



UDC 332; DOI 10.18551/rjoas.2023-11.01

OVERREACTION ANALYSIS OF INDONESIAN CAPITAL MARKET INVESTORS AFTER THE ANNOUNCEMENT OF THE FIRST COVID-19 CASE IN INDONESIA

Saputra I Gede Prabawa Adi, Gayatri, Yasa Gerianta Wirawan,
Widanaputra Anak Agung Gde Putu

Faculty of Economics and Business, University of Udayana, Bali, Indonesia

E-mail: rasumaputri@gmail.com

ABSTRACT

This study aims to obtain empirical evidence regarding investor overreaction in winner stocks and investor overreaction in loser stocks after the announcement of the first COVID-19 case in Indonesia. Overreaction analysis was carried out in 11 IDX-IC stock sectors. Winner shares and loser shares were selected from one third stock with the highest CAR value and one third stock with the lowest CAR value for each sector. The analysis technique used is the Dependent Paired Sample t-Test by comparing the AAR values of winner or loser stocks on the first 30 trading days after the announcement of the COVID-19 case with the AAR of winner or loser stocks on the next 30 trading days. The results showed that there was investor overreaction after the announcement of the first COVID-19 case in Indonesia, both in loser stocks and in winner stocks. Overreaction in loser stocks occurred in the infrastructure sector, the financial sector and the technology sector. Overreaction in winner stocks occurred in the consumer non-cyclical sector, the energy sector, the basic materials sector, the consumer cyclical sector and the property & real estate sector.

KEY WORDS

Overreaction hypothesis, efficient market hypothesis, public service.

According to Nofsinger & Sias, (1999) individual investors make more irrational decisions than institutional investors. This statement is supported by the results of Huo & Qiu's research, (2020) related to the reaction of Chinese stock market investors to lockdown announcements due to the COVID-19 pandemic which shows that overreaction is stronger in companies with low institutional ownership, which means that individual investors are more likely to overreact. With the increasing number of new investors in the Indonesian capital market and the presence of dramatic information that has never happened before, namely the COVID-19 case, the tendency for overreaction by investors is getting higher.

One theory that can explain the relationship between information and security prices is the efficient market hypothesis (EMH). Market conditions are said to be efficient if the market reacts quickly and accurately to reach a new equilibrium price to the available information (Sambuari et al., 2020). The efficient market hypothesis explains that in a rational and efficient market prices fully reflect all available information (Fama, 1970). In an efficient market, investors cannot earn abnormal returns because shares will always trade at their fair value (Reddy et al., 2020). Thus it can be said that an efficient market is indicated by the speed and accuracy of investor reactions to incoming information. However, in many studies, there are some deviations related to the efficient market hypothesis. These deviations are usually referred to as efficient market anomalies. The overreaction anomaly is one type of efficient market anomaly (Mujadiddah et al., 2020). The overreaction anomaly shows that investors sometimes overreact in response to information so that the price formed is overprice or underprice. The overreaction that occurs results in a significant price deviation from its fundamental value over a period of time and will normally lead to a price correction in the next period (Caporale & Plastun, 2019). This condition can be utilised by investors to obtain abnormal returns with the opposite investment strategy or what is commonly called a contrarian strategy (Burhanudin et al., 2021).

Early research related to market overreaction was conducted by De Bondt & Thaler, (1985). The study used monthly stock return data of companies listed on the New York Stock



Exchange between January 1926 and December 1982. De Bondt & Thaler, (1985) found that there is an overreaction phenomenon indicated by the price reversal where stocks that previously performed poorly (loser) will outperform stocks that perform well (winner). Investor overreaction research in the capital market is then widely conducted in various countries both in developing and developed capital markets. Investor overreaction research is conducted with various test periods, both short-term, medium-term and long-term. In addition, various methods and different data analysis techniques are applied to analyse investor overreaction. Investor overreaction research has been conducted, among others, by Jiménez & Calisto, (2020) in the Mexican Stock Market for the period 2002 - 2015 with the results found price reversal as an indication of investor overreaction behaviour. Reddy et al., (2020) conducted research in the emerging capital market Shanghai Stock Market after the 2007 global financial crisis (GFC) and found that in the short and medium term loser stocks outperformed winner stocks as an indication of overreaction behaviour. Said et al., (2021) conducted research on the Pakistan Stock Exchange in the pre-financial crisis period, during the financial crisis and post-financial crisis. In the pre-global financial crisis (GFC) period of 2004 - 2006, no investor overreaction was found. Winner stocks continued to perform well and loser stocks continued to underperform. In the period of global financial crisis (GFC) in 2007 - 2009, the phenomenon of investor overreaction was found. In the post-global financial crisis (GFC) period, no investor overreaction behaviour was found except in a few periods. Research on investor overreaction around the COVID-19 pandemic event was conducted by Huo & Qiu, (2020) who conducted research on the Chinese stock market. Huo & Qiu, (2020) show that overreaction occurs both at the industry level and the company level. Nineteen of the twenty-two industry sectors that previously (at the time of the lockdown announcement) had a negative cumulative abnormal return (CAR) turned to have a positive CAR in less than a month later. The pharmaceutical and biotechnology industries which previously had the highest CAR in the lockdown announcement period became the lowest CAR in the post lockdown announcement period.

Overreaction research in the Indonesian capital market was conducted among others by Musnadi et al. (2018) who investigated nine stock sectors for the period 2009 - 2012 with observation sets of 26 weeks, 52 weeks, 78 weeks and 104 weeks. Based on the results of the analysis, it is known that there is investor overreaction in all sectoral indices of the Indonesian capital market. Tanady & Sukamulja, (2020) conducted research on overreaction of Indonesian capital market investors in companies included in the LQ-45 index for the period 2015 to 2019. Based on the results of the analysis, it is known that there is market overreaction in the winner stock portfolio and loser stock portfolio both in the short and long term. Mujadiddah et al. (2020) conducted research on short-term overreaction of Islamic stocks in Indonesia on the event of Donald Trump's election as president of the United States and the bombing in Surabaya. Based on the results of the analysis, it is known that there is an overreaction of investors in Islamic stocks in Indonesia both in the event of the election of Donald Trump and the bombing in Surabaya. Gumanti et al. (2019) conducted a market overreaction analysis on LQ-45 stocks on the announcement of the 18th Asian Games on 25 July 2014. Based on the results of the analysis, it is known that there is a market overreaction in the Indonesian capital market. Burhanudin et al., (2021) conducted overreaction research using 100 stocks with the most transactions during 2019 and found the results that there was investor overreaction in the 1-week, 2-week, 3-week and 4-week tests. Kinesti, (2021) conducted short-term overreaction research on IDX 80 stocks. Based on the analysis results, it is known that there is a market overreaction in the 5-day test. The opposite results were found in several investor overreaction studies including, Hadimas, (2019) did not find any market overreaction in LQ-45 stocks for the period 2014 - 2018. Rachmawati et al., (2023) did not find any market overreaction in LQ-45 companies for the period 2017-2020. Satria & Yadnya, (2021) did not find any market overreaction in the winner stocks or loser stocks of IDX 30 for the period 2016 - 2019. Puspitasari et al., (2020) did not find any investor overreaction in LQ-45 stocks after the announcement of work from home (WFH) in Indonesia.



LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Huo & Qiu, (2020) who conducted research on investor overreaction to lockdown announcements due to the COVID-19 pandemic in the China Stock Market also found an overreaction of loser stocks as indicated by the reversal of 19 industries in the Chinese capital market which previously had a negative CAR when the lockdown announcement due to COVID-19 in one month then turned to have a positive CAR. Jiménez & Calisto, (2020) who conducted market overreaction research in the Mexican Stock Market also found investor overreaction in loser stocks. Reddy et al., (2020) who conducted research on investor overreaction in the Shanghai Stock Market after the global financial crisis found a reversal in loser stocks in both the short term (3 months) and medium term (6 months). In the short-term test, Reddy et al. (2020) also conducted a regression test and found a negative relationship between the abnormal return (AR) of the formation period and the AR of the formation period, indicating a reversal. Lerskullawat & Ungphakorn, (2019) who conducted research on the Thai stock exchange found an overreaction on loser stocks due to investors undervaluing loser stocks. Similar results were found by Tanady & Sukamulja, (2020) on the Indonesia Stock Exchange especially LQ-45 index stocks where overreaction was found in loser stocks both in the medium term (4 months, 8 months and 1 year) and long term (2.5 years, 3.5 years and 4.5 years).

Overreaction occurs because investors are biased in assessing information from unexpected events or dramatic events that make investors make mistakes in making investment decisions. The COVID-19 pandemic is an unexpected and dramatic event that has never happened before. Economic uncertainty has increased due to the COVID-19 pandemic and social restriction policies implemented by the government to prevent the spread of COVID-19. Investor overreaction in loser stocks can occur due to investors' irrational behaviour by overreacting in response to information that is considered bad. In the phenomenon of the announcement of the COVID-19 case, there is a possibility that there will be an overreaction from investors by selling excessively stocks that are expected to be negatively affected by the COVID-19 case.

H1: There is investor overreaction behavior on loser stocks.

Huo & Qiu, (2020) also found that 51% of stocks with the highest CAR turned around to occupy the group with the lowest CAR. Jiménez & Calisto, (2020) who conducted market overreaction research in the Mexican Stock Market also found overreaction in winning stocks. Tanady & Sukamulja, (2020) also found investor overreaction in the winning stocks of the LQ-45 index. In sharia stocks on the Indonesia Stock Exchange, it was also found that there was a significant overreaction in the winning stocks by Mujadiddah et al., (2020). Burhanudin et al. (2021) using data on 100 companies with the most transactions during 2019 on the Indonesia Stock Exchange also found overreaction of winning stocks in the 1-week, 2-week, 3-week and 4-week tests.

Although the COVID-19 pandemic is a dramatic event that brings economic uncertainty due to social restriction policies implemented by the government, some sectors, especially the healthcare sector, can be positively affected by the COVID-19 pandemic. In the phenomenon of the announcement of the COVID-19 case, there is a possibility of an overreaction from investors by buying excessive shares of companies that are expected to be positively affected.

H2: There is overreaction behavior of investors in winner stocks.

METHODS OF RESEARCH

The location of this research is in the Indonesian capital market, namely the Indonesia Stock Exchange. Investor overreaction analysis in this study was conducted in each sector on the Indonesia Stock Exchange. The sector classification uses the IDX Industrial Classification (IDX-IC). The reason for using IDX-IC is because IDX-IC is the latest classification so that the findings of this study will be more useful because it can be used by investors in making investment strategies in the coming years. The reason for analyzing



each sector is to provide more comprehensive results because some previous studies have only focused on one sector or index. Another reason is because the announcement of the COVID-19 case certainly has an impact on investor reactions that are different for each type of company so there is a possibility that investor overreaction occurs differently in each sector.

The time of this study is after the announcement of the first COVID-19 case in Indonesia on 2 March 2020. The research time is then divided into formation period and testing period. The formation period or portfolio formation period was selected from the first trading day after the announcement ($t+1$) on 3 March 2020 to the thirtieth trading day after the announcement ($t+30$) on 15 April 2020. The testing period is selected for thirty trading days after the formation period, from 16 April 2020 ($t+31$) to 4 June 2020 ($t+60$).

The variables used to analyse investor overreaction in this study are average abnormal return portfolio winner (AAR_w) and average abnormal return portfolio loser (AAR_L). The population in this study were all stocks listed on the Indonesia Stock Exchange during the research period from 2 March 2020 to 4 June 2020. The research sample was selected using purposive sampling method which is a method of determining the sample by determining certain criteria (Sugiyono, 2017). The criteria used are as follows:

- Companies listed on the Indonesia Stock Exchange for the period 2 March 2020 - 4 June 2020;
- Companies that did not experience suspension during the period 2 March 2020 - 4 June 2020;
- Actively traded during the research period 2 March 2020 - 4 June 2020;
- Price data during the period 2 March 2020 - 4 June 2020 is available in full.

The paired sample t-test dependent test in this study was conducted with the help of SPSS software. This study uses a directional hypothesis test. In addition to testing whether there is a difference in the average of two paired samples, it is also seen the direction of the two samples being compared whether there is a decrease or increase. The basis for decision making uses a 95% confidence level and degrees of freedom with a significance level of 5%.

RESULTS AND DISCUSSION

Based on the results of the normality test with Shapiro-Wilk summarised in Table 1, it can be explained as follows:

- Value (Shapiro-Wilk) Sig. AARL industrials sector formation period $0.242 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL of the industrials sector testing period $0.659 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL of the technology sector formation period $0.131 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL of the technology sector testing period $0.747 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL formation period of the transportation & logistics sector $0.140 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL of the transportation & logistics sector testing period $0.164 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL of the infrastructure sector formation period $0.076 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL infrastructure sector testing period $0.665 > 0.05$ thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL of the financial sector formation period $0.615 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARL financial sector testing period $0.734 > 0.05$, thus the data is normally distributed.



Table 1 – Normality Test of AAR Loser Stocks

	Shapiro-Wilk		
	Statistic	Df	Sig.
Industrials Sector			
AARL Formation Period	0.956	30	0.242
AARL Testing Period	0.974	30	0.659
Technology Sector			
AARL Formation Period	0.946	30	0.131
AARL Testing Period	0.977	30	0.747
Transportation & Logistics Sector			
AARL Formation Period	0.947	30	0.140
AARL Period of Testing	0.949	30	0.164
Infrastructure Sector			
AARL Formation Period	0.937	30	0.076
AARL Testing Period	0.974	30	0.665
Financial Sector			
AARL Formation Period	0.973	30	0.615
AARL Testing Period	0.977	30	0.734

Source: Secondary Data, 2023.

Table 2 – Normality Test of AAR Winner Stocks

	Shapiro-Wilk		
	Statistic	Df	Sig.
Healthcare Sector			
AARW Formation Period	0.949	30	0.164
AARW Testing Period	0.949	30	0.155
Consumer Non-Cyclical Sector			
AARW Formation Period	0.949	30	0.160
AARW Test Period	0.985	30	0.937
Energy Sector			
AARW Formation Period	0.955	30	0.225
AARW Test Period	0.967	30	0.468
Basic Materials Sector			
AARW Formation Period	0.962	30	0.348
AARW Testing Period	0.967	30	0.456
Property & Real Estate Sector			
AARW Formation Period	0.945	30	0.123
AARW Testing Period	0.952	30	0.193
Consumer Cyclical Sector			
AARW Formation Period	0.954	30	0.219
AARW Testing Period	0.981	30	0.842

Source: Secondary Data, 2023.

Based on the results of the Shapiro-Wilk normality test summarised in Table 2, it can be explained as follows:

- Value (Shapiro-Wilk) Sig. AARW healthcare sector formation period $0.164 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW healthcare sector testing period $0.155 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW formation period of the consumer non-cyclical sector $0.160 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW test period for the consumer non-cyclical sector $0.937 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW for the energy sector formation period $0.225 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW of the energy sector testing period $0.468 > 0.05$, thus the data is normally distributed;



- Value (Shapiro-Wilk) Sig. AARW for the basic materials sector formation period is $0.348 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW test period basic materials sector $0.456 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW for the property & real estate sector formation period $0.123 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW test period property & real estate sector $0.193 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW formation period of the consumer cyclical sector $0.219 > 0.05$, thus the data is normally distributed;
- Value (Shapiro-Wilk) Sig. AARW test period consumer cyclical sector $0.842 > 0.05$ thus the data is normally distributed.

Based on the results of normality testing, it is known that the AARL data for the industrials sector, AARL technology sector, AARL transportation & logistics sector, AARL infrastructure sector, AARL financial sector, AARw healthcare sector, AARw consumer non-cyclical sector, AARw energy sector, AARw basic material sector, AARw property & real estate sector and AARw consumer cyclical sector are normally distributed, thus hypothesis testing can be carried out using the dependent paired sample t-test.

Hypothesis Result

In the overreaction analysis of loser stocks if the Sig. (2-tailed) < 0.05 then H_a is accepted. The AARL value of the test period is greater than the AARL value of the formation period, thus it can be said that there is an overreaction in loser stocks after the announcement of the first COVID-19 case in Indonesia. In the overreaction analysis of winner stocks if the Sig. (2-tailed) < 0.05 then H_a is accepted. The AARw value of the test period is smaller than the AARL value of the formation period, thus it can be said that there is an overreaction in winner stocks after the announcement of the first COVID-19 case in Indonesia. The results of the dependent paired sample t-test on the loser stock portfolio are summarised in the following table:

Table 3 – Dependent Paired Sample t-Test of Loser Stocks

Sector	Rara-rata AAR			t-value	df	Sig. (2-tailed)
	Formation	Testing	Differences			
Industrials	-0.00211	0.00175	0.00386	-0.780	29	0.442
Technology	-0.01945	0.00010	0.01955	-14.460	29	0.000
Transportation & Logistics	-0.01267	-0.00188	0.01079	-1.334	29	0.193
Infrastructure	-0.00828	0.00072	0.00900	-2.496	29	0.018
Financial	-0.00771	0.00007	0.00777	-2.272	29	0.031

Source: Primary Data, 2023.

Based on the results of the Dependent Paired Sample t-Test on loser stocks summarised in Table 3, it can be explained as follows:

- Sig value. (2-tailed) for the industrials sector is $0.442 > 0.05$, so H_a is rejected, thus there is no overreaction of investors in industrials sector loser stocks after the announcement of the first COVID-19 case in Indonesia;
- Sig value. (2-tailed) value for the technology sector is $0.000 < 0.05$, then H_a is accepted, thus there is an overreaction of investors in the loser stocks of the technology sector after the announcement of the first COVID-19 case in Indonesia;
- Sig value. (2-tailed) for the transportation & logistics sector is $0.193 > 0.05$, then H_a is rejected, thus there is no overreaction of investors in the loser stocks of the transportation & logistics sector after the announcement of the first COVID-19 case in Indonesia;
- Sig value. (2-tailed) for the infrastructure sector $0.018 < 0.05$, then H_a is accepted, thus there is an overreaction of investors in the loser stocks of the infrastructure sector after the announcement of the first COVID-19 case in Indonesia;



- Sig value. (2-tailed) for the financial sector 0.031 <0.05, then H_a is accepted, thus there is an overreaction of investors in the loser stocks of the financial sector after the announcement of the first COVID-19 case in Indonesia.

The results of the paired sample t-test dependent test on the winner stock portfolio are summarised in the following table:

Table 4 – Dependent Paired Sample t-Test of Winner Stocks

Sector	Rara-rata AAR			T	df	Sig. (2-tailed)
	Formation	Testing	Differences			
Healthcare	0.01822	0.00557	0.01265	1.200	29	0.240
Consumer Non-Cyclical	0.01128	- 0.00208	0.01336	3.566	29	0.001
Energy	0.00948	- 0.00341	0.01289	2.482	29	0.019
Basic Materials	0.00830	- 0.00164	0.00994	3.285	29	0.003
Property & Real Estate	0.01054	-0.00726	0.01780	-15.290	29	0.000
Consumer Cyclical	0.00660	- 0.00270	0.00930	2.213	29	0.035

Source: Secondary Data, 2023.

Based on the results of the dependent paired sample t-test on winner stocks summarised in Table 4, it can be explained as follows:

- Sig value. (2-tailed) for the healthcare sector 0.240 > 0.05, then H_a is rejected, thus there is no overreaction of investors in the winner stocks in the healthcare sector after the announcement of the first COVID-19 case in Indonesia;
- Sig value. (2-tailed) for the consumer non-cyclical sector 0.001 < 0.05, then H_a is accepted, thus there is an overreaction of investors in the winner stocks of the consumer non-cyclical sector after the announcement of the first COVID-19 case in Indonesia;
- Sig value. (2-tailed) for the energy sector 0.019 <0.05, then H_a is accepted, thus there is an overreaction of investors in the winner stocks of the energy sector after the announcement of the first COVID-19 case in Indonesia;
- Sig value. (2-tailed) for the basic material sector is 0.003 <0.05, then H_a is accepted, thus there is an overreaction of investors in the winner stocks of the basic material sector after the announcement of the first COVID-19 case in Indonesia;
- Sig value. (2-tailed) for the property & real estate sector 0.000 <0.05, then H_a is accepted, thus there is an overreaction of investors in the winner stocks of the property & real estate sector after the announcement of the first COVID-19 case in Indonesia;
- Sig value. (2-tailed) for the consumer cyclical sector 0.035 <0.05, then H_a is accepted, thus there is an overreaction of investors in the winner stocks of the consumer cyclical sector after the announcement of the first COVID-19 case in Indonesia.

CONCLUSION

The results showed overreaction on loser stocks in the technology sector, infrastructure sector and financial sector. While overreaction on winner stocks occurs in the consumer non-cyclical sector, energy sector, basic material sector, property & real estate sector and consumer cyclical sector. With the results found that there is still overreaction behaviour in several stock sectors on the Indonesia Stock Exchange, investors and potential investors in investing can apply contrarian strategies while still paying attention to the type and characteristics of the company and its relationship with the information that is currently circulating. This research is expected to be used as a consideration and reference for future research that examines investor overreaction in the capital market. Theoretically, this research can contribute more comprehensive knowledge and insights regarding the development of science, especially in terms of verifying the theory referred to in this study. The theory used as a reference in this study is the overreaction hypothesis which originally



came from the research of De Bondt & Thaler, (1985) which proposes two main hypotheses, namely: 1) Extreme stock price movements will be followed by price movements in the opposite direction, and 2) The more extreme the initial price movement, the more extreme the subsequent adjustment. Both hypotheses imply opposition to weak-form market efficiency. The results of this study at least verify the overreaction hypothesis.

REFERENCES

1. Adnyani, I. P., & Gayatri, G. (2018). Analisis Reaksi Pasar terhadap Pengumuman Merger and Akuisisi Pada Perusahaan Akuisitor yang Terdaftar di BEI. *E-Jurnal Akuntansi*, 23(3), 1870–1899.
2. Anggraeni, I. S. K. (2020). Anomali Overreaction Hypothesis di Bursa Efek Indonesia. *Research Fair Unisri*, 4(1), 161–168.
3. Baker, S. R., Farrokhnia, R. A., Meyer, S., Pagel, M., & Yannelis Booth, C. (2020). How Does Household Spending Respond to an Epidemic? Consumption during the 2020 COVID-19 Pandemic. *OUP Public Health Emergency Collection*, 1–37.
4. Borgards, O., Czudaj, R. L., & Hoang, T. H. Van. (2021). Price Overreactions in The Commodity Futures Market: An Intraday Analysis of The Covid-19 Pandemic Impact. *Resources Policy*, 71, 1–36.
5. Burhanudin, B., Mandra, I. G., & Wardani, L. (2021). Profitabilitas Strategi Kontrarian di Bursa Efek Indonesia . *JMM UNRAM*, 10(2), 146–159.
6. Caporale, G. M., & Plastun, A. (2019). On Stock Price Overreactions: Frequency, Seasonality and Information Content. *Journal of Applied Economics*, 22(1).
7. De Bondt, W. F. M., & Thaler, R. (1985). American Finance Association Does the Stock Market Overreact? *The Journal of Finance*, 40(3), 793–805.
8. Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, 25(2), 383–417.
9. Fama, E. F. (1991). American Finance Association Efficient Capital Markets: II. *The Journal of Finance*, 46(5), 1575–1617.
10. Ghozali, I. (2016). Aplikasi Analisis Multivariate dengan Program IBM SPSS 23. Badan Penerbit Universitas Diponegoro.
11. Gumanti, T. A., Kasprianti, M. D., & Mufidah, A. (2019). Market Overreaction Saham LQ-45 Terhadap Pengumuman Asian Games Ke-18. *Wahana: Jurnal Ekonomi, Manajemen and Akuntansi*, 22(2), 186–203.
12. Hadimas, H. (2019). Overreaction Anomaly di Pasar Modal Indonesia (Studi pada Saham-saham LQ-45 tahun 2014-2018). *Journal of Business Economics*, 24(1), 88–99.
13. Harjoto, M. A., Rossi, F., Lee, R., & Sergi, B. S. (2021). How Do Equity Markets React to COVID-19? Evidence from Emerging and Developed Countries. *Journal of Economics and Business*, 115, 1–38.
14. Haroon, O., & Rizvi, S. A. R. (2020). COVID-19: Media Coverage and Financial Markets Behavior—A Sectoral Inquiry. *Journal of Behavioral and Experimental Finance*, 27, 1–5.
15. Huo, X., & Qiu, Z. (2020). How Does China's Stock Market React to The Announcement of The COVID-19 Pandemic Lockdown? *Economic and Political Studies*, 8(4), 436–461.
16. Jiménez, J. G. M., & Calisto, E. O. (2020). Testing the overreaction hypothesis in the Mexican stock market. *Contaduria y Administracion*, 65(1).
17. Jogiyanto, H. (2017). Teori Portofolio and Analisis Investasi (Kesebelas). BPFYogyakarta.
18. Kahneman, D., Slovic, P., & Tversky, A. (1982). "The Simulation Heuristic" in Kahneman, D., Slovic, P. and Tversky, A. (Eds) *Judgement Under Uncertainty: Heuristics and Biases* (D. Kahneman, P. Slovic, & A. Tversky, Eds.). Cambridge University Press.
19. Kinesti, A. (2021). Analisis Overreaction Behavior pada Saham Ix80 Saat Kondisi Market Bearish (Studi pada Masa Pandemi Covid-19). *Jurnal Ilmiah Mahasiswa FEB*.
20. Lerskullawat, P., & Ungphakorn, T. (2019). Does Overreaction Still Exist in Thailand? *Kasetsart Journal of Social Sciences*, 40(3), 689–694.
21. Mujadiddah, S., Achsani, N. A., & Irfany, M. I. (2020). Short-Term Overreaction of Islamic



- Stocks to Specific Events in Indonesia. *Journal of Islamic Monetary Economics and Finance*, 6(1), 117–134.
22. Musnadi, S., Faisal, & Majid, M. S. A. (2018). Overreaction and Underreaction Anomalies in The Indonesian Stock Market: A Sectoral Analysis. *International Journal of Ethics and Systems*, 34(4), 442–457.
 23. Nasution, D. A. D., Erlina, E., & Muda, I. (2020). Dampak Pandemi COVID-19 terhadap Perekonomian Indonesia. *Jurnal Benefita*, 5(2), 212.
 24. Nofsinger, J. R., & Sias, R. W. (1999). Herding and Feedback Trading by Institutional and Individual Investors. *The Journal of Finance*, 54(6), 2263–2295.
 25. Nugraha, A. S. (2020). How Behavioral Finance during Pandemic COVID-19? *Business Innovation & Entrepreneurship Journal*, 2(2), 131–137.
 26. Plastun, A., Makarenko, I., Khomutenko, L., Belinska, Y., & Domashenko, M. (2018). Exploring Frequency of Price Overreactions in the Ukrainian Stock Market. *Investment Management and Financial Innovations*, 15(3), 157–168.
 27. Puspitasari, A. P., Atahau, A. D. R., & Sakti, I. M. (2020). Potensi Overreaction Terhadap Harga Saham Setelah Pengumuman Work From Home. *Jurnal Manajemen and Bisnis Fakultas Ekonomi Universitas Muhammadiyah Ponorogo*, 3(2), 36–46.
 28. Putri, H. T. (2020). Covid 19 and Harga Saham Perbankan di Indonesia. *Jurnal Ilmiah Ekonomi and Bisnis*, 11(1), 6.
 29. Rachmawati, E. N., Saputra, R., & Penjaitan, K. (2023). Analisis Market Overreaction pada Saham Perusahaan LQ-45 yang Terdaftar di Bursa Efek Indonesia . *Journal Competency of Business*, 7(1), 26–49.
 30. Rahmani, A. N. (2020). Dampak COVID-19 Terhadap Harga Saham and Kinerja Keuangan Perusahaan (Studi pada Emiten LQ 45 yang listing di BEI). *Jurnal Akuntansi Kajian Akuntansi*, 21(2), 252–269.
 31. Reddy, K., Qamar, M. A. J., Mirza, N., & Shi, F. (2020). Overreaction Effect: Evidence From an Emerging Market (Shanghai Stock Market). *International Journal of Managerial Finance*, 17(3), 416–437.
 32. Said, B., Rehman, S. U., Ullah, R., & Khan, J. (2021). Investor Overreaction and Global Financial Crisis: A Case of Pakistan Stock Exchange. *Cogent Economics and Finance*, 9(1), 1–18.
 33. Sambuari, I. B., Saerang, I. S., & Maranis, J. B. (2020). Reaksi Pasar Modal Terhadap Peristiwa Virus Corona (COVID-19) pada Perusahaan Makanan and Minuman yang Terdaftar di Bursa Efek Indonesia. *Jurnal Ilmiah Manajemen Bisnis and Inovasi Universitas Sam Ratulangi*, 7(3), 407–415.
 34. San Marino, W., & Rohanah, A. S. (2021). Pengaruh COVID-19 Terhadap Pasar Modal di Indonesia. *Jurnal Perbankan and Keuangan*, 2(2), 98–104.
 35. Saputro, A. E. (2020). Analisis Harga Saham Syariah and Volume Perdaganganannya Sebelum and Sesudah Pengumuman Covid 19. *Economic & Education Journal*, 2(2), 159–168.
 36. Satria, I. G. A. E., & Yadnya, I. P. (2021). Market Overreaction pada IDX 30 (Periode Penelitian 2016-2019). *E-Jurnal Manajemen Universitas Udayana*, 10(8), 779.
 37. Sugiyono, P. D. (2017). *Metode Penelitian Kuantitatif, Kualitatif and R&D*. Alfabeta.
 38. Tanady, M., & Sukamulja, S. (2020). Market Overreaction pada Bursa Efek Indonesia dengan Size Effect Sebagai Variabel Pemoderasi. *Jurnal Ekonomi Bisnis and Kewirausahaan*, 9(3), 206–217.
 39. Vera, K. (2022). Pengaruh Covid-19 Terhadap Harga Saham and Volume Transaksi Saham pada Industri. *Jurnal Riset Akuntansi & Perpajakan (JRAP)*, 9(02).