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INDONESIAN STOCK MARKET REACTION BEFORE AND AFTER THE ANNOUNCEMENT OF FIRST COVID-19 CASE

Felia Ananda Wijaya[1], Elsa Imelda[1*]

[1]Faculty of Economics & Business, Universitas Tarumanagara, Jakarta - Indonesia
[*]*Email: elsai@fe.untar.ac.id*

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ABSTRACT

This study aims to test whether the event of the announcement of the first confirmed case of COVID-19 in Indonesia on March 2, 2020 affected the Indonesian stock market. A total of 119 samples used in this research event study were taken from the share prices of banks, transportation, and consumer good companies listed on the Indonesia Stock Exchange during the 21-day estimation window. The samples were taken using purposive sampling techniques and then the data was analyzed using the Statistical Package for the Social Sciences (SPSS) ver. 28. One Sample Kolmogorov-Smirnov test is used as a data normality test and hypothesis testing is conducted using the Paired-Sample Wilcoxon Signed Rank test. The results showed that there was no significant difference in the average abnormal return of transportation companies and banks before and after the announcement of the first confirmed case of COVID-19 in Indonesia. Meanwhile the average abnormal return of consumer goods companies showed significant difference before-after the first confirmed case of COVID-19 in Indonesia is announced.

Keywords: *Event Study, COVID-19 Pandemic, and Abnormal Return*

1. INTRODUCTION

In an era where globalization plays an important role, developing countries are competing to increase competitiveness, including Indonesia. Capital market becomes important for Indonesian economy and development, especially the significant growth of stock market sector in Indonesia. The number of investors in Indonesian stock market in December 2019 was one million investors, an increase of thirty percent from the previous year. Along with the rapid Indonesia's economy development, the growth of Indonesian Stock Market has a bright future.

Investors' high expectation of Indonesia economy development does affect this growth. This indicates that information indirectly becomes one of important aspect besides fundamental and technical analysis. Information is important for the dynamics of stock market conditions and it creates investors' expectations and their investment decision.

There are various forms of information; it can be public information such as pandemic or a new fiscal policy, also it can be private information such as the change of directors. According to Wolski [1], in general world event can affect the stock market. Economic and non-economic events that happens globally and domestically can be important information that affect the stock market directly and indirectly

The recent non-economic event that affects the stock market is the COVID-19 pandemic. On March 2, 2020, right at the time of the announcement of the first confirmed case of COVID-19 in Indonesia, the Jakarta Composite Index fell by one point six seven percent according to Andriani [2]. This decline was caused by capital outflows from the stock market as the

COVID-19 pandemic proved the risk of uncertainty, so investors tended to hold on to high amounts of cash, such as gold and the US dollar.

There are at least three sectors most impacted during the COVID-19 pandemic, namely transportation, consumer goods, and banks. The implementation of lockdowns in many countries had limited the operations of transportation sectors and generated share outflows from Indonesian Stock Market. The announcement of first cases of COVID-19 in Indonesia also made the public more aware to minimize travel and avoiding crowds, hence affected the transportation sector. Meanwhile the consumer goods sector was also affected by the announcement of COVID-19 first cases. The health guidelines from World Health Organization made some changes to public's behavior of shopping and explosion of public panic leads to share inflow of consumer goods companies. Lastly, the banking sector also took a hit from the pandemic. The announcement of first COVID-19 case caused alertness among investors as the investors tend to hold more cash than investments in crucial times. Therefore, the banking sectors also experienced the outflows of shares

Our Contribution

This study aims to examine whether before and after the first COVID-19 case announcement in Indonesia there is a significant change of abnormal return in transportation, consumer goods, and banking sector. This research is expected to give a new outlook to investors in case unexpected pandemic arises in the future and to contribute to investment decisions.

Paper Structure

The paper is structured and organized as follows: background is introduced in the Section 2, meanwhile the Section 3 presents research methodology and test results. Discussion and findings regarding the research are organized in Section 4. Lastly, the Section 5 culminates research in this paper and recommendation for further research.

2. BACKGROUND

Efficient Market Hypothesis

According to Fama [3] this hypothesis describes the relationship between stock prices and existing information. The stock price that occurs in the market reflects the information available around it. The information varies, ranging from political policies, announcements, acquisitions and mergers, and disasters. Before investing in the stock market, investors will pay attention to the information. In the efficient market hypothesis, in making investment decisions, investors will pay attention to the information available. Three forms of efficient market hypothesis are as follows: weak form, semi-strong form, and strong form. The efficient market hypothesis of a weak form states that based on past stock prices, investors cannot define future stock prices. The semi-strong form efficient market hypothesis argues that stock prices are factored into the market through information that is available to the public and that price changes to a new equilibrium are a reflection of new private information. The efficient form of market hypothesis strongly concludes that the stock price in the market reflects all the information, whether available to the public or not, and no form of information is capable of providing a profit to investors in the market.

Black Swan Theory

Black Swan Theory according to Taleb [4] represents the appearance of black swans which is an unexpected phenomenon that has high consequences. This phenomenon is unpredictable, even if it has happened in the past. The term was popularized by Taleb [4], the appearance of black swans that are very similar to ordinary geese surprised experts. The inability to predict what will happen is an analogy of this black swan theory. When they occur, black swan events can cause huge losses to the economy and affect markets and investments. Taleb [4] therefore argues it is important for people to assume that a black swan event is a possibility and because of its difficulty in predicting, adjustments are needed to the existence of the black swan event.

Definition 1. (Stock Return) According to Hartono [5] stock return is the result obtained from investments where it can be realized return or expected return which is expected to be obtained in the future. Realized return is determined using existing historical data, while on the other hand expected returns are influenced by various future company prospects. There are two types of stock returns. The first is the yield that reflects the cash flow obtained through investment. The second component is capital gain (loss). Capital gains occur when in the activity of selling and buying shares there is an increase in the stock price. Conversely, if there is a decrease in the stock price, then there can be a capital loss.

Definition 2. (Abnormal Return) According to Hartono [5] the difference from the actual return with expected return is called the abnormal return. A real return greater than expected return will result in an abnormal positive return. Meanwhile, if the expected return is greater than the actual return, it will produce an abnormal negative return. With abnormal returns, investors can track the performance of securities by being compared to certain benchmarks. According to Hartono [5], abnormal return can occur after an information is published or leaked before it is announced. One of the information that is rife in Indonesia in 2020 is the announcement of the COVID-19 pandemic.

As a form of prevention of the spread of the COVID-19 pandemic, crowds should be avoided and distance in socializing must be maintained. The first countries to contract the coronavirus quickly imposed a lockdown to suppress the surge in the number of COVID-19 cases, such as in Italy, Korea, Japan, and China. Flight operations in Indonesia at that time also had to be limited. Coupled with the announcement of the first confirmed case of COVID-19 in Indonesia, the public is making a plan by limiting travel and avoiding crowds, thus indirectly making the business prospects of the transportation sector sluggish, causing uncertainty that encourages investors to withdraw their shares from transportation companies. Research from He et al. [6] in observing stock market conditions in China during the COVID-19 pandemic, proves that the COVID-19 pandemic significantly affects transportation sector stocks in China. Ozturk et al. [7] in his research also showed a significant influence of the COVID-19 pandemic on the transportation sector. On the other hand, the research from Herwany et al. [8] concluded that the transportation sector is not affected by this pandemic due to the constant tendency of abnormal return.

Consumer goods companies are also facing some shake-ups. Since the announcement of the first confirmed case of COVID-19 in Indonesia, there have been differences in people's shopping behavior. With the outbreak of panic, Indonesians tend to shop online and hoard. Cosmetics and luxury goods are no longer the main concern of consumers in Indonesia due to the increasing public attention to health, so there is an increasing demand for health products such as vitamins, drugs, masks, and hand sanitizer. Mugiarni and Wulandari [9] concluded that the COVID-19 pandemic significantly affected the consumer goods sector in Indonesia. Machmuddah et al. [10] also concluded that the consumer goods stock returns experienced a significant difference before and after the COVID-19 pandemic. While He et al. [6] argue that with this pandemic the consumer goods sector in China is less affected.

In addition, the banking sector is the sector that is most vulnerable to pandemic events or economic recessions. This is because there is a high possibility of unpaid debts or withdrawals of large cash in a short time. With the rapid spread of the coronavirus outbreak around the world, investors are cautiously stirring up global sentiment to be reluctant to invest in banking stocks, not least in Indonesia. Credit risk in the future is a big consideration for banking shareholders, because one of the bank's biggest incomes, is the return of services in providing credit to the community and the company. A study from Kunt et al. [11] found a significant influence on the COVID-19 pandemic on the banking sector. Research from Lailiyah et al. [12] also concluded that there is an abnormal difference in the return of pre and post COVID-19 banking stocks in Indonesia. Meanwhile, on the other hand, research from He et al. [6] concluded that the financial sector is one that is less affected by the COVID-19 pandemic. Therefore, based on this framework, the hypothesis formulated are as follows:

H_1: There is a significant difference of transportation sector's abnormal return before-after the announcement of first COVID-19 case

H_2: There is a significant difference of consumer goods sector's abnormal return before-after the announcement of first COVID-19 case

$H_{3:}$ There is a significant difference of banking sector's abnormal return before-after the announcement of first COVID-19 case

3. METHODS

This study uses a quantitative descriptive method. Company stock prices in Indonesia Stock Exchange is used as secondary data in this study. The population used in this study is the listed companies in Indonesia Stock Exchange in three sectors as follows: transportation, consumer goods, and banking. Research samples are determined through purposive sampling techniques in which the samples used in the study are selected according to the required criteria and information. The criteria in question are as follows: (1) Shares are listed as issuers on the Indonesia Stock Exchange, (b) Not de-listed during observation period, (c) Active shares were traded during observation period.

This research event study has twenty working days of the exchange as an event period and is divided into two periods. First, the period prior the event which is ten days before the announcement of the first confirmed case of COVID-19 in Indonesia, from February 17, 2020 to February 28, 2020. The second period is the period after the event, which is from March 3, 2020 to March 16, 2020. Data analysis was carried out using SPSS Statistics version 28.0.0.0 software. This study uses descriptive statistical tests and non-parametrical paired sample Wilcoxon signed ranked test.

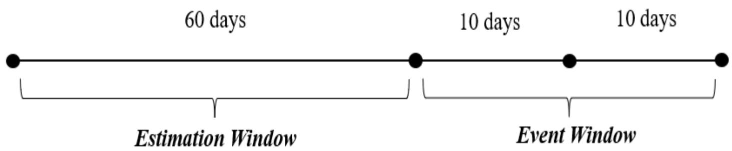

Figure 1 Event window of the announcement of first COVID-19 case in Indonesia

Table 1 The Summary of Operational Variable

Variable	Size	Scale
Stock Return (*Rit*)	$\frac{Pit - Pi(t-1)}{Pi(t-1)}$	Ratio
Abnormal Return (*Rmt*)	$\frac{JKSEt - JKSE(t-1)}{JKSE(t-1)}$	Ratio
Expected Return (E(*Rit*))	α + βRmt	Ratio
Abnormal Return (ARit)	Rit – E(Rit)	Ratio
Average Abnormal Return	$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t}$	Ratio

Statistical Test Results

Table 2 Descriptive statistic results of abnormal return on the announcement of the first confirmed case of COVID-19 in Indonesia

Average Abnormal Return			
Period	**Transport**	**Consumer Goods**	**Banks**
10 days before	0.00084	-0.00455	-0.0015
Event day	-0.00045	-0.0006	-0.00119
10 days after	-0.00084	0.00413	-0.00014

Based on Table 2, the first COVID-19 case announcement in Indonesia had a strong influence in transportation sector. The average fall dramatically at the event day to -0.00045. Even 10 days after, the average abnormal return of transportation sector didn't recover and experienced decrease along with the trading suspension of Indonesia Stock Exchange after the index corrected 5,01 percent. This decrease shows investors' concern of transportation companies' operations during COVID-19 pandemic that would become very limited.

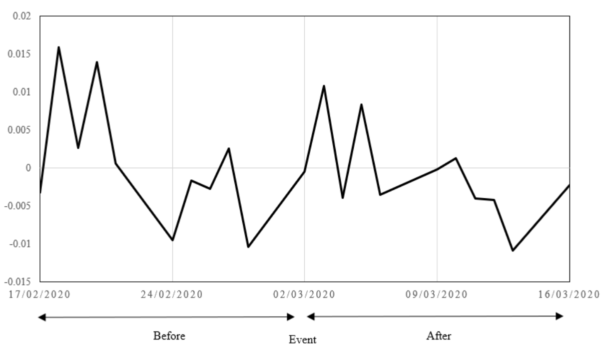

Figure 2 Average Abnormal Return of Transportation Sector

Table 2 also shows the abnormal return's difference of consumer goods companies due to the first COVID-19 case in Indonesia. In contrast to the transportation sector, the consumer goods sector experienced an increase of abnormal return. From the average of -0.00455 into a positive average of 0.00413. This value indicated that the information of first case of COVID-19 is used as a signal by the investors to divert their investments to consumer goods companies. Instant food, beverages, medication, vitamin, and face masks are commodities that sought the most by Indonesians. It also can be concluded the explosion of panic buying in Indonesia drove the increase of consumer goods sector' abnormal return. Investors became interested in the good prospects of consumer goods companies during this pandemic period.

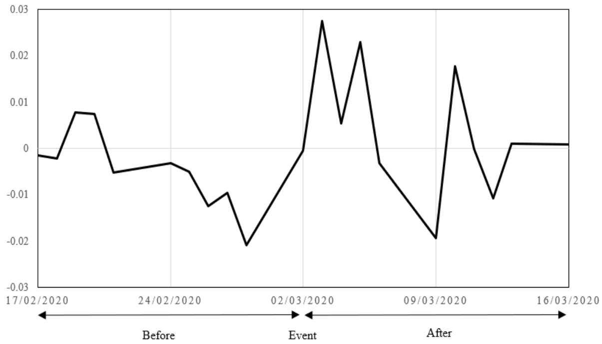

Figure 3 Average Abnormal Return of Consumer Goods Sector

Meanwhile the banking sector, before the announcement of COVID-19 first case in Indonesia had already experienced negative value of abnormal return. value is the result of the whole decline in world stock market index. Investors began to withdraw their investments and prioritize cash holding. Economic recessions became a main concern, considering banking companies are the sector most affected by a recession. Even 10 days after announcement of first COVID-19 case in Indonesia, average abnormal return of banking companies still scored a negative value. This was driven by the trading suspension of Indonesia Stock Exchange. The descriptive statistic results above implied that transportation and banking sectors are the most affected negatively by the COVID-19 pandemic.

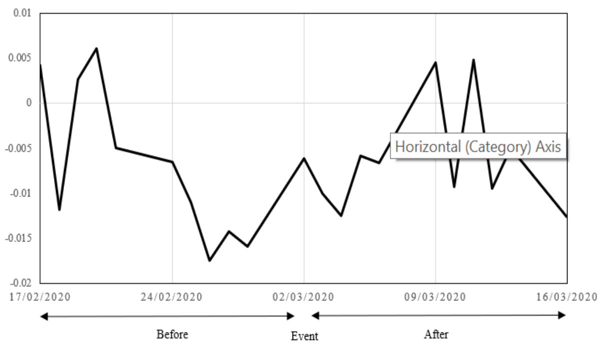

Figure 4 Average Abnormal Return of Banking Sector

Data Analysis Assumption Test Results

After conducting the test of normality, it is concluded that the data of transportation, consumer goods, and banking sector will be analysed using the non-parametrical paired sample Wilcoxon signed ranked test. The results of Wilcoxon test are below:

Table 3 Wilcoxon Signed-Ranked Test Results

	Transport	**Consumer Goods**	**Banks**
N	34	47	38
σ	58.491	94.499	68.955
Sig.	0.533	0.026	0.822

The result of the Wilcoxon Signed Rank Test for the transportation's average abnormal return for the period before and after the first COVID-19 case announcement show that the value of Asymp. Sig. (2-tailed) of 0.533. This value is greater than the significance level of 0.05 so, the result of Wilcoxon Signed Ranked Test rejects $H_{1.}$ It means that before-after the first COVID-19 case announcement in Indonesia, there is no difference of average abnormal return.

Through the results of the Wilcoxon Signed-Rank Test, it can be obtained the asymp value. Sig. (2-tailed) amounted to 0.026 for the average abnormal return of consumer goods company shares for the period before and after the announcement of the first confirmed case of COVID-19 in Indonesia. It means the result of Wilcoxon Signed Ranked Test accepts $H_{2.}$ This also means there is an abnormal difference in the average return of shares of consumer goods companies before-after the first COVID-19 case announcement in Indonesia.

Table 3 shows the Asymptotic Sig value. (2-tailed) for abnormal return of banking companies by 0.822 which is greater than 0.05. It means the result of Wilcoxon Signed Ranked Test rejects $H_{3.}$ Therefore, there is no significant difference of banking company average abnormal return before and after the COVID-19 first case announcement in Indonesia.

4. FINDINGS AND DISCUSSIONS

In testing hypothesis 1 through a different Wilcoxon Signed Ranked test before and after the first COVID-19 case announcement in Indonesia, there was no difference in the average abnormal return of transportation companies. From Table 3 it can be learned that the value of Asymp. Sig. (2-tailed) 0.533 which is greater than the specified level of significance, which is 0.05. Although the movement of abnormal average value returns tends to decrease in Table 2, but statistically, the decrease does not make a significant difference. This is due to several possibilities. The first possibility is that the majority of investors do not immediately withdraw their investments from transportation company shares and, instead, buy and hold when the performance of transportation company shares is falling. A second possibility could occur because investors have withdrawn their investments first before the first 10 days of the study's observation period, given that the first wave of coronavirus outbreaks are already spreading in foreign countries, causing a general decline in global stock indices. Investors wary of international news responded to the information as a signal to predict that the same decline would occur in Indonesia once the first case entered the territory of the republic.

Meanwhile, in testing hypothesis 2 was obtained asymp value. Sig. (2-tailed) 0.026 as stated in Table 3, is smaller than the specified level of significance, that is, 0.05. The obtained results mean the consumer goods companies average abnormal returns have a significant difference before-after the COVID-19 first case announcement in Indonesia. The movement of abnormal average value returns that tend to increase is statistically proven to provide a significant difference. This is not surprising considering the panic arising from the announcement of COVID-19 cases stimulates public demand in terms of instant food and drink, medicines, hand sanitizer, and masks.

Then in testing hypothesis 3 obtained Asymp. Sig. (2-tailed) 0.822 which is greater than the 0.05 significance level. From these results it can be concluded that there is no difference in the abnormal average return of banking companies before and after the event day. The absence of significant abnormal return differences indicates that during the twenty-first observation period, Indonesian banking stocks were not sufficiently affected by the announcement of the first confirmed case of COVID-19. This means that the Indonesian stock market does not react quickly to the information available. There is no significant difference can also occur because the Indonesian stock market itself has previously been affected by the fall in the world stock market index. In addition, the reduction in Bank Indonesia's benchmark interest rate on February 20, 2020 had an impact on the lowering of bank lending rates. This one factor can also be the possibility of investors withdrawing their capital long before the event day of banking stocks.

The results of this study are consistent with research from Herwany et al. [8] which concluded that there was no significant influence of the COVID-19 pandemic on the transportation sector. This according to Herwany et al. [8] occurs because abnormal returns in the transportation sector tend to be constant during the observation period of 61 days despite pessimism on the day of the announcement regarding the COVID-19 pandemic obtained. The opinion of Herwany et al. [8] is in line with the results of this study where the average abnormal return fell on March 2, 2020.

The results of this study are in line with the conclusions of Mugiarni and Wulandari [9] who found that the consumer goods sector was positively and significantly affected by the COVID-19 pandemic. This study is also consistent with the results of a study from Machmuddah et al. [10] in which he said there was a stock return significant difference during the period before and after the COVID-19 pandemic in the consumer goods sector. In his research it was found that consumer goods sector stocks were relatively stable before entering the period January - March 2020 where the shock caused by the COVID-19 pandemic resulted in investors to sell and buy shares in high intensity.

In addition, the results of this study are also in line with research from He et al. [6] where it was concluded that the banking sector was less affected by the COVID-19 pandemic. This is because according to him traditional sectors such as mining, agriculture, property received a strong negative influence from the COVID-19 pandemic.

On the other hand, this study is inconsistent with research from Ozturk et al. [7] that showed a significant influence of COVID-19 on the transportation sector. Coronavirus cases in Europe negatively affected Turkey's stock market, with the services, transport, financial and industrial sectors taking the heaviest hit. This research is also not in line with the research He et al. [6] which in his research proved the transportation sector is severely affected by the COVID-19 pandemic and quarantine policy in China. Many road restrictions carried out by the Chinese government directly lower the performance of shares from the transportation sector.

The results of this study are not consistent with the research from He et al. [6] which states that the consumer goods sector is less affected by the COVID-19 pandemic. The consumer goods sector, which includes food and healthcare companies, is less affected because it benefits from the demand during the COVID-19 pandemic. Meanwhile, the results of this study are inconsistent with a study from Kunt et al. [11] which found a significant influence on the COVID-19 pandemic on the banking sector. The results of the study from Lailiyah et al. [12] concluded that there was a difference in average abnormal return before and after COVID-19 was also not in line with the results of this study. According to him, the first case of COVID-19 in Indonesia became a pessimistic sentiment of investors so that many played it safe to sell the banking stocks they owned.

5. CONCLUSIONS

From the analysis of abnormal return tests above, it resulted in no significant difference of transportation and banking companies' average abnormal return at the time of COVID-19 first case announcement in Indonesia. From this research, it can also be concluded a significant difference of average abnormal return in consumer goods companies before-after the announcement event.

From the research of this event, it can also be known that the overall Indonesian stock market reaction to the first COVID-19 case announcement can be said as weak-form market efficiency. This is because COVID-19 pandemic as unexpected information cannot be accounted before the event happened. Therefore, investors cannot predict the future stock prices from the past prices.

The results obtained from this study are expected to be a reference for further researchers in observing stock market reactions to unexpected events through the lens of sectors and industries that sustain a country, not just as a whole. For the government, this research is expected to provide policy considerations that should be done in the face of unexpected events in the future. The policy can be a step to mitigate the stock market crash and to provide relief to the affected sectors of the company. The results from this study also expected to be a consideration for investors to diversify investment portfolio to a more profitable investment during a pandemic.

This research has some limitations that are expected to be improved in future research. Some of these limitations include, (a) The sample covers only three sectors of the company, namely transportation, consumer goods, and banking (b) Research is limited to the COVID-19 pandemic event, where there are other events that can affect the abnormal return of shares, (c) Research uses a 21-day observation period of exchanges where in that period the abnormal return data obtained may have been influenced by information or other events, (d) Observation days used is only 10 days and don't actually represent the impact of COVID-19 in Indonesia in general, only the effect of the first announcement of COVID-19 case in Indonesia.

The results of this study are expected to be a benefit for further researchers with some of the following suggestions: (a) Further research can move to other sectors, such as mining and manufacturing, (b) Further research can use other events in the pandemic, such as the announcement of Large-Scale Social Restrictions that also played the role that decreased Indonesia Stock Market Index (c) Pay attention to the determination of observation periods. According to Oler et al. [13], the most common observation period is 5 days before and 5 after the event. The result of this research also expected to be a benefit for investor as a guideline in investing, where not only technical analysis is taken into account, but also vigilance against events that occur in the world and Indonesia.

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