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The Momentum Strategy of Small Foreign Investors in the Indonesia Stock Exchange*

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Abstract

This research aimed to analyze the momentum strategy of foreign investors with the smallest trading transactions in the Indonesian stock market. This study applied a quantitative method approach using intraday transaction data of companies listed on the LQ-45 Index for March, April, and May 2017, obtained from the Indonesia Capital Market Institute (TICMI) which is a subsidiary of the Indonesia Stock Exchange (IDX). The number of companies with available data is 35 companies, consisting of 23 non-government stocks and 12 government stocks. The number of observations from the 35 companies was 8,686,030 observations where the government companies recorded 2,751, 545 and the non-government companies 1,387,016 observations. All data was then squeezed and grouped into small, medium, and large trade transaction orders. The data analysis method used was paired *t*-test with SPSS to analyze cumulative abnormal returns in the formulation and test periods. This study found that small foreign investors carried out momentum strategies on stocks listed on the LQ-45 Index. However, re-testing was done by separating government and non-government shares. It turned out that small foreign investors performed a momentum strategy on non-government and a contrarian strategy on government.

Keywords: Strategy, Momentum, Foreign, Investor, Indonesia

JEL Classification Code: G11, G12, G14, D40

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1. Introduction

Before the Covid-19 outbreak, the Indonesia Stock Exchange (IDX) was among the best performing stock markets. Since 2016, the IDX has been the largest capital market in ASEAN and has the second-largest Composite Index in Asia with a market capitalization growth of 22.95%, up from 5,565.92 trillion in 2015 to 5,639.37 trillion in 2016. Meanwhile, the market capitalization growth for Malaysia Stock Exchange was 6.67%, Thailand Stock Exchange was 20.20%, Philippine Stock Exchange was 21.54%, and for Singapore Stock Exchange was 5.50% (Kontan.co.id). Furthermore, in 2016, the Composite Index value was 5,302.57 points or grew 15.45 percent, despite it was slightly weakened to 5,296.71 or decreased to 11 percent (Kompas.com). Thus, if the market value of the stock increases, then market capitalization also increases A rising stock market is usually aligned with a growing economy and leads to greater investor confidence. Investor confidence in stocks leads to more buying activity which can also help to push prices higher. When stocks rise, people invested in the equity markets gain wealth. The improved performance of the stock market has led to an increase in trading transactions carried out by investors (Nguyen, 2017).

Foreign investors play an important role in trading transactions in the capital market. Several studies reveal the role of foreign investors in the local capital market. Lien et al. (2020) stated that foreign investors are aggressive investors who want to maximize returns by taking on relatively high exposure to risk. As a result, they focus on capital appreciation instead of creating a stream of income or a financial safety net besides, the presence of foreign investors provided better stock price information (Vo, 2017a). Moreover, the presence of foreign investors caused a decrease in risk and share prices. The participation of foreign investors provided immediate information content, which was responded to positively by local capital market players (Tayar et al., 2019). It happens because of the abilities of foreign investors to transact in the market at the right time (Vo, 2017b, 2019). Errunza (2001) stated that foreign investors accelerate the incorporation of available information into local stock prices. However, conditions like this tend to lead to information gaps, especially in developing capital markets (Vo & Truong, 2018).

The existence of this information gap has enabled foreign investors to get better abnormal returns compared to domestic investors. Khanthavit (2020) claimed that foreign investors received a significant abnormal return, and unfortunately, a significant negative. But on the other hand, their presence in the stock market makes stock returns more volatile. Lee (2019) investigated foreign investors' trading, to test behavioral explanation that momentum profit is generated as some uninformed investors underreact to information on medium-term prices. Foreign investors underreact to small-size loser stocks, incurring positive momentum profits. They engage in positive feedback trading when they trade large-size winner stocks. This trading tendency does not seem to be based on information on firm fundamentals, as winner stocks' returns are not sustained. Overall, investors' underreaction seems to explain medium-term momentum profits (Kadiyala & Rau, 2004; Rafik & Marizka, 2017; Spyrou et al., 2007).

The attitude of investors who hold on to previous information is known as the momentum strategy. Momentum investing is a trading strategy in which investors buy securities that are rising and sell them when they look to have peaked. The goal is to work with volatility by finding buying opportunities in short-term uptrends and then sell when the securities start to lose momentum. Momentum traders and investors look to take advantage of upward trends or downward trends in stock (Jegadeesh & Titman, 2001; Mosii & Wibowo, 2019; Najmudin, 2018). The practice assumes the premise that if enough force is applied to a price move, the price will continue moving in the same direction. Assets start attracting more attention from investors and traders upon reaching a higher price, which, in turn, pushes the price to higher heights. In addition to the momentum strategy, there is another strategy that investors use in trading on the capital market i.e. the contrarian strategy.

The contrarian strategy is a trading strategy carried out by investors by buying underperforming stocks, and investors wish that these stocks will experience a better price reversal in the future (Rafik & Marizka, 2017). Contrarian strategy occurs due to the attitude of investors who tend to overreact. The contrarian approach to trading involves establishing positions that are contrary to the present market sentiment. This particular trading strategy is often initiated at times when the market has reached a level of saturation, either on the upside or on the downside. Both overreaction and underreaction are investors' attitudes and reactions who tend to act excessively after acquiring information resulting from psychological and cognitive stimuli (Wouters & Plantinga, 2006).

This research aimed to analyze whether there had been a momentum strategy undertaken by foreign investors. In analyzing momentum strategy, this study only focused on foreign investors who placed orders in ≤ 500 shares of stocks listed on the LQ-45 Index 2017. The sorting of LQ 45 stocks was necessary because there were stocks with a higher level of liquidity listed on the IDX. Furthermore, a retest was conducted by separating the non-government enterprises and the government enterprises in the LQ-45 Index because government enterprises were indicated by poor financial governance practices and were less informative than non-government companies. Thus, investors find it hard to analyze company information (Borisova & Yadav, 2015; Bushman et al., 2004; Prabowo et al., 2018; Shleifer & Vishny, 1994) added that government companies had political connections.

Based on the description above, this research aimed to examine the existence of a momentum strategy carried out by foreign investors, especially those trading in small sizes of government and non-government companies' stocks listed on the IDX. This study consisted of 5 structures: introduction, literature, results, discussions, and conclusions.

2. Literature Review

2.1. Overview of the Theory of Market Efficiency and Financial Behavior

The efficient-market hypothesis (EMH) is a hypothesis in financial economics that states that asset prices reflect all available information. Market efficiency refers to the degree to which market prices reflect all available, relevant information. If markets are efficient, then all information is already incorporated into prices, and so there is no way to beat the market because there are no undervalued or overvalued securities available. Jones et al. (2009) stated that in its strongest form, the EMH says a market is efficient if all information relevant to the value of a share, whether

or not generally available to existing or potential investors, is quickly and accurately reflected in the market price. This rational concept for investors was represented in the market efficiency hypothesis, capital asset pricing models, and portfolio theory (Zhang & Zheng, 2015).

The efficiency theory has been used since the 1960s as a central foundation in financial science research by students and academics (Titan, 2015; Naseer & Bin Tariq, 2015). However, investors are only human beings and cannot be separated from different emotional and psychological behavior. Emotional attitudes and psychological behavior make investors behave irrationally (Hoang et al., 2020; Al-Mansour, 2020). Efficient Market Hypothesis (EMH), one of the most eminent and influential of modern financial theories, assumes that all relevant information is rapidly incorporated in security prices as released. However, researchers and investors disagree with EMH both empirically and theoretically. Unlike traditional economic theory, the psychological theory could account for the irrationality and illogicality in behaviors. It is claimed that stock prices are predictable and it is possible to consistently and purposefully outperform a given market using these predictable patterns.

The irrational behavior of investors has led to their dislike of the rationality of efficiency theory and a tendency to make deviant transactions in investing in the capital market. These deviations from theoretical predictions have paved the way for behavioral finance. Behavioral finance focuses on the cognitive and emotional aspects of investing, drawing on psychology, and sociology to investigate true financial behavior (Gupta et al., 2014).

Behavioral finance (BF) is the study of the influence of psychology on the behavior of investors or financial analysts. It also includes the subsequent effects on the markets. It focuses on the fact that investors are not always rational, have limits to their self-control, and are influenced by their own biases (Zhang & Zheng, 2015). Ivanov et al. (2019) defined BF as a theory that explained psychological factors that influenced decision making and referred to investors' irrational financial behavior. Sewell (2005) defined BF as the study of the influence of psychology on the behavior of investors. Wagdi (2017) stated that BF is a field of study that argues that, when making investment decisions, people are not nearly as rational as traditional finance theory makes out. Gupta et al. (2014) defined BF as a means to analyze the common mistakes which the investors make while selecting particular security. It enlightens upon the common biases which restrict people to make rational investment decisions. Some common anomalies in the capital market are calendar, fundamental and technical anomalies (Latif et al., 2011). Also, other anomalies that are often studied by students and academics are momentum strategies and contrarian strategies.

2.2. Momentum Strategy and Contrarian Strategy

Momentum investing is an investment strategy aimed at purchasing securities that have been showing an upward price trend or short-selling securities that have been showing a downward trend. The main rationale behind momentum investing is that once a trend is well-established, it likely to continue. Jegadeesh and Titman (2001) were the first researchers to introduce a momentum strategy in the American capital market, who stated that investors received abnormal returns by buying leading stocks and then selling non-superior stocks. This momentum strategy was born after De Bondt and Thaler (1985) previously introduced a contrarian strategy. In the contrarian strategy, they explained that there was a stock price reversal - stocks that previously had a good abnormal return turned into a bad one. Contrarian investors often target distressed stocks and then sell them once the share price has recovered and other investors begin targeting the company as well.

Several recent studies conducted by several researchers have resulted in mixed results. Research on the China Stock Exchange by Shi and Zhou (2017) found that momentum strategies occurred in the short-term while contrarian strategies happened in the long-term. Their results indicated that there is a time-series momentum effect in the short run and a contrarian effect in the long run in the Chinese stock market. Gong (2017) found that investors performed a contrarian strategy on the Chinese Stock Exchange in the short-term. Doan et al. (2016) stated that the momentum strategy was preferable in the medium-term while the contrarian strategy is more appropriate in the short-term. Gao et al. (2020) stated that the momentum strategy was the right strategy for investors. Lin (2014) claimed that uninformed investors tended to use momentum strategies for market return reactions and contrarian strategies on stock returns. Chhimwal and Bapat (2020) observed that FIIs and DIIs show momentum behavior in the short run in the market whereas retail investors show contrarian behavior. Moreover, retail investors' contrarian behavior is found to be stronger in past losing firms. Research on the Korean stock exchange by Lee (2019) revealed that investors' underreaction seems to explain medium-term momentum profits in Korea (Ryou et al., 2020).

Meanwhile, several studies in Indonesia also found inconsistent results. Research by Sakir et al. (2017) revealed that investors were more likely to use a contrarian strategy rather than a momentum strategy. Musnadi et al. (2018) and Lisa and Rahmawati (2018) claimed that contrarian strategies were more effective for investors. Furthermore, Widiastuti (2011) explained that a contrarian strategy would probably result in an inability to generate returns to property and real estate companies. Hence, due to the inconsistent results from the literature review, this study was intended to test the momentum strategy using the smallest trade order size from

foreign investors on the IDX. By using the smallest order size, it would provide a slight description of the behavior of small investors' trading strategies on the IDX.

Both overreaction and underreaction are investors' attitudes and reactions that tend to be excessive when obtaining information (Wouters & Plantinga, 2006). Underreaction is an irregularity committed by investors who believe that their portfolio securities can survive on previous information in the long-term. Thus, underreaction makes investors' attitudes stick to previous information attitudes (Kadiyala & Rau, 2004; Rafik & Marizka, 2017; Spyrou et al., 2007). Overreaction is defined as the excess of investors' deviant attitude when previously receiving information, so they expect a reversal in the price of securities in the future (Rafik & Marizka, 2017). Thus, overreaction and underreaction attitudes lead to momentum strategies uses and contrarian strategies in investing in the capital market.

3. Research Method

3.1. Data

This study applied a quantitative method approach using intraday transaction data of companies listed on the LQ-45 Index for March, April, and May 2017, obtained from the Indonesia Capital Market Institute (TICMI) which is a subsidiary of the Indonesia Stock Exchange (IDX). The number of companies with available data is 35 companies, consisting of 23 non-government stocks and 12 government stocks. The number of observations from the 35 companies was 8,686,030 observations where the government companies recorded 2,751,545 and the non-government companies 1,387,016 observations. All data was then squeezed and grouped into small, medium, and large trade transaction orders. This research only focused on the smallest trade size in which the foreign investors transact with an order of ≤ 500 shares.

With this amount of data, the abnormal return was then calculated on all the stocks that have been sampled. Before calculating the abnormal return, the total price of each sample of the stock is first calculated and then divided by the total number of sampled companies. All stock prices and observations are determined on each trading day so that the daily stock price was obtained. It was performed to adjust to the market return, which was only available every trading day.

3.2. Data Processing Methods

After the data is obtained and tabulated, there were steps to calculate the abnormal return. The results of the abnormal return calculation were used to obtain the abnormal return of a stock portfolio with good performance and poor performance (winner-loser) using the market adjusted model. This research was divided into 2 stages: formation stage testing stage. The testing period for March 2017 was carried out in April 2017, while the April 2017 formation was tested in May 2017 on the LQ-45 Index stock portfolio, non-government and government stocks.

1. The portfolio formation period is carried out by calculating:
   a. Stock returns for each intraday data and market returns ($R_{i,t}$ and $Rm_{i,t}$) from daily data during the study period.
   b. Abnormal return of stock i every day in the sampled months *t* ($AR_{i,t}$).
   c. Cumulative abnormal return of stock i every day in the sample months *t* ($CAR_{i,t}$). Furthermore, the CAR *i, t* values were sorted from large to smaller sizes. CAR value *i, t* which is positive was grouped in a well-performed portfolio of stocks (winner) and negative is a group of portfolios that were bad performing (loser).
2. The portfolio testing period was carried out by calculating:
   a. Stock returns and market returns ($R_{i,t}$, and $Rm_{i,t}$) were selected in the formation period based on stock data in the sample test period.
   b. Monthly Abnormal Return for winner and loser stocks- in each sample.
   c. Cumulative Abnormal Return for the winner and loser stocks in each sample
   d. Average Cumulative Abnormal Return (CAR_{it}) for winner and loser stocks in each sample.
   e. Finally, testing the two mean differences with paired *t*-test between the formation period and the testing period using the SPSS.

4. Results

4.1. Cumulative Abnormal Return

The initial data description discussed the average abnormal return of winners and losers in companies listed on the LQ-45 Index, non-government companies, and government companies (Table 1) below.

Based on the description of the winner data above, it concluded that the three months of observation showed a positive direction of consistent abnormal returns while loser stocks were consistently negative. Another conclusion was that the high abnormal returns stock portfolio group had a high-risk level and proved that the principle of high-risk, high-return occurred.

Table 1: Recapitulation of Average Abnormal Returns for Foreign Winners and Losers

Month	March	April	May
Panel A. Cumulative Abnormal Returns of Foreign Investors Portfolio Winner LQ-45 Index, 2017			
Average	0.1255	0.1664	0.0953
Standard Deviation	0.2628	0.1326	0.2488
Panel B. Cumulative Abnormal Return of Foreign Investors Portfolio – Non–Governmental Winner LQ-45 Index, 2017			
Average	0.1460	0.2293	0.0701
Standard Deviation	0.2900	0.3507	0.2172
Panel C. Cumulative Abnormal Return of Foreign Investors Portfolio – Government Winner LQ-45 Index, 2017			
Average	0.0934	0.2293	0.1338
Standard Deviation	0.2314	0.3507	0.0394
Panel D. Cumulative Abnormal Returns of Foreign Investors Portfolio Loser LQ-45 Index, 2017			
Average	–0.1325	–0.1763	–0.0997
Standard Deviation	0.2711	0.3210	0.2553
Panel E. Cumulative Abnormal Return of Foreign Investors Portfolio – Non–Governmental Loser LQ-45 Index, 2017			
Average	–0.1342	–0.2979	–0.0908
Standard Deviation	0.2815	0.3650	0.2453
Panel F. Cumulative Abnormal Return of Government Foreign Investors Loser LQ-45 Index, 2017			
Average	–0.1286	–0.0026	–0.1309
Standard Deviation	0.0021	0.0021	0.3115

4.2. Cumulative Abnormal Return of Stock Portfolio for LQ-45 Index

After discussing the description of abnormal returns data in March, April, and May 2017, this study then discussed the results of the analysis of foreign investors' winner and loser stock portfolio groups listed on the LQ-45 Index, by analyzing the formation period and testing period (Table 2). In Table 2 below, Panel A is the abnormal return of the foreign investors' winner stock portfolio group on the LQ-45 Index while Panel B is the normal return of the foreign investors' loser stock portfolio group on the LQ-45 Index.

In the first analysis of the winner stock portfolio group, the formation period has a CAR of 12.55% with a risk level of 26.28%, and the testing period has a CAR of –0.01% with a risk level of 35.96%. Meanwhile, in the second analysis of the winner stock portfolio group, the formation period has a CAR of 16.64% with a risk level of 31.26% and the CAR was 0.1% with a risk level of 37.53% in the testing period. It means that in the formation period, price reversal occurred in half of the winner stocks after one month. However. In the second month, there was a reversal in the price of half of the winner stocks, but the returns were still positive.

Furthermore, in the first analysis of the loser stock portfolio group, the formation period has a CAR of –13.25% with a risk level of 27.11%. Meanwhile, the testing period has a CAR of 0.09% with a risk level of 1.45%. It proved that there had been an increase in the price of almost half of the loser stocks but the reversal in the price did not show a positive trend (abnormal return). In the second analysis of the loser stock portfolio group, the formation period has a CAR of –17.63% with a risk level of 32.10. Meanwhile, the testing period has a CAR of –0.02% with a risk level of 0.82%. This means that the loser stock portfolio group remained consistently negative.

4.3. CAR of Foreign Investors, Winner and Loser Non-Government Stock Portfolio

After analyzing the LQ-45 Index companies, the non-government stock portfolio group was analyzed (Table 3), where Panel A was the winning portfolio group, and Panel B was the loser stock, portfolio group. In Table 3, in the first analysis of the winner stock portfolio group, the formation period has a CAR of 14.60% with a risk level of 29%, and then the CAR was 26.88% with a risk level of 79.31% in the testing period. In the second analysis of the winner stock portfolio group, the formation period has a CAR of 22.93% with a risk of 34.25%, and then the CAR was 13.17% with a risk level of 28.86%. It concluded that the winning portfolio group was consistent or sustainable.

Table 2: Cumulative Abnormal Return of Stock Portfolio for LQ-45 Index Winner and Loser for Formation Period and One Monthly Testing, 2017

Panel A. Cumulative Abnormal Returns of Foreign Investors Portfolio Winner LQ-45 Index, 2017						
No	**Code**	**Analysis 1 (Winner)**		**Code**	**Analysis 2 (Winner)**	
		Formation	**Testing**		**Formation**	**Testing**
1	INTP Tbk	0.7378	0.7347	AKRA Tbk	0.7408	0.7873
2	GGRM Tbk	0.7225	0.0034	ANTM Tbk	0.7358	0.7627
3	WIKA (Persero) Tbk	0.6182	–0.7392	ASII Tbk	0.7327	0.0208
4	ASII Tbk	0.0926	0.0010	BBCA Tbk	0.7297	0.0022
5	EXCL Tbk	0.0185	0.0023	BSDE Tbk	0.0114	–0.7726
6	MNCN Tbk	0.0129	–0.0065	ELSA Tbk	0.0063	–0.0031
7	ADHI (Persero) Tbk	0.0106	0.0015	EXCL Tbk	0,0062	–0.0078
8	TLKM (Persero) Tbk	0.0085	0.0058	GGRM Tbk	0.0050	–0,0085
9	SSMS Tbk	0.0073	–0.0062	HMSP Tbk	0.0049	0.0100
10	PTPP (Persero) Tbk	0.0069	–0.0017	ICBP Tbk	0.0041	0,0097
11	BBNI (Persero) Tbk	0.0068	–0.0000	INCO Tbk	0.0038	–0.0057
12	BBCA Tbk	0.0041	0.7457	INDF Tbk	0.0037	0.0069
13	SRIL Tbk	0.0038	–0.7456	INTP Tbk	0.0037	0.0058
14	ICBP Tbk	0.0031	0.0050	KLBF Tbk	0.0026	–0.0087
15	LPKR Tbk	0.0018	0.0078	LPKR Tbk	0.0022	–0.7712
16	BBTN (Persero) Tbk	0.0016	–0.0069	LPPF Tbk	0.0016	0.0034
17	ADRO Tbk	0.0013	–0.0012	MNCN Tbk	0.0001	–0.0041
18	BBRI (Persero) Tbk	0.0011	–0.0010	PTBA Tbk	0.0001	–0.0083
Cumulative Average Abnormal Return		0.1255	0.0001		0.1664	0.0010
Standard Deviation		0.2628	0.3596		0.3126	0.3753
Panel B. Cumulative Abnormal Returns of Foreign Investors Portfolio Loser LQ-45 Index, 2017						
No	**Code**	**Analysis 1 (Loser)**		**Code**	**Analysis 2 (Loser)**	
		Formation	**Testing**		**Formation**	**Testing**
1	AKRA Tbk	–0.0010	–0.0077	ADRO Tbk	–0.0002	–0.0039
2	SMGR (Persero) Tbk	–0.0011	–0.0115	SCMA Tbk	–0.0005	–0.0041
3	PTBA Tbk	–0.0015	–0.0710	SRIL Tbk	–0.0007	–0.0014
4	INDF Tbk	–0.0019	0.1376	SSMS Tbk	–0.0008	–0.0057
5	UNVR Tbk	–0.0030	–0.0445	UNVR Tbk	–0.0009	–0.0090
6	INCO Tbk	–0.0046	–0.1861	BBNI (Persero) Tbk	–0.0013	–0.0027
7	BSDE Tbk	–0.0048	0.1117	BBRI (Persero) Tbk	–0.0019	–0.0036
8	JSMR (Persero) Tbk	–0.0058	0.0319	BBTN (Persero) Tbk	–0.0027	–0.0024
9	BMRI (Persero) Tbk	–0.0066	–0.0395	BMRI (Persero) Tbk	–0.0041	–0.0018
10	PGAS (Persero) Tbk	–0.0075	–0.0092	JSMR (Persero) Tbk	–0.0063	–0.0139
11	LPPF Tbk	–0.0079	0.2207	PGAS (Persero) Tbk	–0.0067	–0.0113
12	ELSA Tbk	–0.0102	–2.1937	PTPP (Persero) Tbk	–0.0096	–0.0009
13	SCMA Tbk	–0.0123	2.0249	SMGR (Persero) Tbk	–0.0114	–0.0141
14	ANTM Tbk	–0.0945	16.8124	TLKM (Persero) Tbk	–0.7296	–0.0026
15	WSKT (Persero) Tbk	–0.6220	–16.8119	WIKA (Persero) Tbk	–0.7331	–0.0128
16	HMSP Tbk	–0.7290	–0.0866	WSKT (Persero) Tbk	–0.7417	–0.0129
17	KLBF Tbk	–0.7397	0.1078	ADHI (Persero) Tbk	–0.7461	–0.0063
Cumulative Average Abnormal Return		–0.1325	–0.0009		–0.1763	–0.0002
Standard Deviation		0.2711	0.0145		0.3210	0.0082

Table 3: CAR of Foreign Investors, Winner and Loser Non-Government Stock Portfolio for Formation Period and One Monthly Testing, 2017

Panel A. Cumulative Abnormal Return of Foreign Investors Winner Portfolio Group –Non–Government						
No	**Code**	**Analysis 1 (Winner)**		**Code**	**Analysis 2 (Winner)**	
		Formation	**Testing**		**Formation**	**Testing**
1	ADRO Tbk	0.0013	0.0017	BBCA Tbk	0.7408	0.7983
2	INTP Tbk	0.7378	0.7213	GGRM Tbk	0.7358	0.0376
3	GGRM Tbk	0.7225	0.7332	INTP Tbk	0.7327	–0.0093
4	ASII Tbk	0.0926	1.4593	ANTM Tbk	0.7297	–0.0071
5	EXCL Tbk	0.0185	0.0023	INDF Tbk	0.0114	0.0358
6	MNCN Tbk	0.0129	0.0017	LPKR Tbk	0.0063	0.0204
7	SSMS Tbk	0.0073	0.0080	SCMA Tbk	0.0062	0.0286
8	BBCA Tbk	0.0041	1.4704	UNVR Tbk	0.0050	0.0216
9	SRIL Tbk	0.0038	0.0004	ELSA Tbk	0.0049	0.8048
10	ICBP Tbk	0.0031	0.7454	ICBP Tbk	0.0037	0.0104
11	LPKR Tbk	0.0018	0.7393	EXCL Tbk	0.0026	–0.0389
12				SSMS Tbk	0.0016	–0.0236
13				AKRA Tbk	0.0001	0.0342
Cumulative Average Abnormal Return		0.1460	0.2688		0.2293	0.1317
Standard Deviation		0.2900	0.7521		0.3425	0.2886
Panel B. Cumulative Abnormal Return of Foreign Investors Loser Portfolio Group –Non–Government						
No	**Code**	**Analysis 1 (Loser)**		**Code**	**Analysis 2 (Loser)**	
		Formation	**Testing**		**Formation**	**Testing**
1	AKRA Tbk	–0.0010	0.0003	ADRO Tbk	–0.0002	–0.0222
2	PTBA Tbk	–0.0015	0.0109	PTBA Tbk	–0.0005	–0.0102
3	INDF Tbk	–0.0019	–0.0002	LPPF Tbk	–0.0007	–0.0071
4	UNVR Tbk	–0.0030	–0.0003	SRIL Tbk	–0.0063	–0.0050
5	INCO Tbk	–0.0046	–0.0004	INCO Tbk	–0.0096	–0.0178
6	BSDE Tbk	–0.0048	–1.4869	MNCN Tbk	–0.0114	–0.0021
7	LPPF Tbk	–0.0079	–0.0070	ASII Tbk	–0.7296	–0.0124
8	ELSA Tbk	–0.0102	0.7510	KLBF Tbk	–0.7331	–0.0242
9	SCMA Tbk	–0.0123	0.0067	HMSP Tbk	–0.7417	–0.0242
10	ANTM Tbk	–0.0945	0.7296	BSDE Tbk	–0.7461	–1.815
11	HMSP Tbk	–0.7290	–1.4775			
12	KLBF Tbk	–0.7397	–1.4658			
Cumulative Average Abnormal Return		–0.1342	–0.2450		–0.2979	–0.1940
Standard Deviation		0.2815	0.7931		0.3785	0.4958

Furthermore, in Table 3, in the first analysis of the loser stock portfolio group, the formation period has a CAR –13.42% with a risk level of 28.15%. Meanwhile, the testing period has an average CAR of –24.50% with a risk level of 79.31%. In the second analysis of the loser stock portfolio group, the formation period has a CAR of –29.79% with a risk level of 37.85%. In the testing period, the CAR is –19.40% with a risk level of –49.58%. This means that the loser stock portfolio group remained consistently negative.

Based on the data described in Table 3 above, the winner's stock portfolio group leads to results that are always consistently positive and sustainable during the study period. On the other hand, the loser stock portfolio group of foreign investors in non-governmental companies has a trend value that is always negative.

4.4. Cumulative Abnormal Returns of Foreign Investors, Winner and Loser Government

After analyzing all non-government companies, Table 4 below discussed the analysis results of the winner and loser stock portfolio groups in government companies.

As shown in Table 4, in the first analysis of the winner stock portfolio group, the formation period has a CAR of 9.34% with a risk level of 21.43%, and in the testing period, the CAR is –0.08% with a risk level of 0.59%. In the second analysis of the winner stock portfolio group, the formation period has a CAR of 0.28% with a risk level of 0.17%, and the CAR is –0.87% with a risk level of 63.38%. in the testing period.

Furthermore, in Table 4, in the first analysis of the loser stock portfolio group, the formation period has a CAR of –12.86% with a risk level of 27.58%. Meanwhile, the testing period has a CAR of 0.07% with a risk level of 0.4%. In the second analysis of the loser stock portfolio group, the formation period has a CAR of –0.26% with a risk level of 0.08%. Meanwhile, the testing period has a CAR of 22.32% with a risk level of 41.14%. Based on Table 4 above, the government companies in the winner portfolio group were consistently negative. Conversely, the loser stock portfolio group of foreign investors experienced price reversals.

After explaining the formation and testing period, then the abnormal return period is tested. The test results use a non-parametric test by comparing the formation period with the related testing period, with the difference in cumulative abnormal returns on the LQ-45 Index companies, non-government companies, and government companies in Table 5 below.

Based on Table 5 above, the foreign investors' winner stock portfolio group on the LQ-45 Index and the government stock portfolio group had a statistically significant difference in the first month. It was indicated by the significance value of the abnormal returns. Furthermore, the foreign investors' loser stock portfolio group on the index LQ 45 stock portfolio group had a difference in abnormal returns at the end of the testing period, but there was no price reversal. Meanwhile, in the group of government companies' stock portfolios, this study found significant differences in abnormal returns and price reversals. Meanwhile, the non-government stock portfolio group found no significant difference in abnormal returns.

4.5. Discussions

This study analyzed the behavior of foreign investors, who placed orders in ≤ 500 shares of stocks listed on the LQ-45 Index, then re-testing was done by separating government and non-government companies. The first discussion explained a group of stock portfolios that performed well (winner) in the previous period and maintained the winner status in the subsequent period. The momentum strategy was likely to occur when the winner stock group in the formation and the testing period had significant abnormal returns.

Based on the recapitulation of the research results above (Table 5), it turns out that the momentum strategy occurs in the Indonesia Stock Exchange, especially with LQ-45 Index companies and government companies. With the momentum strategy on the LQ-45 Index, the formation period analysis and the first test showed significant abnormal returns with a significance value of 1%. Meanwhile, the formation period analysis and second test period showed a decrease in the abnormal returns because the significance value was 10%. Besides, a momentum strategy also occurred in the government companies with the significance value of abnormal return at 5% in the first period and 10% in the next period.

However, trading behavior using the momentum strategy did not exist in non-governmental companies. Thus, in a short time, the LQ-45 Index companies and government firms can achieve better abnormal returns. This indicates that the small foreign investors who trade using the momentum strategy still provide significant profits due to the continuation of the abnormal returns of the stock portfolio they choose.

The results of this study were consistent with research conducted by Chhimwal and Bapat (2020), Shi and Zhou (2017), and Gao et al. (2020) who claimed that small investors preferred the momentum strategy in the short-term. Meanwhile, Lin (2014) stated that uninformed investors should apply a momentum strategy in China's capital market. Lee (2019) supported the fact that the momentum strategy for investors happened in the Korean capital market. The results of the research were in line with the results of research on the capital markets of China, India, and Korea, indicating that according to the 2017 data, the performance of the Indonesian capital market was at the same level as these exchanges.

Table 4: Cumulative Abnormal Returns of Foreign Investors, Winner and Loser Government Stock Portfolios Formation and One Monthly Testing, 2017

Panel A. Cumulative Abnormal Return of Foreign Investors Winner Portoflios Government						
No	**Code**	**Analysis 1 (Winner)**		**Code**	**Analysis 2 (Winner)**	
		Formation	**Testing**		**Formation**	**Testing**
1	WIKA (Persero) Tbk	0.6182	–0.0081	TLKM (Persero) Tbk	0.0041	–0.0090
2	ADHI (Persero) Tbk	0.0106	0.0000	SMGR (Persero) Tbk	0.0038	–0.0012
3	TLKM (Persero) Tbk	0.0085	0.0002	BBRI (Persero) Tbk	0.0037	0.0078
4	PTPP (Persero) Tbk	0.0069	0.0014	BBTN (Persero) Tbk	0.0022	–0.0094
5	BBNI (Persero) Tbk	0.0068	–0.0082	JSMR (Persero) Tbk	0.0001	–1.5318
6	BBTN (Persero) Tbk	0.0016	–0.0015			
7	BBRI (Persero) Tbk	0.0011	–0.0104			
Average Cumulative Abnormal Return		0.0934	–0.0008		0.0028	–0.3087
Standard Deviation		0.2143	0.0059		0.0017	0.6338
Panel A. Cumulative Abnormal Return of Foreign Investors Loser Portoflios Government						
No	**Code**	**Analysis 1 (Loser)**		**Code**	**Analysis 2 (Loser)**	
		Formation	**Testing**		**Formation**	**Testing**
1	SMGR (Persero) Tbk	–0.0011	0.0051	WSKT (Persero) Tbk	–0.0008	0.0020
2	JSMR (Persero) Tbk	–0.0058	0.0020	ADHI (Persero) Tbk	–0.0009	0.0191
3	BMRI (Persero) Tbk	–0.0066	–0.0041	PTPP (Persero) Tbk	–0.0013	0.0137
4	PGAS (Persero) Tbk	–0.0075	–0.0029	BMRI (Persero) Tbk	–0.0019	0.7678
5	WSKT (Persero) Tbk	–0.6220	0.0032	PGAS (Persero) Tbk	–0.0027	0.7574
6				WIKA (Persero) Tbk	–0.0041	0.0054
7				BBNI (Persero) Tbk	–0.0067	–0.0030
Average Cumulative Abnormal Return		–0.1286	0.0007		–0.0026	–0.2232
Standard Deviation		0.2758	0.0040		0.0008	0.4114

Table 5: The Difference in the Significance of the Abnormal Return of Winner and Loser Stock Portfolios in the Formation Period and One Monthly Testing, 2017

No	**Stock Portfolio Group**	**Foreign Investors Share Portfolio**				**Foreign Investors Share Portfolio**			
		Winner 1		**Winner 2**		**Loser 1**		**Loser 2**	
		Value	**Significant**	**Value**	**Significant**	**Value**	**Significant**	**Value**	**Significant**
1	LQ-45 Index	–2.722	0.006***	–1.807	0.071*	–0.592	0.554	–1.965	0.049**
2	Non–Government Companies	–0.089	0.929	–0.031	0.975	–0.784	0.0433	–0.153	0.0878
3	Government Companies	–1.96	0.050**	–1.753	0.08*	–2.023	0.043**	–2.366	0.018**

The second analysis was related to a stock portfolio group that performs poorly (loser) on the LQ-45 Index, (the analysis is done again on government and non-government companies). The contrarian strategy is a trading strategy carried out by investors by buying underperforming stocks, and investors wish that these stocks will experience a better price reversal in the future. Contrarian strategy is characterized by purchasing and selling in contrast to the prevailing sentiment of the time. It is caused by the contrarian strategy of foreign investors in making transactions in the capital market and significant price reversals or abnormal returns.

Based on the recapitulation of the research results that have been done above (Table 5), it turned out that it led to the trading behavior of small foreign investors using a contrarian strategy. In the group of stock portfolios included in the LQ-45 Index, investors received significant abnormal returns. However, the results of the analysis of the formation and testing period (Table 2) before the price reversal occurred was still negative. This can be interpreted that the stock price movement moved toward a positive direction. The existence of a contrarian strategy was increasingly evident in government companies because government companies showed that the formation as well as the testing periods give significant abnormal returns.

The results of this research supported the findings of research by Gong (2017) who concluded that in the China Stock Exchange the contrarian strategy occurred in the short term. Sakir et al. (2017), Musnadi et al. (2018), and Lisa and Rahmawati (2018) stated that the use of a contrarian strategy provided more benefits than a momentum strategy. However, this study was slightly different from Shi and Zhou (2017) who stated that momentum strategies occurred in the short term while contrarian strategies were in the long term. Moreover, this study found that in the short term, foreign investors could apply both strategies. Lin (2014) stated that uninformed investors showed a tendency to use momentum strategies for market return reactions and contrarian strategies on stock returns.

Thus, the results of this research demonstrated the fact that there were some foreign investors in the Indonesia Stock Exchange, especially investors who performed transactions in stocks listed on the irrational LQ-45 Index. This was in line with Frankfurter and McGoun (2001) and Naseer and Bin Tariq (2015) who stated that if an investor received abnormal returns in a capital market, it indicated that the capital market is irrational. The existence of investor's irrationality proved that the Indonesian capital market was inefficient. This inefficiency was due to the practice of both trading strategies based on underreaction and overreaction attitudes.

The attitude of underreaction by foreign investors was raised since the investors believed that the Indonesia Stock Exchange was in a favorable condition. This condition made foreign investors, especially small investors, take a defensive stance on previous information attitude (Kadiyala & Rau, 2004; Rafik & Marizka, 2017; Spyrou et al., 2007). This defensive attitude towards previous information was based on their view that the market conditions are likely to be good and likely to survive for the next few moments.

Foreign investors based their overreaction attitude when the market was in good condition. Some investors over-respond to information flowing to the stock exchange. This overreaction attitude had an impact on investors' behavior who placed orders at relatively high prices. Besides, some investors placed orders at relatively low prices because of an underreaction attitude. Both these attitudes indicated a deviation in IDX and this contradicts the theory of market efficiency but led to behavioral financial theories such as contrarian trading strategies (De Bondt & Thaler, 1985).

5. Conclusions

This research examined the existence of a momentum strategy by the smallest foreign investors on the Indonesia Stock Exchange using company data indexed in the LQ-45 Index, then separated into government and non-government companies. The research found that in the short term, the momentum strategy can be applied in the Indonesia Stock Exchange. In the LQ-45 Index group of companies, there were positive and significant cumulative abnormal returns.

Furthermore, the results of the analysis of non-governmental companies showed that a momentum strategy could be undertaken by small foreign investors in the short-term. Besides, in the short term, investors can also implement a contrarian strategy, which can be seen from the significant difference in abnormal returns in government companies. It indicated that foreign investors who implemented a momentum strategy or contrarian strategy can provide returns on their investment with very limited sources of funds. The limitation of this study lies in the use of small investor data and a short time. Further researcher should carry out on groups of investors with medium trade size even large trade size. Besides, future research can also be carried out using data from domestic investors.

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