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The Effect of Resource Complementarity on a Company's Performance Post-Merger and Acquisition in the Southeast Asia Region: The Moderating Role of the Merger and Acquisition Experience

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Abstract: This study examines the effect of resource complementarity on a post-merger and acquisition company's performance, moderated by the bidder's merger and acquisition experience. Resource complementarity is an important aspect that needs to be considered when carrying out mergers and acquisitions (M&A). This study uses a purposive sampling method, which has specific criteria for selecting the sample, while the dataset is cross-sectional. Tests have been conducted on 97 non-financial companies that carried out M&A in Southeast Asia between 2007 to 2017, and their post-M&A performance has been examined. This research's methodology utilizes a quantitative approach and explanatory variables. The results indicate that resource complementarity has a significant effect on the performance of post-M&A companies. In other words, resource complementarity has a positive and significant effect on changes in the performance of companies after their M&A. The moderation test shows exciting findings, namely, for companies with little experience, the effect of resource complementarity on post-M&A performance is more substantial. This study has practical recommendations for decision-makers. When conducting their M&A, organizations should select targets with complementary resources and not depend on prior experience, since it is not necessarily applicable to the present circumstances. Furthermore, as they integrate feedback systems to relate earlier experiences, the acquisition experience will have a more robust learning impact.

Keywords: mergers and acquisitions, firm performance, experience, resource-based view, resource complementarity, ASEAN.

JEL Classification: G34, L21, L25, M21

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Introduction

Nowadays, technology and information are undergoing very rapid developments. This causes changes in consumer preferences, shifting how buying and selling transactions are conducted. These changes have resulted in companies having to switch their strategies for marketing their products and services. Technological developments have also caused more intense competition for businesses and have created a world full of uncertainty. Mergers and acquisitions are strategies that one can implement to minimize these risks.

A merger and acquisition is a restructuring step for a company, aimed at providing benefits over a relatively short period of time. Besides, M&A are one way to adapt to new markets and increase a company's profits and market value. As Wheelen and Hunger, (2006) and Yu, Umashankar and Rao (2015) stated, M&A have become a popular strategy which has been used by various companies in recent years. In the Southeast Asia region, there has been a significant increase in the intensity of M&A (Triatmodjo, 2015). In this way, companies aim to prepare themselves to compete in the ASEAN economic community (MEA) continuously.

Despite the enormous growth in M&A, it turns out that only a small percentage of companies have achieved success with them (Bauer and Matzler, 2014). Some studies also show that, on average, companies implementing this strategy create little or no value and often fail to achieve success (Hitt, Harrison and Ireland, 2001). The survey conducted by KPMG in 1999 also shows that 83% of merger and acquisition transactions did not increase the shareholders' returns. Based on related research (Martin, 2016) and a 2011 report in the Harvard Business Review (HBR), the failure rate of the M&A was in the range of 70% to 90% (Christensen et al., 2011).

Over the past three decades, management literature has tried to test the paradox between the high failure rate of M&A and the growth of M&A activities and volume. A meta-analysis that examines the variables of the relationships between partners, payment methods, the experience of M&A, and corporate culture has not provided explicit answers to the paradox of the high failure rates of M&A (King et al., 2004; Stahl and Voigt, 2008). One answer that might explain the paradox of the high failure rate is the complementarity of resources of the two companies, as proposed by Harrison et al. (1991).

According to Harrison et al. (1991), a merged company will have a better post-merger and acquisition performance when there are differences in the resource allocation from both merged companies. In other words, M&A partners who have different but complementary resources will have better post-mergeer and acquisition performance. Based on Cobeña, Gallego and Casanueva (2017), complementarity refers to partners with a resource endowment that the focal firm does not possess, and it is non-overlapping and synergic with those the focal firm do possess. The term complementarity resources means a positive interaction effect between the bidder company's and the target company's resources (Milgrom and Roberts, 1995). Furthermore, according to Hitt, Harrison and Ireland (2001), resource complementarity occurs when the bidder and target companies' resources differ but support each other's functions. Turkulainen et al. (2017) also state that a company that makes a new takeover should have a different set of skills than a company that extends an existing busi-

ness in order to capitalize on the resources and synergies required for transaction's success.

Two ideas might explain the link between resource complementarity and company performance following a merger and acquisition. The resource-based view or RBV (Barney, 1991) is the first concept, and the transfer of learning is the second (Perkins and Salomon, 1992). According to the RBV, a competitive advantage is determined by the resources (Barney, 1991). In other words, this view emphasizes the company's internal processes as the source of its competitive advantage. If the company cannot produce resources that give it a competitive advantage, it will seek or purchase external resources to complement its own. M&A are one method of accomplishing this.

The concept of learning transfer (Perkins and Salomon, 1992) states that learning from one context influences the performance of other situations. As a result of the transfer of learning through experience, an organization might be given knowledge. Therefore, a company's prior experience will influence its future decision-making. In the context of M&A, if a company learns from its experience, it may enhance the process of identifying target companies, negotiating deals, and accelerating the merger and acquisition's integration and implementation (e.g., achieving synergy) to obtain a competitive advantage in the future (Hitt, Harrison and Ireland, 2001).

Although resource complementarity has been shown to affect companies' performance after M&A, recent studies have shown different results. Kuriakose and Paul (2016) show that the performance of M&A partners with differences in most of their strategic and financial aspects decline after their M&A. In other words, resource complementarity negatively affects the performance of companies after the merger and acquisition. Based on the inconsistent results of previous studies, we suspect that there are variables that can strengthen or weaken the effect of resource complementarity on post-merger and acquisition company performance. Therefore, in this study, we use the moderating variable to determine whether it can strengthen or weaken the effect of the independent variable on the dependent variable. The moderating variable used in this study is the bidder firms' experience of mergers and acquisitions. The experience is measured based on the number of mergers or acquisitions by bidder firms in the years preceding the focal merger and acquisition. The impact of resource complementarity on firm performance is considered to be influenced by the merger and acquisition experience. According to Meschi & Metais (2006) and Barkema & Schijven (2008), companies with broad experience outperform companies with little or no experience. If the bidder has M&A experience, they will have useful insights into the complementarity of resources. As a result, if companies conduct mergers and acquisitions in the future, they will more accurately determine which resources (the company) can match their requirements.

Experienced companies could also identify the best moment for mergers and acquisitions when they require external cash or resources, and they can better comprehend the success keys in the integration process (Haleblian and Finkelstein, 1999). Therefore, the more experience a firm has in performing mergers and acquisitions, the more it will understand which resources might increase the company's performance. In other words, mergers and acquisitions' experience moderates the effect of resource complementarity on post-M&A performance.

Although previous research has established the potential advantages of resource complementarity, most of them have focused on developed economies (Achim, 2015), leaving the question of whether it applies to developing countries unanswered (Ferraz and Hamaguchi, 2002). As developing economies suffer rapid institutional development and have distinctive characteristics, such as high transaction costs and severe institutional restrictions, the value of any effective approach may be lost. Hence, this study has selected the ASEAN region as the object of research. The ASEAN region is chosen due to its economic growth, around 5.2%, which is higher than the global economy (International Monetary Fund, 2018), indicating its upbeat future economic prospects (Chiriac, 2021). Therefore, the intensity of M&A activities are also predicted to increase.

Based on the resource-based view, this study will examine the effect of resource complementarity on company performance. According to the organizational learning perspective, an organization will gain knowledge from its experience and shape itself to be better in the future. Connected with this topic, we will also examine the role of M&A experience in moderating the effect of resource complementarity on company performance.

This research differs from others in critical ways. For starters, most research that assesses post-merger and acquisition's success relies solely on stock price event studies, neglecting the impact of the merger and acquisition on other possible aspects of business success (King et al., 2004). As a result, this study employs financial performance indicators to assess the long-term effects of resource complementarity. Second, prior research has primarily focused on a single industry, making it difficult to generalize (see Altunbaş and Marqués, 2008; Kuriakose and Paul, 2016; and Ramaswamy, 1997). Third, according to the author's observations, few studies use data from the most recent merger wave, which was the seventh merger wave (2010 to the present).

Literature Review

Resource Complementarity

Hitt, Ireland and Harrison (2001) explain that resource complementarity occurs when the bidder and target companies' resources are different but mutually supportive. In other words, resource complementarity is the extent to which two companies' resources complement each other (Tanriverdi and Venkatraman, 2005). According to the above definition, complementary relationships occur when different resources can positively improve both companies' functions or create positive interactions (Siggelkow, 2002).

Complementary mechanisms refer to the processes and activities where resources are combined to improve and complement each other's functions. This mechanism, which comes from strategies and economics, is theoretically based on the complementarities' economic theory (Milgrom and Roberts, 1995). This theory states that a set of resources is complementary when the benefits of a resource differ from another one (Milgrom and Roberts, 1995). For example, an increase in a resource can increase the benefits from another resource. Complementarity between resources can be used to create a sizeable value-added synergy, which means that the combined effect of the resources is greater than the sum of each resource (Tanriverdi, 2006).

Post-Merger and Acquisition Performance

According to the previous research, two types of organizational performance have been frequently used to measure the success of M&A. The first is the company's long-term performance reflected in its financial statements, commonly called the accounting-based measures which are projected from its return on assets (ROA). The second is the short-term effect of the company's market value, as seen from the stock price or cumulative abnormal return (CAR), also known as market-based size. Based on a meta-analysis from King et al. (2004), most post-merger and acquisition performance uses event stock-price studies, thus ignoring the effect of a merger and acquisition on other relevant performance dimensions.

Holzmann, Copeland and Hayya (1975) thought that the use of market-based measures in diversification studies was problematic because of managers' high dependency on accounting-based performance assessments when formulating a diversification strategy. Also, Bromiley (1986) argues that accounting performance measures are better than market-based measures in some cases because managers more often use accounting measures to make strategic decisions. Therefore, this study will use financial performance as a basis for measuring the performance of post-M&A companies in the longer term.

Financial performance, as an indicator of merger and acquisition's success, represents a manager's perspective in underlining long-term benefits reflected in the financial statements. In measuring financial performance, a company's financial statements and annual reports are used both before and after conducting the merger and acquisition. This is because changes in the company's condition and position will be reflected in the company's financial statements or annual reports. This study assesses and measures the financial performance of companies carrying out M&A using the return on assets (ROA) financial ratio. This proportion indicates how well a company is running by comparing the profits to the assets' capital.

Merger and Acquisition Experience

The mergers and acquisitions experience is measured by calculating the company's participation in merger or acquisition activities before the focal mergers or acquisitions. According to Barkema and Schijven (2008), more experience will create the possibility of getting more specific knowledge about different markets and related factors. Therefore, experience develops a company's M&A' abilities, helps create value, and overcomes the existing barriers' adverse effects. Haleblian and Finkelstein (1999) found that experienced companies understand better when to make acquisitions, when external resources are needed, and the key to successful integration than those who are inexperienced. Bidders with past acquisition experience expand their existing market position by adding new capabilities or technology (Hayward, 2002). Experience from previous acquisitions facilitates the process of integrating the acquired firms' resources, which improves the post-acquisition performance (King et al., 2004; Hsu and Cao, 2021). Moreover, experience also helps to capture value (Cuypers, Cuypers and Martin, 2016).

Resource-Based View (RBV)

The resource-based view (RBV) is an approach to gaining a competitive advantage

that emerged in the 1980s and 1990s after the publication of Wernerfelt (1984), Prahalad and Hamel (1990), and Barney (1991). In his article, "Firm Resources and Sustained Competitive Advantage", Barney (1991) explains that a company's competitive advantage sources from its resources. The article has been widely cited as a milestone in the emergence of the resource-based view.

According to Barney (1991), resources are all the assets, capabilities, processes, attributes, information, knowledge, and other things under the company's control. Resources allow companies to understand and implement strategies that can improve their efficiency and effectiveness. Companies get a competitive advantage when implementing a value creation strategy that any other competitor does not concurrently adopt. Resources that can create a competitive advantage meet the following criteria, namely valuable, rare, inimitable, and not substitutable (VRIN).

Companies, according to the RBV, will seek complementary resources to make their resources valuable, rare, inimitable, and not substitutable. One of the most significant variables of a target company to take into consideration is resource complementarity. The RBV further contends that complementary resources may boost effectiveness and efficiency, thus improving firm performance.

Transfer of Learning

Perkins and Salomon (1992) explain that the transfer of learning occurs when learning from one context impacts the performance of other contexts. Therefore, learning from previous experience can provide knowledge for the company. Thus, the experience of the company in the past will influence its decision-making in the future. Haleblian and Finkelstein (1999) also argued that past events could positively and negatively affect future performance, meaning that there is a knowledge transfer from experience. They also argue that experience can provide learning opportunities from previous successes and failures and can develop specific skills to work better.

Hypothesis Development

Tanriverdi and Venkatraman (2005) defined resource complementarity as the extent to which two company's resources are different but mutually supportive. Based on the above definition, complementary relationships occur when different resources positively enhance each other's function or create positive interactions (Siggelkow, 2002). Therefore, the extent to which differences in the allocation of a bidder's and target's resources complement one another can measure resource complementarity (Harrison et al., 2001, 1991; Ramaswamy, 1997; Swaminathan, Murshed and Hulland, 2008).

According to the resource-based view, companies will choose partners with resources that can complement their resources. These complementary resources will benefit bidder companies because they create broader business opportunities and mitigate threats (Junge, 2014). Besides, combining products or services can also create new opportunities to expand the customer base, improve the company's competitive position in the market and its cost structure, and offer better service options to customers (Kim and Finkelstein, 2009). Jiang and Jiang (2019) suggested that pooling resources' value creation serves as a source of competitive advantage to both partners in a merger and acquisition. Moreover, resource complementarity can generate

shared benefits that partners in an alliance cannot develop independently.

Resource complementarity brings together a mix of resources that leads to more robust resource profiles in a merger and acquisition. Complementary resources allow companies to create a complete business portfolio (Kim and Finkelstein, 2009) and provide unique values that may be difficult to imitate (Harrison et al., 1991; Barney, 1988; Helfat, 1997). Synergies acquired from complementary resources will increase sales and lower the cost of research and development per product, hence encouraging further research and development (Chen, Meng and Li, 2018). Complementary resources also provide opportunities to enhance new learning and capacity building (Hoskisson and Busenitz, 2001; Prayogi, 2019). These learning activities may improve M&A' performance by reinforcing current core products and facilitating new products. From the explanation above, it is apparent that several mechanisms state that the complementarity of resources can affect the post-merger and acquisition's performance, which is measured by looking at the profitability, or return on assets (ROA).

> Hypothesis 1: Resources complementarity between bidder and target companies positively affects company performance after the merger and acquisition (ROA).

The effect of resource complementarity on company performance after the merger and acquisition is reported as still having inconsistent results. Therefore, the experience of undertaking the merger and acquisition is thought to be able to clarify the inconsistency of the results of these studies. Zollo and Singh (2004) and Barkema & Schijven (2008) also explained that merger and acquisition experience is among the variables that also influence company performance. Companies with a great deal of merger and acquisition experience and resource complementarity will have better performance than companies with little or no experience. It is because companies obtain knowledge from their previous experiences with M&A .

Suppose the company has the experience and learns from it. In that case, the company can improve the process of selecting the target companies, negotiating transactions, accelerating the merger and acquisition's integration, and implementation (e.g., achieving synergy) to gain a competitive advantage (Hitt, Harrison and Ireland, 2001). According to Lubatkin (1987), companies with previous acquisition experience will conduct acquisitions better than those without it. The findings from qualitative research (Ashkenas, DeMonaco and Francis, 1998; Hitt et al., 1998) supported this notion and state that companies with acquisition experience have better capabilities to overcome inertia, change their organizational structure, and increase the effectiveness and efficiency of the integration process.

According to Haleblian and Finkelstein (1999), experienced companies understand when to conduct an acquisition, when funding or outside resources are needed, and can identify some of the critical factors for successful integration better than inexperienced companies. In other words, companies with experience will obtain lessons learned from their past participation in a similar venture. It suggests that more experience will have a higher learning curve. On the other hand, knowledge can also be obtained through resource complementarity among merger and acquisition partners. Through the complementarity of resources, companies obtain knowledge from the differences in their part-

ners' orientation, expertise, and abilities (Hitt, Harrison and Ireland, 2001).

So, the knowledge obtained from resource complementarity will be greater for companies with greater experience. Therefore, the greater the merger and acquisition experience, the greater the effect of resource complementarity on company performance. Given the concepts stated above, it is safe to assume that merger and acquisition experience positively moderates the effect of resource complementarity on company performance.

> Hypothesis 2: The experience of mergers and acquisitions moderates the effect of resource complementarity on the performance of post-merger and acquisition companies.

This study used explanatory variables that use several financial ratios as indicators of company resource allocation patterns. The dataset used in this study was cross-sectional, where each company's performance was measured at two specific time points to test the performance changes that had occurred. This study used a deductive approach to examine several conflicting opinions from several previous studies on resource allocation (resource complementarity) and post-M&A performance. The analysis used in this study was to assess an event's impact (in this case, a merger and acquisition) on company performance. Observations on the differences or changes in company performance and after conducting the merger and acquisition were conducted to perceive the impact.

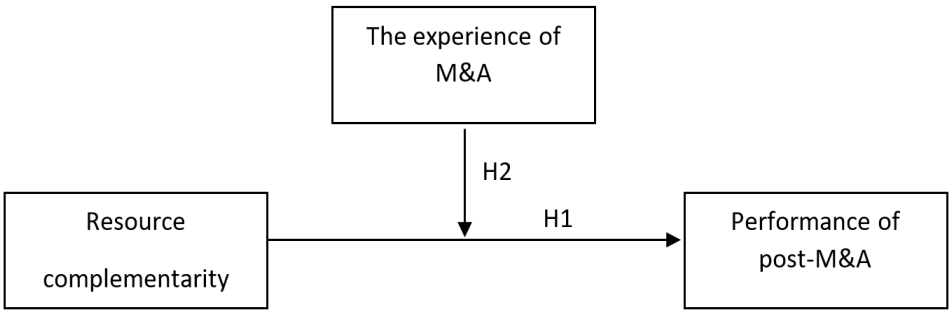

Figure1. Research Model

Based on the research model described above, the regression model may be constructed as follows:

$$\Delta ROA = \beta 0 + \beta 1 WARC + \varepsilon$$

$$\Delta ROA = \beta_0 + \beta_1 WARC + \beta_2 Exp + \beta_3 WARC.Exp + \varepsilon$$

Research Design

The design and methodology of this study have been adapted from the research of Harrison et al. (1991), Ritterfeldt and Piehl Trygg (2008), and Gunnarsdóttir (2014).

Operational Definition and Variable Measurement

Explanatory variables in this study employed financial ratios as indicators of company resource allocation patterns. The following table explains the operational definitions and measurements of these variables in more detail.

The company's performance was measured by looking at its profitability, namely the bidder's return on assets (ROA). The improvement in a company's performance due

Table 1. Operational Definitions and Variable Measurements

Variable	Definition	Measurement
Profitability	The level of a company's ability to generate profits in a given period	$ROA = \frac{Net\ income}{Total\ Asset}$ $\Delta ROA = ROA_{post}^{merged} - \left(ROA_{pre}^{bidder} + ROA_{pre}^{target}\right)$
Resource complementarity	The extent to which the resources of the two companies are different but mutually supportive	$WARC = (0.25 \times R_{CI} + (0.25 \times R_{AI}) + (0.25 \times R_{RDI}) + (0.25 \times R_{II})$
Capital intensity (CI)	A measure of a company's efficiency in the distribution of its assets	$CI \frac{Assets}{Revenue}$
Administrative intensity (AI)	Costs associated with overhead activities such as marketing and administration	$AI = \frac{SGA\ Expense}{Revenue}$
Research and development intensity (RDI)	How many resources are allocated to create innovations or technological expertise	$RDI = \frac{R\&D\ Expense}{Revenue}$
Interest intensity (II)	Sources of funding for financing acquisitions	$II = \frac{Interest\ Expense}{Revenue}$
M&A experience	How many companies have done M&A?	Number of M&A already carried out

Sources: Harrison et al. (1991), Ritterfeldt and Piehl Trygg (2008) and Gunnarsdóttir (2014)
Note: The measurement of WARC is modified by the authors adopting it from the WACC formulation.

to a merger and acquisition was observed from the variations in ROA pre-merger and acquisition and post- merger and acquisition. The pre-merger and acquisition performance was the average of years -3 to -1 relative to the announcement, whereas the post-merger and acquisition performance was the average of years +1 to +3 relative to the completion of the merger and acquisition (Rao-Nicholson, Salaber and Cao, 2016; Zollo and Meier, 2008; Soegiharto, 2010). In measuring resource complementarity, we used the weighted average cost of capital (WACC), where categories of capital are individually and proportionally weighted. Therefore, the measurement of resource complementarity can also be called the weighted average resource complementarity (WARC).

WARC is a weighted sum of the following four variables: research and development intensity, capital intensity, administrative intensity, and interest intensity (Harrison et al., 1991, 2001). The calculation involved the sum of multiplying each resource allocation's intensity with its proportional weight. It was assumed that each resource intensity made the same contribution to complementarity, meaning that no one intensity would be more important than another. Thus, the proportional weight of each intensity would be the

same, namely 25%. From the above explanation, the following equation is obtained:

$$WARC = (0.25 \times R_{CI}) + (0.25 \times R_{AI}) + (0.25 \times R_{RDI}) + (0.25 \times R_{II})$$

The variables R_{CI}, R_{AI}, R_{RDI} and R_{II} are the capital intensity, administrative intensity, research and development intensity, and interest intensity ratios, respectively. Each intensity ratio demonstrates how well a corporation manages its resources or assets. As a result, the lower the ratio's number, the more effective the organization is at managing its resources.

The WARC value came from the weighted average of CI, AI, RDI, and II ratios, so a smaller WARC value also indicated a higher degree of company effectiveness in utilizing its resources. Effective companies demonstrated that their M&A partners had high resource complementarity. Therefore, the smaller the WARC value, the higher the resource complementarity between the M&A partners. To facilitate testing of the moderation and the interpretation of the results, the WARC value was reversed so that the highest WARC value became the lowest and vice versa. It results in the interpretation changing to the higher the WARC value, the larger the complementarity of the companies' resources.

In the regression analysis, we employed two control variables: the industry in which each company operates (Global Industry Classification Standard or GICS code) and the country in which each company runs. It was a dummy variable that took a value of 1 if the partner conducted merger and acquisition transactions in the same industry (or country) and a value of 0 if otherwise. These control variables were used to isolate the contribution of industry and country variations in the effect of resource complementarity on post-merger and acquisition performance. For example, if a country faced a crisis, firms operating in that country would be impacted as well. Because the country was in crisis, the bad performance was impacted by the country variable. As a result, by including a control variable, it was expected that we could see the independent variable's effect on the dependent variable without it being affected by the two variables. The authors used this as one of the approaches to overcome the omitted variable bias.

Classical Assumption Test

Before processing the data, it was necessary to conduct a classical assumption test consisting of a heteroscedasticity test, a model specification test, and a multicollinearity test. The heteroscedasticity test in this study used the Breusch-Pagan / Cook-Weisberg method. It was accepted that there would be no symptoms of heteroscedasticity if the value of p was indicated by Prob > chi2 > 0.05. Then, the model specifications were tested using the Ramsey Regression Equation Specification Error Test (RESET) method. Finally, to detect multicollinearity, the tolerance values and the value of variance inflation factor (VIF) were examined, where, according to (Hair, 2006), variables are said to have multicollinearity problems if the tolerance value is < 0.1 or the VIF value is greater than 10.

From the results of the heteroscedasticity test, the Prob > chi2 value for model 1 ($WARC_1$) = 0.358, Prob > chi2 for model 2 ($WARC_2$) = 0.3815, Prob > chi2 for model 3 ($WARC_3$) = 0.441, and Prob > chi2 for model 4 ($WARC_4$) = 0.0633. Out of all the models, it was evident that the value of Prob > chi2 was more than 0.05. Therefore, it can be said that in this study, there were no symptoms of heteroscedasticity. In the multicollineari-

ty test, all four models obtained a VIF value of less than 10 or a tolerance value (1/VIF) of more than 0.01. This meant that there were no strong multicollinearity variables. So, based on the above test results, it can be stated that this study passed the classical assumption test.

Population and Sample

This study's population was public companies registered in five countries—namely Indonesia, Malaysia, Singapore, the Philippines, and Thailand—which carried out M&A during the period from 2010 to 2014. The sampling technique used for this study was purposive sampling. The criteria used were as follows: 1) Only merger and acquisition transactions that resulted in a controlling majority, which would be 50% or more, were included in the sample. 2) The companies were drawn from all industries except the financial industry. 3) If the bidder and target companies made transactions more than once in the five years (2010 to 2014), only the last transaction was selected. The sample totaled 97 companies. Because it was collected from three years before and after the period from 2010 to 2014, the data collected actually spanned the years 2007 to 2017, resulting in a total of 1067 observations. However, due to data availability, each model contained 1036 observations and 94 firms in the end.

Data on M&A' performance during the 2007 to 2017 period were collected using the Bloomberg database. Data from financial reports and the amount of company experience were obtained through Bloomberg, OSIRIS, and from each company's annual reports and websites. The method used for linear regression analysis was ordinary least squares (OLS). The parameters were estimated using statistics tools STATA.

Due to data availability, the research and development intensity (RDI) variable was excluded from this study. Previous studies also experienced the same problem (Ritterfeldt and Piehl Trygg, 2008; Gunnarsdóttir, 2014). To overcome this, we developed four alternative models that could be used, such as removing the RDI variable or replacing it with other variables, i.e., cost of goods sold intensity (CGSI) or property, plant, & equipment intensity (PPEI). Therefore, the models could replace the initial model. The models are more concisely presented in the following equations:

$$WARC_1 = (0.33R_{CI}) + (0.33R_{AI}) + (0.33R_{II}) \quad (Model\ 1)$$
$$WARC_2 = (0.25R_{CI}) + (0.25R_{AI}) + (0.25R_{CGSI}) + (0.25R_{II}) \quad (Model\ 2)$$
$$WARC_3 = (0.25R_{CI}) + (0.25R_{AI}) + (0.25R_{PPEI}) + (0.25R_{II}) \quad (Model\ 3)$$
$$WARC_4 = (0.2R_{CI}) + (0.2R_{AI}) + (0.2R_{PPEI}) + (0.2R_{GGSI}) + (0.2R_{II}) \quad (Model\ 4)$$

In the first model ($WARC_1$), we eliminated the RDI variable from the WARC equation, but retained the capital, administrative, and interest intensity. As a result of this elimination, the weight of each intensity increased from 0.25 to 0.3. In the next model ($WARC_2$ and $WARC_3$) , we replaced the RDI variable with another variable, either the cost of goods sold intensity (CGSI) or the intensity of property, plant, & equipment (PPEI). Finally, the fourth model substituted two intensities, CGSI and PPEI, for the RDI. As a result, $WARC_4$ was made up of five intensity variables, with each weight decreasing to 0.2.

Results

Hypotheses testing was performed using a linear regression analysis and followed the suggestions from Baron and Kenny (1986), for testing the moderation hypothesis. The results of the testing of the first hypothesis are available in Table 2 below. According to the regression test results, the WARC variable obtained on the four models was positive and

significant at a 95% confidence level. That is, the WARC variable had a positive influence on ΔROA. It was shown that the higher the WARC value, the larger the complementar-

Table 2. Results of Hypothesis Testing

ΔROA	**Coefficients**			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Constants (β_0)	0.383	1.996	0.735	2.198
	(1.806)	(2.241)	(1.926)	(2.359)
WARC (β_1)	5.036**	7.138**	5.927**	8.360**
	(2.190)	(2.913)	(2.607)	(3.520)
Country (β_2)	3.560*	3.556*	3.528*	3.557*
	(1.809)	(1.799)	(1.809)	(1.804)
GICS (β_3)	0.547	0.394	0.720	0.586
	(1.726)	(1.724)	(1.726)	(1.722)
$AdjR^2$	0.050	0.057	0.049	0.053

Note: ** P<0.1, **P<0.05, ***P<0.01*
Numbers in the parantheses ( ) denote the standard error
Each model contains 1036 observations and 94 firms
Regression model $\beta_0 + \beta_1 WARC_i + \beta_2 Country + \beta_3 GICS, (with\ i = 1,2,3,4)$

Table 3. Results of the Hypothesis Moderation Testing

ΔROA	**Coefficients**							
	Model 1		**Model 2**		**Model 3**		**Model 4**	
	Lo-Exp.	**Hi-Exp.**	**Lo-Exp.**	**Hi-Exp.**	**Lo-Exp.**	**Hi-Exp.**	**Lo-Exp.**	**Hi-Exp.**
Constants (β0)	3.176	-2.315	5.850	-1.784	3.414	-2.510	5.782	-1.712
	(2.441)	(1.773)	(3.574)	(2.122)	(2.578)	(1.974)	(3.729)	(2.450)
WARC (β1)	12.417***	-0.955	15.416***	-0.022	13.522***	-1.352	17.230***	0.104
	(4.382)	(2.170)	(6.153)	(2.571)	(5.311)	(2.649)	(7.524)	(3.400)
Country (β2)	3.386*	3.507	2.918	3.702*	3.236	3.472	2.950	3.720*
	(2.699)	(2.321)	(2.744)	(2.445)	(2.743)	(2.379)	(2.792)	(2.531)
GICS (β3)	2.723	-0.124	2.269	-0.237	3.244	-0.126	2.838	-0.247
	(2.860)	(1.819)	(2.903)	(1.873)	(2.954)	(1.836)	(3.002)	(1.901)
AdjR2	0.271	0.064	0.248	0.062	0.250	0.065	0.224	0.062

Note : ** P<0.1, **P<0.05, ***P<0.01*
Numbers in the parantheses ( ) denote the standard error
Each model contains 1036 observations and 94 firms
Lo-Exp if the number of M&A transactions is smaller than the median of the population's transactions
Hi-Exp if the number of M&A transactions is greater than or equal to the median of the population's transactions
Regression model:

$$\Delta ROA = \beta_0 + \beta_1 WARC_i + \beta_2 Country + \beta_3 GICS, \exp = 0\ for\ low - \exp(with\ i = 1,2,3,4)$$
$$\Delta ROA = \beta_0 + \beta_1 WARC_i + \beta_2 Country + \beta_3 GICS, \exp = 1\ for\ hi - \exp(with\ i = 1,2,3,4)$$

ity of company resources. Hence, it could be said that resource complementarity had a positive and significant effect on the changes in companies' performance after their M&A. That is, the higher the level of complementarity between the bidder's company resources and the target's company resources, the higher the combined company performance after the merger and acquisition. Thus, it could be said that the result of the testing shows that the first hypothesis in this study was supported.

We employed experience as a moderating variable to test the moderating effect on the relationship between resource complementarity and company performance. The company's experience in conducting M&A was divided into two categories, namely a lot of and little experience. Therefore, the experience variable was a dummy variable that took a value of 1 if the company conducted merger and acquisition transactions more than or equal to the median and a value of 0 if otherwise.

There were several arguments the author used for the median splits, namely the non-statistical argument and the statistical argument (Iacobucci et al., 2015). The first statistical argument was because median splits are popular and appear in reputable papers, so they should be seriously regarded as data analysis choices. Secondly, median splits are useful for the expression of categorical latent constructs. Thirdly, median splits are more parsimonious. While for the statistical argument it was because median splits are "conservative" and the loss of power from median splits would be minimal and easily offset. Furthermore, the authors would liked to see a partial regression of the two groups for less experience and a lot of experience. When using a split sample, the number of observations would be roughly 500, which was adequate to run the regression model.

According to Table 3, the WARC variable had a considerable positive impact on ROA in companies with little experience. In other words, the effect of resource complementarity on post- merger and acquisition performance was more significant for companies with little experience. Meanwhile, in companies with a lot of experience, the WARC variable had little effect on the ROA. In other words, resource complementarity had no noticeable impact on post-merger and acquisition performance. This discovery contradicts the previously developed hypothesis. As a consequence, the data testing findings show that the second hypothesis was not supported.

Discussion

According to the results of the hypotheses testing, it is apparent that the results of the four models developed ($WARC_1$, $WARC_2$, $WARC_3$ and $WARC_4$) show equivalent results. It indicates that WARC measurements have consistent results despite the different intensity measurements. This study's findings indicate that resource complementarity, which is defined as how different the resources are between bidder companies and target companies, or how mutually supportive they are, positively affects the performance of post-merger and acquisition companies. It is consistent with a previous study conducted by Harrison et al. (1991), which stated that resource allocation differences are more likely to create unique and closed synergies to improve post-merger and acquisition performance.

The findings of this study also confirm the resource-based view (RBV). This view

states that a company's advantage depends on the resources that the company has (Barney, 1991). Thus, according to the RBV, the company will continue to renew and improve its resources to gain an advantage over its competitors. Therefore when they implement an M&A, they will choose partners who have complementary resources to theirs.

High resource complementarity shows that the bidder and target companies' resources are different but can complement each other well. Complementary resources can help bidder companies overcome weaknesses or shortcomings in the business resources they already have (Harrison et al., 2001). Complementary differences in resources can also be a means to exchange knowledge. Complementary business combinations can have a great potential to learn from each other (Hoskisson and Busenitz, 2001).

According to resource complementarity, two companies will benefit from differences in their resources by eliminating similar or redundant resources (Hitt, Harrison and Ireland, 2001). Also, integrating two different but complementary resources and capabilities will enable companies to develop and benefit from any new opportunities that are available (Harrison et al., 2001). For example, a joint company could carry out product-bundling at a lower price, or produce a new product that it could not make before.

Furthermore, based on the testing of the second hypothesis regarding the role of merger and acquisition experience, it was found that in companies with little experience, the effect of resource complementarity on the performance of the post-merger and acquisition companies became stronger. These results indicate that learning and knowledge are more related to the quality than the quantity of a company's experience (Hayward, 2002). So, despite the company having little merger and acquisition experience, if the latest acquisition has similarities to an acquisition in the past (e.g., industry, a product offered, geographical reach), that experience can be more useful (Finkelstein and Haleblian, 2002).

Companies with little merger and acquisition experience will be able to store the knowledge and learning obtained from previous merger and acquisition transactions. Such learning will also not be easily forgotten and considered something very valuable (Huber, 1991). Furthermore, Huber (1991) explains that companies with little experience will not be imprisoned by learning. Therefore, companies with little experience only have a small chance to experience generalizations, decision-making errors, or incorrectly implement these decisions (Haleblian and Finkelstein, 1999). Therefore, it can be assumed, the rejection of the second hypothesis is explained by the premise that stated the firms which lack experience in M&A do not encounter the typical problems and conflicts that occur when two firms merge. Consequently, further research is needed to ascertain the role of other variables that might explain why less experience of M&A supports the effect of resource complementarity on firm performance.

The four models' moderation test analysis results also show that resource complementarity does not affect companies' performance after M&A in more experienced companies. This result also shows that experience is a necessary but not a sufficient condition to be able to improve the performance of companies after a merger and acquisition. This finding is in line with a previous study conducted by Hayward (2002), which proved that acquisition experience is not enough to

produce superior performance. The accumulated experience's effect depends on the ability to manage prior performance and will help them resolve some of the conflicting arguments on the role of acquisitions and relevant experiences (Kim and Davis, 2019). Castellaneta and Conti (2016) argued that acquisition experience mostly teaches companies to choose targets rather than restructure them, because causal ambiguity is greater during the restructuring stage than during the selection stage.

According to the transfer effect theory, activities in the past may fail to influence or help, or may even hinder future activities' performance (Cormier and Hagman, 2014). Therefore, considerable experience does not always guarantee the success of the next activity. Companies with a lot of experience are more likely to make several acquisitions hastily. These result in the company not being able to focus on the post-merger and acquisition integration process. It is acknowledged that the integration and realization of synergy require special attention from managers. This finding is consistent with the study by Hayward (2002), which found that bidder companies cannot achieve good performance immediately after making fast acquisitions.

Kolev and Haleblian (2018) also state that the time between subsequent acquisitions is essential to the outcomes' performance. According to Chao (2017), there are reasons why the acquisition experience cannot lead to better performance. A very short time causes time compression diseconomies, leading to insufficient learning and experience accumulation from the prior acquisition. On the other hand, a very long time inhibits the replication of routines to refine routines so they become more efficient and effective in the performance aspect (Feldman and Pentland, 2003).

Companies with a great deal of experience do have more knowledge and learning than companies with little experience. However, many of these lessons can be forgotten and become a trap for the company (Huber, 1991). The more learning, the more knowledge gained, but companies can have even more difficulty in applying the increased knowledge to the business action (Prayogi, 2019). It can then cause companies to implement decisions incorrectly (Haleblian and Finkelstein, 1999).

According to Nystrom and Starbuck (1984), top managers cannot be expected to go beyond their experience because they have become "captives" of that experience. In other words, top managers will always be trapped in the shadow of their experience, even though the experience is irrelevant to the current events. Besides, managers may overestimate and generalize their experience (Zahra and Chaples, 1993). They will continue to respect and apply certain beliefs even when they face problems or new competitors that are irrelevant. Also, dogmatic beliefs, which come from experience, will limit the reach of managers' attention and prevent them from seeing emerging trends (Zahra and Chaples, 1993). So, based on the explanation above, it can be concluded that a lot of experience can also cause several problems, so it cannot increase the effect of resource complementarity on the performance of post-merger and acquisition companies.

ASEAN's emergence has progressively integrated the region's countries. For example, Vietnam's ASEAN membership has benefited its bilateral commerce within the region (Anwar and Nguyen, 2011). Since then, the ASEAN area has seen a tremendous expansion in foreign direct investment (Kindra, Strizzi and Mansor, 1998), with the total

transaction value reaching a peak of $135 billion in 2007 (Metwalli and Tang, 2009). According to Metwalli and Tang (2002), intra-regional mergers will continue to dominate the Southeast Asian M&A market in the foreseeable future, particularly with the adoption of ASEAN trade agreements and the prospect of a currency union (Huang and Guo, 2006).

Merger and acquisition transactions in the ASEAN area are not new, and the deal volume is steadily increasing. According to McMahon (2016), deal volumes in the region's M&A market have typically stayed stable. Since 2011, there has been a continuous increase, with a slight increase in 2014. Meanwhile, since 2013, the region's transaction prices have been on a decreasing trend. In 2015, there was a 13% fall in deal volume and a 14% decrease in value from 2014, with 388 agreements totaling US$47.6 billion. McMahon (2016) also reported that Singapore is the region's biggest target jurisdiction, with 647 agreements worth US$125.9 billion completed between 2011 and Q3 2016. During the same timeframe, Indonesia recorded 395 agreements of US$38.4 billion, including 37 deals for US$4.9 billion in Q1–Q3 2016. Thailand surpassed Singapore as the leading target jurisdiction for intraregional agreements in Southeast Asia, generating US$9.9 billion in transactions from Q1 to Q3 2016.

Conclusion

The first finding of this study proves that resource complementarity has a significant favorable effect on the performance of post-merger and acquisition companies. This finding confirmed the resource-based view (Barney, 1991) which stated that companies will select partners who have resources that complement theirs. These complementary resources will assist the bidding firms by expanding their commercial possibilities and mitigating risks (Junge, 2014). Some previous studies from Harrison et al. (1991), Hitt, Ireland and Harrison (2001), Ritterfeldt and Piehl Trygg (2008), and Gunnarsdóttir (2014) also found that differences in the resource allocation patterns between merger and acquisition partners can provide valuable and unique synergies that improve the performance of post-merger and acquisition companies.

The second finding from this study shows that M&A experience does not support the hypothesis. It is noteworthy because it shows facts that contradict the hypothesis. The study results found that in companies with little experience, the effect of resource complementarity on the performance of companies after M&A became stronger. It shows that learning and knowledge are related more to the quality than the quantity of a company's experience (Hayward, 2002). Besides, companies with little experience only have a small chance to experience generalizations, decision-making errors, or incorrectly implement those decisions (Haleblian and Finkelstein, 1999).

Meanwhile, on the other hand, in companies with a great deal of experience, resource complementarity does not affect their performance after a merger and acquisition. This can be understood because activities in the past may fail to influence or help, or they may even hinder, the performance of future activities (Cormier and Hagman, 2014). Lessons learned from experience can also be forgotten and become a trap for the company (Huber, 1991). Therefore, considerable experience cannot increase the effect of resource complementarity on the performance of post-M&A companies.

Limitations and Recommendations

This study has made every effort to provide a well-designed piece of research. However, this research has some inherent limitations that need to be considered and improved upon in the future, to improve the quality of the research. The limitations and suggestions for further research are as follows: 1) This research could not ascertain the exact amount of company experience even though it used several data sources; future research could use other, more complete database sources. 2) This research only used a time lag of three years after the M&A, so transactions were most likely to still be in the process of integration and were not yet able to produce good performance; future studies could add longer time lags for measuring the performance post-merger and acquisition, for example, five years. We encourage future studies to incorporate other variables that might explain why a lack of M&A experience endorses the effect of resource complementarity on company performance. Furthermore, future research is expected to observe the country differences as it has different settings related to regulations, industrial averages, etc. Future research also should situate M&A not only in a broad institutional environment, but also in the strategic and organizational settings of merging businesses (Junni and Teerikangas, 2019), which are always in a state of evolution and flux.

Implications

This study makes a theoretical contribution to research into mergers and acquisitions, namely the use of a new measurement of resource complementarity, known as the weighted average resource complementarity (WARC). It is hoped that this measurement can be an alternative measure of resource complementarity for future studies. This research has practical implications for decision-makers. To conduct M&A, companies should choose targets that own complementary resources and should not rely completely on their previous experience, since it is not always applicable to current circumstances. Moreover, the acquisition experience will have a greater learning impact when consolidating feedback mechanisms to link past performances. As a result, companies must be open and responsive to changes in their environment.

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