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Sunk Cost Dilemma Behavior: The Contribution Marketing Expenses towards Financial Performance

Abstract

Marketing expenses can drive the financial performance of a company, but sometimes it was only a sunk cost. The sunk cost dilemma behavior can confuse a financial manager, confounding decisions about whether to invest in marketing. Thus, this study aimed to explain the relationship between marketing expenses and profitability. The research subjects were manufacturing firms listed on the Indonesia Stock Exchange between 2012 and 2016. The results showed that marketing-related research and development expenses, selling expenses, and operating cash flow had a significant positive relationship with return on assets (ROA) and return on equity (ROE). Moreover, lagged research and development expenses – specifically, expenses from the previous four years ($RnDt-4$) – had a significant effect on ROA and ROE. Leverage had a significant negative effect on ROA and ROE. On the other hand, firm size had no significant impact on profitability. The findings showed that marketing expenses were not a sunk cost; they were an investment that leads to good financial performance. Greater investments in marketing expected to entice consumers bought a company's products and created more profitability, leading to improved financial performance.

Keywords: Financial Performance; Lagged Research and Development Expenses; Marketing Expenses; Sunk Cost Dilemma Behavior

JEL Classifications: L25, M31, M37

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Abstrak

Beban pemasaran dapat mempengaruhi kinerja keuangan perusahaan, tetapi kadangkala beban pemasaran hanya sekedar *sunk cost*. Dilema *sunk cost behavior* dapat membingungkan manajer keuangan ketika mengambil keputusan investasi yang terkait pemasaran. Penelitian ini bertujuan untuk menganalisa pengaruh beban pemasaran terhadap profitabilitas. Subyek penelitian ini adalah perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia selama 2012 hingga 2016. Hasil penelitian menunjukkan bahwa beban *research and development*, beban penjualan, dan *operating cash flow* berpengaruh signifikan positif terhadap *return on assets* (ROA) dan *return on equity* (ROE). Selain itu, beban *lagged research and development* pada empat tahun sebelumnya ($RnDt-4$) berpengaruh signifikan terhadap ROA dan ROE. *Leverage* berpengaruh negatif signifikan terhadap ROA dan ROE. Sebaliknya, *firm size* tidak berpengaruh signifikan terhadap profitabilitas. Hasil penelitian ini menunjukkan bahwa beban pemasaran bukan *sunk cost*. Beban pemasaran dapat menjadi investasi untuk dapat menghasilkan kinerja keuangan yang baik. Investasi yang lebih besar terkait hal pemasaran diharapkan menarik konsumen untuk membeli produk perusahaan dan menciptakan keuntungan yang lebih banyak, yang mengarah pada peningkatan kinerja keuangan.

Kata kunci: *Sunk Cost Dilemma Behavior*; Beban Pemasaran; Beban *Lagged Research and Development*; Kinerja Keuangan

Many of today's businesses struggle to survive in financial performance. To succeed, every division in a company must cooperate well with other divisions. According to Kotler & Keller (2012), divisions within the company will not maximize their contributions if product demand is insufficient to achieve profitability. Therefore, optimal marketing management is critical to foster product demand and gain the most from other divisions' performance.

A company's marketing division plays a crucial function in the life of the business. Effective marketing attracts and retains loyal customers. The marketing division must know the desires or needs of the company's consumers and predict what products consumers will purchase. When marketing fails to do so, it is likely customers will lose interest in the company's products, and financial performance will decline.

Companies must consider the different characteristics of consumers in different regions. For example, some Indonesian consumers are prone to purchasing many products without knowing much about them and are even likely to overspend. This behavior is because of a seasonal trend that exists in some communities such as holiday seasons and weather-related seasons. It is also demonstrating that these consumers have less loyalty to specific products and more loyalty to seasonal variations. The finance department must cooperate with the marketing department to recognize and capitalize on these seasonal trends and ensure the company's strong financial performance (Kotler & Keller, 2012).

Activities performed by the marketing division include research and development as well as promotional tasks. Marketers' research and development activities focus on determining how to maximize product quality and innovation. When a company fails to do proper research and development, product manufacturing has limited direction and starts with essentially zero consumer input. Conversely, when research and development are successful, it serves as a corporate asset that guides

future manufacturing. After helping to decide what to produce, the marketing division promotes what is produced. Promotional expenses constitute a subsequent expenditure that is crucial to obtaining new customers and keeping existing customers.

Both activities require a lot of money in the short term, but they can yield enormous benefits in the long term (Konak, 2015). By spending money on research and development as well as promotion, the company will remain close to its customers and recognize opportunities to make a higher future stock return (Ali, Klasa, & Yeung, 2009). These activities keep the company's attention to buyers' needs and preferences.

Attention to the buyer is especially important for firms that sell many kinds of products – for example, a manufacturing company that has diversified its product lines that should be sold in the market. So, the marketing division will spend a great deal on marketing expense in the manufacturing firms, in order to ensure customer loyalty (Choi & Lee, 2015). The more loyal a customer is, the more likely the customer will be not only to buy the company's products but also to promote the products to other customers, further contributing to profits.

Despite marketing's importance, companies should be careful about how they use their money on research and development and selling expenses (Konak, 2015). In financial terms, marketing expenses can be categorized as a sunk cost (Ross, Westerfield, & Jordan, 2015). Such a cost has already occurred and cannot be reversed even if it is never completely recouped through sales and associated profits. If marketing expenses fail to achieve their goals, they pose a risk for the company because the company has already made the outlays.

Many firms repeat the same mistakes over and over even though they should understand sunk costs and are able to avoid bad decisions. For instance, a company might continue to spend money on research and development for a product innovation that consumers deem out of date. If this innovation

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risk is priced, it will contribute to the higher cost of equity in the companies (Ali, Klasa, & Yeung, 2009). In such a case, investing in advertising that does not connect with customers results in sunk costs that do not yield a favorable return and may cause reputational damage.

Previously, spending more marketing expenses, especially on research and development expense is a sunk cost, and it is unavoidable for the company. Regardless of whether marketing outlays result in increased sales or not, they have sunk costs that occurred in the past. Thus, managers must try to ignore these costs and focus on the current market's condition. Sunk costs should not be a reason for continuing to spend funds on a losing product or market if it looks like they will continue to lose their money and lower future cash flow (Ali, Klasa, & Yeung, 2009). On the other hand, if more marketing has the potential to boost lagging sales and be a benefit to a company's financial performance, managers should continue to invest in it despite the sunk costs. Worldwide, most large companies that are listed on a stock exchange have faced this sunk cost dilemma behavior as they strive for better financial performance. Indonesia is one emerging market where many manufacturing firms need to invest in market-related research and development in the face of this sunk cost dilemma.

An interesting challenge exists in Indonesia due to so many manufacturing companies performing research and development. It causes the institutions that are driven by research and development to be concentrated in the manufacturing industry (Global Business Guide Indonesia, 2015). This concentration makes the other local business prefer foreign products. This is the reason about why the research cooperation among university and scientific company have failed to incorporate with Indonesian companies, to make part of the company's long-term investment. There is a continuous debate in Indonesia and the other country such as in Korea and the United State (Choi & Lee, 2015) that unlike

the capital expenditures, the accountant treats the research and development as the expense rather than as an investment. Thus it will be a sunk cost for the company.

It can be shown by the number of patent applications in Indonesian institutions because of the lack of commercially driven research and development. Among the G-20 member nations, Indonesia has the lowest number of patent applications in 2012 (Global Business Guide Indonesia, 2015). It is about 7.032 patent application in the year 2012 which increased 14.7 percent from the year 2011, yet 87.3 percent were submitted from foreign. Based on Choi & Lee (2015), research and development expense show the amount of money to develop the new product and service. Research and development expense is subtracted from revenue directly (Ross, Westerfield, & Jordan, 2015).

In Indonesia, there are many products that have the same characteristics, because the producer usually just copies the model. The company did not hesitate to make a very similar product when the product is becoming a trend in society. Usually, in order to attract the attention of the buyers, the companies conduct a very aggressive marketing activity. Sometimes, it is more attractive than the benefits that are offered by the product, such as product quality and this activity will be very costly. So, the company must have a higher expectation about those marketing expenses. Moreover, this research will also be very useful for the customers, the company, the researchers that are interested in this research area, and policymakers such as the government. Furthermore, the Indonesia government also makes the regulation to control the components of the manufacturing firm's advertising products.

Further, business performance is not only influenced by the expenditure made by the marketing division, but also other activities. According to several previous studies, business performance was also affected by sources of funding such as debt, operating cash flow, as well as the size of the com-

pany. Boboye & Ojo (2012) stated that debt as a source of funds would help to finance the activities of the company. While the operating cash flow will help the company in the short term working capital (Ross, Westerfield, & Jordan, 2015), besides, the firm size will also demonstrate the easy way of obtaining funds. Based on this information from previous studies and the existing phenomenon, the researchers are interested to know the sunk cost dilemma behavior about the contributing marketing expenses on financial performance for the manufacturing companies that are listed in the Indonesia Stock Exchange.

HYPOTHESES DEVELOPMENT

Financial performance shows the ability of the company to use assets and to generate revenue. According to Ross, Westerfield, & Jordan, (2015), financial performance will be used by the investor to know the financial health of the firm at a given period. An investor can compare the financial performance of similar firms in the same industry. Beside investor, the other stakeholders in the company such as the creditors, employees, supplier, management, and bondholder also can use this information to evaluate the firm performance.

Based on Niresh & Velnampy (2014), financial performance can be measured in several ways. Generally, the researchers used profitability ratios to measure business performance. The profitability ratio can measure the efficiency and performance of the company (Ross, Westerfield, & Jordan, 2015). Furthermore, the survival company mostly depends on profitability. Even, the goal of the company is maximizing its profitability (Niresh & Velnampy, 2014). So, in this research, business performance will be measured by financial performance through the profitability of the company.

Profitability is the combination of the result of the company's decisions and the company's policies (Brigham & Daves, 2009). Profitability also shows useful clues for the effectiveness of a firm's

operations and shows the combined effects of liquidity, debt for operating activities, and asset management. There are so many ratios to measure profitability such as profit margin on sales, return on assets, return on equity, and return on capital. In this research, both returns on equity and return on assets are used to measure the profitability as well as the business performance. According to Brigham & Daves (2009), return on equity is the most important or the bottom line in accounting ratio. This ratio means that shareholder invests to get the return on their money and to shows how well the companies are doing in the accounting sense. Moreover, return on assets will indicate the efficiency use assets, when the company generates earnings. One way to maximize profitability and to improve the business performance of the firm is by increasing sales (Benson & Davidson, 2010).

Marketing expenses are the amount of money that the firm spends on marketing activities. The company will have a loyal customer because there is some expenditure on marketing expenses. So it is very important for managers to understand marketing expenses management. For the go public companies in Indonesia, generally, there are some common marketing expenses such as freight, bank charge, employee expense, sales commission, export expense, management fee, sales claims, travel and accommodation, repair and maintenance, marketing research, marketing advertising, and the others expenses related with marketing activities.

According to Konak (2015), marketing expense will be accepted as the element that impacts the profitability. Marketing expense was considered as the expenditure under the profit and loss statement in the company. On the other hand, marketing expense is considered as the primary driver of the sales and the revenue (Shah & Akbar, 2008). Therefore, the business owner should evaluate the common expense to the sales ratio, in order to know the effectiveness of marketing expenses and to prevent the company from overspending in marketing activities.

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One of the most important things in the marketing activities of a business is research and development activity. The company's sales can increase when there are suitable research and development expenditures to increase the quality of the products. This expenditure will make a new product for the company. The success of the new product will attract the customer to buy this innovation. The greater pay-performance is related to the innovativeness (Benson & Davidson, 2009; Fung, 2009).

The scientists who work with sophisticated innovation and who led to the product's quality decision that is crucial to long-term company's need will do the research and development activities. Making research and development activities for the company is costly because it requires a new department, hires, and trains researchers also invests in the new machine (Castells & Mohnen, 2012). Thus, it is considering that those activities have some risks. Although the research and development activity fails to reach the goal of the observation, the company still must pay these expenses. It is called sunk cost that shows the cost which has already occurred in the past and must be paid; even the result is rejected.

Research and development cost is one form of sunk cost, so the firm should be very careful with this expenditure. It is because this activity is very important and it is generally spending a lot of money. Some companies need subsidies to start research and development activities, yet sometimes they do not continue it because the research fails. Sunk costs can be a barrier for the company to enter the market and people fail to ignore this effect (Wang & Yang, 2010). It is called sunk cost fallacy.

Furthermore, for this expensive expense, the companies also can have different goals between the marketing and other divisions. They require profits through the increasing of the product's demand as a result of research and development financing activities (Castells & Mohnen, 2012). Sunk cost is to be incurred not only if a company performs the re-

search and development for the first time, but also when a company stopped performing the research and development for a period. Thus, it means that the firm cannot keep the research and development facility idle.

Even though a lot of statements about the existence of sunk costs in research and development activities. There are also several previous types of research to undertake that research and development activities have not yet analyzed the role of sunk cost explicitly. By their nature, most expenditure on research and development activities is sunk costs. Once, the research and development expense is spent, so it is spent. Conversely, when the company spends their money on research and development especially for a scientist, it cannot be recovered. According to Grubb (2009) as well as Wang & Yang (2010), the company's research and development investment can create valuable assets, such as knowledge and behavioral economics of consumers. This knowledge will be tied to the firm's operations, and it is very specific. Thus it will be largely lost upon exit. The specificity in research and development activities suggested the presence of the sunk costs will associate with those activities (Wang & Yang, 2010).

When the firm has an optimal strategy in research and development, the firm will get more profit. According to Srinivasan, Lilien, & Sridhar (2011), considering the risk from research and development, this expense will have the uncertainty of output. It is because the company's investment by paying research and development expenses are longer-term expenditure than investment in physical plant and equipment. So, research and development expense is one of the capital expenditure. When there is a commercial product, the firm will have research and development expense. It is because the managers believe that the company will get the benefit of them. The excessive assessment shows the manager optimism (Memarista, 2016). But, the firm cannot borrow the money to fund this expense.

Consequently, it sounds a dangerous way to follow, because research and development have a higher risk with the uncertain result of success. When research and development activities work, the product will be sold with higher demand and will increase the company's profit. Therefore, if the current research and development expense is higher than the expense before, the profitability of the firm will increase (Srinivasan, Lilien, & Sridhar, 2011). Therefore, the first hypothesis in this study is:

H₁: research and development expense has a significant effect on the profitability

According to Tellis & Tellis (2009) and Srinivasan, Lilien, & Sridhar (2011), there is a positive reward in increasing the research and development investment. It will make the next generation have more profitability (Choi & Lee, 2015). It is due to research and development project has high uncertainty. Thus it does not lead directly to get profit in the same year. The impact of research and development expense towards profitability is not instantaneous. Research and development process needs time, costs, and respect in working procedures (Lazzarotti et al., 2009). It will take several years implementation effect as the research and development is a long-term investment.

Moreover, research and development investment has characteristics of consumer decision process such as compatibility, perceived advantage from the product, trialability, observability, and the risk of product which have long-term results. Those characteristics make the impact of research and development can not just be instant to the profitability, it has a time-lag effect. Choi & Lee (2015), stated that the research and development expense of prior years 2 and 5 (t-2 and t-5) were significantly positive effect on the firm performance, whereas the research and development on prior years 1, 3, and 4 (t-1, t-3, and t-4) did not significantly effect on the firm performance. According to Lazzarotti et al. (2009) as well as Choi & Lee (2015), there is a sig-

nificant positive relationship lagged R&D investment in business performance. Thus, a higher value of research and development expenses in previous years will increase profitability. Therefore, the second hypothesis in this study is:

H₂: lagged research and development expense has a significant effect on the profitability

Furthermore, marketing expenses also consist of the expenses of selling activities. It will capture selling capabilities which show the basic nature of selling task to analyze the customer needs, information of the product, and relationship management with customers. The company can build better relationships with primary stakeholder such as customers (Benson & Davidson, 2010). Those capabilities need some expenses to have good systems and structures that are required to ensure the efficient and effective management of the sales force and then make higher profitability (Lazzarotti et al., 2009). Selling expenses have some categories such as the advertising expenses and the mean share of each category to the whole number of selling expenses (promotional expenses, salesmen's salaries, general selling expenses, transportation expenses, and commissions). Advertising and promotion have been attempting to understand the needs of the market (Narayana., Pati., & Vrat., 2012).

The company may report the components of marketing expenses, especially for selling expenses in the notes. However, the note disclosure that is related to selling activities are limited in scope, are unstructured, and arbitrary in content. For instance, many companies do not even disclose the advertising expenses since it contains information regarding the marketing strategy. According to Mizik & Nissim (2011), most marketing expenses will fit the description of intangibles that are reported as selling, general, and administrative expenses. This marketing expense is often expected to make benefits in the future such as new product development initiatives, and it will be reported as the assets in the

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balance sheet rather than in the income statement as the expense.

Higher selling expense indicates that the company makes a lot of ways in order to maximize the amount of product that can be sold. Selling expenses as the marketing outlays are reported as the cash outflows. The investor will view this reduction in operating cash flow as a cost rather than an asset acquisition. Usually, the highest cost from selling expenses part is to finance the advertising cost. The greater consumer time and effort are associated with positive consequences for marketing division expenses (Chakraborty, 2015). When there are more incentive promotion costs, so the customers will be more attracted to buy the company's products. It can lead to increase the profit of the firm. Therefore, the third hypothesis in this study is:

H₃: selling expense has a significant effect on the profitability

Furthermore, the business performance can be affected by how much money the firm will be funded. One way to fund the firm is by borrowing money to leverage the ability of the company to survive. Based on Srivastava & Prakash (2014), leverage can indicate the expenditure, and it will show that the company launches the new product. The debt ratio is used in this research as the control variable, to show the efficiency of using borrowed capital. By borrowing from the bank, the companies carry the burden of servicing a large debt that turns into a financial problem (Nayyar, 2008). The higher value of debt ratio means that the company has a greater risk. Thus the company must have greater profitability as the return of the new product.

The estimated coefficient for the total debt over total assets is expected to be positive. Through the debt increasing, the company capability will concern about the ability to conceive appropriate marketing strategies to leverage the firm's resources to build and maintain the competitive advantage (Morgan, 2012). Based on those explanations, the higher

debt will leverage the customer-level profits relationship (Nayyar, 2008). This implies that when the firm borrows more money, then more profitable for the company to grow (Burja, 2011; Mistry, 2012; Boadi, Antwi, & Lartey; 2013). Therefore, the fourth hypothesis in this study is:

H₄: leverage has a significant effect on the profitability

Operating cash flow is different from profit. Profit will depend on the company's policies with consists of the calculation of revenue and cost while operating cash flow is the sum of the firm's cash inflows and the firm's cash outflows from the operating activities (Morgan, 2012). Operating cash flow indicates all cash flow for short-term activities (Ross, Westerfield, & Jordan, 2015). The value of cash flow from operating activities consists of current assets and current liabilities account.

For instance, the firms that generate strong operating cash flow are likely to have better liquidity than the companies that borrow the same amount of cash or revenue. Operating cash flow (OCF) is the most important consideration for the investor because it is the lifeblood of the company (Wayman, 2015). Based on Othman & Ameer (2009) and Bhayani (2010), the company can face financial constraints because of their financial resource concerns about the availability of cash flow in the company. It supports the working capital management for daily activities. Furthermore, many marketing-related activities might be drawn indirectly or directly on this financial source. The higher operating cash flow describes the ability of short-term cash management is good to push the profitability of the firm. Therefore, the fifth hypothesis in this study is:

H₅: operating cash flow has a significant effect on the profitability

Talk about the marketing expense; it will vary depending on how big the firm size. The increasing firm size provides greater improvement in manag-

ing the sales of the company and leads to higher profitability (Anderson-MacDonald, 2014; Alarussi & Alhaderi, 2017). According to Niresh & Velnampy (2014), the firm size will describe the amount, and the variety of production capacity also will show the ability of the firm to provide concurrently to its customers.

As the concept of economies of scales, the firm size is the primary factor in determining profitability. The managers in the larger companies tend to pursue their self-interested to maximize the profitability. Thus, the manager will produce more profits with whatever resources the company has. In the traditional neoclassical view of the firm, the firm size has a positive relationship to the profitability, because the products can be produced at lower costs by bigger firms. Therefore, the sixth hypothesis in this study is:

H₆: firm size has a significant effect on the profitability

METHODS

There are two models in this research to show the relationship between the financial performance and marketing expenses as well as the control variable. This research tests separately the two components of profitability to show the robustness from the result of this study such as return on assets (ROA) and return on equity (ROE). Hereinafter, the following shows the analysis models:

$$ROA_{it} = \alpha + \beta_1 RnD_{it} + \beta_2 Selling_{it} + \beta_3 DRT_{it} + \beta_4 OCF_{it} + \beta_5 FRSZE_{it} + \varepsilon_{it} \quad (1)$$

$$ROE_{it} = \alpha + \beta_1 RnD_{it} + \beta_2 Selling_{it} + \beta_3 DRT_{it} + \beta_4 OCF_{it} + \beta_5 FRSZE_{it} + \varepsilon_{it} \quad (2)$$

$$ROA_{it} = \alpha + \beta_1 RnD_{it} + \beta_2 RnD_{it-1} + \beta_3 RnD_{it-2} + \beta_4 RnD_{it-3} + \beta_5 RnD_{it-4} + \beta_6 RnD_{it-5} + \beta_7 Selling_{it} + \beta_8 DRT_{it} + \beta_9 OCF_{it} + \beta_{10} FRSZE_{it} + \varepsilon_{it} \quad (3)$$

$$ROE_{it} = \alpha + \beta_1 RnD_{it} + \beta_2 RnD_{it-1} + \beta_3 RnD_{it-2} + \beta_4 RnD_{it-3} + \beta_5 RnD_{it-4} + \beta_6 RnD_{it-5} + \beta_7 Selling_{it} + \beta_8 DRT_{it} + \beta_9 OCF_{it} + \beta_{10} FRSZE_{it} + \varepsilon_{it} \quad (4)$$

Note:

ROA_{it} : return on assets for the company i at period t

ROE_{it} : return on equity for the company i at period t

α : constant of regression

β_{1,2,n..} : coefficient of regression

RnD_{it} : research and development expense for the company i at period t

RnD_{it-n} : lagged research and development expense for the company i at period t-n

Selling_{it} : selling expenses for the company i at period t

DRT_{it} : leverage for the company i at period t

OCF_{it} : cash flow from operating activities for the company i at period t

FRSZE_{it} : firm size for the company i at period t

ε_{it} : standard of error at the company i at period t

Analysis Model

The research analyse the relationship between marketing expenses and business performance for 22 go public companies in Indonesia during 2012-2016. In this study, OLS regression is used to know that relation in manufacturing firms. There are 111 manufacturing listed firms during 2012-2016. Since, the research uses the purposive sampling method with some requirements such as has positive sales value during the research period and has marketing expenses during the research period, so the sample becomes only 22 manufacturing listed firms. It is because 89 companies have not research and development expenses for every year.

The business performance is shown by the profitability of the firm. For this research, the profitability as the dependent variable and it will be

divided into two-part such as ROA and ROE. The independent variables include research and development expenses and selling expenses as the marketing expenses for manufacturing firms. The control variables are debt ratio, operating cash flow from operating activities, and firm size to support the explanation of profitability variability. The data in this research were obtained from the Bloomberg Database in Petra Christian University.

Dependent Variables

Financial performance

Financial performance is described as the profitability of the company from the amount of revenue that is gained from the business activities and exceeds all expenses. In this research, the measurement of profitability is shown by ROA and ROE to state the ability of the firm to get the profit from assets and equity (Ross, Westerfield, & Jordan, 2015).

$$ROA_{it} = NI_{it} / Total\ Assets_{it} \quad (5)$$

ROA indicates the ability of the company to generate profit that is relative to their total assets. This ratio explains the managerial efficiency to use assets when they generate earnings.

$$ROE_{it} = NI_{it} / Total\ Equity_{it} \quad (6)$$

ROE measures the profitability of the firm by explaining how much the profit that is generated by the company with the invested money from the shareholders.

Independent Variables

Research and development expenses

For this study, variable research and development expense is the amount of the research and

development expenditure that is recognized the expense in the current period (t). Whereas, lagged research and development are also measured in this study by measure it in previous years (t-n). Compared with ours, the other studies usually used proxies research and development to sales ratio, while we estimate company-specific research and development capital and adjust them using Natural Logarithm for research and development expenses were used to eliminate errors because of the relative difference according to sales of each firm (Choi & Lee, 2015).

$$RnD_{it} = Ln\ Research\ \&\ Development\ Expense_{it} \quad (7)$$

$$RnD_{it-n} = Ln\ Research\ \&\ Development\ Expense_{it-n} \quad (8)$$

Selling expenses

Selling expenses are the total expenses incurred by marketing management and dealing with the sales activities. It is also known as the sales expense.

$$Selling_{it} = Ln\ Selling\ Expenses_{it} \quad (9)$$

Control Variables

Leverage

Leverage will be measured by debt ratio. This ratio is the comparison between total debt and total assets to measure the proportion of funding that is come from debt to finance the assets of the company.

$$DRT_{it} = Total\ Debt / Total\ Assets_{it} \quad (10)$$

Operating cash flow

Operating cash flow shows the cash inflow and cash outflow from the operational activities in a short-term period.

$$OCF_{it} = Cash\ Flow\ from\ Operating\ Activities_{it} / Total\ Assets_{it} \quad (11)$$

Firm size

The firm size will measure the ability of the firm to generate the sales; the more sales company has, so the bigger the company.

$$Firm\ size\ (FRSIZE_{it}) = Ln\ Sales_{it} \tag{12}$$

RESULTS

Table 1 shows the statistics descriptive results for all variables in this research. The variables in this research consist of ROA, ROE, research and development expenses, selling expenses, leverage, operating cash flow, and the firm size. All variables are presented in the ratio form. We report the mean value from variables ROA, ROE, RnD, RnD-1, RnD-2, RnD-3, RnD-4, RnD-5, Selling, DRT, OCF, and FRSZE are 0.0945, 0.1372, 22.9510, 12.7984, 9.4439, 6.4049, 4.1323, 2.5900, 26.1909, 0.3772, 0.1234, and 28.4813 respectively. Meanwhile, the standard deviation of variables ROA, ROE, RnD, RnD-1, RnD-2, RnD-3, RnD-4, RnD-5, Selling, DRT, OCF, and FRSZE are 0.1227, 0.2657, 9.4730, 12.7932, 12.2158, 10.8683, 99.1718, 7.4816, 13.5106, 0.1705, 0.0854, and 1.6267 respectively. The mean and standard deviation values show the deviation of data in this research, and it implies the data has normality distributed.

Table 2 shows the result of regression estimation toward business performance with ROA as the dependent variables and the diagnostic test. The table indicates that research and development expenses, selling expenses, and operating cash flow have a positive effect on the profitability which is statistically significant at 1 percent. Furthermore, the lagged research and development of previous years 4 has positive and significant effect toward profitability at statistically significant 5 percent and 10 percent. It implies that if research and development expenses, selling expenses, and operating cash flow increase, it would add more profitability to the firm. Furthermore, Leverage has a negative effect on the profitability which is statistically significant at 1 percent. On the other hand, firm size has not any effect on profitability.

Refer to Table 2, it also indicates that the R-squared is 88.35 percent and Adjusted R-squared is 87.62 percent. It means the independent variables such as research and development expenses, selling expenses, leverage, operating cash flow, and the firm size explains the dependent variable at the level of 87.62 percent. The result has good Adjusted R-Squared. Furthermore, adding the lagged research and development expense to the profitability (ROA) create the value of R-squared is about 53.25 per-

Table 1. Descriptive Results of variable (N=110)

Variables	Min	Max	Mean	Standard Deviation
ROA	0.0005	0.9809	0.0945	0.1227
ROE	0.0009	1.6208	0.1372	0.2657
RnD	18.8502	26.7718	22.9510	9.4730
RnD-1	18.4287	29.7894	12.7984	12.7932
RnD-2	17.9472	29.6371	9.4439	12.2158
RnD-3	17.3736	29.5106	6.4049	10.8683
RnD-4	16.7313	29.3901	4.1323	9.1718
RnD-5	16.3580	29.2061	2.5900	7.4816
Selling	22.4595	29.9510	26.1909	13.5106
DRT	0.0943	0.8005	0.3772	0.1705
OCF	-0.0148	0.4357	0.1234	0.0854
FRSIZE	25.2877	31.8083	28.4813	1.6267

Note: ROA is Return on Assets, ROE is Return on Equity, RnD is Research and Development Expenses, RnD-1, RnD-2, RnD-3, RnD-4, RnD-5 are Lagged of Research and Development Expenses on prior year 1,2,3,4, and 5 respectively, Selling is Selling Expenses, DRT is leverage, OCF is cash flow from operating activities, and FRSIZE is the firm size.

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cent, and Adjusted R-Squared is about 45.83 percent. Booth regression generates the F-test sig. is 0.000 and significant at 1 percent level, so those models are robust, and they have the goodness of fit.

$$ROA_{it} = 0.0048 + 0.0008 RnD_{it} + 0.0005 Selling_{it} - 0.1051 DRT_{it} + 0.7386 OCF_{it} + 0.0009 FRSZE_{it} + \varepsilon_i \quad (13)$$

$$ROA_{it} = 0.2754 + 0.0012 RnD_{it} + 0.0006 RnD_{it-1} + 0.0004 RnD_{it-2} - 0.0005 RnD_{it-3} + 0.0010 RnD_{it-4} + 0.0011 RnD_{it-5} + 0.0015 Selling_{it} + 0.0470 DRT_{it} + 0.2062 OCF_{it} + 0.0092 FRSZE_{it} + \varepsilon_{it} \quad (14)$$

Table 3 shows the result of regression estimation toward business performance with ROE as the dependent variables and the diagnostic test. The

table indicates that research and development expenses, selling expenses, and operating cash flow have a positive effect on the profitability which is statistically significant at 10 percent, 1 percent, and 1 percent, respectively. Furthermore, the lagged research and development of previous years 4 has positive and significant effect toward profitability at statistically significant 5 percent and 10 percent. It implies that if research and development expenses, selling expenses, and operating cash flow increase, it would add more profitability to the firm. Furthermore, leverage has a negative effect on the profitability which is statistically significant at 5 percent. On the other hand, firm size has not any effect on profitability.

Refer to Table 3, it also indicates that the R-squared is 79.12 percent and Adjusted R-squared is 77.83 percent. It means the independent variables

Table 2. Regression Estimation toward Financial Performance (Return on Assets)

Variables	Regression Coefficient				
Constant	0.0825*** (11.0189)	0.0375*** (0.1031)	0.0048*** (0.1446)	0.0764*** (6.963)	0.2754*** (3.4307)
RnD	0.0018*** (3.1977)		0.0008*** (33.2355)	0.0005 (6.5263)***	0.0012** (2.5678)
RnD _{t-1}				0.0002 (0.2888)	0.0006 (0.1597)
RnD _{t-2}				0.0009 (1.105)	0.0004 (0.5202)
RnD _{t-3}				0.0007 (0.665)	-0.0005 (-0.9146)
RnD _{t-4}				0.0028** (2.402)	0.0010* (1.9418)
RnD _{t-5}				0.0009 (0.728)	0.0011 (1.2735)
Selling	0.0011*** (-2.8433)		0.0005*** (-2.7296)		0.0015*** (4.5042)
DRT		0.7539*** (14.0495)	-0.1051*** (-7.3349)		0.0470** (2.026)
OCF		0.12601*** (-8.5311)	0.7386*** (15.0868)		0.2062*** (4.992)
FRSZE		0.000014 (-0.0109)	0.0009 (0.7855)		0.0092** (3.0691)
R-Square	0.4844	0.9219	0.8835	0.2834	0.5325
Adjusted R-Squares	0.2346	0.8499	0.8762	0.2400	0.4583
F -Test Sig.	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***

Note: ***, **, and * denote the statistical level of significance at 1 percent, 5 percent, and 10 percent respectively (t-statistics in parentheses).

such as research and development expenses, selling expenses, leverage, operating cash flow, and firm size explains the dependent variable at the level of 77.83 percent. The result has good Adjusted R-Squared. Moreover, the adding the Lagged research and development expense to the profitability (ROE) create the value of R-squared is about 40.12 percent, and Adjusted R-Square is about 30.62 percent. Booth regression generates the F-test sig. is 0.000 and significant at 1 percent level, so those models are robust, and they have the goodness of fit.

$$ROE_{it} = 0.1377 + 0.0008 RnD_{it} + 0.0009 Selling_{it} - 0.0300 DRT_{it} + 1.1184 OCF_{it} + 0.0050 FRSZE_{it} + \varepsilon_{it} \quad (15)$$

$$ROE_{it} = 0.3892 + 0.0017 RnD_{it} - 0.0001 RnD_{it-1} + 0.0006 RnD_{it-2} - 0.0005 RnD_{it-3} + 0.0012 RnD_{it-4} + 0.0007 RnD_{it-5} + 0.0016 Selling_{it} + 0.0369 DRT_{it} + 0.2400 OCF_{it} + 0.0115 FRSZE_{it} + \varepsilon_{it} \quad (16)$$

DISCUSSION

Both linear regression models also passed through to the diagnostic tests (the diagnosis test results are based on request). The value of One-Sample Kolmogorov Smirnov Test is greater than 5 percent, so the assumption of normality is accepted. The value of tolerance (Tol.) is more than 10 percent, and the value of VIF is less than 10, so there is no multicollinearity. Furthermore, the value of Durbin Watson test lies in $-2 < DW < +2$, then there is no autocorrelation. The value of Glejser test for each independent variable is greater than 5 percent, so heteroscedasticity did not happen. The result of this research also has ensured that the regression model is robust to explain the answer to the research question.

The research's results found that research and development expense has a significant positive ef-

Table 3. Regression Estimation toward Financial Performance (Return on Equity)

Variables	Regression Coefficient				
Constant	0.1331*** (13.3677)	0.0844*** (13.7601)	0.1377*** (2.4169)	0.1126*** (4.044)	0.3892*** (3.3638)
RnD	0.0014** (1.7852)		0.0008* (1.9839)	0.0009*** (6.1713)	0.0017** (2.4454)
RnD _{t-1}				0.0007 (0.3451)	-0.0001 (-0.1822)
RnD _{t-2}				0.0012 (0.5618)	0.0006 (0.5316)
RnD _{t-3}				0.0017 (0.6782)	-0.0005 (-0.5200)
RnD _{t-4}				0.0073** (2.4622)	0.0012* (1.6765)
RnD _{t-5}				0.0027 (0.8679)	0.0007 (0.5624)
Selling	0.0017*** (-3.1637)		0.0009*** (-3.4004)		0.0016** (3.3890)
DRT		1.1615*** (12.8329)	-0.0300** (-7.2218)		0.0369 (1.1036)
OCF		0.0547** (-2.1927)	1.1184*** (13.3084)		0.2400*** (4.0315)
FRSZE		0.0031 (1.3786)	0.0050 (0.4039)		0.0115** (2.6674)
R-Square	0.4199	0.8605	0.7912	0.2722	0.4012
Adjusted R-Squares	0.1763	0.7404	0.7783	0.2281	0.3062
F -Test Sig.	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***

Note: ***, **, and * denote the statistical level of significant at 1%, 5%, and 10% respectively (t-statistics in parentheses)

fect on profitability ratio for both measurements such as ROA and ROE. This result indicates that the role of research and development expenses will generate earnings as the effective use of assets and generate earnings for the company by invested money from the shareholders. It is consistent with the results from previous researcher Konak (2015). This result shows that research and development expense indicates the capital expenditure for the company. Research and development activities also communicate the innovation and value of the product and the company. Those skills will make a very strong marketing communication capability to the customers (Chakraborty, 2015). Thus, the company does believe that they will get benefit from them to show the company's competitive advantages. When the result of research and development is a success to make the consumer's trust higher to the company's product, so the customer will buy the product more, and the company will reach more profitability (Lazzarotti et al., 2009). Furthermore, if the research and development program gets fail, the firm will take more funds to cover this expense, and the profitability will decrease.

Furthermore, the rationale for treating forcing companies to expense the research and development will lie in the belief such as the benefit of those research and development activities. Sometimes, the benefit is uncertain, and it only occurs if the researches lead to the commercial product. It has placed pressures on the company to adapt rapidly to risk and uncertainty (Narayana., Pati., & Vrat., 2012). Thus, it sounds like a dangerous path to follow the company when using debt when financing the research and development expenses. This reason will show that the company would not qualify for expensing if the firm has no liquidation value and it has uncertain cash flows.

From the variable of the lagged research and development expense, the research and development expense of previous years 4 (t-4) is the only one of lagged research and development that has a

positive and significant effect on the profitability. According to Lee & Choi (2015), research and development will be successfully implemented, if there is a long time for the outcome to come. Usually, this investment will satisfy for certain capitalization requirements that are processed as the assets. Holak, Parry, & Song (1991), stated that this expense has synergy with the customer's characteristics and adoption process from research and development expenditure. Through research and development, the innovation from the company must be tried on a limited basis and potential adopter to know how successful is the research and development's trialability, observability, failure risk, and communicability to sell the innovated product (Narayana & Pati, 2012). This research explains that the impact of research and development can not just be instant to profitability. It has a time-lag effect about previous years 4 of research and development (t-4) will impact the current profitability in manufacturing listed firms in Indonesia.

The answer to second research question is selling expense has a significant positive effect on profitability. This result is consistent with previous research such as Othman & Ameer (2009) as well as Chakraborty (2015). Selling expense is also used to develop, to maintain, and to grow a company's brand assets. It is related to the customer's needs. According to Damirchi & Shafai (2011), customers will get more information about the product if the company have more selling expenses to help them. Marketing intelligence gathering systems will have information sources to monitor ongoing development around its marketplace and customer (Damirchi & Shafai, 2011). The company shares the product's knowledge to the customers through spending more money to make more promotion activities and to pay the persons more who get in touch in selling activities. The key persons such as sales personnel and managers will develop effective coordination with product and market (Brooksbank, Subhan, & Miller, 2017). In Indonesia, the company usually do

promotion activities through electronic media in order to reach these goals. When the company gets success by doing those activities, they will accept more profitability. It is because the company has good strategic market planning and the customers are interested in their product through this sharing knowledge (Brooksbank et al., 2015 as well as Brooksbank, Subhan, & Miller, 2017).

Based on this research, the majority of the companies as the sample are grouped in the consumer goods industry sector that listed on the Indonesia Stock Exchange. Those companies are spending more funds on marketing expenses than the other sectors. There are also more specific marketing expenses characteristics in the sub-sector companies of consumer goods industry sector. The companies that engaged in the pharmaceutical sub-sector spend the hugest amounts of money for research and development activities. Meanwhile, the companies are grouped in the cosmetics and household products industry sub-sector that dares to spend the hugest money for selling expenses.

According to the research's result, the pharmaceutical sub-sector engaged the huge amounts of money for research and development for the listed firms in Indonesia Stock Exchange. This result is consistent with the previous researcher such as Choi & Lee (2015). Research and Development pharmacists usually spend 29 percent of their time researching the pharmaceutical industry. It is only 16 percent of their time for project management, 15 percent for department management activities, 9% for the personnel management, 5 percent for data management, and 22 percent for the other activities. From the information above, it means that the time of pharmacist is dominant in doing the Research and Development activities. Generally, Research and Development activities may do several activities such as from developing new chemical or drugs to make sure that it will work when the customer eats it and then to evaluate the existing products for some alternatives or the next projects.

Generally, in the pharmaceutical firms will spend a lot of money on research and development expenses. The new drugs will be discovered by the research and development process, and it costs, so pennies to produce the drugs. This expense will go and never come back to the company. Sometimes, the manager tends to figure this marketing expense as the sunk costs into the current and the future decisions, with the imagination of the goal for the amortization that the past sunk cost with an inflated variable in the present time. It is called a pro-rata bias. This bias will show the irrational manager to manage the cost behavior.

There are also several control variables used in this research. The result from the first control variable is about leverage ratio. In this study, the leverage ratio has a significant negative effect on profitability. This result is consistent with Burja (2011), Mistry (2012), also Boadi, Antwi, & Lartey (2013). Taking a lot of debt, as a company brings a heightened level of financial risk. When the companies have a higher level of the leverage ratio, the companies will have higher financial expenses. It is because the firms have more liabilities. It is because the company's revenue must be used to pay more interest rate and the amount of principal even if the cash flows or the earning of the companies go down. According to Ganguli (2016), through the agency theory, firms with highly leveraged tend to have higher agency cost and may hinder the financial performance. The over-leveraging company shows huge debt that also will decrease the value of the company's equity as the stockholders believe that it is to be too risky or it indicates a higher probability of bankruptcy. Thus, when the company has higher financial expenses, the company's profitability will decrease.

Based on Table 2 and Table 3, the coefficient of leverage changes from positive to negative when the marketing expenses are included in the equation. This finding is so interesting for the manufacturing listed firms. Taking strategic decision for

marketing expenses such as not only research and development expenses but also selling expense may be restricted by the financial sources that are available in the firms. Especially, the more leverage in the company to finance the marketing expenses will lead to a higher probability of manager to decide on implementing investment projects that may have a negative net present value (NPV). It will decrease the company's value and make lower profitability. Usually, research and development investment also has high information asymmetry which can cause higher external capital dependence leading to a negative impact on profitability (Choi & Lee, 2015).

Moreover, the operating cash flow has a significant positive effect on the profitability of this study. This result's study is consistent with Bhayani (2010) as well as Pandit, Wasley, & Zach (2011). Operating cash flow is different from profitability in term of accounting. It is depended on the sum of the cash inflow and the cash outflow from operating activities that indicates short-term activity in the company (Morgan, 2012). Higher operating cash flow means that the firm is able to produce sufficient cash flow, to maintain positive cash flow, as well as to grow the company's operations. The firms may require external funding for capital expansion if the cash flow from operation does not match. Operating cash flow is related to main business activities (Alarussi & Alhaderi, 2017). For example: selling inventory, purchasing inventory, paying salaries of the employee, and providing good services. Therefore, operating cash flow will support the activity in the company to get more profitability.

In this research, firm size did not affect significantly on the profitability. It is not consistent with previous research Anderson-MacDonald (2014) and Niresh & Velnampy (2014). This research's result means that higher or lower value of sales that company get will not drive the level of profitability. It is due to the value of variance explained is low. Thus it indicates that there are another variables will determine the stability of profits. So, the small or big

firms size do not necessarily have unstable profitability, if other variables favor stability. Thus, a higher firm size does not always affect the profitability significantly.

CONCLUSION AND SUGGESTIONS

Conclusion

This results showed that marketing-related research and development expenses, selling expenses, and operating cash flow have a significant positive relationship with ROA and ROE. Moreover, lagged research and development expenses—specifically, expenses from the previous four years (RnD_{t-4})—have a significant effect on ROA and ROE. It means that the higher marketing expense is expected to attract the buyers to purchase the company's product and then it will increase the company's profits. Thus, marketing expenses are necessary to create profitability in go public firms. Furthermore, leverage has a significant negative effect on ROA and ROE. On the other hand, firm size has no significant impact on profitability.

Suggestions

This research has several suggestions to the related parties. For instance, the government will deal with it. Higher marketing expenses will show higher product market competition. Thus, the government has a rule about promotion activity in Indonesia. There is a regulation from the Minister of Communication and Information of Republic Indonesia number 25/PER/M.KOMINFO/5/2007 that manages and controls the components in the manufacture of advertising products. So that, the company's managerial must be effective and be wise to have a policy in marketing activities, then the firm will get double benefits, such as getting profits and complying with the government regulations. The best marketing activities will make the customers and the other stakeholders interested in the company and their products.

Furthermore, if sometimes the marketing expenses do not work to financial performance, maybe it is a mistake, but it is a useful one. Thus, the research result also has a suggestion for the manager. The rational manager should not take the sunk cost when they decide on the investment in the present time or in the future time because it is irrecoverable. Yet, the managers still break this rule by doing a cognitive bias that is known as sunk cost fallacy. Nevertheless, it was not always a mistake; sometimes this fallacy was the only optimal decision-making strategy in a certain situation. Generally, the decision to pay the marketing expenses usually is costly this much money and time for the manager. It must be very important to the company so that the manager is going to carry on this sunk cost. The managers will reminder the prior marketing expenses as the sunk cost of their initial investment strategy. When the sunk cost was high, the manager continued investing. Otherwise, if the sunk cost was low, the manager will decline to complete the investment plan. The manager will infer that

from the higher initiation cost lead to the higher value of the project. Thus the manager figures it will make a sense that they keep paying in order to complete this strategy.

According to the limitations of this study, the next suggestions are for further researchers. First, the sample of the research used manufacturing listed companies in the scope of Indonesia. Therefore, further research can use the other sector and the larger sample to capture the other phenomenon in Indonesia. Generally, the marketing activity will be different if the company has a special product with specific services. Moreover, future researchers can add more control variables that are indicated can explain more about the profitability through marketing activities – for example, the role of managerial in the marketing department who decide on marketing expenses. This role can be measured by a qualitative method from the managerial suggestion about those activities. Thus there will be a new insight to analyze the profitability of each firm.

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