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ANALYZING THE DIRECTION OF THE STOCK EXCHANGE CYCLE

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Abstract

This research analyzes the direction of the stock market cycle and looks at the stock market prospects from January 2010 to September 2023. The methodology used in this research is the "decomposition method" and uses daily rate of return data during the research period. The research results show that the changes that occur in one day are greater than the changes that occur in the following days. The stock market is currently likely to experience a decline for the sixth cycle. There is no January effect in BEI but there is a December effect.

Keywords: IHSG, Stock Cycle, Stock Seasonal, January Effect, Technical Analysis

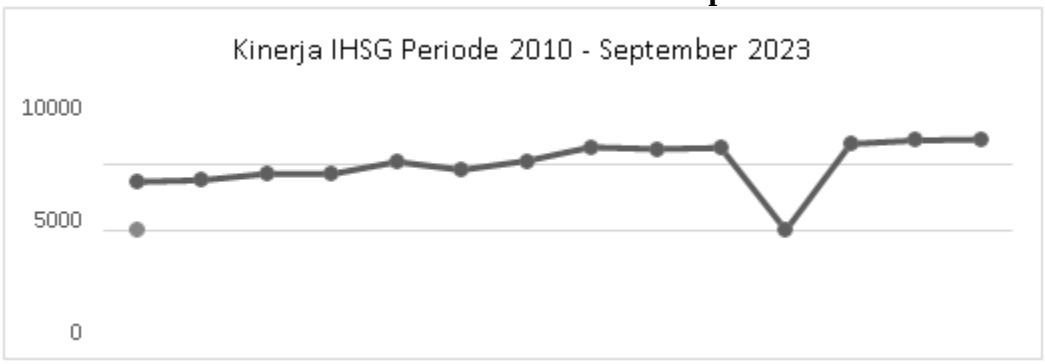
INTRODUCTION

Investment is an activity that is usually carried out to gain profit. One of these investments can be made in the capital market which acts as a liaison institution between parties who have excess funds and parties who need funds. The party with excess funds carries out investment activities and is called an investor. Of course, investors aim to gain profits from their investment results, but various uncertainties in information relevant to the capital market will be the risk of not obtaining profits or returns. This statement reflects that profit or return and various risks that can influence return variability are two important things that should be taken into consideration when investing.

Information is one of the important factors that investors in the capital market must pay attention to to realize their goal of obtaining a return on investment. Relevant information available can be used as a basis for making decisions about when shares will be bought or sold. Apart from that, information can also be a basis for considering when to sell shares or not even buy shares. The buying and selling actions carried out by investors based on available information can ultimately influence the demand and supply of shares and be reflected in share price movements in the capital market (Yulianti & Jayanti, 2019).

The movement of share prices in the Indonesian capital market can be seen from the development of the Composite Stock Price Index (IHSG) during the 2010-2023 period as follows.

Figure 1.
JCI Performance for the Period 2010- September 2023



Source: yahoo.finance

The Indonesian capital market is experiencing a slowdown in its growth, as shown by the movement of the Composite Stock Price Index (IHSG) until the end of September 2023, experiencing growth of 1.34%. This achievement marks a decline from the previous year's growth, namely 4.09% in 2022. Based on data from the Indonesian Stock Exchange (BEI) for the last 10 years, the IHSG experienced a decline four times in 2013, 2015, 2018, and 2020. When compared In 2013, the JCI recorded an increase of 1.34%, but the decline was caused by the Federal Reserve's interest rate policy, which hurt the Indonesian stock market. Despite this, the JCI experienced a significant recovery in 2014, soaring by 22.29%. However, as a result of China's economic slowdown in 2015, the JCI experienced a significant decline of 12.13%. However, this condition was successfully improved in the following year, with the JCI recording extraordinary growth in 2016, reaching 15.32%, and continuing to grow by 19.99% in 2017.

However, in 2018, trade problems between America and China caused the Indonesian stock market to decline by 2.54%, and in 2019, the JCI recorded growth of 1.70%, although slightly lower than the previous year. In addition, the COVID-19 pandemic in 2020 changed the JCI's performance dramatically. In that year, the JCI fell 5.09%. However, the JCI managed to recover in the following year, 2021, with growth of 10.08%. At the end of 2021, the stock market capitalization value reached IDR 8,255.62 trillion, showing an increase of 18.4% (yoy). To overcome the impact of the pandemic, the Indonesian Stock Exchange (BEI) is normalizing stock trading hours starting April 3 2023. Because the average daily transaction value (RNTH) is IDR 8.45 trillion, it is considered that the impact of this policy has not yet been fully felt. A lot of research has been carried out regarding stock exchange movements in Indonesia, because this research is a form of market efficiency research (Tobing & Manurung, 2008).

Several studies have been carried out regarding the cyclical movements of stock prices. The Singapore share price cycle has been researched. The results show that STI follows the cycle expressed by the Prophet Yusuf when Egypt experienced abundance for 7 years and famine for 7 years (Sim, 2004) in research (Tobing, Manurung, 2008). The STI cycle in Singapore takes seven years from the lowest point to the highest point (Sim, 2004). Apart from that, research on stock exchange cycles in Indonesia, Manurung (2005) found

that there had been three cycles; the first cycle took place from 1988 to 1992 and lasted 64 months. The second and third cycles are shorter. In Tobing and Manurung's (2008) research, results show that from 1988 to 2008, the Indonesian Stock Exchange experienced three cycles and is currently in fourth position. JCI tends to fall and may fall to level 1358 to fulfill one cycle, namely the fourth cycle. This decline was caused by the demand and supply of shares on the Exchange. This supply and demand is caused by domestic economic and political conditions, as well as the effects of economic and political decline on the exchanges of neighboring countries or developed exchanges. Studies such as Suha (2004), (Agustin, 2019), (Mubarok & Fadhli, 2020) (Pontoh & Budiarso, 2023) show that the Indonesian Stock Exchange is still considered ineffective.

This research is a development of Tobing & Manurung (2008) because it discusses the increase and decrease in the IHSG which is followed by an increase or decrease in the IHSG, which usually occurs for one or several consecutive days. Based on the background above, the problem formulation in this research is as follows:

1. How did the IHSG increase and decrease followed by a decrease or increase in the IHSG for the period January 2010 to September 2023?
2. What is the description of the bullish and bearish market periods during the period January 2010 to September 2023?
3. What is the picture of the stock market cycle during the period January 2010 to September 2023?

The aim of this research based on the background above is to determine the increase and decrease in the IHSG followed by a decrease or increase in the IHSG, an overview of bullish and bearish market periods, and the stock market cycle during the period January 2010 to September 2023.

REVIEW OF LITERATURE

Market Efficiency

Stock market efficiency has been a major area of research in financial economics, especially in developing country stock markets. This is because market efficiency theory is

concerned with how much money can be returned to investors. Investors can consider capital market efficiency theory when managing their investments. This theory argues that no investor can get profits above the average or abnormal returns. An inefficient market is when investor behavior significantly influences security prices so that stock prices do not indicate the actual state of the company. On the other hand, an efficient market is when stock prices show information about the actual state of the company. If security prices completely and correctly reflect all relevant information, the capital market is also considered effective. A market whose stock prices combine all available information, both past and present, is considered an efficient market. In addition, Rizkianto (2014) stated that security prices reflect all available information, which means that prices reflect all information. Based on these definitions, the efficient market hypothesis is related to how security prices respond quickly and precisely to relevant information in the capital market.

Based on the three forms of information (past information, current information that is being published, and private information), Fama (1970) determined three types of market efficiency, namely weak-form efficient, semi-strong form Efficient) and strong-form (strong-Efficient).

Figure 1.
Forms of Market Efficiency

Weak Form Efficient Markets

A weak form market indicates that security prices fully reflect past prices. Random walk theory, also known as random walk theory, relates the efficient market theory (HPE) form to the idea that current values are uncorrelated with past data. To price a security in a weak market, past information should already reflect the current, or actual, price of the

security, and future prices of the security cannot be determined. Weak form tests of market efficiency should show that future changes in security prices are unrelated to previous changes in security prices. If current security prices reflect all past data, the market is said to be weakly efficient. Therefore, to estimate future prices in HPE, weak forms of past data cannot be used.

Semi-Strong Form Efficient Markets

Semi-strong form market efficiency indicates that security prices fully reflect public information. Fama (1970) stated that if security prices quickly reflect new, relevant, and available information, the market is said to be semi-strong. Public information consists of new information about one issuer, several issuers (industry), or all issuers. The semi-strong form of market efficiency testing refers to how quickly the market responds to various information. If the market responds quickly to information, the market is said to be informationally efficient and decisions are semi-strong. Conversely, if the market response does not match the published information or if there is a delay, the market information is ineffective. Additionally, markets are said to have the ability to make semi-strong form decisions if they respond correctly to published information and vice versa. The theory underlying the variables used to test the efficiency of semi-strong form markets relates to the validity of responses to this information.

Strong Form Efficient Market

Strong form market efficiency shows that security prices reflect all information in capital markets, both public and private. The strong form of HPE assumes that investors will not be able to obtain abnormal returns using various information, available or not. Thus, the strong form can eliminate insider trading events that use inside information. Under these circumstances, the capital market will be like an auction house, where security prices are always fair and investors cannot get a better price estimate. Next, Fama changes the three market efficiency categories into a weak market efficiency category for testing return predictability. Tests of robust market efficiency are called private information tests, and event studies are called event studies. The three types of testing have different methods and meanings.

Several studies have been carried out and the results show that the Indonesian Stock Exchange generally cannot accept the theory put forward by Fama (1970) which states that

the stock exchange must follow three forms of market efficiency. Manurung (1994a.) in research (Tobing & Manurung, 2008) conducted research on the market efficiency of the JSE and concluded that the JSE was not efficient in its weak form and also in its semi-strong form.

Research conducted by Agustin (2019) researched the market efficiency of the Indonesian Sharia Stock Index using the Run Test, Autocorrelation Test, Autoregressive Integrated Moving Average (ARIMA), and Paired Sample t-test. The research results show that ISSI is inefficient in its weak form during the 2017-2019 research period.

Research conducted by Mubarok and Fadhli (2020) researched market efficiency on the IDX using variance ratios, stationarity test data, Autoregressive Integrated Moving Average (ARIMA), and Autoregressive Conditional Heteroskedasticity (ARCH). The research results show that the industrial sector on the Indonesian Stock Exchange was inefficient in its weak form during the 1996-2020 research period. Research conducted by (Ali et al., 2023) suggests that research conducted in developing countries, including the Indonesian capital market, shows that the Indonesian capital market is inefficient in its weak form.

Then, research conducted by Budiarsoh and Pontoh (2022) researched market efficiency on the IDX using the runs test and variance ratio test, showing that the movement of expected returns is not random. Based on these results, the weak form of the market hypothesis, the weak form of the efficient market hypothesis, is rejected, and it can be concluded that the capital market in Indonesia in this period was not efficient during the January 2022-June 2022 period.

The conclusion from several studies above suggests that the market on the Indonesia Stock Exchange (BEI) does not yet meet the needs of an efficient market in a weak form. Jogiyanto (2014) stated that the market can be said to be inefficient because of several things as follows:

1. The existence of a small number of market players who can influence security prices.
2. Information is expensive and there is non-uniform access between one market player and another to the same information.
3. The applicable information can be estimated well by some market players.

4. The investor is a straightforward and unsophisticated individual. Many investors straightforwardly react to information, because they have limited knowledge in interpreting and interpreting the information received. This is because investors are not sophisticated, so they often make the wrong decisions, resulting in the securities in question being valued incorrectly.

Several studies prove that the capital market studied is efficient in weak form both in the Indonesian capital market and in other countries, including (Wati, 2022) testing the efficiency of the Indonesian capital market using LQ45 index data shows that the Indonesian capital market is efficient in weak form. 2017-2020.

Jayanti & and Yulianti (2019) researched the Indonesian capital market and found that the Indonesian capital market was efficient in its weak form. Research conducted by (Dwipayana & Wiksuana, 2017) on the Indonesian Stock Exchange (BEI) showed that the Indonesian Stock Exchange was informationally efficient and semi-strong. Research conducted by (Hadianto et al., 2021) tested the Indonesian capital market by using a run test on the daily results of the Indonesian Composite Index (ICI) between January 2014 and December 2018 for each year and overall, this research shows that the daily results of the ICI are random for both situations. By noting these facts, this study concludes that the capital market in Indonesia is efficient in its weak form and is experiencing a decreasing level of thickness, reflected by an increase in trading frequency, volume, and value, as well as the number of dynamic shares traded.

The research conducted by (Khajar, 2008) regarding efficiency testing and increasing efficiency for the weak form of the Indonesian Stock Exchange during and after the monetary crisis on LQ-45 shares showed results that the IDX was efficient in the weak form. Research conducted by (Rahimah et al., 2020) researched the Indonesian capital market and found that the Indonesian capital market was efficient in its weak form.

Stock Cycle

Sim (2004) quotes Dewey (1974) who is known as the father of cycle analysis, defining cycles as follows:

"The tendency of events to repeat themselves at more or less uniform intervals ... the pulsations of distant stars ... the prevalence of sunspots ... the weather conditions ... the

abundance of mammals, birds, insects, and fish, and the prices of [commodities, currencies, and securities."

So, a cycle is a movement of data that will repeat itself in the future. Cycles can be classified into three types, namely:

1. Symmetrical cycles – occur in natural phenomena such as in biology, chemistry, astronomy, and physics. Repetition of shape occurs exactly in the form of length, curve, and magnitude. This cycle can be seen in the graph below.
2. Asymmetrical cycles – demonstrated by cyclical phenomena in economic data and the business world. The pattern or shape of this cycle is irregular in its curve, magnitude, and timing of peaks and lows.
3. Combination Cycle – indicated by two or more cycles at the same time. A series of smaller cycles are combined to form a larger cycle. A cycle with a longer period will form a trend. Brokers (traders) can use a series of small cycles that are increasing to indicate a trend that is increasing (bullish) and conversely, a series of small cycles that are decreasing indicates the market is experiencing a decline (bearish) but usually brokers focus on the dominance of larger cycles.

Cycles can be measured by their magnitude (degree of upward or downward curve) and their length in terms of time, namely days, weeks, months, or years. Cycle length can be measured with two curves: between two low curves (bottom/troughs) or between two peak curves (peaks). To find out how long the cycle is, you can average all the cycle lengths in the research carried out, namely the IHSG, commodity, or variable being studied. The cycle is structured by having a bottom curve, called the trough, and an upward movement, measured from the lowest to the highest, called the peak, and a downward movement, measured from the peak to the trough. Cycle duration is measured from peak to trough or from peak to peak.

RESEARCH METHOD

Data

The data used in this research is daily and monthly IHSG (Composite Stock Price Index) data obtained from the Indonesian Stock Exchange (BEI) for the period January 2010 to September 2023. The Composite Stock Price Index is calculated as follows:

$$IHSG_t = \frac{\sum_{i=1}^{n} Q_{0,i} P_{t,i}}{\sum_{i=1}^{n} Q_{0,i} P_{t,i}}$$

in this case:

IHSGt = Composite Stock Price Index in period t.

Q0,i = Number of registered shares for share i in the base period (0).

Pt, i = Price of share I in period t.

Pt-1,i = Price of share I in period t-1.

To calculate the rise and fall of the IHSG, it is calculated as follows:

$$R_t = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}}$$

In this case:

Rt = Up and down IHSG

IHSGt = Composite Stock Price Index in period t

IHSGt-1 = Composite Stock Price Index in period t-1

Methodology

The decomposition method is a method that tries to separate data into several characteristics, namely economic characteristics and business series. These characteristics are trends, cycles, and seasonal factors so that data can be described as follows:

Data = pattern + error

= f (trend, cycle, seasonality) + error.

RESULTS AND DISCUSSION

Table 1 tells the descriptive statistics of the increase or decrease in data IHSG.

Table 1.
Descriptive Statistics

Min	-0.09
Max	0.10
Median	0.0008
Average	0.0004

Stdev	0.01056
Skewness	-0.270
Kurtosis	7,913

Table 1 shows that the average rate of return on the IDX is 0.0004% per day or 0.0842% per year during the period 2010 to September 2023. If investors invest in shares, it will not be much better than investing in deposits, the highest at 8.75% per year in 2023.

Table 2 below shows the number of IHSG increases and decreases during the research period.

Table 2.
Increase Decrease IHSG

Day Consecutive	Ascension	Decline
1	356	464
2	237	209
3	123	89
4	67	39
5	34	22
> 5	29	14
	846	837

In table 2 it is clear that several IHSG experienced changes that were almost the same up and down. For daily changes, there are around 48.72%, consisting of 21.15% experiencing an increase and 27.57% experiencing a decrease. The increase or decrease for two consecutive days was 26.50%, consisting of 14.08% experiencing an increase and 12.42% experiencing a decrease.

For 3 consecutive days, 12.60% of which consisted of 7.31% experiencing an increase and 5.29% experiencing a decrease. Then, for 4 consecutive days as much as 6.30%, consisting of 3.98% experiencing an increase and 2.32% experiencing a decrease. For 5 consecutive days, it was 3.33%, consisting of a 2.02% increase and 1.31% decrease.

For the next 6 days in a row, the rate was 2.55%, consisting of a 1.72% increase and 0.83% decrease. These results show that the longer the day, the smaller the percentage of incidents. The percentage increase is greater than the decrease when the day is lower.

Table 3.
Increase and Decrease IHSG by Year and Number of Days

Year	1		2		3		4		5		> 5	
	Go on	Down	Go on	Down	Go on	Down	Go on	Down	Go on	Down	Go on	Down
2010	23	31	17	12	5	8	8	1	3	4	3	0
2011	27	32	11	17	11	4	9	5	4	1	0	1
2012	30	45	22	11	7	7	5	4	2	0	2	0
2013	21	32	16	11	15	6	4	7	2	2	2	0
2014	24	40	21	15	9	7	4	1	4	0	2	1
2015	31	35	14	15	10	1	0	5	4	3	3	2
2016	15	34	16	11	15	6	7	3	0	2	2	1
2017	23	30	10	13	11	7	7	2	4	1	2	2
2018	30	27	14	21	10	6	1	2	2	3	3	1
2019	23	28	12	15	12	9	6	3	0	3	3	1
2020	32	33	17	15	3	10	5	3	3	0	3	1
2021	30	35	21	22	5	5	5	3	2	0	2	1
2022	30	43	26	11	5	7	3	0	2	2	2	3
2023	17	19	20	20	5	6	3	0	2	1	0	0
	356	**464**	**237**	**209**	**123**	**89**	**67**	**39**	**34**	**22**	**29**	**14**

The following tables, namely Table 4 and Table 5, show the downturn followed by the following rise. Table 4 is read looking from row to column, and explains that the stock market fell one day followed by an increase of one day, two days, three days, and so on.

Table 4.
The decline in the IHSG was followed by an increase in the IHSG the following day

Negative	Positive					
	1 day	2 days	3 days	4 days	5 days	> 5 days
1 day	188	97	47	20	19	16
2 days	86	64	34	16	7	5
3 days	38	26	6	7	3	1
4 days	14	6	11	2	1	0
5 days	9	3	5	1	1	0
> 5 days	3	3	4	2	0	1

Table 4 shows that the JCI that falls one day will be followed by the largest increase the next day compared to an increase of two consecutive days and so on. This means that

every time there is a decrease in the JCI for one day, the increase in the next day for up to 5 consecutive days will be smaller.

Generally, a two-day increase in a row is 50% more than a one-day increase, and also a 3-day increase in a row is almost 50% of a two-day increase in a row. If the JCI has risen one day then the possibility that the JCI will rise the next day is around 0.52 from the current increase and so on.

Meanwhile, if there is a decrease for two consecutive days, the increase the next day (one day) is more likely than an increase for two consecutive days or three consecutive days and so on. But the probabilities for an increase of one day and two days in a row are not much different. The probability of an increase for 3 consecutive days is 0.53 from an increase for two consecutive days. The result is that two consecutive days of decline is almost the same as a one-day increase followed by several consecutive days of increases. The possibility of three consecutive days of decline followed by one day of increase is much more likely with several consecutive days of increase, even several consecutive days of increase of half the previous day's amount.

Table 5 shows an increase in the IHSG from one day to more than five days, followed by a decrease in the IHSG from one day to several days in a row. The results given in Table 5 show that an increase in the IHSG one day or several days in a row will be followed by a decline in the IHSG one day which is quite higher compared to two days in a row or the next.

Table 5.
The increase in the IHSG was followed by a decrease in the IHSG the following day

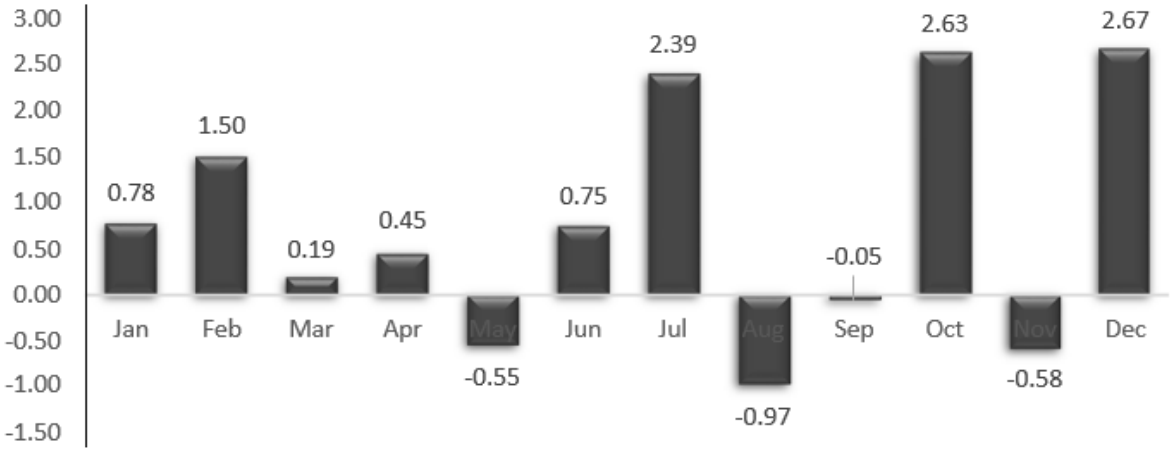
Positive	**Negative**					
	1 day	**2 days**	**3 days**	**4 days**	**5 days**	**> 5 days**
1 day	190	81	33	15	4	5
2 days	125	54	24	8	5	3
3 days	51	26	14	5	4	3
4 days	33	18	8	2	2	1
5 days	17	16	2	0	0	0
> 5 days	20	4	4	2	1	0

Graph 1 below shows the market return rate for each month from January to December. The highest rate of return occurs in December and is second in October and third

in July. These results state that the January Effect has never occurred on the Indonesian Stock Exchange. But the December Effect is on the Indonesian Stock Exchange.

Negative returns occurred in May, August, September and November. December is the month that has the highest rate of return. If an issuer wants to conduct an IPO, it is best not to do it in these four months because it will cause the share price to drop and get a low price.

Graph 1.
Monthly Returns 2010-September 2023

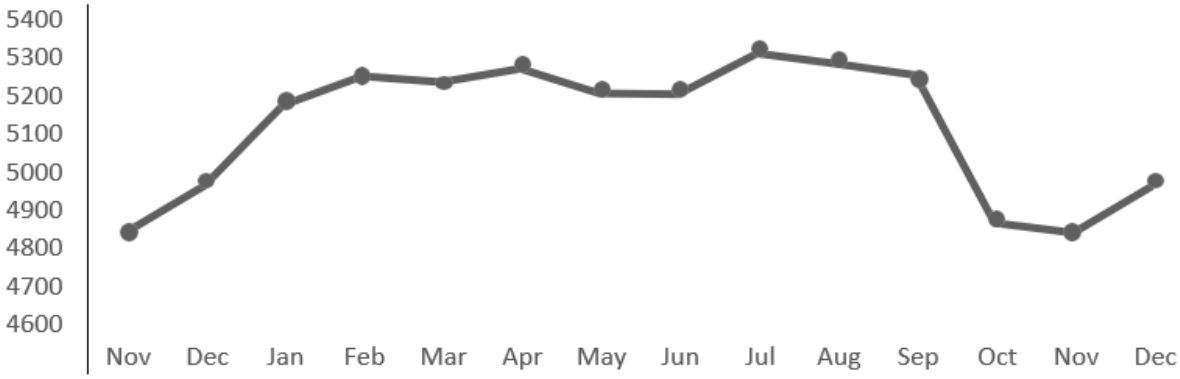


Graph 2 shows the IHSG in seasonal form throughout the year. JCI experienced an increase from November to February and rose again in April and fell again from May to June. In July it rises again and falls again until November.

This decline was due to investors being wary of the results of the company's financial performance reports for the period ending March, June, September, and December. In September the company's financial report did not seem to match the analysis issued by capital market analysts, so they were disappointed and sold shares, then bought them back in November.

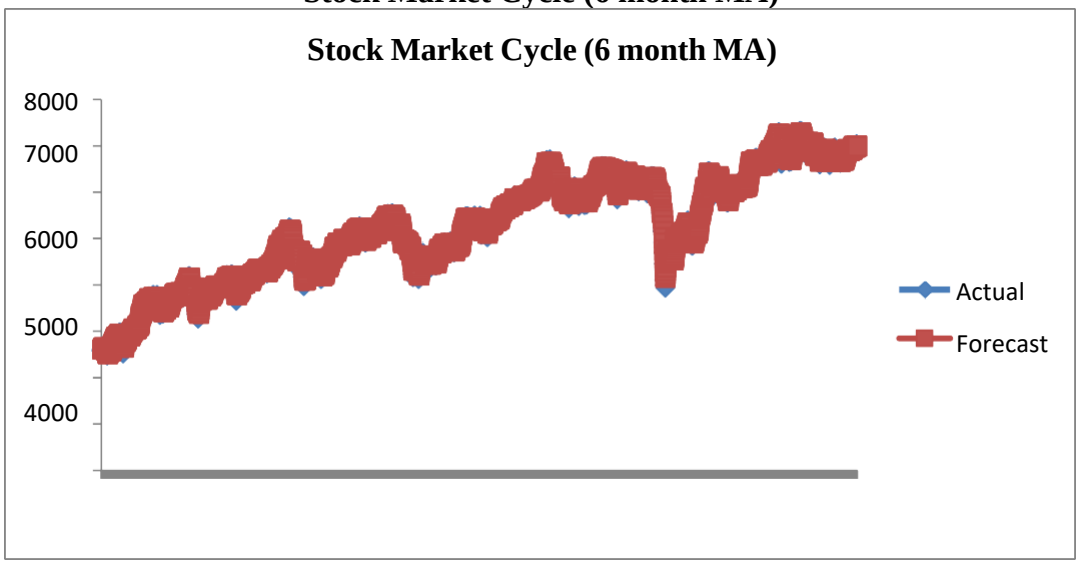
However, the stock exchange has continued to rise since November due to the financial reports obtained in the announcement for the December report and the expectation of a January Effect at the beginning of the year, especially in January. Usually, retail investors receive year-end bonuses and investors buy up several shares while wanting to avoid taxes at the end of the year.

Graph 2.
Index the Month



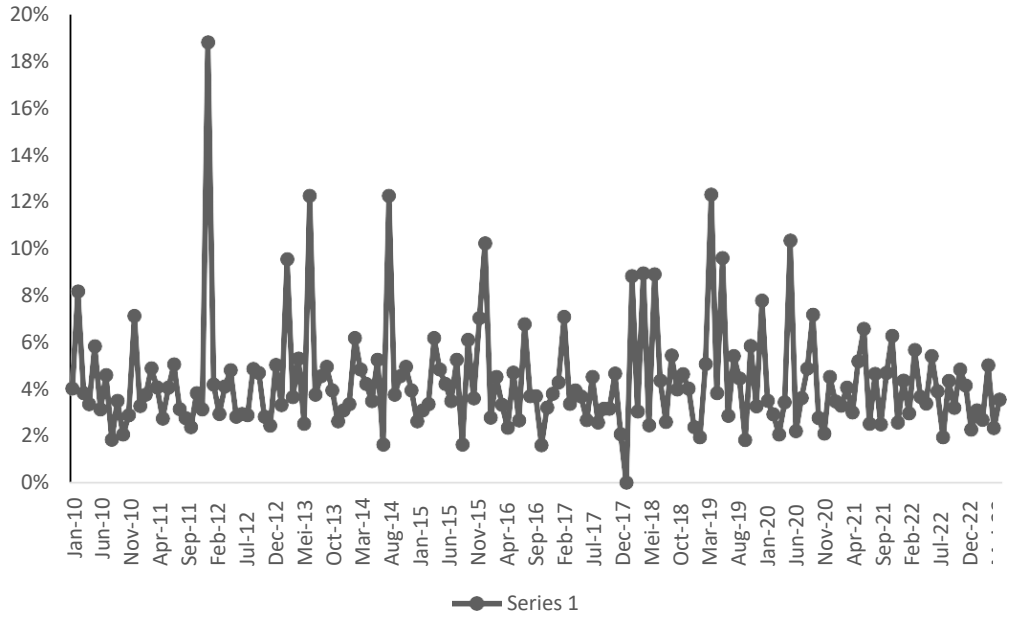
Graph 3 shows the Stock Cycle since 2010. This graph was created using a 6 month Moving Average (short-term). According to the graph, the Indonesian Stock Exchange has experienced 5 cycles and is now in the sixth cycle in a down position. JCI will tend to decline with the possibility of falling to level 6939 in cycle 6. This is because the global economic recovery tends to slow down, reflected in the uneven rate of global economic growth influenced, among other things, by tight financial conditions, weak trade growth, and low optimism in the business world. and consumers, increasing geopolitical tensions after the Russia-Ukraine war, the development of the Palestine-Israel conflict, the impact of tightening monetary policy, and extreme weather.

Graph 3.
Stock Market Cycle (6 month MA)



Another factor in the decline in the JCI is that economic and banking liquidity has decreased. The weakening of the Rupiah exchange rate was influenced by high global financial market uncertainty, the strengthening of the US dollar, and the tightening of monetary policy by various central banks. In addition, the rise in the 10-year US Treasury, which is considered a haven amid economic uncertainty and is a benchmark for borrowing costs around the world, was driven by investors who expect US growth to continue to persist in the face of the Federal Reserve's aggressive interest rate hike cycle.

Graph 4.
BEI Monthly Volatility 2010 – September 2023



CONCLUSION

This study found that daily changes were greater than consecutive changes. Investors cannot use price change information to make investments. Due to one day's change, there is no big possibility that there will be successive changes in the opponent. The Indonesian Stock Exchange is heading towards a decline in the sixth cycle, the JCI is estimated to reach level 6939, if the downward trend is desired by the market. There is no January Effect on the IDX but there is a December Effect due to the tendency of window dressing. August had the lowest return rate during the research period.

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