Analysis of the Effect of Mergers and Acquisitions on Financial Performance and Abnormal Return for The Public Companies

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Abstract. This study analyzes whether there are differences in financial performance and abnormal returns before with after mergers and acquisitions (M&A) were carried out. In this study, financial performance is proxied by financial that includes Current Ratio, TATO (Total Asset Turnover), DER (Debt to Equity Ratio), DAR (Debt to Asset Ratio), NPM (Net Profit Margin), ROE (Return on Equity), and ROA (Return on Asset). The financial ratios observation period is one year before and three years in a row after mergers and acquisitions. We study 123 M&A deals initiated by Indonesian public companies from 2006 to 2016 and compare the effects between three industrial group sectors, i.e. primary sectors, industry & manufacturing sectors, and non-financial service sectors. We further divide all sample enterprises into two different types of M&A, namely conglomerate M&A and non-conglomerate M&A. The statistical test used is the Paired Sample t-Test and Wilcoxon Signed Rank Test. This study shows that in primary sectors company, only TATO show significant differences in the comparison before and after M&A. In the other two sectors, there are no significant differences in all ratios. The study also shows that there is no consistent significant result in conglomerate and non-conglomerate M&A. This study also demonstrates that there is a significant difference in abnormal return on primary and industry & manufacturing group sectors but not on non-financial sectors.

Keywords: Merger and Acquisition, Abnormal Return, Conglomerate M&A

1 Introduction

Mergers & Acquisitions (the following discussion called M&A) is currently common for business actors. Companies carry out M&A to achieve strategic goals and financial goals. Attempts to accomplish these two goals result in the merger of two or more organizations that are frequently different in company character, culture, and value systems. Company competition in the global realm also requires companies to increase their competitiveness both at home and abroad.

On the other hand, although the purpose of M&A is to improve company performance, not all companies that conduct M&A experience this increase. In order to win new markets with the available resources, company managers must manage the risks of their new investments to protect shareholder capital [1]. There is empirical evidence that M&A causes differences in financial performance [2], but there are also those that do not result in a significant effect on the financial performance of the acquiring company. Several studies have also shown that

ICE-BEES 2021, July 27-28, Semarang, Indonesia
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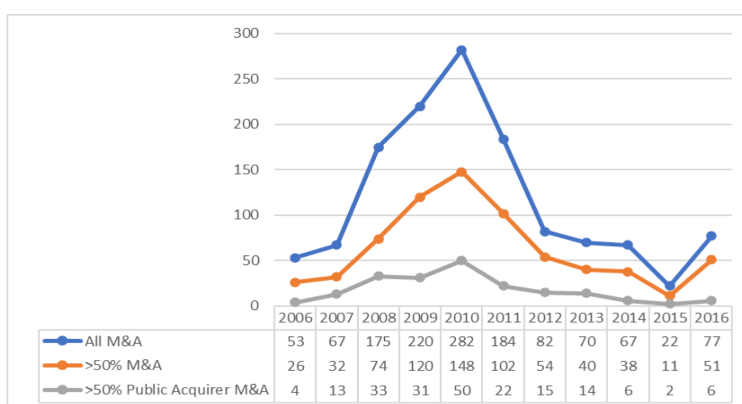
DOI 10.4108/eai.27-7-2021.2316828

M&A can provide significant differences in some financial ratios and not in other ratios [3][4][5][6][7][8][9][10][11][12][13][14][15]. Specifically on the object of sectoral companies listed on the IDX, research has been carried out on the impact of M&A on the financial performance of the non-financial sector [16][17][11], manufacturing sector [18], and service sector [14].

In line with the current M&A trend, companies are not only targeting other companies in the same sector to become M&A targets. The company began to spread its wings by targeting companies in different sectors to become M&A targets, resulting in conglomerate M&A. Several studies have been carried out, including by Bhattacharyya and Nain [19] and Yadong et al. [20], who found that horizontal mergers provide better purchasing power and influence on financial performance for suppliers. Fan and Goyal [21] found that vertical mergers have a positive effect on firm wealth, and their performance is not much different from horizontal mergers but better than conglomerate mergers. Then Chen et al. [22] found that vertical mergers brought the company to a decrease in net income. Elgers and Clark [23] found that conglomerate mergers increase shareholder wealth of the acquirer and target companies compared to non-conglomerate mergers.

Another point of view in viewing the M&A results is through the market's response to the M&A announcement. This market response can be different, can be positive or negative, depending on the investor's perception of the company's ability to generate added value after the M&A occurs. Several previous studies have been conducted to see the effect of M&A as reflected in the movement of stock values around the M&A announcement. Research conducted by Shah and Arora [24] dan Ahmed et al. [25] shows that M&A has a value-adding effect on both the acquirer and the acquiree with stock price movements around the time of the M&A. Research conducted in Indonesia itself shows that there are differences in the abnormal return of the acquiring company's shares around the M&A announcement [26] and there are those that do not show differences in abnormal returns [27][9][28]. The approach by using stock price reactions in measuring the performance of companies conducting M&A is based on the efficient market theory, which assumes that investors in the stock market have access to information related to M&A so that they can make an objective and optimal evaluation [29].



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
All M&A	53	67	175	220	282	184	82	70	67	22	77
>50% M&A	26	32	74	120	148	102	54	40	38	11	51
>50% Public Acquirer M&A	4	13	33	31	50	22	15	14	6	2	6

Fig 1. Trend Chart for the Number of M&A in Indonesia with "Completed" Status for the Period 2006-2016 (Thomson Reuters Eikon)

From the data that the author obtained from Thomson Reuters Eikon, the number of M&A occurrences in the Indonesian region from 2006 to 2016, 1299 M&A events in Indonesia had "completed" status. This status means that the M&A process has been completed after previously it was still in "proposed" and "pending" status. This number reached its highest point in 2010 with 282 incidents and reached its lowest point in 2015 with 22 incidents. Every year there is always M&A, thus making M&A a common thing in the management of a company.

The sectoral classification system used to categorize companies listed at the Indonesia Stock Exchange is the Jakarta Stock Industrial Classification (JASICA). This classification groups the Listed Companies into 9 Sectors and 56 Sub-sectors used in the preparation of sectoral indexes, the presentation of publications related to the Listed Companies, and systems in the capital market. Specifically for the service sector group, the researcher only examined service companies other than the financial sector. Authors distinguish them because there are differences in characteristics between financial sector companies (e.g. banking) and non-financial sector companies.

Table 1. JASICA Structure

Sector	Sector Group
Agriculture	Primary Sector
Mining	
Basic Industry and Chemicals	Industry and Manufacturing
Miscellaneous Industry	
Consumer Goods Industry	
Property, Real Estate, and Building Construction	Service
Infrastructure, Utilities, and Transportation	
Finance	
Trade, Services, and Investment	

Basically M&A is divided into two categories, namely related M&A and unrelated M&A [12]. Related M&A occurs in two companies whose products and or services are still interconnected (eg the paper industry and the packaging industry). This category can be divided into two types: vertically related (merger of upstream and downstream companies) and horizontally related (merger of competitor companies). Meanwhile, unrelated M&A, commonly referred to as conglomerate M&A, occurs in two companies with different business sectors (eg mining companies and financial services companies).

A merger is a legal act of a company or more that merges with another company. Because of this merger, the assets and liabilities of the incorporated Company are transferred to the Company that accepts the merger. The status of the merging Company legal entity ends due to the law [30]. In simple terms, an acquisition can be defined as the takeover of a company by another company. The target company's name remains, but this takeover makes the acquired company the property of the acquiring company [12]. An acquisition occurs when another company owns more than 50% of a company's shares. It gives a company the power to regulate another company and legally owns the rights to the other company's profits.

Financial reports play an essential role in determining policy in a company The effect of an M&A can be seen from the difference of company's financial statements each year. The analysis of these financial statements is carried out by looking at financial ratios. Financial

ratio analysis is a standard way of measuring a company's performance level [31]. Utilization of information from financial reports can improve a company's performance properly [32]. This is the background of this research, namely, to see whether after three yearsof doing M&A, the company's financial performance is getting better or vice versa. If the company's financial performance worsens, the M & A strategy is considered less effective and efficient.

2 Method

In understanding the effect of M&A, a sample of companies that carried out M&A in the 2006-2016 period was conducted in Indonesian market. The sample of companies and financial data are originated from the Eikon Thomson Reuters database. The criteria we use to select the sample are the following:

a) M&A by public companies with “competed” status,
b) Takeover with minimum of 50.01%,
c) Sample taken from January 1, 2006, to December 31, 2016,
d) Exclude the financial sector companies,
e) Complete financial data from one year before to three years after M&A.

Those criteria result 123 events of M&A to examine differences in financial performance, involving 30 M&A in the primary sector, 31 M&A in the industry & manufacturing sector, and 62 M&A in the non-financial services sector. Meanwhile, to examine differences in abnormal returns, 149 incident samples were used consisting of 41 stock price data for the primary sector, 35 stock price data for the industry & manufacturing sector, and 73 stock price data for the non-financial services sector. Meanwhile, to examine differences in abnormal returns, 149 incident samples were used consisting of 41 stock price data for the primary sector, 35 stock price data for the industry & manufacturing sector, and 73 stock price data for the non-financial services sector.

The selected sample is further divided into two categories based on the type of M&A carried out. The authors divide into categories of conglomerate M&A and non-conglomerate M&A based on the similarity of industrial sector groups between the acquiring firm and the target firm. Acquisition and target companies that have the same industrial sector group are included in the non-conglomerate M&A category. On the other hand, the acquiring company, whose industrial sector group is different from the target company, is included in the conglomerate M&A category.

The research data will be analyzed using IBM SPSS Statistics software. Before testing the hypothesis, the data will be analyzed by means of data normality test and descriptive statistical analysis. The normality test is carried out to ensure that the data is normally distributed. The test tool used is the Kolmogorov-Smirnov Test. The alpha value determined in determining normality is $\alpha = 5\%$ (0.05). So, the data will be categorized as normally distributed if the significance value is> 0.05. Comparative statistical analysis was used for hypothesis testing. If the data is proven to be normally distributed, the comparative analysis used is Paired Sample T-Test. However, if the data is proven not to be normally distributed, non-parametric statistical analysis will be used, namely the Wilcoxon Signed Rank Test for the number of samples above 50 and Shapiro Wilk for the number of samples below 50, both with a significance level of 0.05 or 5%.

Researchers use several ratios in assessing the company's financial performance. These ratios are:

2.1 Liquidity Parameters:

I. Current ratio

$$CR = \frac{Current\ Asset}{Current\ Liabilities}$$

2.2 Asset Turnover Ratios:

II. TATO (Total Asset Turnover)

$$Total\ asset\ turnover = \frac{Net\ sales\ revenue}{Average\ total\ asset}$$

2.2 Solvency Ratios

III. DER (Debt to Equity Ratio)

$$Debt\ to\ Equity\ Ratio = \frac{Total\ liabilities}{Total\ Stockholders'Equity}$$

IV. DAR (Debt to Asset Ratio)

$$Debt\ to\ Equity\ Ratio = \frac{Total\ liabilities}{Average\ Total\ Assets}$$

2.3 Profitability Ratios

V. NPM (Net Profit Margin)

$$Net\ profit\ margin = \frac{Net\ Income}{Net\ Sales\ Revenue}$$

VI. ROE (Return on Equity)

$$Return\ on\ equity = \frac{Net\ Income}{Average\ Total\ Stockholders'Equity}$$

VII. ROA (Return on Asset)

$$Return\ on\ assets = \frac{Net\ Income}{Average\ Total\ Assets}$$

When a planned M&A occurs, the market will usually react. Changes in stock prices are one form of market reaction. Changes in share prices will of course result in changes in prosperity for shareholders. How big the change in prosperity is, that is the abnormal return received by shareholders. In calculating the amount of abnormal return, the researcher uses a market adjusted model. To calculate abnormal returns, namely by going through several stages as follows:

a) Calculating realized return (R_{it}) from the stock price (P)

$$R_{it} = \frac{P_{i\,t} - P_{i\,t-1}}{P_{i\,t-1}}$$

b) Calculating market return (R_m) using market adjusted model

$$E(Ri,t) = Rm,t$$

$$R_{m,t} = \frac{IHSG_t - IHSG_{\,t-1}}{IHSG_{\,t-1}}$$

c) Calculating abnormal return (AR) and average abnormal return (AAR)

$$AR = Ri,t - E(Ri,t)$$

$$AAR_t = \frac{\sum_{t-1}^{k} AR_{it}}{K}$$

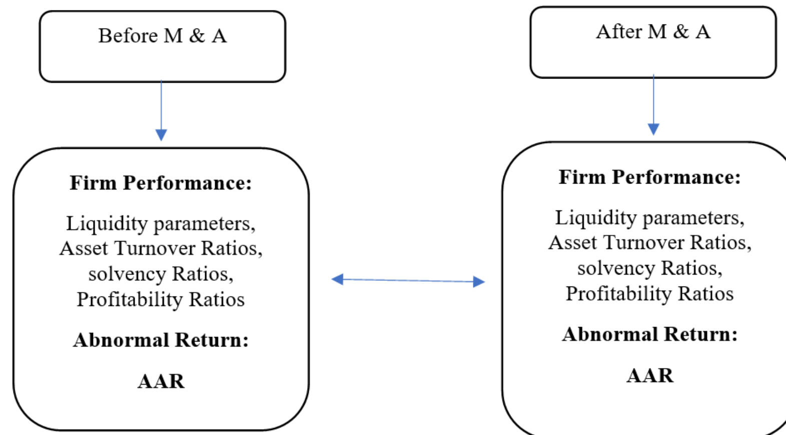


Fig 2. Conceptual framework

3 Results and Discussion

There are 123 companies chosen to be the sample, consisting of 30 primary sector companies, 31 industry & manufacturing companies, and 62 non-financial service companies. For the 123 companies, we analized all the seven variables mentioned above. Average of these variables (one year before to one year after one year after M&A, one year before to two years after M&A, and one year before to three years after M&A) is compared to examine the differences of each variable, before and after M&A. Figure 3 to Figure 5 show the trend for the mean of financial ratios on each sector, and Figure 6 and Figure 7 show the same thing by the type of M&A (conglomerate and non-conglomerate). The green color means that the value increases compared to the value on one year before M&A (T-1) when the red color shows otherwise.

	T-1	T+1	T+2	T+3
CR	2,45	4,27	2,87	3,06
TATO	0,66	0,49	0,50	0,48
DER	3,04	1,36	0,88	2,88
DAR	0,58	0,55	0,58	0,53
NPM	-0,01	-0,32	-1,53	0,19
ROE	0,20	0,08	-0,05	0,07
ROA	0,08	0,04	0,04	0,06

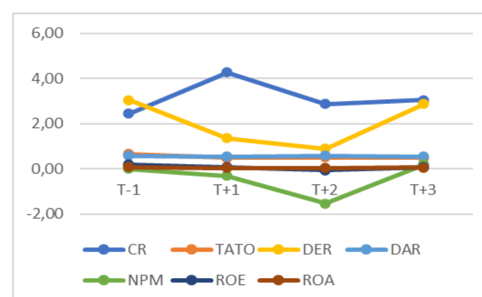


Fig 3. Trend Chart for the Mean of Financial Ratios on Primary Sector

	T-1	T+1	T+2	T+3
CR	2,09	1,90	1,74	2,12
TATO	1,25	1,27	1,22	1,18
DER	2,36	1,76	1,40	1,35
DAR	0,66	0,57	0,54	0,52
NPM	0,09	0,06	0,06	0,06
ROE	0,16	0,14	0,13	0,12
ROA	0,10	0,08	0,07	0,07

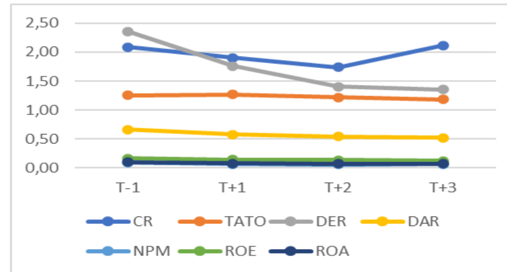


Fig 4. Trend Chart for the Mean of Financial Ratios on Industry & Manufacturing Sector

	T-1	T+1	T+2	T+3
CR	4,38	1,59	1,84	1,80
TATO	0,91	0,86	0,82	0,85
DER	1,56	1,12	1,29	2,04
DAR	2,16	0,79	0,69	0,68
NPM	0,16	0,48	0,19	-0,44
ROE	0,22	0,26	0,06	-0,04
ROA	0,19	0,05	0,08	0,02

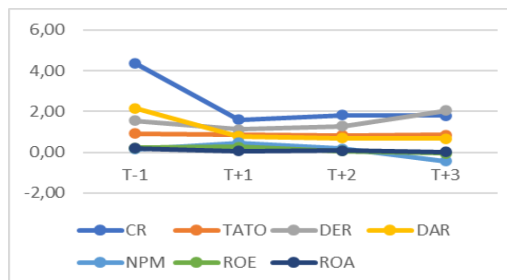


Fig 5. Trend Chart for the Mean of Financial Ratios on Non-Financial Service Sector

	T-1	T+1	T+2	T+3
CR	4,91	2,03	2,14	2,32
TATO	1,11	1,05	1,09	1,10
DER	1,59	1,42	1,91	3,54
DAR	3,40	0,65	0,63	0,56
NPM	0,04	0,08	0,04	0,14
ROE	0,14	0,36	0,14	0,02
ROA	0,33	0,05	0,05	0,11

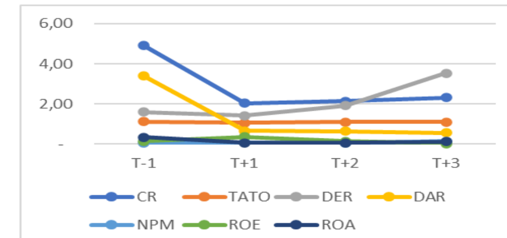


Fig 6. Trend Chart for the Mean of Financial Ratios on Conglomerate M&A

	T-1	T+1	T+2	T+3
CR	2,75	2,43	2,04	2,13
TATO	0,87	0,80	0,75	0,74
DER	2,32	1,31	0,97	1,54
DAR	0,66	0,69	0,62	0,62
NPM	0,12	0,21	- 0,38	- 0,27
ROE	0,22	0,12	0,02	0,03
ROA	0,07	0,06	0,07	0,02

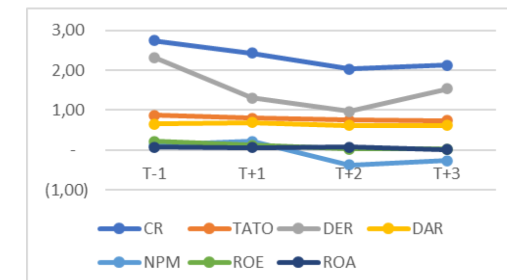


Fig 7. Trend Chart for the Mean of Financial Ratios on Non-conglomerate M&A

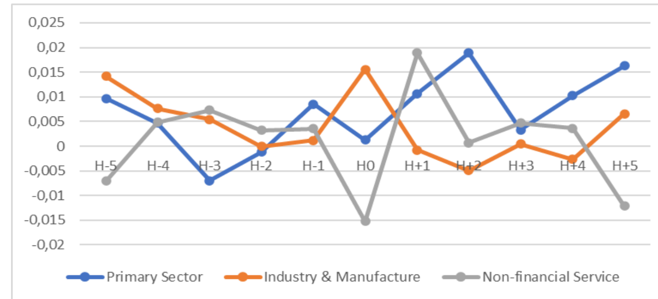


Fig 8. Trend Chart of Abnormal Return Before and After M&A

Table 2. Paired difference result for financial ratios of each sector using *Wilcoxon Signed Rank Test.*

	Primary Sector		Industry & Manufacturing		Non-Financial Service	
	Z	Asymp. Sig. (2-tailed)	Z	Asymp. Sig. (2-tailed)	Z	Asymp. Sig. (2-tailed)
CR_1YR_AFTER - CR_1YR_BEFORE	-,897b	0,370	-1,666b	0,096	-1,798b	0,072
CR_2YR_AFTER - CR_1YR_BEFORE	-,576b	0,565	-2,116b	0,034	-1,310b	0,190
CR_3YR_AFTER - CR_1YR_BEFORE	-1,330b	0,184	-,784b	0,433	-1,241b	0,215
TATO_1YR_AFTER - TATO_1YR_BEFORE	-3,098c	0,002			-,656b	0,512
TATO_2YR_AFTER - TATO_1YR_BEFORE	-3,076c	0,002	*Paired Sample T-test*		-1,081b	0,280
TATO_3YR_AFTER - TATO_1YR_BEFORE	-2,714c	0,007			-1,270b	0,204
DER_1YR_AFTER - DER_1YR_BEFORE	-,076c	0,940	-,549b	0,583	-,693c	0,488
DER_2YR_AFTER - DER_1YR_BEFORE	-,162c	0,871	-,020c	0,984	-,375c	0,708
DER_3YR_AFTER - DER_1YR_BEFORE	-,792b	0,428	-,157c	0,875	-1,528c	0,126
DAR_1YR_AFTER - DAR_1YR_BEFORE			-,784b	0,433	-,614c	0,539
DAR_2YR_AFTER - DAR_1YR_BEFORE	*Paired Sample T-test*		-,510b	0,610	-,186c	0,853
DAR_3YR_AFTER - DAR_1YR_BEFORE			-,784b	0,433	-,715c	0,474
NPM_1YR_AFTER - NPM_1YR_BEFORE	-,411c	0,681	-1,450b	0,147	-,483c	0,629
NPM_2YR_AFTER - NPM_1YR_BEFORE	-,736c	0,462	-,843b	0,399	-,040b	0,968
NPM_3YR_AFTER - NPM_1YR_BEFORE	-,130c	0,897	-1,097b	0,272	-1,216b	0,224
ROE_1YR_AFTER - ROE_1YR_BEFORE	-1,492c	0,136	-,686b	0,493	-,298b	0,765

ROE_2YR_AFTER - ROE_1YR_BEFORE	-2,033c	0,042	-,529b	0,597	-1,002b	0,316
ROE_3YR_AFTER - ROE_1YR_BEFORE	-2,055c	0,040	-1,411b	0,158	-1,466b	0,143
ROA_1YR_AFTER - ROA_1YR_BEFORE	-1,236c	0,216	-,510b	0,610	-1,059b	0,290
ROA_2YR_AFTER - ROA_1YR_BEFORE	-2,036c	0,042	-,862b	0,389	-,533b	0,594
ROA_3YR_AFTER - ROA_1YR_BEFORE	-1,231c	0,218	-,999b	0,318	-1,209b	0,227

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

= sig > 0,05

Table 3. Paired difference result for DAR using *Paired Sample T-Test.*

	t	Sig. (2-tailed)
DAR_1YR_BEFORE - DAR_1YR_AFTER	0,577	0,568
DAR_1YR_BEFORE - DAR_2YR_AFTER	-0,055	0,957
DAR_1YR_BEFORE - DAR_3YR_AFTER	0,749	0,460

Table 4. Paired difference result for DAR using *Paired Sample T-Test.*

	t	Sig. (2-tailed)
TATO_1YR_BEFORE - TATO_1YR_AFTER	-0,200	0,843
TATO_1YR_BEFORE - TATO_2YR_AFTER	0,386	0,702
TATO_1YR_BEFORE - TATO_3YR_AFTER	0,747	0,461

Table 5. Paired difference result for financial ratios of each type of M&A using *Wilcoxon Signed Rank Test*

	Conglomerate M&A		Non-Conglomerate M&A	
	Z	Asymp. Sig. (2-tailed)	Z	Asymp. Sig. (2-tailed)
CR_1YR_AFTER - CR_1YR_BEFORE	-,402b	0,688	-1,696b	0,090
CR_2YR_AFTER - CR_1YR_BEFORE	-,375b	0,707	-1,535b	0,125
CR_3YR_AFTER - CR_1YR_BEFORE	-,322b	0,748	-,313b	0,754
TATO_1YR_AFTER - TATO_1YR_BEFORE	-,572b	0,567	-1,739b	0,082
TATO_2YR_AFTER - TATO_1YR_BEFORE	-,742b	0,458	-2,553b	0,011
TATO_3YR_AFTER - TATO_1YR_BEFORE	-,813b	0,416	-2,736b	0,006
DER_1YR_AFTER - DER_1YR_BEFORE	-,438c	0,662	-,002c	0,998
DER_2YR_AFTER - DER_1YR_BEFORE	-,636c	0,525	-,084b	0,933

DER_3YR_AFTER - DER_1YR_BEFORE	-,992c	0,321	-1,265c	0,206
DAR_1YR_AFTER - DAR_1YR_BEFORE	-,216b	0,829	-,149c	0,881
DAR_2YR_AFTER - DAR_1YR_BEFORE	-,075b	0,940	-,070b	0,945
DAR_3YR_AFTER - DAR_1YR_BEFORE	-,580b	0,562	-,022b	0,982
NPM_1YR_AFTER - NPM_1YR_BEFORE	-,433c	0,665	-,671b	0,502
NPM_2YR_AFTER - NPM_1YR_BEFORE	-,156b	0,876	-,813b	0,416
NPM_3YR_AFTER - NPM_1YR_BEFORE	-,387c	0,699	-2,011b	0,044
ROE_1YR_AFTER - ROE_1YR_BEFORE	-,461b	0,645	-1,344b	0,179
ROE_2YR_AFTER - ROE_1YR_BEFORE	-,458b	0,647	-1,973b	0,048
ROE_3YR_AFTER - ROE_1YR_BEFORE	-1,385b	0,166	-2,441b	0,015
ROA_1YR_AFTER - ROA_1YR_BEFORE	-1,110b	0,267	-1,354b	0,176
ROA_2YR_AFTER - ROA_1YR_BEFORE	-,845b	0,398	-1,524b	0,127
ROA_3YR_AFTER - ROA_1YR_BEFORE	-,562b	0,574	-2,035b	0,042

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

= sig > 0,05

Table 6. Paired difference result for abnormal return using *Paired Sample T-Test.*

		Paired Differences			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Primary Sector	AAR BEFORE - AAR AFTER	-0,0089	0,0069	0,0031	-2,902	4	0,044
Industry & Manufacture	AAR BEFORE - AAR AFTER	0,0060	0,0031	0,0014	4,254	4	0,013
Non-financial Service	AAR BEFORE - AAR AFTER	-0,0037	0,0044	0,0020	-1,890	4	0,132

4 Conclusions

M&A is a strategic move that is planned to improve the accounting-based performance of the firm on all parameters. The results of this study found that in the primary sector companies that conduct M&A, the financial performance represented by the ratio of CR, DER, DAR, NPM, ROE, and ROA does not experience significant changes in the period before and after the M&A Significant changes only occur in the TATO. In companies in the industry & manufacturing sector and the non-financial service sector, all financial ratios studied did not show significant differences before and after the M & M&A period.

Based on the results of the difference test between the financial performance of companies that conduct conglomerate M&A, there are no significant differences in CR, TATO, DER, DAR, NPM, ROE, and ROA in the period before and after the M&A. In companies that conduct non-conglomerate M&A, CR, DER, and DAR are not significantly different. A

significant difference compared to before M&A was seen in TATO and ROE in the second and third years after M&A and then NPM and ROA in the third year after M&A.

There is a significant difference in the abnormal returns of public companies in the primary sector and the industry and manufacturing sector between before and after the M&A announcement. In the non-financial service sector group, there is no difference in abnormal stock returns between before and after the M&A announcement.

Based on the study results, research suggestions were obtained for management/ companies, investors, governments, and further research. Management needs to consider all aspects that can affect the success or failure of the process until after the M&A process is complete. The synergy between two different companies can provide its own challenges that can affect the company's performance. For companies in the primary sector that want to increase assets while optimizing them in generating income, M&A can be an alternative. For companies in the industry and manufacturing sector and non-financial services sector who expect short-term changes in their financial performance, M&A is not the best alternative to do. Although M&A is an important event that has been calculated for the company, it does not necessarily positively affect its financial performance and share price. Investors must be careful and observant in capturing the moment to avoid getting caught up in the euphoria caused by the news in the media. Based on this research, investors can pay more attention to the shares of companies in the primary sector and industry and manufacturing sector groups for post-M&A investment compared to companies from the non-financial service sector group if they expect short-term abnormal returns. Further research can deepen the category of companies that carry out M&A into sectors to industrial sub-sectors. The research coverage area can also be extended to several countries.

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