capital structure, because the capital structure for the company is very important, especially for large companies. The better the company manages its capital structure, the easier it will be to meet its obligations (debt-equity ratio), which will ultimately affect the share price (share price) and earnings per share

For investors, in investing should be more cautious, because the negative ratio of financial structure indicates the company is in ilikuid condition, meaning that the company is unable to fulfill its financial obligation to conduct the production process.

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