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INDONESIAN CAPITAL MARKET REVIEW

Indonesian Capital Market Reaction to Jakarta's Large Scale Social Restrictions

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Abstract: *This study aims to analyze the Indonesian capital market reaction to the Large-Scale Social Restrictions (PSBB) policy in Jakarta in 2020. The findings from this study can be used as a policy evaluation and as a reference to assess similar future policies to be implemented in Jakarta. Four event periods were used based on the number of times this policy was implemented in 2020. Using the event study approach and single index model method, this study used 568 companies listed on the IDX which are then divided into nine sectors. The results of this study showed that the Indonesian capital market reacted in different ways following the four periods of PSBB implementation in Jakarta. It was proven that there was no capital market reaction during the first period, a negative reaction for the second period, a positive reaction for the third period, and finally a negative reaction again for the fourth period.*

Keywords: *Capital Market; Abnormal Return; Covid-19; Pandemic; Jakarta; PSBB; Event Study.*

JEL Classification: G10, G14, G18, C20.

Introduction

This study aims to examine the reaction of the capital market to the large-scale social restriction (PSBB) policy by the provincial government of the Special Capital Region of Jakarta, Indonesia. This policy was a government response to the spread of Covid-19 reported on January 21, 2020, which had infected four different countries in East Asia and Southeast Asia (World Health Organization, 2020c). On March 2, 2020, the WHO officially announced that Covid-19 had entered Indonesia (World Health Organization, 2020a). By the end of 2020, the number of infected citizens in Indonesia was at least 706,837 people, with 20,994

deaths (World Health Organization, 2020b). In 2002, the SARS¹ virus was recorded which had spread and infected people in 26 countries. According to the WHO¹, SARS¹ is a new type of Coronavirus which is known to cause fever and other symptoms in humans. The SARS¹ outbreak caused crises in various countries, the most severely affected of which were countries in Southeast Asia (Overby et al., 2004). The conditions in 2002 were similar to those during the Covid-19 outbreak in 2020. The results of research from the Oxford Economic Research Briefing revealed that this condition has worsened trade conditions in the world, which fell by 10%-15% at the beginning of 2020, both in goods and services from the year 2009 (Adam,

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¹ Severe Acute Respiratory Syndrome, which has devastated Asian markets, and spread panic to several major countries in the world (Overby et al., 2004)

2020).

The Covid-19 pandemic has a much more severe negative impact on the capital markets of developing countries compared to developed countries (Harjoto and Fabrizio, 2021). The negative impact on developing capital markets is more pronounced for companies with small market capitalization. The negative impact of the Covid-19 pandemic is stronger in the energy and financial sectors in the capital markets of developing and developed countries. A positive impact of the Covid-19 pandemic occurred in the health and telecommunications sectors for capital markets in developing countries and information technology in developed countries (Harjoto and Fabrizio, 2021). Meanwhile, capital markets in developing and developed countries recovered more quickly from the Covid-19 pandemic than compared to the global financial crisis that occurred in 2008 (Harjoto and Fabrizio, 2021). Indonesia, which is still recognized as a developing country, is also expected to experience negative impacts from the pandemic. One such impact is through social policies, which have a correlation with capital market performance (Eleftheriou and Patsoulis, 2020).

The purpose of this study is to analyze the capital market reaction in the Indonesia Stock Exchange (Jakarta Stock Exchange) in the event of the announcement of the PSBB² policy in Jakarta by the provincial government. This study focused on testing the Cumulative Average Abnormal Return (CAAR) significance of the sample portfolio. The calculation is carried out in the aggregate, or as a whole, from the entire sample in the specified event window. The results of these statistical calculations could then be used to conclude whether or not there is a capital market reaction following the announcement, which could indicate the existence of information contained in the event. Based on the above explanations, this research focused on the possibility of a negative capital market reaction to the announcement of the PSBB policy in 2020.

Literature Review

The capital markets could naturally be affected by major or extraordinary events. Various empirical studies had been conducted, and their results reveal a correlation between the capital market and events such as sports, politics, social media content, religious events, and natural disasters (Kaplanski and Levy, 2010; Kollias et al., 2011; Liu and Zhang, 2015). Previous studies examining the impact of the pandemic on stock performance found that market fluctuations caused by investor concerns and pessimism about future earnings due to the pandemic have had significant and negative economic impacts (Liu et al., 2020; Sun et al., 2017). The previous SARS pandemic was also found to have a negative impact on the Chinese and Vietnamese capital markets (Nippani and Washer, 2004). Similarly, the Taiwan capital market experienced a negative relationship between the pandemic and stock returns in tourism and hotels as well as the wholesale and retail sectors, while in contrast, the biotechnology sector demonstrated a positive and significant relationship between the two during the pandemic (Chen et al., 2007; Chen et al., 2009).

Positive news or information can have a positive impact on stock trading, while negative news or information can cause stock market outflows, which have a negative impact (Hong, 2016). Investors tend to respond to negative information fairly quickly when compared to positive information (Yasar et al., 2020). The Efficient Market Hypothesis (EMH) states that, whenever new information comes out, investors rethink, update their expectations, make decisions, and take immediate actions based on the information (Fama, 1965). The public's reaction to the newly published information could be an overreaction and cause investors to sell some of their shares and buy other shares that they believe could benefit them better as an act to balance their portfolios (Brown and Warner, 1985; Bondt and Thaler, 1985). Such reactions could cause the stock prices to fluctuate.

² Large-Scale Social Restrictions, restrictions on the activities of residents in an area suspected of having been infected by Covid-19, which aims to prevent the possible spread of the Covid-19 virus (Gubernur DKI Jakarta, 2020e), similar to what various other countries termed a lockdown.

Mehdian et al. (2008) stated that stock prices describe previous information, anticipate future expectations, and react immediately to new information. Thus, stock prices could be an indicator of the market reactions to information.

One of the methods that could be used to gauge the market reaction to information is the event study method (Henderson, 1990). This method involves calculating abnormal returns or excess returns and testing them statistically to determine the reaction of the capital market toward an event or the content it presents. An event study examines how the market reacts to an event in which the information is published in an announcement. This study can be used to test the information content of an announcement and can test the market efficiency in a semi-strong form (Jogiyanto, 2017). If information or an event has significant information content, the market could react when the announcement of the information reaches it, which is marked by a change in the price of the security in question (Jogiyanto, 2017).

The lockdown policy as mitigation for Covid-19 potentially contained information for investors that could be regarded as negative. This policy imposed limitations on the movement of people in an area, which could lead to a potential recession in a region or even a country (Bank Indonesia, 2020). This policy was first carried out by China on January 23, 2020 (Matt et al., 2020). Reports continued to suggest that this policy be repealed due to the declining PMI³, which indicates declining optimism among the economic sector actors on the economic conditions (Bank Indonesia, 2020). Moreover, Covid-19 was found to have a negative and significant impact on stock market liquidity (Mdaghri et al. 2021; Baig et al. 2020).

Despite the economic concerns, the lockdown policy was proven successful in reducing the death toll from this pandemic (Anh and Gan, 2020). This could then be regarded as a positive signal by the capital market and could encourage the market to react positively (Alam et al.,

2020; Anh and Gan, 2020). According to Alam, Alam, and Chavali (2020), a positive reaction could be possible because the capital market anticipates the lockdown announcement by the government to bring better conditions for the country. Furthermore, investors were also waiting for the government to impose a lockdown to prevent the spread of Covid-19 and for the long-term benefit of the country. This followed up on the findings of Al-Awadhi et al. (2020), which stated that the growth of confirmed cases and deaths due to Covid-19 has a significant negative effect on stock returns in the capital market, which is anticipated to be countered by the implementation of this lockdown policy.

In the event of the announcement of the lockdown policy, previous studies showed different results. Most of the studies on the reaction of the capital market to the announcement of the lockdown policy show a negative capital market reaction to the lockdown policy (Eleftheriou and Patsoulis, 2020; Raifu et al., 2021; Scherf et al., 2022; Xie et al., 2021). A small portion of other studies shows a positive capital market reaction to the lockdown announcement that occurs under special conditions, such as a delay in event of a lockdown, causing the information to get leaked to the public beforehand (Alam et al., 2020).

At least by the end of 2020, as many as 25% of the total cases in Indonesia were in Jakarta, the highest compared to other provinces in Indonesia (Satuan Tugas Penanganan COVID-19, 2020). Therefore, the government of Jakarta felt the need to take mitigation actions. In 2020, Jakarta implemented the PSBB⁴ policy four times. During these cases, activities outside the individuals' homes were limited, educational facilities in the city of Jakarta were closed, workplace activities including industrial activities were limited, and religious activities in places of worship were also limited as well as activities carried out in public facilities, socio-cultural activities, and use of transportation modes for the movement of people or goods

³ Purchasing Managers Index

⁴ Pembatasan Sosial Berskala Besar (Large-Scale Social Restrictions), restrictions on the activities of residents in an area suspected of being infected by Covid-19, which aims to prevent the possible spread of the Covid-19 virus (Gubernur DKI Jakarta, 2020e), similar to what is termed a "lockdown" in various other countries.

(Gubernur DKI Jakarta, 2020e).

The limitations of activities that occurred due to the PSBB policy (Gubernur DKI Jakarta, 2020e) could very likely hamper the economic pace and hence could be regarded as a bad signal by investors due to the impact of this policy on the movement of economic actors in economic activities and how it significantly limits labor, transportation, and security (Inegbedion, 2020). based on these problems and the previous explanation, the author decided that the problem in this research can be formulated as whether the capital market reacts negatively to the announcement of the PSBB policy in handling Covid-19 in Jakarta, as indicated by the presence of negative abnormal returns. The hypotheses in this study are formulated as follows:

H₁: The capital market's investors react negatively to the announcement of the first phase of large-scale social restrictions in Jakarta in 2020.

H₂: The capital market's investors react negatively to the announcement of the second phase of large-scale social restrictions in Jakarta in 2020.

H₃: The capital market's investors react negatively to the announcement of the third phase of large-scale social restrictions in Jakarta in 2020.

H₄: The capital market's investors react negatively to the announcement of the fourth phase of large-scale social restrictions in Jakarta in 2020.

Research Method

Event

This study uses for the event window the date of the governor's announcement of PSBB² policy implementation in Jakarta and not the implementation date. Based on the Decree of the Governor of the Special Capital Region of Jakarta regarding the implementation of large-scale social restrictions in controlling the spread of Covid-19 in DKI Jakarta Province in 2020, the policy was implemented four times. The first was based on Regulation 308, which was announced on April 9, 2020, for the period

of April 10 to April 23, 2020 (Gubernur DKI Jakarta, 2020a). Then came Regulation number 412, which was announced on April 22, 2020, for the period of April 24 to May 21, 2020 (Gubernur DKI Jakarta, 2020d), followed by Regulation number 489, which was announced on May 19, 2020, for the period of May 22 to June 4, 2020 (Gubernur DKI Jakarta, 2020b). The last one was based on Regulation number 959, which was announced on September 11, 2020, for the period beginning September 14, 2020 (Gubernur DKI Jakarta, 2020c). Therefore, there are four points of observation used in this study.

Data

This study used sample data from all companies listed on the Indonesia Stock Exchange in 2020 as contained in the *data stream* database. The *single index model* method was used in this study. This method requires an estimation period, which this study used during the initial data available until the beginning of the specified event window. Some of the samples were omitted because the available data were not sufficient for data processing. The sample selection process yielded a total of 568 companies as research samples, which were mostly obtained from the data stream. The rest of the companies whose data were not available in the data stream the authors added from *Yahoo Finance*. The companies whose data were available neither on the data stream nor on *Yahoo Finance* were excluded from the research samples. The 568 companies obtained were then divided into nine different sectors.

Model

This study focuses on the abnormal returns that are formed within the event window. Mathematically, abnormal or excess returns refer to the differences between the actual security returns and expected security returns in a certain period (Henderson, 1990). Abnormal return calculations are carried out by finding the difference between the actual return and expected return (normal return in the event window)

(Henderson, 1990; Jogiyanto, 2017). Abnormal returns could be calculated using several different models; the most commonly used is the *single index model* or *single index market model* (Henderson, 1990; Jogiyanto, 2017; Mackinlay, 1997; Pacicco et al., 2018). The equation used for this model is as follows:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t}) + e_{i,t}$$

According to the above equation of the *single index model*, the return depends on parameters α_i and β_i (which were estimated in the estimation period), and the market return parameter $R_{m,t}$ (Pacicco et al., 2018)

The calculations in this study were done for a period of more than one day, thus *time-series aggregation* calculations were used on *ARs* using the following model:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t}$$

with $t_1 < t_2$ dan $t_1, t_2 \in$ (*event window*) (Pacicco et al., 2018). This study also uses *cross-section aggregation* calculations to estimate the overall inter-company sample. This calculation uses *the average abnormal return*, with the following model:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{i,t}$$

where N is the sum of the population of securities (Pacicco et al., 2018). Next, the calculation focuses on the mean effect over a certain period, using the following equation:

$$CAAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AAR_t$$

After all the calculations were done, the statistical significance is calculated next.

Results And Discussions

Some calculation models were applied based on the obtained sample data. Firstly, calculations were performed for the data of all companies; the results are summarized in Table 1 and visualized in Figure 1. The results show that, in the first event period, the market did not

respond to the announcement and implementation of the PSBB² policy. Abnormal returns tended to rise but faced a significant decrease three days before the announcement (t_{-3}), had nothing significant on t_0 , and afterward kept rising again until t_5 at which point it had a very significant rise. This is because the discussion of the Jakarta PSBB² by the government has been carried out long ago through the press and media, including at a press conference by the DKI Jakarta government on April 7, 2020 (Dinas Komunikasi, Statistik, 2021a). As such, that the policy is no longer a discourse but has been confirmed. Thus, it was certain that the market had started anticipating the event beforehand.

Next, the calculation results for the second period revealed that the market reacted significantly to this second announcement. Figure 1 illustrates that the market presented a very significant negative reaction on t_{-3} and t_{-1} to t_0 , during which the abnormal returns fell very sharply and significantly and fell again on t_3 , the day the policy took effect. This event can be caused by several elements. The first is the announcement of a policy decision which is considered sudden because the Jakarta provincial government did not hold a press conference beforehand regarding the plan to extend the PSBB² period, but instead immediately made a decision on the implementation of the policy (Dinas Komunikasi, Statistik, 2021b). Hence, the public did not adequately prepare for it. The second reason is the lack of clarity on how long the PSBB² would be enforced. The Jakarta provincial government revealed that this extension was set because there are still many people violating the first PSBB² regulations (Dinas Komunikasi, Statistik, 2021b). Another reason is the negative impact that investors experienced from the previous policy, so the extension of this policy gave a negative signal to investors.

In the third event period, it appeared that the market reacted again, but the reaction that was given was actually positive. At t_0 , the CAAR value was positive, which could be because economic actors have adapted to the existing conditions so the extension of this policy is no longer bad news for investors. In a sense, investors started to adjust to the situation. Fur-

Table 1. Cumulative Average Abnormal Return (CAAR) Calculation Results

	Date	-5	-4	-3	-2	-1	0	1	2	3	4	5
All Company	09/04/2020	0.002	0.006***	0.004**	0.002	0.000	-0.001	-0.001	0.002	0.002	0.001	0.006***
	22/04/2020	0.001	0.006***	-0.006***	0.001	-0.006***	-0.010***	-0.003	0.002	-0.004**	-0.001	-0.001
	19/05/2020	-0.002	0.001	-0.002	-0.001	-0.001	0.003*	0.000	-0.001	-0.001	-0.001	-0.004**
	11/09/2020	-0.001	0.002	-0.001	-0.003**	-0.009***	0.001	0.002	0.001	0.001	0.000	0.004**
Agriculture	09/04/2020	-0.005	0.004	0.018**	0.011	-0.011	0.006	-0.001	-0.001	0.001	0.002	-0.002
	22/04/2020	0.002	-0.002	-0.012	0.002	-0.009	-0.023***	-0.001	-0.002	-0.001	0.004	0.001
	19/05/2020	-0.003	0.004	-0.010	-0.005	-0.005	0.015**	-0.001	0.000	0.000	0.000	-0.020***
Basic Industry and Chemicals	11/09/2020	0.004	-0.010	-0.006	-0.017**	-0.014**	0.011	0.004	0.002	0.004	0.007	-0.008
	09/04/2020	0.004	0.015*	-0.002	-0.002	-0.004	-0.004	-0.001	0.003	0.007	-0.004	0.013*
	22/04/2020	-0.004	0.013*	-0.016**	0.006	-0.003	0.000	0.000	-0.002	-0.005	-0.001	0.000
Consumer Goods Industry	19/05/2020	0.000	-0.009	0.004	-0.001	-0.002	-0.002	0.003	-0.001	-0.001	-0.001	-0.001
	11/09/2020	0.004	-0.003	0.001	-0.003	-0.011	0.004	-0.002	-0.001	-0.001	0.005	0.003
	09/04/2020	0.011**	0.001	-0.002	0.003	0.005	0.002	-0.001	-0.005	0.005	0.012**	-0.001
Finance	22/04/2020	0.012**	-0.001	0.001	0.003	0.000	-0.004	0.000	0.009*	-0.002	0.008	0.002
	19/05/2020	0.007	0.004	-0.001	0.002	0.007	0.002	-0.004	-0.001	-0.001	-0.001	-0.010*
	11/09/2020	0.008	-0.002	-0.004	-0.015***	-0.021***	0.012**	0.008	-0.003	-0.005	0.000	-0.003
Infrastructure, Utilities, Transportation	09/04/2020	0.003	0.003	0.001	0.007	0.002*	-0.001	-0.001	-0.001	0.000	-0.003	0.008**
	22/04/2020	-0.003	0.008**	0.002	0.002	-0.010**	-0.006	-0.007*	-0.006	0.000	0.004	-0.008**
	19/05/2020	0.000	0.003	-0.002	-0.007**	-0.003	0.012***	0.004	-0.001	-0.001	-0.001	-0.007*
Mining	11/09/2020	0.000	-0.002	-0.004	-0.009**	-0.008**	0.003	-0.001	-0.004	0.003	-0.006	0.003
	09/04/2020	0.005	0.017***	0.008	-0.003	-0.003	0.002	0.000	0.011**	-0.002	0.003	0.008
	22/04/2020	0.003	0.008	-0.004	-0.002	0.004	-0.009*	-0.008	0.011**	-0.007	-0.006	0.005
Miscellaneous Industry	19/05/2020	-0.003	0.005	-0.003	-0.004	-0.001	-0.003	-0.003	0.000	0.000	0.000	-0.001
	11/09/2020	-0.010**	0.006	-0.004	0.005	-0.010**	0.005	0.000	0.004	0.000	0.002	0.008
	09/04/2020	0.007	0.018***	-0.014**	0.004	0.010	0.005	0.000	0.006	0.010	0.011*	0.012**
Property, Real Estate, and Building Construction	22/04/2020	0.011*	0.012**	-0.010*	0.001	-0.012**	-0.018***	-0.008	0.008	-0.003	-0.012*	0.002
	19/05/2020	-0.003	0.006	-0.007	0.013**	0.005	-0.005	-0.008	0.000	0.000	0.000	-0.004
	11/09/2020	-0.007	0.000	-0.005	-0.008	-0.006	-0.003	0.000	0.011	-0.005	-0.004	0.001
Trade, Services, & Investment	09/04/2020	-0.002	0.001	-0.001	0.003	-0.004	0.001	-0.001	0.003	0.003	-0.001	0.015**
	22/04/2020	-0.001	0.015**	-0.008	-0.009	-0.001	-0.014**	-0.005	-0.004	-0.001	-0.007	0.004
	19/05/2020	0.002	0.010	-0.010	0.003	0.002	-0.003	0.003	-0.001	-0.001	-0.001	-0.004
Trade, Services, & Investment	11/09/2020	0.003	0.004	0.007	0.002	-0.007	-0.003	0.000	0.002	0.002	0.000	0.008
	09/04/2020	-0.004	0.001	0.023***	-0.004	-0.004	0.000	-0.001	0.002	-0.005	0.004	0.005
	22/04/2020	0.004	0.005	-0.010	-0.005	-0.010*	-0.016***	-0.006	-0.005	-0.008	-0.007	-0.005
Trade, Services, & Investment	19/05/2020	-0.007	-0.001	-0.002	0.003	-0.006	0.009*	-0.003	0.000	0.000	0.000	0.000
	11/09/2020	0.003	0.006	0.001	0.002	-0.002	-0.007	0.005	-0.001	0.006	0.004	0.008
	09/04/2020	-0.002	-0.001	0.002	0.003	0.001	-0.007*	-0.001	0.001	0.002	-0.002	0.001
Trade, Services, & Investment	22/04/2020	-0.002	0.002	-0.007**	0.005	-0.011***	-0.009**	0.004	0.005	-0.006	0.002	-0.001
	19/05/2020	-0.004	-0.004	0.001	-0.003	-0.003	0.002	0.003	-0.001	-0.001	-0.001	-0.001
	11/09/2020	-0.006	0.006**	0.000	-0.002	-0.009**	-0.003	0.003	0.002	-0.001	0.000	0.007

Note: * = significant at 10% (p -value <0.01); ** = significant at 5% (p -value <0.05); *** = significant at 1% (p -value <0.01)

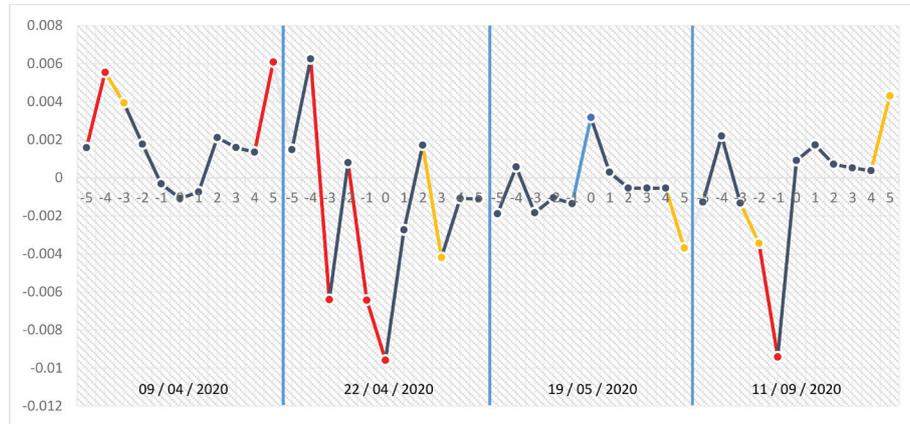
thermore, the Jakarta provincial government also announced that conditions had started to improve (Dinas Komunikasi, Statistik, 2021c), which gave hope to the public.

After going through two consecutive policy extensions, the public then experienced relaxation of this policy until September 11, 2020, when the PSBB² policy was re-implemented. As can be seen in Figure 1, in the fourth event period, the capital market responded negatively again to this event with a significant decrease in CAAR even twice in a row before t_0 . This may be due to investors' concerns about facing this policy again after experiencing relaxation,

and the economy started to improve during the transition period (Statistik, 2020). This result was the same as the investors' reactions to the second period of PSBB² policy during which although they had adapted previously, investors still responded negatively to this event.

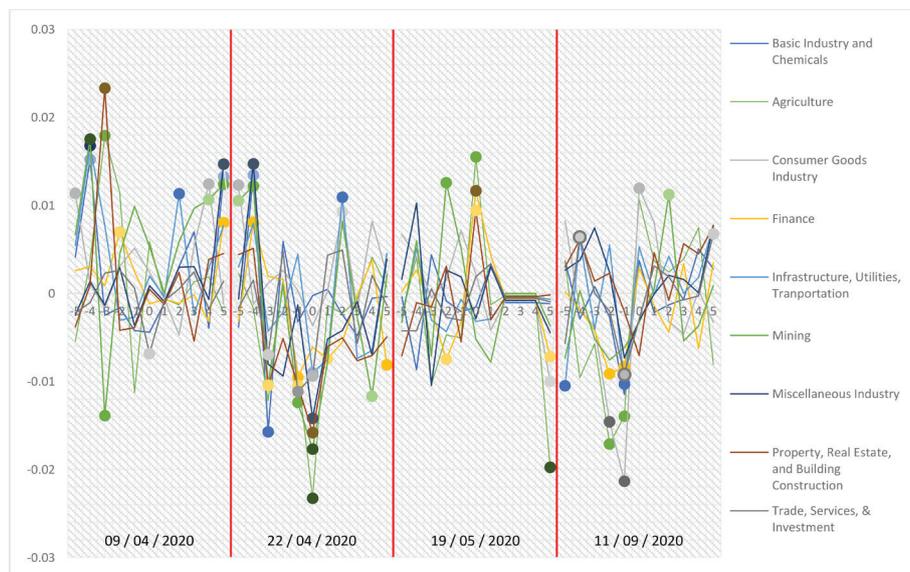
The results of this study have the same schemes as the findings by Anh (2020), which revealed that the market would only respond negatively before the event and would return to positive afterward. This could be seen in the fourth event period in which conditions returned to positive after the event. This is not the case in the third event, because the government

Figure 1. CAAR Samples on All Company Sectors



Note: The red colour indicates significance at 1%, yellow indicates significance at 5%, and blue indicates significance at 10%

Figure 2. CAAR Samples Per Company Sectors.



Note: Significance based on colour density; the darker the colour, the higher the significance

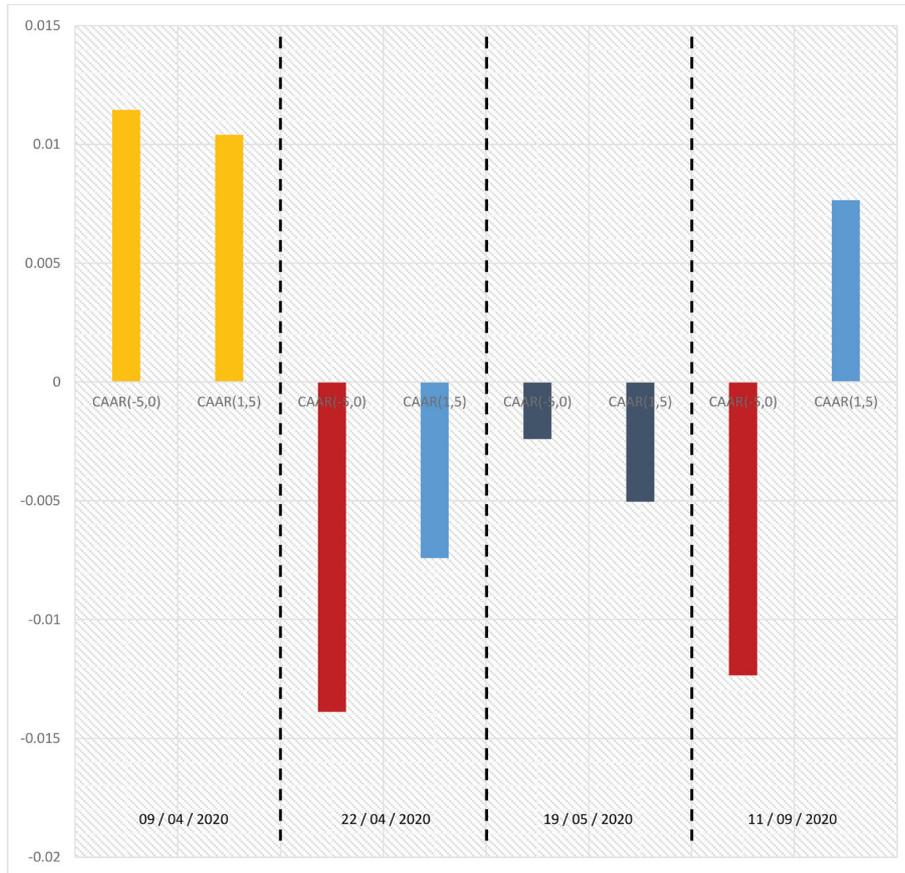
had given a good signal that the situation had started to improve (Dinas Komunikasi, Statistik, 2021c), so the public demonstrated hope. Next, calculations will be performed by comparing the company sectors.

In the first calculation model, calculations were also performed for each sector to determine each of their movements. The data visualization in Figure 2 shows the trend of CAAR value for each company, for which the movement follows the graph in Figure 1. We symbolize sectors that have a significant value with a round sign at the point at which CAAR is significant. The level of significance is described by the colour density of the symbol; the darker the colour, the higher the significance.

In the first period, almost all sectors reacted

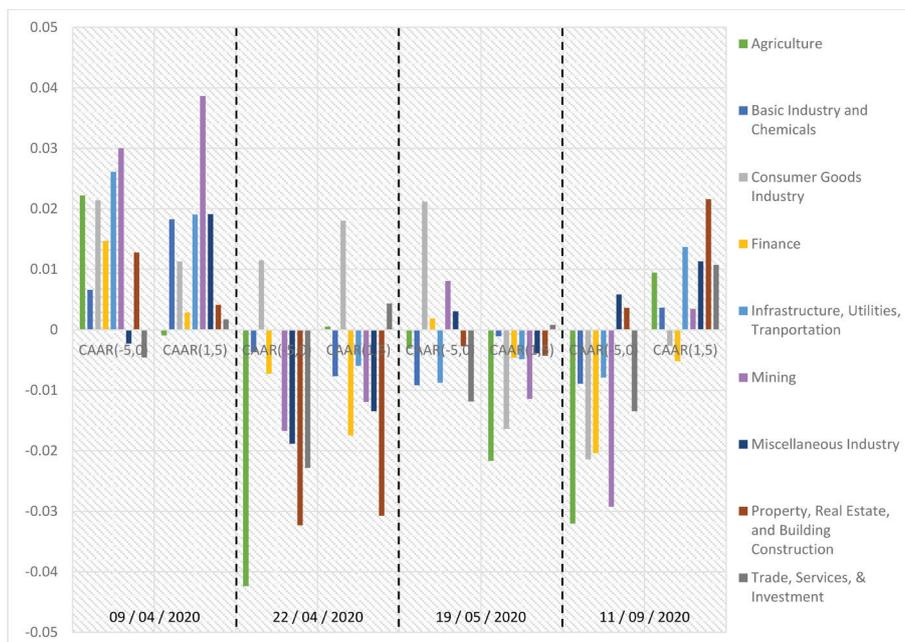
positively, except for the mining and trade, services, & investment sectors. In the second period, almost all sectors experienced a very significant decline, especially the agriculture, mining, property, housing, construction, and trade and investment sectors. In the third period, not much reaction was detected, although the overall reaction was positive. This was only represented by three sectors: agriculture, finance, and property. In the fourth period, almost all companies experienced a significant decline in t-1. There were several sectors that experienced a decline, including the consumer goods industry sector, trade, infrastructure and transportation, trade and investment, and lastly the financial sector. In this period, the sector that was rather badly affected was consumer goods. This may be due

Figure 3. CAAR before and after the event: All company sectors



Note: The red colour indicates significance at 1%, yellow indicates significance at 5%, and blue indicates significance at 10%.

Figure 4. CAAR before and after the event: Per Company Sector

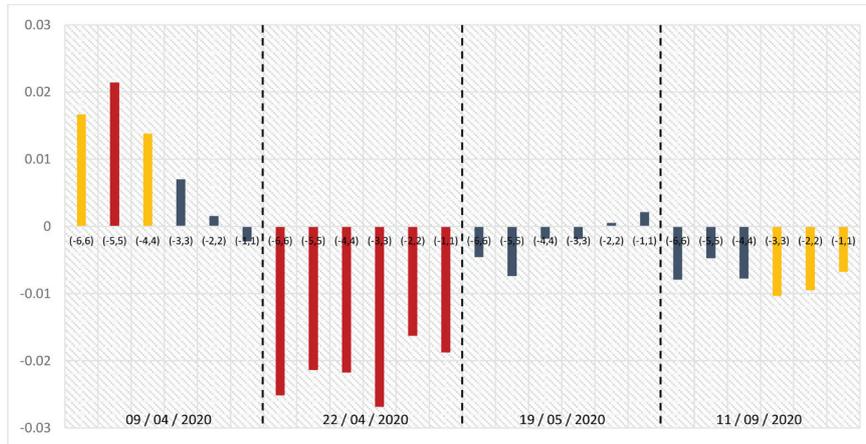


to the declining public purchasing power in the midst of the Covid-19 pandemic, coupled with the existence of the large-scale social restriction that severely restrict shopping establishments.

However, afterward, the consumer goods sector experienced a significant increase.

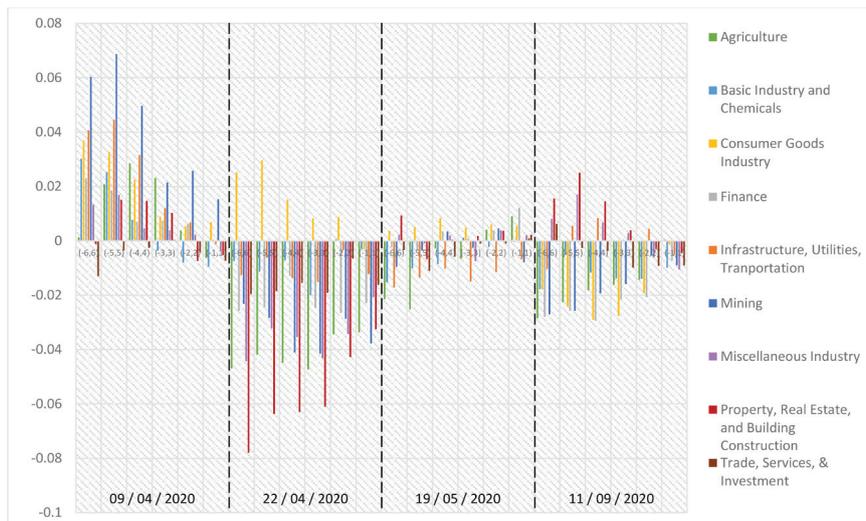
The second calculation was done by taking into account the CAAR before and after the

Figure 5. CAAR Scope Windows: All Company Sectors



Note: The red colour indicates significance at 1%, yellow indicates significance at 5%, and blue indicates significance at 10%.

Figure 6. CAAR Scope Windows: Per Company Sector



event to weigh the efficiency of information in this event. Figure 3 shows a comparison of the CAAR before and after the event during which the significance is indicated by colour; blue shows a significance level of 0.1, 0.5 in yellow, and .0.01 in red. The details for each sector can be seen in Figure 4. The results are not far from the findings of the first calculation, which showed that the capital market responded negatively in the second and fourth event periods, while in the third period it did not respond at all. However, the results of this calculation of significance cannot describe whether the significance is still related to this event or not. Therefore, a third calculation is needed to see the spread of the significance of the calculation results.

The next set of calculations was conducted

by widening and narrowing the event window to see the spread of significance and whether this spread either widened from t_0 or converged around t_0 . The results of these calculations for all companies and each industrial sector are visualized in Figures 5 and 6, respectively. The calculations suggest that, in the first event window, the significance is not at t_0 but further spreads to before and after t_0 , which is in line with the previous calculations. Therefore, it strengthens the previous argument which states that the capital market or investors did not show any response in the first event period.

Conversely, in the second event period, each window gave a significant negative result both from (-6,6) to (-1,1). This confirms that the capital market or investors reacted significantly and negatively toward the second event, thus

Table 2. Summary Result – All Companies

	H ₁ PSBB Jakarta 1st Period 09/04/2020	H ₂ PSBB Jakarta 2nd Period 22/04/2020	H ₃ PSBB Jakarta 3rd Period 19/05/2020	H ₄ PSBB Jakarta 4th Period 11/09/2020
Overview of all companies	<i>no effect</i>	negative	<i>no effect</i>	negative

Note: $t_{-3} - t_{+3}$ period

Table 3. Summary Result – All Company Sectors

Sector	PSBB Jakarta 1st Period 09/04/2020	PSBB Jakarta 2nd Period 22/04/2020	PSBB Jakarta 3rd Period 19/05/2020	PSBB Jakarta 4th Period 11/09/2020
Agriculture	<i>no effect</i>	negative	<i>no effect</i>	<i>no effect</i>
Basic Industry and Chemicals	<i>no effect</i>	<i>no effect</i>	<i>no effect</i>	<i>no effect</i>
Consumer Goods Industry	<i>no effect</i>	<i>no effect</i>	<i>no effect</i>	negative
Finance	<i>no effect</i>	negative	<i>no effect</i>	negative
Infrastructure, Utilities, Transportation	<i>no effect</i>	<i>no effect</i>	<i>no effect</i>	<i>no effect</i>
Mining	<i>no effect</i>	negative	<i>no effect</i>	<i>no effect</i>
Miscellaneous Industry	<i>no effect</i>	negative	<i>no effect</i>	<i>no effect</i>
Property, Real Estate, and Building Construction	<i>no effect</i>	negative	<i>no effect</i>	<i>no effect</i>
Trade, Services, & Investment	<i>no effect</i>	negative	<i>no effect</i>	<i>no effect</i>

Note: $t_{-3} - t_{+3}$ period

strengthening the previous argument. Whereas in the third event period, as in the previous calculation results, it appeared that the capital market or investors did not respond to this event period. However, a single calculation showed several significant points that are not visible here due to the small level of significance that arose.

Finally, in the fourth event period, it is quite interesting to see that the window (-6.6) to (-4.4) showed a non-significant CAAR value, even though it is in a negative direction. Then, only starting from the window (-3,3) to (-1,1), a significant reaction was finally seen. This indicates that the significance of this event period converged at point t_0 , which means that the capital market or investors did react in this event period when the reaction given was negative. This strengthens the argument from the calculations that have been carried out previously.

Summary

The results of this study are summarized in Table 2 below, which shows a summary of the results of the research from all company samples.

Furthermore, Table 3 below shows a summary of the research results from all the main sectors of the sample companies.

Limitations

This research has several limitations. The first is the scope of the companies analysed, as the case study used is large-scale social restrictions in the scope of the city of Jakarta. However, the relevance between companies that are not located and operating in Jakarta could be enough as consideration for further research. In this study, the authors chose to use a sample of all IDX companies because they also considered the reliability aspect. The second limitation is noise; event study research is very difficult to separate from noise. The authors have tried to minimize noise but were also quite sure that noise is still present in this study; however, we believe that it did not interfere with the results of this study. Suggestions for further researchers seeking to conduct event study research is to devote attention to the noise that might occur because it could affect the calculation results.

Conclusions

The results of this study indicate that the large-scale social restriction (SPBB) policy in the Special Capital Region of Jakarta in 2020 seeking to contain the spread of Covid-19, in the first period did not have an impact on the

reaction to the capital market. In the second period, this event had a negative reaction on the capital market. Then, in the third period, this event did not have an impact on the reaction to the capital market. Finally, in the fourth period, this event had a negative reaction on the capital market. The summary of the results can be seen in Tables 2 and 3 for an explanation of each sector. The implication of this study is to determine the impact of the implementation of large-scale social restrictions (SPBB) in the

Special Capital Region of Jakarta. In the future, if the same policy is applied, the results of this study can be a reference and motivate consideration in making decisions among investors in portfolio management. Upon referring to the results of this study, investors should prioritize company shares in the basic industry and chemicals sector and the infrastructure, utilities, and transportation sector. Second, the results of this study can be used as a reference in the development of event study research.

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