The Role of Advertising and Raw Material in Pharmaceutical Company

Hardijanto Saroso[a*], Olivia Hamzah[b], Warsono W[c], Soekarso S[d], Rusdi Musa Ishak[e], [a,b,c,d,e]Management Department, BINUS Business School Undergraduate Program, Universitas Bina Nusantara, Jakarta, Indonesia, Email: [a*]hardijanto.saroso@binus.edu

Companies are always faced with performance targets that rely on the ability and quality of their resources. Not many studies have evaluated the characteristics of company resources that form business models so that they can winagainst competition. Pharmaceutical companies are no exception. Not all of the investments that have been allocated in company activities have a high impact. In this research, we want to test which resources have the most dominant influence on company performance, especially in the pharmaceutical industry. The variables studied were the levels of investment in the company, raw materials, advertising, training, and the number of workers on company performance. The data used are secondary longitudinal data from 5 pharmaceutical companies listed on the Indonesia Stock Exchange. The results of this study indicate that advertising has the most potent influence on company performance in the pharmaceutical industry. These findings contradict the perception that pharmaceutical companies must prioritise raw materials.

Key words: *Resource-Based Theory, Performance, Pharmaceutical, Advertising, Training, Raw Material, Investment.*

Introduction

The ASEAN population amounts to 30% of the total 2 billion population in East Asia and the Pacific. From the perspective of the health industry, with this large number of populations, the market potential in the health sector is enormous. Total healthcare spending from 6 ASEAN countries, six nations (Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam), reached $ 420 billion in 2017. This value will grow by 70% in the next two decades (WEF, 2018). The value of Indonesia's pharmaceutical market has reached US $ 4.7 billion, or 27 percent of the total market in ASEAN (Fery, 2017). Pharmaceutical companies in Indonesia also grew from 210 pharmaceutical companies in 2015 to 227 pharmaceutical companies in

2017 (Depkes, 2017). This data shows an increase in the production capacity of the pharmaceutical industry. With this increase and a large number of pharmaceutical companies, this has led to intense competition between companies.

Pharmaceutical companies are very dependent on their ability to produce drugs that can treat illnesses or reduce health problems. Good raw materials and proper production processes are operational targets for drug manufacturing in pharmaceutical companies. Therefore, companies must achieve this target well in order to survive in this industry. If we looked at the origin of the supporting factors, the performance of a company could be influenced by several factors that can be categorised into two situations. These factors are external factors (Lavie, 2006) and internal factors (Coff, 1999). The increasing number of competitors is an external factor that influences company performance. However, this factor can encourage or motivate companies to strengthen internal factors again in order to provide better performance. One internal factor that can affect company performance is the resources owned by the company. Resources in the company are people, money, materials, methods, machines, and markets. These resources could determine the company's growth and sustainability.

Literature Review

Penrose (1959) stated the importance of the continuous growth of the company. Management is responsible for the effectiveness of operations that support the growth of the company. Eliminating waste, improving product quality, and making the operation simpler are among the corporate actions that must be taken by the company to improve the bottom line. This statement is in line with a resource-based view concept (Warnefelt, 1984; Barney, 1991). Not all resources will become a strategic source, or it could become the source of competitive advantage (David and David, 2015). In such a dynamic environment, evaluation of the resources that could boost performance has not been done so much by researchers (Macher and Mowery,2009). According to Penrose (1959), in a company, there are two types of resources, namely physical resources and human resources. A company's physical resources consist of tangible things such as factories, equipment, land, and natural resources, raw materials, semi-finished goods, and even stocks of unsold goods, whereas the human resources available in a company are unskilled and skilled workers, administrative, financial, legal, technical, and managerial staff. Every organisation everywhere recognises the importance of human resource management so that the process of human resource management ensures that it recruits competent people who have the appropriate capabilities and are allocated to the right place, right job, right task, and right function (Collin, 2001). This process plays an essential role in increasing the productivity of an organisation. Competent employees can provide fierce competition with competitors, so recruitment and selection of employees need to be handled with a proper strategy. Skilled labour is also needed by specifically by pharmaceutical companies . Workers at the shop floor, who are handling equipment, evaluating raw materials,

and managing drug dosage in the laboratory, ensuring all drug manufacturing reaches the highest level of quality are the precious resources for a pharmaceutical company. The selection and investment of equipment also determine operational performance. The better the selection of tools or the more appropriate investment of plant equipment will encourage the achievement of efficiency and productivity of plant operations.

Andersen (2011) concluded in his research that the relationship of resources with company performance is quite complicated and requires more extensive research in examining it. Andersen showed a new concept that resources can provide superior performance if they meet FMMAD criteria, namely: (1) fit with resources, (2) management capability, (3) marketing capability, (4) firm appropriation of rent, and (5) non-competitive disadvantages. Other authors see the process as a link between resources and company performance (Sheehan and Foss, 2007). Ray et al. (2004) added that processes are critical; only their role is primarily determined by the status and condition of the resources themselves. Nevertheless, companies must be able to determine their operational attitudes and targets; otherwise, it will be challenging to develop a competitive advantage (Ocasio, 1997). Based on the discussion above, and considering the relationship of the resources mentioned above to the company's performance, this research would like to research the Effect of Investment, Advertising, Raw Materials, Training, and the Number of Workers on Company Performance on Pharmaceutical Companies listed on the Indonesia Stock Exchange.

These companies are selected because the company's data is available on the exchange's website or the company's website. The selection of the pharmaceutical industry was carried out because this research is part of industrial research that has been done in the last few years. The purpose of this study is to analyse the effect of investment to advertising, investment to raw materials, investment to training, investment to number of workforce, raw materials to advertising, raw materials to training, number of workers to training, advertising to company performance, raw materials to company performance, training to company performance, number of workers to company performance, and investment to company performance in the pharmaceutical industry and to find out which of these resources has the most dominant influence on company performance in the pharmaceutical industry. The philosophy behind this view is that the Company performance can be influenced by employee development practices, for example, through training and mentoring. The higher employee development practices will lead to higher levels of sorganisational performance, also showing that employee development is positively related to sorganisational performance. Capital budgeting techniques can also affect company performance.

Moreover, finally, according to Chen et al. (2016), promoting R&D and marketing capacity can be a strategy for dealing with a competitive environment. The results of this study indicate that R&D and marketing expenses have a positive impact on company performance. With a

variety of conditions above, we again ask which resources can be the primary source of performance drivers of pharmaceutical companies? How is the relationship with other resources? Do these resources have a strategic role in the long run?

Methodology

This research used quantitative research methods. The unit of analysis in this study was a pharmaceutical company. The time horizon in this study was a 5-year longitudinal time series. The data source was secondary data that had been obtained from annual reports of companies in the pharmaceutical industry that is listed on the Indonesia Stock Exchange. The detail of the secondary data that had been obtained was: 1. Investment cost data for the past five years (2014 - 2018), 2. Raw material cost data for the past five years (2014 - 2018). 3. Data on advertising costs over the past five years (2014 – 2018. 4. Training cost data for the past five years (2014 - 2018). 5. Total employee data for the past five years (2014 - 2018). 6. Data on income or net sales for the past five years (2014 - 2018). The object of research in this study is pharmaceutical companies that were listed on the Indonesia Stock Exchange during 2014 - 2018.

The sampling method used was purposive sampling. The criteria used in selecting the sample of this study were as follows: 1. Sample companies registered in succession during 2014 - 2018. 2. The company has annual report data that includes investment costs (INVEST), advertising or promotion costs (IKLAN), costs of raw materials used (BHNBAKU), training costs (PELATIH), total employees (JMLTNGKE), and income or net sales (PERFORMA). There were five companies out of 12 companies listed on the Indonesia Stock Exchange that met the criteria for purposive sampling. Each company had five years of data. The data collection was done by collecting secondary data from the company's annual report listed on the company's official website and also through the PT. Indonesia Stock Exchange's website. There were six variables in this research: investment (INVEST), advertising (IKLAN), materials used (BHNBAKU), training (PELATIH), employees (JMLTNGKE), and income (PERFORMA). The data were collected and tested using the classic test. The classic tests were the normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test. In the next step, the data were analysed using IBM SPSS Statistics 22 and Warp PLS. The calculation and evaluation had been conducted to determine the influence of variables, to find out which independent variables have the most dominant influence on the dependent variable.

Result

Five companies' data have been used from 2014 to 2018. The normality test is carried out using a non-parametric test with 1 K-S sample. The test results of each variable reached the calculation above 0.05, (INVEST) 0.200, (BHNBAKU) 0.200, (TRAINER) 0.200, (IKLAN) 0.153, (JMLTNGKE) 0.200, and (PERFORMA) 0.200, so the data can be concluded was

normal. The next step was a multicollinearity test. If the data obtained from analysis results are > 0.10 or VIF <10, then, this data certainly does not occur multicollinearity. Based on results, all variables having tolerance values above 0.10 and VIF below 10: (INVEST) VIF 1.285, (BHNBAKU) VIF 1.013, (TRAINER) VIF 1.1.21, (IKLAN) VIF 1.078, and (JMLTNGKE) VIF 1.268. Based on the number of all the tolerance values and VIF of these variables, it could be concluded that there was no multicollinearity in this data. The autocorrelation test results showed that the dL and dU values at T = 25 and k = 5 are dL = 0.953 and dU = 1.886 at d value was 2.781. Value (4-d) was 1,219. Based on the detection of positive autocorrelation, the results showed that d> dU, that was, 2.781> 1.886 or there is no positive autocorrelation. For the detection of negative autocorrelation, the results showed that dL <(4 - d) <dU or, 0.953 <1.219 <1.886, then it can be concluded that there was no negative autocorrelation. In summary, the autocorrelation test had no definitive conclusion. There was no positive autocorrelation nor negative autocorrelation. The last test was heteroscedasticity to see the level of significance. If the correlation between the independent variables and the residual value was significantly more than 0.05, then heteroscedasticity does not occur. After testing, it was found that all significance values between the independent variables and residual values were more than 0.05. Then, it can be concluded that heteroscedasticity does not occur. The next step was calculating data in Warp PLS. The result was in Figure 1.

Figure 1. Research Model
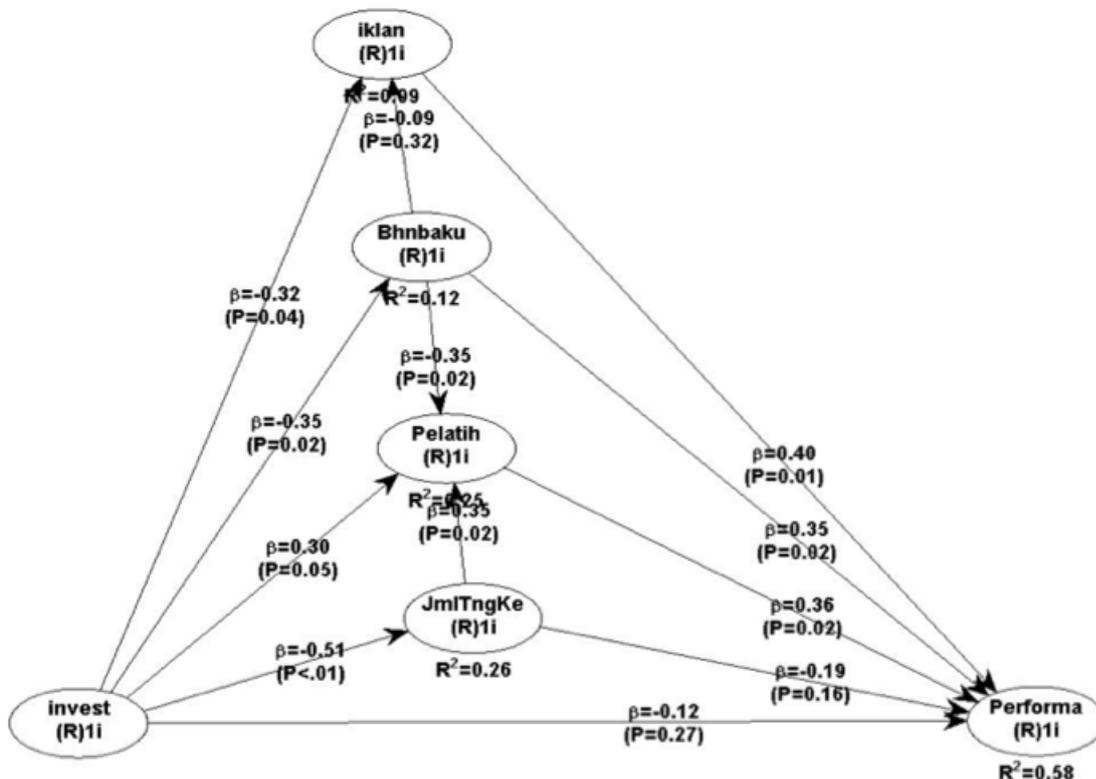
In general, this research model could translate the structure of these variables by 58% while 42% still depended on other things outside these variables. Based on the path analysis above, the advertising (IKLAN), the raw material (BHNBAKU), and training (PELATIH) are the three variables had the most substantial level of significance compared to other variables. These three variables had a direct influence on company performance. Also, from the path analysis above, there was no strong indirect path. The highest coefficient path was the path from advertising (IKLAN) to company performance (PERFORMA).

Table 1: Effect Size for Path Coefficients

	invest	Bhnbaku	Pelatih	iklan	JmlTngK	Perform
Bhnbaku	0.122					
Pelatih	0.079	0.108			0.061	
iklan	0.111	0.019				
JmlTngK	0.259					
Performa	0.013	0.172	0.197	0.146	0.048	

Based on the effect size, most of the paths that have the highest coefficient have medium-high effect size value (Knock, 2012). It was higher than the medium threshold, 0.15. The effect size could be categorised as low if the value was lower than 0.02, medium if it was around 0.15 or high, 0.35, or higher. The size of effect size represents the scale of effect on an exogenous latent variable on an endogenous latent variable. The effect size in Table 1 showed that for the path (BHNBAKU) to (PERFORMA) was 0.172, (PELATIH) to (PERFORMA) was 0.197 and (IKLAN) to (PERFORMA) was 0.146. So, the most significant effect size from these three paths was the effect size from training (PELATIH) to (PERFORMA) company performance. However, the highest value in the path coefficient was from advertising (IKLAN) to (PERFORMA) company performance. These both number, effect size, and path coefficient are cross-validation. Effect size predicts whether the effect of the path coefficient was small, medium, or large.

Discussion

If we look into the research model, there were basic concepts in company operations that had been used as the base of the hypothesis in this research. Each factory always allocated funds or budget to buy equipment to produce medicines in large quantities. With the increase in the number of equipment, the number of workers will also increase. Increased equipment will encourage increased training and raw materials requirements. If the variation increases, and this is most likely if the equipment increases, the amount of advertising also increases. Any addition of new raw materials will encourage training to handle these new raw materials. Good raw materials will certainly be good if advertised so that customers know. The increase in the number of new workers will provide the consequences of requesting additional scheduling for

employee training. If all components run smoothly, it will drive the company's performance to achieve the company's target. There were three main findings for the results of this study.

The first finding was the implications of Advertising on Company Performance. The advertising variable had a significant effect on company performance, with the highest path coefficient that is equal to 0.4. This evidences proved that in the pharmaceutical industry, advertising has a strong influence as a factor in sales performance as well as company performance. The second implication is the training implications of company performance (Dostie, 2014; Dostie 2018). In research indicated by a path coefficient of 0.365. It can be said that in the pharmaceutical industry, training is an essential factor that can help companies improve their performance. The third implication is the implication of Raw Materials on Company Performance. The raw material variable has a significant effect on company performance with a path coefficient of 0.352. By strengthening raw materials, it can help companies to achieve improved company performance. These results somewhat provide a different perspective.

 Pharmaceutical companies are supposed to focus on raw materials and proper processing so the quality of a medicine can be improved and cured the patient or improve their health. Right raw materials are expected to provide a faster and more accurate healing effect. However, the philosophical meaning that can be drawn from the results of this analysis is that advertising shas a significant impact, so many customers know it and take advantage of the existence of this medicine. If we analyse further, the raw material occupies the third position, the difference in the coefficient with advertising is not extensive, which is only 0.048. This small gap means that the existence of raw materials is still considered necessary. Workers who occupy the second position are the same important as advertising in the number 1 position. It is the workers who process drugs, who research medicines that they made, mixes drugs to ensure their composition is correct and able to heal the patient. The fourth finding is the number of workers and the machine. The increasing number of worker and machinery will not givea significant impacton the performance.

The essence of small is better, easy to swallow, and the machine very effective in producing the number of capsules or tablets are something that the company and the patient want. So the investment in machinery should be carefully taken, as well as the recruitment of new employee. Another aspect of calculation is effect size. The effect size provides another dimension of knowledge. The Effect size predicts whether the effect of path coefficient was small, medium or large. The largest effect size is training (PELATIH) to company performance (PERFORMA). It is $0.197 > 0.15$, followed by raw material (BHNBAKU) to company performance (0.172), (PERFORMA) and advertising (IKLAN) to company performance (PERFORMA) (0.146). Two other variables, namely the number of workers and investment do not provide a meaningful effect size because the values are low or close to 0.02 for

investment (INVEST) to company performance (PERFORMA) (0.013) and the number of workers (JMLTNGK) to company performance (PERFORMA) (0.048).

Conclusion and Recommendation

R2 score on the company's performance variable reaches 58%, which means that all research conducted on this research can be adequately accessed by 58%. While the other 42% is determined by other things, such as leadership, motivation, incentives, work environment, culture, or physical environment,, this research will undoubtedly add new insights as well as provide new research opportunities. In both results, the path of coefficient and effect size the numbers are quite close to each other. Although there is a priority, those three aspects are essential. For pharmaceutical industry players and investors in the pharmaceutical industry: Investing in long-term training or developing human capital will have a long-term effect. Training can be done by allocating time as part of work assignments through proper scheduling.

 Workers must continue to be trained to produce quality medicines that are always prepared and followed by research from the laboratory. If the results from the laboratory are correct and maximum, large quantities of production with consistent results must also be achieved well, so that the product always follows the standards, is always consistent and the quality is reduced. Therefore, the allocation of funds in the development of raw materials is the second factor that must be considered. With good quality raw materials, it can produce superior products too. Raw materials that are scarce or difficult to obtain if owned by a company can also be an added value for the company because the company can have a high selling value, but also can make the company survive in industrial competition with product differentiation. The last is the allocation of funds in Advertising. Advertising is a window for doctors and potential medicine users. Therefore, managing advertising is an essential factor.

The development of strategic management science has begun to strengthen towards integration with other sciences. The development of strategic management science has begun to strengthen towards integration with other sciences. Strategies not only look at one scope but also broadly evaluate contextually, process, and performance. The main target is to continue to grow and have a strong market foundation and achieve competitive advantage repeatedly and sustainably. Therefore, research in a long period and broad scope will be the future trend. The development of technology, especially in the field of social media, is an essential source of information on the development of strategies that have never been done before and are incorporated into one framework. Knowing information through customers, which is feedback, developing it into a dynamic strategy is something that is a challenge for further development.

This research can be developed further. Several suggestions can be used as a reference for future research: 1. The amount of observation time is extended to more than five years. 2. The

number of companies included in the study is increased. 3. Expanding on other resources or other organisational components such as leadership, motivation, teamwork, heterogeneous labour quality, incentives, work environment, culture, or physical environment. Better exploration of how the actual composition of the budget for these three variables is also an aspect of research that can be further developed. With the development of this research, the use of the budget could be lower, but the synergy that must be done between the three must be higher. With this kind of research, the company's leaders and investors will increasingly recognise the character of resources in the company and arrange it according to priorities and the magnitude of its effect on the company.

REFERENCES

Andersén, J. (2011), "Strategic resources and firm performance", *Management Decision, Vol. 49 No. 1, pp. 87-98. https://doi.org/10.1108/00251741111094455*

Barney, Jay, (1991), Firm Resources and Sustained Competitive Advantage, *Journal of Management, 1991. Vo1.17,Na 1.99-120.*

Chen, P., C., Chan, W., C., Hung, S., W., Hsiang, Y., J., and Wu, L., C., (2016), Do R&D Expenditures Matter More Than Those of Marketing To Company Performance? The Moderating Role Of Industry Characteristics And Investment Density, *Technology Analysis & Strategic Management, Volume 28, 2016 - Issue 2*

Chen, P., C., and Hung, S., W., (2016), An Actor-Network Perspective on Evaluating The R&D Linking Efficiency of Innovation Ecosystems, *Technological Forecasting and Social Change, Volume 112, November 2016, Pages 303-312*

Coff, R.W. (1999), "When competitive advantage doesn't lead to performance: the resource-based view and stakeholder bargaining power", *Organization Science, Vol. 10 No. 2, pp. 119-33.*

Collins, J. C. (2001). *Good to great: Why some companies make the leap ... and others don't.* New York, NY: HarperBusiness.

David Fred R, and David Forest R, (2015), *Strategic Management: Concept and Cases*, 15th Edition, Pearson, Essex England, p 202

Dostie, B, (2018), The Impact of Training on Innovation, *ILR Review, Vol 71, Issue 1, pp. 64-87, First Published March 27, 2017, https://doi.org/10.1177/0019793917701116*

Dostie, B, (2014), Innovation, Productivity, and Training, IZA *Discussion Paper No. 8506 September 2014*

Depkes, (2017) Department of Health of Indonesia (Departemen Kesehatan Republik Indonesia), 2017 Indonesia Profile (Profil Kesehatan Indonesia 2017).

Fery, F.,(2017), "Indonesia has 27 Percent Pharmaceutical Market Share in ASEAN", Tempo, 5 September 2017, Retrieved from: https://en.tempo.co/read/906075/indonesia-has-27-percent-pharmaceutical-market-share-in-asean

Hess, Edward H, (2010), *Smart Growth: Building and Enduring Business by Managing the Risk of Growth* , Columbia Business School, Columbia NY, USA.

Kock, N. (2012), *WarpPLS 3.0 User Manual*, ScriptWarp System, p2, 2012.

Lavie, D. (2006), "The competitive advantage of interconnected firms: an extension of the resource-based view", *Academy of Management Review, Vol. 31 No. 3, pp. 638-58.*

Macher, Jeffrey T. and Mowery, David C. (2009), Measuring Dynamic Capabilities: Practices and Performance in Semiconductor Manufacturing, *British Journal of Management, Vol. 20, S41–S62, 2009.*

Ocasio, W. (1997), "Towards an attention-based view of the firm", *Strategic Management Journal, Vol. 18, Summer, special issue, pp. 187-206.*

Penrose, E. (1959), *The Theory of the Growth of the Firm*. Basil Blackwell, London. p.xvii

Ray, G., Barney, J.B. and Muhanna, W.A. (2004), Capabilities, business processes, and competitive advantage: choosing the dependent variable in empirical tests of the resource-based view, *Strategic Management Journal, Vol. 25 No. 1, pp. 23-37.*

Sheehan, N.T. and Foss, N.J. (2007), Enhancing the prescriptiveness of the resource-based view through Porterian activity analysis, *Management Decision, Vol. 45 No. 3, pp. 450-61.*

Tan, H.P, Plowman D.,and Hancock P., (2007), Intellectual capital and financial returns of companies, *Journal of Intellectual Capital Vol. 8 No. 1, 2007 pp. 76-95, p83 q Emerald Group Publishing Limited 1469-1930 DOI 10.1108/14691930710715079*

Wernerfelt, Birger, (1984) A Resource-based View of the Firm, *Strategic Management Journal, Vol.5, 171-180 (1984).*

World Economy Forum, (2018), "The cost of healthcare is rising in ASEAN. How can nations get the most for their money?", 31 August 2018, Retrieve From: https://www.weforum.org/agenda/2018/08/cost-healthcare-rising-asean-nations-money/