

STOCK MARKET'S REACTION TO PGN'S STOCK PRICE: CASE OF FORMING HOLDING COMPANY FOR OIL AND GAS SECTOR IN BUMN

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ABSTRACT: *The stock market reaction to Perusahaan Gas Negara (PGN) 's stock price, case of forming holding company for oil and gas sector in Badan Usaha Milik Negara (BUMN) was analyzed by the correlation between the investors' reaction on PGN's stock when the announcement of holding company happened on 25 January 2018. Using the method of event study, daily abnormal return (AR) and daily cumulative abnormal return (CAR) were analyzed under the different event windows (-5, +5, -10, +10, and 15, +15 from the event) for analyzing PGN's stock market reaction during the holding company event. Furthermore, the significant difference in PGN's stock market reaction (CAR) compared during the event windows was statistically analyzed using t-test analysis and the influence between CAR and external factor, for example macroeconomic factor (gold price, gas price, oil price, and exchange rate) was determined through regression analysis. Based on the results of this research, market gave a reaction during the event window. Event had a significant and positive influence on CAR both before and after event. Meanwhile, external (macroeconomic) factors generally had no significant influence on CAR during the event window, except gold and gas price at the event window (-5, +5). It can be concluded that PGN's stock price reaction was caused by the holding event and the external factor did not have any influence on market reaction.*

KEYWORDS: *event study, event window, holding company, market reaction, stock price*

INTRODUCTION

Stock market movement is not only determined by the company's internal factors, but also its external factors. Both are factors commonly used by investors in decision making when investing in stock market. Internal factors include price change, funding, manager change, merger, factory expansion, and so forth. Meanwhile, external factors comprise economic conditions, domestic political turmoil, interest rate change, inflation, gold price, natural gas price, oil price, and exchange rate (Alwi 2003). According to David (2003), fundamental or macro factors influencing stock movement include these following factors: First, economic. Second, social, culture, demography, and environment. Third, political power, government, and law. Fourth, technology. Fifth, competition. Investors capable of predicting or analyzing those macroeconomic factors can obtain profitable investment return as it is obtained from the difference between stock purchase price and stock selling price.

Economic and government factor become the factors that are often observed by the investors, for example in 2017 when government conducted BUMN restructurization by forming a holding company for state-owned (BUMN) companies that are in one or similar sector. This was carried out in order to address competition between BUMN companies and similar private

companies, for instance PT Indonesia Aluminium as the holding company in mining sector, PT Perkebunan Nusantara III in plantation sector, etc. This BUMN restructurization is planned to be conducted in all sectors, including oil and gas sector. The government selected PT Pertamina Persero (Pertamina) as the holding company of PT Perusahaan Gas Negara (PGN) through the Extraordinary General Meeting of Shareholders (RUPS-LB) of PGN taking place on 25 January 2018 (PGN 2017). The PGN's shareholder portion was 56.96% (Pertamina) and 43.04% (public) (PGN 2017).

The decision of forming a holding company has an effect on stock price or stock return. It can be seen from the PGN's stock price movement, compared to the Infrastructure, Utilities, and Transportation Index (infra), which got a positive reaction especially when approaching the announcement day, before, and after the announcement.

PGN's stock return movement before the RUPS-LB event or the selection of Pertamina as the holding company for BUMN's oil and gas sector was generally influenced by macroeconomic variables like oil price, gas price, gold price, and exchange rate. However, macroeconomic variables did not really affect stock return movement. Only gas price which had a positive effect along the PGN's stock return movement. PGN's stock return was seen moving significantly when approaching the RUPS-LB's announcement, both before and after. This indicated that the market reacted when that information was announced by the government, leading to a significant movement in PGN's stock return.

Stock price or stock return movement in stock market is affected by two factors, namely internal factors (announcement of company's financial report and others) and external factors (government's announcement regarding interest rate change, inflation, policies, etc) Alwi (2003). Market reaction or sentiment is usually formed based on those factors, which then forms the stock price to rise or fall drastically. The factor in this case is the policy of forming holding company in oil and gas sector.

The market reaction occurring due to an event usually generates various results between the abnormal returns and the restructurization announcement. The abnormal return can have a positive or negative value. Positive abnormal return occurs when the profit level gained by the investors is higher than expected, vice versa (Husnan 1998). Abnormal return is the difference between the actual return and expected return (Rakinaung 2012).

These following previous researches also had various results between the abnormal returns and announcement. Based on Liliana *et al.* (2016), Priyanka and Parvinder (2014) stated that there was no significant influence between abnormal return and merger and acquisition announcement. In contrast, according to Fotoh and Nko (2017), acquisition had a positive and significant effect on the abnormal return of FTSE index in London Stock Exchange (LSE). Therefore, restructurization policy has not been ascertained to provide benefits or influence on the company's return. The announcement of restructurization and government policy is not ascertained to be accepted by investors as a good news for investing their fund in that company's stock. The investor might has other thought on the announcement which cause the announcement to have no effect on the abnormal return.

Based on the problems described in this research, the research questions of this research were as follows:

1. How is the market reaction emerging on PGN's stock (abnormal return) when there is a holding company announcement?
2. Is there an effect between the market reaction emerging on PGN's stock (abnormal return) and macroeconomic variables when there is a holding company announcement?

LITERATURE REVIEW

Restructurization is often called as downsizing or delayering, involving company's reduction in the aspect of labor, work unit or division, or reduction of position level in the company's organizational structure, this reduction of company scale is required to improve efficiency and effectiveness (David 1997). Company restructuring aims to improve and maximize company performance. For companies that have been go public, company value maximization is characterized by the company's high stock price and the price is in the top position (Bramantyo 2004).

Company restructuring has many forms, among them are merger, acquisition, and holding company formation. All those kinds of company restructuring are utilized according to the problems faced by the company. For example, Indonesian BUMN companies are currently undertaking company restructuring through forming holding companies in order to regulate companies within one sector. This holding company formation has varied ways. It can use merger or acquisition method. It will have an impact on the company itself and its environment, such as other companies and stock market.

Companies generally can acquire external funds through capital market. Capital market is a market for various tradable long-term instruments, both in the form of debt, equity (stock), derivative instrument, and other instruments (Darmadji and Fakhruddin 2006). Investors' activities in Indonesian capital market was still categorized low, in September 2015, the number of active investors was only around 30% of the total number of investor in Indonesian capital market.

Stock is an investment instrument existing in the capital market, issued by companies and accommodated in capital market as an investment object for investors and for companies to obtain funds from the investors. Based on Rudianto (2012), if stock is sold with higher price than its purchase price, then there will be a profit equal to the difference between the selling price and purchase price and conversely if the stock is sold with lower price than its purchase price, then there will be a loss equal to the difference between the selling price and purchase price. Stock price movement is the investors' interest in stock market, if it moves up, then the stock is in demand and if it moves down, the the stock is abandoned. Investors will invest by observing stock price, while stock price will be formed through the company's image (financial report, company's policies, and oher factors) causing the investors to choose that company's stock (Van Horne and Wachowicz 2005).

Investors will deliberately pay attention to the return that will be provided by the company to the investors, if not being careful, the risk of investors experiencing loss will be higher. Stock return is the profit gained from the investors' shareholding upon the investment they made, consisting of dividend and capital gain/loss (Corrado and Jordan 2000). According to Jogiyanto (2000), stock return is categorized into two, namely realized return and expected return. Realized return is a return that has occurred, calculated from the difference between the current

price and the previous price. While expected return is a return that is expected to be gained by the investors in the future. The measurement of return is based on capital gain and dividend.

Stock return, based on the formula, is divided into two, namely dividend and capital gain. Dividend is a return obtained from the company over the income gained by the company which is shared in the form of stock dividend. Meanwhile, capital gain is a return received from the difference between selling price and purchase price (Widoatmojo 1996).

One of the ways to analyze the impact of an event is by using event study method (Bodie *et al.* 2014). The events that can be said positive generally will have an impact of profit increase for the ones involved in those events, leading the investors to come. On the contrary, if the events tend to be negative, the impact they generate is a decreasing profit, so that the investors are discouraged to come (Zaqi 2006).

The momentum or event influencing the stock market generally has an anomaly, such as a stock movement that is different from the usual and can be positive or negative in value. That stock movement is commonly moved by an event or momentum, but macroeconomic variables might have an influence although the movement due to them is usually not spontaneous. Macroeconomic variables which have an influence on stock movement like gold price, oil price, gas price, exchange rate, inflation, and others move slowly because the data presented are generally time series.

In researches concerning event study, the data used were abnormal return. Abnormal return is a measuring criteria used to determine market sentiment on the announcement of an event containing information. It is a difference between actual return and expected return (Rakinaung 2012). Positive abnormal return happens when the profit level gained by the investors is higher than their expectation, vice versa (Husnan 1998). In general, actual return will never be equal to the expected return, owing to the factors affecting market movement.

DATA AND METHODOLOGY

The method used in this research was quantitative method using study case approach. This research made use of time series secondary data in a certain period, with the daily closing price from PGN from March to February 2018. The daily data of Infrastructure, Utilities, and Transportation Index and PGN's stock were obtained from *yahoofinance.com*. Beside stock data, there were macroeconomic variable data, namely oil price, gold price, gas price, and exchange rate of Rupiah against Dollar, obtained from *investing.com*. This analysis utilized SPSS Statistics software. The data processing steps in this research were as follows:

1. Descriptive analysis. In this step, the return data were processed to analyze the conditions of those data, so that the general overview of the stock market reaction on the announcement of holding company for oil and gas sector in BUMN can be obtained.
2. Event Study Determination
 - a. Event Identification

The event was identified and the date of the event that will be observed was determined, as well as its impact on the other components, both before and after the event, or more known as Event Study. Determination of event window was estimated, whether it

would affect long or short so that it can portray the stock price before and after the announcement. The event estimation used was determined as the benchmark for the measurement of return during the event.

b. Selection Criteria Determination. It was performed by limiting the scope of research data used. Selection criteria was performed by limiting the object that will be analyzed, for example the companies used as data in the research.

c. Data Calculation

The return and expected return data were calculated to obtain abnormal return data. Null hypothesis was then determined and lastly the abnormal return was linked to the events. The calculations were as follows:

1. Actual return and market return of infra sector (Imelda 2015):

$$R_t = \ln \frac{P_1}{P_0} \qquad R_{infra} = \ln \frac{infra_1}{infra_0}$$

Information:

R_t : Actual stock return

R_{infra} : Actual infra return

P_1 : First period stock market price

$infra_1$: Last period infra stock price

P_0 : Last period stock market price

$infra_0$: First period infra stock price

2. Expected return with market model (Suryanto 2015):

$$E(R_{it}) = \alpha_{it} + \beta_{it} \cdot R_{mt} + \epsilon_{it}$$

Information:

$E(R_{it})$: Expected return of PGAS stock i in event window i

α_{it} : Intercept for PGAS stock i in event window t

β_{it} : Slope coefficient of PGAS stock i in event window t

R_{mt} : Market index return in event window t

ϵ_{it} : Standard error of PGAS stock i in event window t

3. Abnormal Return (AR) and Cumulative Abnormal Return (CAR) (Schrey 2017):

$$AR_{it} = R_{it} - E(R_{it}) \qquad CAR_{it} = \sum_{t=-i}^{t=i} AR_{it}$$

Information:

AR_{it} : AR of PGAS stock i in event window t

R_{it} : Actual return of PGAS stock i in event window t

$E(R_{it})$: Expected return of PGAS stock i in event window t

CAR_{it} : CAR of PGAS stock i in event window t

$\sum_{t=-n}^{t=+n} AR_{it}$: AR of PGAS stock i in event window t

3. Analysis using t-test. This analysis aimed to compare the relationship between the announcement and CAR by looking at its significance value and average value before and after the announcement.
4. Analysis using linear regression. In this analysis, linear regression was applied on macroeconomic variables to see if there is influence emerging between the announcement and macroeconomic variables.

RESULT AND DISCUSSION

Descriptive Analysis

The movement of the time series data of PGN stock's abnormal return in event window period (-5, +5), (-10, +10), and (-15, +15) from the announcement showed the presence of alternating up and down movement at those event window periods. The number of data in event window periods were 31, but analyzed partially at the time before and after the announcement.

Table 1 Results of descriptive analysis of PGN stock's abnormal return

	H-15	H+15
Mean	0.032	-0.011
Median	0.011	0.013
Standard Deviation	0.071	0.346
Count	15	16
Minimum	-0.060	-0.040
Maximum	0.250	0.090

Source: Calculation result using SPSS Statistics 23

Table 1 presents the results obtained from the test (event window) before and after the announcement. Based on the descriptive analysis on the abnormal return data before the announcement, the maximum value of abnormal return was 0.25 which was on D-6 or 17 January 2018, while the minimum value of abnormal return obtained on D-5 or 18 January 2018 was -0.06. This proved that the increase of abnormal return received by the investors for PGN stock stopped at the maximum value of 0.25 on 6 days before the announcement and the minimum value of -0.06 took place 5 days before the announcement. Meanwhile, for the descriptive analysis of the abnormal return data after the announcement, the maximum value of abnormal return was 0.090 which was on D+4 or 31 January 2018, while the minimum value was -0.040 which was on D+2 or 29 January 2018. This showed that after the announcement, abnormal return experienced a decline but the decline was not up to the minimum value happened before the announcement and on the following days, the stock rose again.

Results of Classical Assumption Test

Based on the results of classical assumption test conducted, namely multicollinearity test and heteroskedasticity test on CAR data which were regressed with macroeconomic variables (gold price, oil price, gas price, and exchange rate), those data had no multicollinearity and heteroskedasticity.

Heteroskedasticity test was conducted through test, namely Glejser test. Glejser test and Koenker test were conducted by regressing the absolute number of the regression model's unstandardized error generated from its independent variables and making hypotheses of no heteroskedasticity for H0 and there is heteroskedasticity for H1. Based on the results obtained, the variables' significance value is exceeded 5 percent which means accepting H0 or there was no residual variance dissimilarity for all observations in the regression model or the data had no heteroskedasticity.

Table 2 Results of heteroskedasticity and multicollinearity test of CAR

Model	Heteroskedasticity Test		Multicollinearity Test	
	t	sig	Collinearity Statistics	
			Tolerance	VIF
Constant	12.684	0.000		
Gold	-1.138	0.256	0.930	1.075
Natgas	1.15	0.251	0.924	1.083
Oil	0.556	0.579	0.926	1.079
Kurs	1.22	0.224	0.935	1.069

In Multicollinearity test was conducted through tests, namely is Variance Inflation Factor (VIF), and Collinearity Index. In VIF test, the result can be said to have no multicollinearity if the VIF value is less than 10, but the results obtained in this research had a high tolerance value which were close to 1. Therefore, the results obtained from the multicollinearity tests showed that the data had no multicollinearity. This showed that the existing data had no linear relationship between those data.

Abnormal Return Analysis (T-Paired Test)

The announcement of PGN's RUPS-LB provided a good information for investors because it was announced that PGN agreed on the takeover of PGN stock by other company (Pertamina). However, according to Abdullah (2002), not all signals from an announcement can be captured by capital market. This research used t-test at the significance level of 10 percent in the event window (-5, +5), (-10, +10), and (-15, +15) from the announcement of PGN's RUPS-LB held on 25 January 2018. The requirement for the data to be significant is the p-value which not exceeding the significance level. Meanwhile, the negative or positive impact was seen from the mean value movement before and after the announcement. Moving up means positive and moving down means negative.

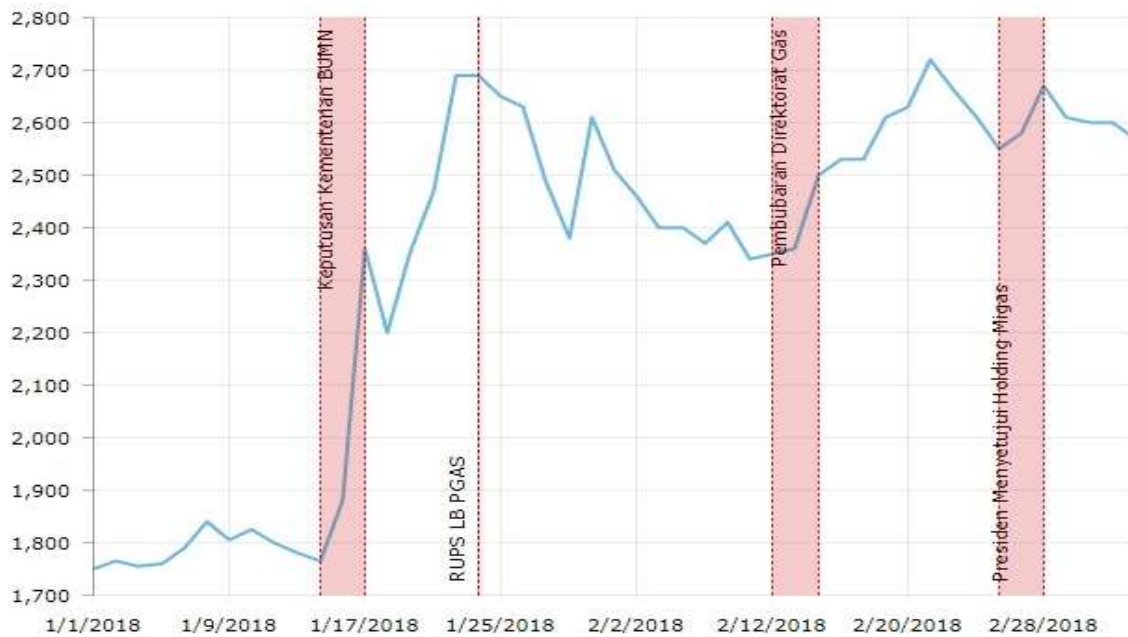
Table 3: T-test analysis of PN stock's CAR in event window (-5, +5), (-10, +10), and (-15,+15)

	H-5	H+5	H-10	H+10	H-15	H+15
Mean	0.063	0.107	0.239	0.418	0.168	0.418
Variance	0.009	0.001	0.035	0.001	0.034	0.001
Observation	5	5	10	10	15	15
P(T<=t) two-tail	0.3472		0.0186		0.0001	

Based on the test results shown in Table 3, there was an influence of RUPS-LB's announcement on the stock price movement because there was a difference of CAR between before and after the announcement, especially in the event window (-10, +10) and (-15, +15) which had a significant and positive influence when the announcement took place. That was because the requirement of p-value not exceeding the significance level of 10 percent was met and the mean value on the CAR data before announcement was lower than after the announcement. It means that there were increases of value from before to after announcement, which were from 0.239 to 0.418 in event window (-10, +10) and from 0.168 to 0.418 in event window (-15, +15). On the contrary, in event window (-5, +5), there was no significant and positive influence as the p-value of those data was higher than the significance level of 10 percent

Such condition happened because the announcement's information was responded quickly by the investors even 15 and 10 days before 25 January 2018. This was proven by PGN's stock price which rose by 480 points or 25.53% from the previous day in event window -10 or on 17 January 2018. The rise of PGN's stock price was not followed by stocks of other oil and gas sector issuers which tended to move flat. For example, the stock of PT Elnusa Tbk (ELSA) which weakened by 4 points or 0.92% to the position of Rp 430, the stock of PT Medco Energi International Tbk (MEDC) which only rose by 10 points or 0.79% to Rp 1.270, and the stock of PT Energi Mega Persada Tbk (ENRG) which did not move in the position of Rp 133. This result was in accordance with the statement that the announcement of RUPS-LB caused a market reaction in (-10, +10) and (-15, +15) before and after the announcement (Sugiyanto 2018). The significant movement was caused by the presence of the decree of Ministry of BUMN concerning the holding in 17 January 2017 and the dissolution of Pertamina's Directorate of Gas on 14 February 2018 (Tamara 2018).

Meanwhile, the result in event window (-5, 5) was insignificant because there were already a lot of information regarding the announcement of PGN's RUPS-LB, so that the investors who already owned PGN stock in event window (-10, +10) and (-15, +15) sold their stock ownership to avoid the decline of gain received due to the spreading information as the RUPS-LB had been announced in 19 December 2017 (PGN 2017). That was undertaken to secure the capital gain that had been owned from the difference between selling price and purchase price (Widoatmojo 1996).



Source: Tamara 2018

Figure 1 PGN's stock price movement during January-February 2018

The significant market reaction between before and after in event window (-10, +10) and (-15, +15) was caused by the announcement delivered by Ministry of BUMN in 17 January 2018, while the decline after that occurred because the information contained in the announcement on 25 January 2018 concerning PGN's RUPS-LB had been known by the market. Therefore, when the latest information from the Ministry of BUMN was shared and the investors had obtained enough gain, they released PGN stock and purchase it back after the announcement of PGN's RUPS-LB. Besides, after PGN's RUPS-LB, there was another event that moved PGN stock back, namely the dissolution of Pertamina's Directorate of Gas in 13 February 2018, investors reacted so that PGN stock rose back (Tamara 2018). The optimum period to purchase PGN stock was on 17 January 2018 [in event window (-10, +10)] and on 13-14 February 2018 [in event window (-15,+15)] as it would provide a positive abnormal return to the investors (Figure 1).

Based on the research conducted by Fotoh and Nko (2017), acquisition had a significant and positive impact on FTSE index in London Stock Exchange (LSE). The establishment of holding had an influence on the abnormal return of FTSE index with event estimation of -100 to -10 and event windows in this research were -5 to +5. Abnormal return from -5 to +5 in this research experienced a rise although it was down on day +4.

Abnormal Return Analysis (Linear Regression)

According to Abdullah (2002), not all signals from an announcement can be captured by capital market. Therefore, another test needed to be undertaken to prove that the market reaction emerging on PGN's stock return was a reaction due to the announcement or other factors like macroeconomic variables. Macroeconomic variables used in this research as independent variables were gold price, oil price, gas price, and exchange rate, based on the previous researches which proved the influence of those variables on stock return. Law (2014) revealed that exchange rate had a negative impact on stock return. Bhatti *et al.* (2015) shared that oil

price had a positive impact on stock movement. Rahman (2012) and Bhatti *et al.* (2015) showed a negative relationship between gold price and stock price, which was when gold price rose, the stock price would fall, vice versa.

Table 4 Results of linear regression of CAR and macroeconomic variables

Macroeconomic variables	25 January 2018		
	(-5, +5)	(-10, +10)	(-15, +15)
Gold price	+	x	x
Natural gas price	+	x	x
Oil price	x	x	x
Exchange rate	x	x	x
Dummy	+	+	+

Information:

- + : had a significant and positive impact
- : had a significant and negative impact
- x : had no significant impact

Table 4 shared the results that all dummy test in (-5, +5), (-10, +10), and (-15, +15) had a significant and positive result which means that there was an impact of the announcement which caused CAR before and after the announcement to move up. Meanwhile, macroeconomic variable which had an impact was only gold price and gas price in event window (-5, +5), which was a positive impact. This means that when gold price fell, the stock price would fall, as well as the increase. This is not in line with the result obtained by Rachman (2012) and Bhatti *et al.* (2015) that gold price had a negative impact on stock price, when gold price fell, the stock price would rise, vice versa. In terms of gas price, it was in accordance with the hypothesis stating that gas price had a positive impact on stock price which had a close characteristics with oil price.

The results of this research showed that the major influence in PGN's stock movement was the influence of the announcement as seen in all event windows. This is because the change in macroeconomic variables is usually in long-term period and more structured, not giving a direct impact on stock, unlike the momentum or event that rarely happens like this. Another example is the announcement of presidential election, interest rate increase, and others.

CONCLUSIONS

Based on the results of this research, the conclusions obtained from this research were as follows:

1. The first test showed that the announcement of PGN's RUPS-LB had a significant and positive impact on CAR obtained by the investors from PGN stock, especially in period (-10, +10) and (15, +15). In those periods, the stock return obtained provided profits for the investors, which were on 17 January 2018 and 13-24 February 2018.
2. The second test showed that CAR received by the investors did not come from the influence of macroeconomic variables in the period before and after the announcement of -15 to +15 because generally those variables had an insignificant relationship, except gold price and

natural price in -5, +5. The dummy used to differentiate the impact on abnormal return before and after announcement showed a significant and positive impact on abnormal return.

Suggestion

Based on the result of this research, the recommendations generated from this research are as follows:

1. This research was conducted in event window (-5, +5), (-10, +10), and (-15, +15), or in other word in short-term. Thus, it is recommended for the future research to be conducted in a quite long event window, like (-30, +30), so that it can see the relationship between the announcement of PGN's RUPS-LB and CAR in long-term period.
2. The future research is expected to analyze the relationship between abnormal return and acquisition announcement in detail by involving fundamental variables like Debt to Equity Ratio (DER), Return on Equity (ROE), and other variables.

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