The Investment Strategy of Sector Rotation over Business Cycles in the Indonesia Stock Exchange to Generate Superior Return

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ABSTRACT: The investment strategy of sector rotation over business cycles is one of the investment strategies in The Indonesia Stock Exchange. The basic philosophy of the investment strategy of sector rotation is to invest assets in sectors that are expected to perform well and avoid sectors that are expected to perform otherwise. In this research, the investment strategy of sector rotation begins with the identification of the business cycle based on Indonesia's economic growth or GDP data. The business cycle is divided into four stages referring to the movement of the GDP value, namely early contraction, late contraction, early expansion and late expansion. After the four stages of the business cycle the time period is found, the performance of stocks from each sector is calculated by the return and the amount of risk that accompanies it in the format of the average per sector, to find out which sectors have good performance at each stage of the business cycle. Sector performance is assumed to be good if the average rate of return can exceed the performance of the JCI which is used as a benchmark. After successfully identifying sectors that have good performance at each stage of the business cycle, the next step is compiling a portfolio. There are two portfolios formed, namely Portfolio A and Portfolio B. Portfolio A is composed of each sector whose performance is only if it is higher than the JCI and is selected at each stage of the business cycle. Meanwhile Portfolio B is compiled from each sector and selected at each stage of the business cycle whose performance is if and only if it is higher than the JCI and must be positive. Then the performance of the portfolio and the JCI is calculated by calculating the value of the growth rate of return by considering the risk during the period of one business cycle. The calculation results obtained are as follows: Portfolio A grew by 116.52%, Portfolio B 158.41% and JCI - 4.43%. Meanwhile, the Sharpe Ratio for Portfolio A is 2.92, Portfolio B is 4.73 and JCI is - 0.65. From these results it can be seen that the growth in the value of portfolio investment compiled from the investment strategy of sector rotation is quite larger than the growth of the JCI which is used as a benchmark, so it can be said that this strategy produces a superior return.

KEYWORDS: Investment Strategy, Sector Rotation, Asset, Portfolio and Return.

1. INTRODUCTION

1.1 Background

An investment is the current commitment of money or other resources in the expectation of reaping future benefits (Marcus et al., 2014). Meanwhile, according to (Reilly and Brown, 2012), an investment is the current commitment of dollars for a period of time in order to derive future payments that will compensate the investor for the time the funds are committed, the expected rate of inflation during this time period and the uncertainty of the future payments. In short, what we do with our current assets to make their value continue to increase over time is what is called investment. Investment can be made in real assets or financial assets. Examples of real assets are the land, buildings and machines. While examples of financial assets are stocks and bonds. Investing in financial assets such as stocks can be done through the capital market. The capital market is a market that brings together the owners of capital and those who need capital. The owners of capital want to invest their capital to get a return from their investment activities, while those who need capital need additional capital for the purpose of developing their business. The owners of capital can be individuals or groups or institutions, they are usually referred to as investors. While parties who need capital can also be individuals or groups or institutions, they are usually referred to as issuer (emiten) or firms that have been officially registered in a capital market.

Investors when making transactions in the capital market include two things, namely buying or selling. The mechanism for buying and selling assets follows the basic law of economics, namely the law of supply and demand. Based on the law of supply and demand, the price of an asset is created. The higher the demand for an asset assuming a fixed supply, the price of the asset will increase and if the opposite happens, the price of the asset will decrease. This change in the price of an asset has the potential to

provide benefits for investors. The difference between the price when an investor buys an asset and the price when the asset is sold is called a capital gain. If the value of capital gain is positive then the investor is called profit, while if the value of capital gain is negative it is called loss.

The method used by investors to choose assets in the capital market and determine when to buy and sell these assets is called an investment strategy. There are many investment strategies in the capital market that can be used by investors, one of them is the investment strategy of sector rotation over business cycles.

I.2 Company Profile

Historically, the capital market has existed long before the independence of Indonesia. The capital market or stock exchange has existed since the Dutch colonial era. The capital market at that time was established by The Dutch East Indies government. It was only in 1912, on December 14 to be precise, that the Amsterdamse Effectenbueurs opened a stock exchange branch for the first time in Indonesia which was located in Batavia or now called Jakarta.

Starting from January 25, 2021, The Indonesia Stock Exchange implements the new classification sector and industry of The Indonesia Stock Exchange listed company called The Indonesia Stock Exchange Industrial Classification. The following is the latest version of the sector and industry classification on The Indonesia Stock Exchange which consists of 11 sectors, namely: energy, basic materials, industrials, consumer non-cyclicals, consumer cyclicals, healthcare, financials, properties & real estate, technology, infrastructures, and transportation & logistic.

I.3 Business Issue

One of the issues that has developed in The Indonesia Capital Market is the minimum number of local investors. As of November 2022, the number of local investors in The Indonesia Capital Market is only around 10 million and the number of local investors in The Indonesia Stock Exchange is only around 4 million. Very far when compared with the total population of Indonesia which is around 270 million according to the predictions of The Central Statistics Agency of Indonesia. If it is percentage, the total number of The Indonesia Capital Market investors is around 3.7% and the number of The Indonesia stock exchange investors is around 1.5%. When compared to several other Southeast Asia countries, based on data sources from The Indonesia Capital Market, the percentage of investors on The Indonesia Stock Exchange is still below the percentage of Singapore 16.2%, Malaysia 8.7%, Thailand 5%, Vietnam 2.2%. Indonesia is only ahead of the Philippines with a total percentage of 1.1%. If viewed from the market potential of increasing the number of investors, the opportunity is still very large. In addition, based on data as of November 2022, the Jakarta Composite Index (JCI) market capitalization is the largest among all countries in the Southeast Asian region.

One of the reasons considered to have contributed to the low number of local investors in The Indonesia Capital Market is the low level of public financial literacy, especially investment strategies, so that many do not know how to invest properly and correctly in the capital market to get maximum profit. For most people, the capital market seems unattractive, considered very risky and only suitable for investors who have large capital and complex financial knowledge. In fact, if we look at the growth in the value of the JCI in the last 20 years, the JCI has grown above 1500%. Fantastic growth value. The average IHSG return growth in the last 20 years is around 18% to 19% or the highest among all stock exchange index growth among all countries in the Southeast Asia region. So that the Indonesia people as local investors, should be able to take advantage of this opportunity as an additional source of income to improve their welfare, by implementing a good and correct investment strategy.

How to manage the portfolio is always a big question to investors in various study done on the portfolio management process and plan of investment. There is always a need for common investors to know how to enter into the market and make profit in it, and not to exit with disappointment. This research aims to try to provide an alternative investment strategy that can be utilized by investors in the capital market, in order to generate superior returns in their investment activities. It is hoped that the existence of some good investment strategies will be able to bring more local investors to the Indonesian capital market and they can use the capital market as a place to invest to improve welfare.

1.4 Research Questions and Research Objectives

There are three important big questions that will be answered in this research, namely:

1. What is the performance pattern of each sector in each stage of the business cycle?

2. Does the performance of each sector in each stage of the business cycle have similarities with the results of previous studies?
3. How big is the difference in returns generated by the portfolio using the investment strategy of sector rotation when compared to JCI returns as a benchmark?

The objectives of this research are:
1. Providing alternative investment strategy options in the capital market especially in The Indonesia Stock Exchange that can provide superior returns. So that it can be used by investors and investment company as an alternative investment strategy to get a good return when investing in the capital market.
2. Providing new information for the public about the investment strategy of sector rotation so as to increase public financial literacy.

2. LITERATURE REVIEW

2.1 Theoretical Foundation

The investment strategy of sector rotation is one of many investment strategies that are expected to generate superior return when compared to a benchmark, which in this research is the JCI is used as the benchmark, by changing the composition of assets in a portfolio, by transferring or placing more capital in selected assets in selected sectors, which is predicted to perform well. What is meant by sector in this research is the grouping of emiten into the same group based on the characteristics of the type of industry or business model.

The performance of an asset as a stock of a firm or an emiten will be greatly influenced by the fundamental performance of a firm. Meanwhile, the fundamental performance of a firm will be greatly influenced by macroeconomic indicator namely economic growth. In principle, real economic growth translates into higher profits for firms and shareholders (Ritter, 2005), therefore we can expect higher stock returns along with economic growth, and vice versa. Real economic growth is also usually expressed in terms of gross domestic product or GDP, which is the standard measure of the value added created through the production of goods and services in a country during a certain period. The business cycle is the natural rise and fall of economic growth that occurs over time. The business cycle is a term used by economists to describe the increase and decrease in economic activity over time. Understanding is needed for each emiten which is the underlying asset in compiling a portfolio of business characteristics whose performance will be greatly influenced and dependent on changes in macroeconomic conditions. Understanding various asset classes characteristics can help identify points in the business cycle when they traditionally do well (Pring, 1992). Different stages of the business cycle inevitably connect with the risk and return of equities associated with different underlying industries or sector. Therefore, stock returns can respond differently to economic factors depending on the economy's stage.

The performance of a sector is predicted using the business cycle, because in one stage of the business cycle, certain sectors will perform better than other sectors and vice versa, due to changes in real economic growth that form the basis of the performance of each emiten, which will eventually become the choice of assets for investors in compiling a portfolio. In previous study, Singh, Mehta, and Varsha (2011) found a positive relationship between GDP and stock returns in Taiwan. Similarly, Talthip and Sukcharoensin, (2022), found that in Thailand, the performance of each business sector is different for each stage of the business cycle, resulting in different recommendations for investors in selecting assets to construct their portfolios for each stage of the business cycle. To explore the relationship between business cycle stages and stock returns, DeStefano (2004) investigated data in the U.S. stock market and business cycle for each of the four business cycle stage (early expansion, late expansion, early recession, and late recession) and found that stock returns decrease throughout the economic expansion and become negative during the first half of recession. The largest stock returns were found in the late recession stage, which suggested possible expected earnings effect where the investors expect future, increasing earnings in late recession stage similarly to late expansion stage where the investors expect the future decline in earnings, therefore, stock returns slow down. Another study conducted by Song and Qian (2017) used 3 methodologies to investigate the relationship between sectoral stock returns over 10 sectors of the U.S. stock market and the U.S. business cycle. To evaluate sectoral stock return behavior over the business cycles, Song and Qian (2017) used a similar method with DeStefano (2004) to identify the business cycle stages. The results found that positive and significant parameters were detected in the recovery stage with finance, energy, industrial, and consumer goods. In the prosperity stage, positive and significant

parameters were detected with energy, basic materials, industrials, and technology. In the recession stage, negative and significant parameters were detected with telecommunication and utilities. In the depression stage, negative and significant parameters were detected with finance, industrials, energy, utility, and U.S. whole market. Song and Qian (2017) concluded that it was apparent that the business cycle and sectoral stock returns have a close relationship.

2.2 Conceptual Framework

In previous study, various methods have been used to identify business cycles. Talthip and Sukcharoensin, (2021) used the real GDP growth path in Thailand to divide inclining growth stage and declining growth stage. Then the business cycle was defined with 3 stages, namely: recovery, expansion, and contraction. Previously, Song and Qian, (2017) used a method by using data from the National Bureau of Economic Research (NBER), USA, defined peak and trough dates then divided expansion into early expansion (recovery) and late expansion (prosperity) and divided contraction into early contractions (recession) and late contractions (depression).

This research will use a combination of methods that adapt the method used by Talthip and Sukcharoensin, (2021) and Song and Qian, (2017) in identifying business cycles. The macroeconomic indicator used is Indonesia's real GDP growth. Then determine the peak and trough dates followed by dividing the expansion into early expansion and late expansion and dividing the contraction into early contraction and late contraction. The rationale for using Indonesia's real GDP as a macroeconomic indicator is to see directly the relationship between Indonesia's economic growth and the performance of the investment strategy of sector rotation. In this research, the macroeconomic indicator used to determine the phases of the business cycle is GDP. The time period covering one full the business cycle is called one business cycle. One business cycle will be grouped into four parts, namely: expansion, peak, contraction and trough. Peak is the highest point in the GDP value, while through is the lowest point in the GDP value, in business cycle.

Expansion is the movement of the GDP value from through to peak. While contraction is the movement of the GDP value from peak to through. Each expansion and contraction part is divided into two stages, namely early expansion and late expansion as well as early contraction and late contraction. Early expansion is the stage of movement in the value of GDP from through to the point of zero GDP growth. Late expansion is the stage of movement in the GDP value from the point of growth in the value of GDP after zero value to the peak. Early contraction is the stage of movement in the value of GDP from the peak to the point of GDP growth before zero value. Late contraction is the stage of movement of GDP from the point of zero GDP growth to through. Therefore, in one full phase of the business cycle there are four stages, namely: early expansion, late expansion, early contraction and late contraction. The business cycle in accordance with this explanation can also be described as illustrated below.
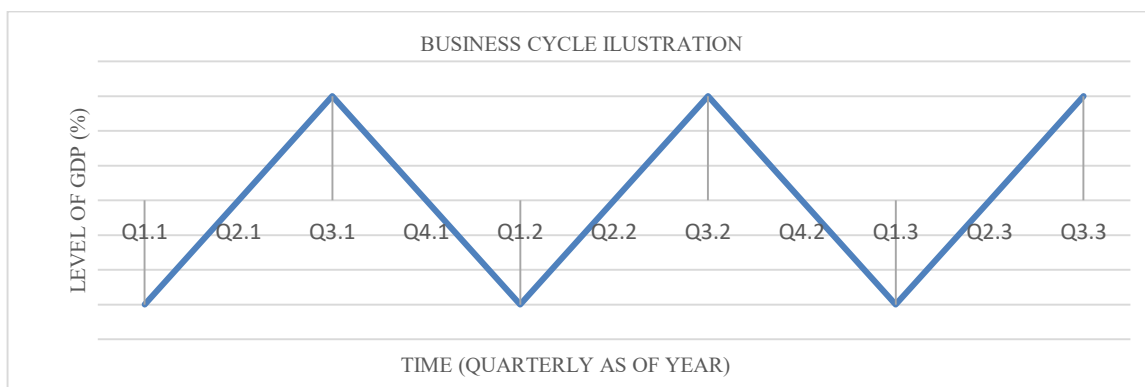
Figure II.1 Business Cycle Ilustration

According to this illustration, the time period covering one full the business cycle occurs in the time period Q1.1 to Q1.2 or Q1.2 to Q1.3, or Q3.1 to Q3.2 or Q3.2 to Q3.3. Peak is the condition of GDP at points Q3.1, Q3.2 and Q3.3. While through is the condition of GDP at points Q1.1, Q1.2, and Q1.3. Expansion is the condition of GDP in the time period from Q1.1 to Q3.1 or Q1.2 to Q3.2 or Q1.3 to Q3.3. While the contraction is the condition of GDP in the time period from Q3.1 to Q1.2 or Q3.2 to Q1.3. Meanwhile, early expansion is the condition of GDP in the time period from Q1.1 to Q2.1 or Q1.2 to Q2.2 or Q1.3 to Q2.3. Late expansion is

the condition of GDP in the time period from Q2.1 to Q3.1 or Q2.2 to Q3.2 or Q2.3 to Q3.3. Early contraction is the condition of GDP in the time period from Q3.1 to Q4.1 or Q3.2 to Q4.2. Late contraction is the condition of GDP in the time period from Q4.1 to Q1.2 or Q4.2 to Q1.3.

3. RESEARCH METHODOLOGY

3.1 Research Design

This research will begin by identifying the business cycle, seeing whether economic conditions are in an expansionary or contractionary stage by taking into account movements in the value of Indonesia's GDP. The GDP value used as a reference is the quarterly GDP value issued by the Central Bureau of Statistics of Indonesia (BPS). The data time period used is from Q1 of 2014 to Q4 of 2022. Then observations are made to see the time period where one full phase of a full business cycle is found which includes four stages, namely: early expansion, late expansion, early contraction, and late contraction. Then, the initial and final time periods are identified for each stage in the business cycle which will be used as a reference for timing the buying and selling of stock of a sector in carrying out the investment strategy of sector rotation. The result of this process is to find the duration of the time period for each stage in one full business cycle. In more detail, we will identify early expansions, late expansions, early contractions and late contractions occurring and ending in what quarter. Then, after knowing the time period for each stage in the business cycle, the performance of the stocks of the eleven sectors on The Indonesia Stock Exchange will be calculated to represent each sector.

Due to the large number of stocks for each sector, the criteria used in determining the stocks that represent each sector are stocks that are listed in the IDX 80 and have been listed in The Indonesia Stock Exchange during the period of the business cycle observed in this study. The reason for choosing the stocks included in the IDX 80 is because the IDX 80 is an index of 80 stocks that have high liquidity and large market capitalization and are supported by good company fundamentals. Meanwhile, it has been registered on the Indonesia Stock Exchange during the period of the business cycle observed in this study to ensure the availability of stock price data needed to calculate its performance at each stage of the business cycle. Then after calculating the performance of each stock for each sector during the period of each stage of the business cycle, data will be obtained which sector has performance return higher than performance return JCI for each stage of the business cycle as a basis for consideration for selecting and compiling a stock portfolio at each stage of the business cycle.

In this research, the stocks used as portfolios consisted of two categories, namely Portfolio A and Portfolio B. Portfolio A was composed of sector stocks with return performance above the JCI return. Meanwhile Portfolio B is composed of sector stocks with a performance above the JCI return and a positive value. Then portfolio performance in the frame of risk and return concept will be calculated during the period of a full business cycle and compared with benchmark, to answer how big is the difference in risk and return generated by the portfolio that using the investment strategy of sector rotation over business cycles when compared to JCI as a benchmark.

3.2 Data Collection Method

There are two important data used in this research, namely Indonesia's economic growth data or Indonesia's GDP and stock price data from all sectors traded on the Indonesian stock exchange during the observation period. Indonesia's GDP growth data used in this research were taken from the Indonesia Central Bureau of Statistics (BPS). The GDP growth data used is quarterly data, in accordance with the data releases that are usually done by BPS every year, which cover quarter 1 (Q1), quarter 2 (Q2), quarter 3 (Q3) to quarter 4 (Q4). The data taken is from year of 2012 to 2022. Based on the data that has been arranged like the graph below, this will be analyzed to find the period of one full business cycle that is used to determine the stock performance of all sectors at all stages of the business cycle.

Stock price data used in this research were taken from yahoo finance data. The stock prices used are past stock prices, according to the observation time period and adjusted to data needs in line with study needs. As previously explained, these stocks represent each sector, are included in the IDX 80 index, and have been listed on the Indonesian Stock Exchange since the beginning of the period this research was conducted.

3.3 Data Analysis Method

The data analysis method used to find a business cycle in this research is to graph the relationship between Indonesia's GDP growth and the time set to be the observation period, namely from 2012 to 2022. The main goal of making this graph is to find a full business cycle, consisting of expansion (early expansion and late expansion), peak, contraction (early contraction and late contraction), and through, in the most recent time period which will be used to test how superior the performance of the investment strategy of sector rotation is.

The principle used to assess stock performance at each stage of the business cycle is to calculate the risk and return generated in each time period for each stage of the business cycle. The return generated in each time period for each stage of the business cycle is also known as the holding period return (HPR). HPR will be obtained for each stock at four stages of the business cycle, namely HPR in early contractions, late contracts, early expansions and late expansions. Then the HPR of each stock in each sector will be averaged so that the average HPR of each sector is obtained for each stage in the business cycle. In the end, the average HPR will be obtained for each sector at each stage of the business cycle, so that it will be found which sector has a higher or lower return than JCI. In addition to calculating the return of each stock, monthly systemic risk or monthly β and monthly the total risk or monthly standard deviation (SD) of each stock are also calculated, whereas when the portfolio has been formed, in addition to systemic risk or β and total risk or SD, the sharpe ratio or a measure of the performance of a portfolio by considering risk and return is also calculated, so that the value can be informed along with the resulting return value so that it can be considered by investors in the context of risk and returns. Just like the HPR calculation, the risk calculation is also carried out for each stock, portfolio and JCI at each stage in the business cycle for all sectors. Then the risks in each sector will be averaged so that in the end an average risk from all sectors at four different stages of the business cycle will be obtained.

4. RESULTS AND DISCUSSION

From the results of the analysis of the data carried out in this study, several important results were found, including a chart of Indonesia's economic growth in the time period between 2018 and 2022. Then one full business cycle was found in that period. In the end, the stock performance of each sector at each stage of the business cycle can be calculated from the business cycle. A full explanation of each of these findings will be explained in the following discussion.

4.1 Analysis

The table below is data on Indonesia's economic growth for the period 2018 to 2022 and the data is displayed quarterly. From this data it can be seen that there was an increase and decrease in GDP during the analysis time period.

Table IV.1 The Indonesia's GDP 2018 - 2022

THE INDONESIA'S GDP 2018 – 2022				
Years	GDP (%)			
	Q1	Q2	Q3	Q4
2018	5,07	5,27	5,17	5,18
2019	5,06	5,05	5,01	4,96
2020	2,97	-5,32	-3,49	-2,17
2021	-0,7	7,07	3,51	5,02
2022	5,02	5,45	5,72	5,01

Based on Indonesia's GDP growth data, the following is the chart of Indonesia's GDP growth as of the period 2018 to 2022.

Figure IV.1 The Indonesia's GDP 2018 - 2022

Based on the chart of The Indonesia's GDP 2018 to 2022, one full business cycle is found in the time period as shown in the following chart.

Figure IV.2 The Indonesia's Business Cycle 2018 – 2022

Detailed time periods for each stage in the business cycle are listed in the following table.

Stages	Quarterly of Period	Date Of Period
Through	Q2 2020	01 April 2020 - 30 June 2020
Peak	Q2 2018 & Q2 2021	01 April 2018 – 30 June 2018 & 01 April 2021 - 30 June 2021
Stages	**Quarterly of Period**	**Date Of Period**
Contraction	Q2 2018 - Q2 2020	01 April 2018 - 30 June 2020 (27 Months)
Expansion	Q3 2020 - Q2 2021	01 July 2020 - 30 June 2021 (12 Months)
Stages	**Quarterly of Period**	**Date Of Period**
Early Contraction	Q2 2018 - Q4 2019	01 April 2018 - 31 December 2019 (21 Months)
Late Contraction	Q1 2020 - Q2 2020	01 January 2020 - 30 June 2020 (6 Months)
Early Expansion	Q3 2020 - Q1 2021	01 July 2020 - 31 March 2021 (9 Months)
Late Expansion	Q2 2021	01 April 2021 - 30 June 2021 (3 Months)

The following is a summary of the risk and return of all industrial sectors and JCI at each stage of the business cycle. The table marked in red shows the industrial sector's HPR performance is lower than JCI's HPR. The table marked in yellow shows the industrial sector's HRP performance is greater than JCI's HPR but the value is negative. The table marked in green shows the industrial sector's HRP performance is greater than JCI's HPR and the value is positive.

Table IV.1 Summary of The Industry Sector and JCI Risk and Return at Early Contraction Stage

No	Industry Sector & Indeks	Average HPR (%) Average SD (%) Average β
1	Energy Sector	-42.91 12,95 2,17
2	Materials Sector	34,43 13,51 1,87
3	Industrials Sector	-26,02 10,08 1,11
4	Consumer Non-Cyclicals Sector	6,18 8,47 1,02
5	Consumer Cyclicals Sector	5,21 13,48 1,64
6	Healthcare Sector	32,42 9,04 0,52
7	Financials Sector	-12,48 7,64 1,14
8	Properties & Real Estate Sector	-40,26 10,84 1,94
9	Technology Sector	-37,90 6,35 0,72
10	Infrastructures Sector	-31,63 12,85 2,34
11	Transportation & Logistic	61,50 16,58 3,35
12	JCI	0,95 2,93 1,00

Table IV.2 Summary of The Industry Sector and JCI Risk and Return at Late Contraction Stage

No	Industry Sector & Indeks	Average HPR (%) Average SD (%) Average β
1	Energy Sector	-31,93 18,60 1,44
2	Materials Sector	-24,00 22,19 1,84
3	Industrials Sector	-33,14 17,19 1,45
4	Consumer Non-Cyclicals Sector	-17,70 14,07 0,92
5	Consumer Cyclicals Sector	-24,35 19,73 1,82
6	Healthcare Sector	-12,20 9,54 0,88
7	Financials Sector	-35,03 18,41 1,46
8	Properties & Real Estate Sector	-38,16 23,01 2,26
9	Technology Sector	-13,67 8,59 0,11
10	Infrastructures Sector	-21,28 21,32 2,00
11	Transportation & Logistic	-34,08 27,30 2,86
12	JCI	-21,93 8,66 1,00

Table IV.3 Summary of The Industry Sector and JCI Risk and Return at Early Expansion Stage

No	Industry Sector & Indeks	Average HPR (%)
1	Energy Sector	84,85 19,37 2,38
2	Materials Sector	79.07 16,81 1,75
3	Industrials Sector	24,98 12,63 1,15
4	Consumer Non-Cyclicals Sector	12,66 7,98 0,7
5	Consumer Cyclicals Sector	28,01 14,11 1,38
6	Healthcare Sector	22,97 6,43 0,05
7	Financials Sector	45,22 13,14 1,26
8	Properties & Real Estate Sector	55,79 12,98 1,83
9	Technology Sector	363,26 22,32 -0,36
10	Infrastructures Sector	37,69 18,95 2,01
11	Transportation & Logistic	173.72 16,09 0,94
12	JCI	21,79 5,53 1,00

Table IV.4 Summary of The Industry Sector and JCI Risk and Return at Late Expansion Stage

No	Industry Sector & Indeks	Average HPR (%) Average SD (%) Average β
1	Energy Sector	-4,21 8,33 2,82
2	Materials Sector	-1,25 10,59 2,55
3	Industrials Sector	-3,39 4,33 -2,69
4	Consumer Non-Cyclicals Sector	-6,82 8,87 0,24
5	Consumer Cyclicals Sector	5,51 10,10 0,62
6	Healthcare Sector	2,68 8,41 0,36
7	Financials Sector	4,28 9,69 -0,83
8	Properties & Real Estate Sector	-13,98 4,37 -1,76
9	Technology Sector	2,04 2,62 2,14
10	Infrastructures Sector	-1,03 9,16 0,74
11	Transportation & Logistic	65,23 14,76 -18,54
12	JCI	-0,43 1,12 1,00

4.2 Business Solution

Based on the results of data analysis, it appears that each industrial sector has a different performance at each stage of the business cycle. Therefore, investors in compiling their portfolios must comply with the recommendations based on the investment strategy over sector rotation to obtain superior returns or returns above JCI returns.

Based on the results of this study, the following are sectors that have higher HPR performance than JCI's HPR performance for each stage of the business cycle. These sectors are referred to as the recommended sectors for compiling the portfolio.

Table IV.5 The Recommended Sector at Early Contraction

No	Industry Sector
1	Materials Sector
2	Consumer Non-Cyclicals Sector
3	Consumer Cyclicals Sector
4	Healthcare Sector
5	Transportation & Logistic

Table IV.6 The Recommended Sector at Late Contraction

No	Industry Sector
1	Consumer Non-Cyclicals Sector
2	Healthcare Sector
3	Technology Sector
4	Infrastructures Sector

Table IV.7 The Recommended Sector at Early Expansion

No	Industry Sector
1	Energy Sector
2	Materials Sector
3	Industrials Sector
4	Consumer Cyclicals Sector
5	Healthcare Sector
6	Financials Sector
7	Properties & Real Estate Sector
8	Technology Sector
9	Infrastructures Sector
10	Transportation & Logistic

Table IV.8 The Recommended Sector at Late Expansion

No	Industry Sector & Indeks
1	Consumer Cyclicals Sector
2	Healthcare Sector
3	Financials Sector
4	Technology Sector
5	Transportation & Logistic

4.3 Implementation Plan & Justification

Then, two portfolios will be prepared as explained in the previous chapter, namely Portfolios A and B. Portfolio A was composed of sector stock with return performance above JCI return. Meanwhile Portfolio B is composed of sector stocks with a performance above JCI and a positive value.

Portfolio A

Table IV.9 Portfolio A at Early Contraction

No	Industry Sector & Indeks	HPR (%)
1	Materials Sector	34,43
2	Consumer Non-Cyclicals Sector	6,18
3	Consumer Cyclicals Sector	5,21
4	Healthcare Sector	32,42
5	Transportation & Logistic	61,50
Average		27,95
JCI		0,95

Table IV.10 Portfolio A at Late Contraction

No	Industry Sector & Indeks	HPR (%)
1	Consumer Non-Cyclicals Sector	-17,70
2	Healthcare Sector	-12,20
3	Technology Sector	-13,67
4	Infrastructures Sector	-21,28
Average		-16,21
JCI		-21,93

Table IV.11 Portfolio A at Early Expansion

No	Industry Sector & Indeks	HPR (%)
1	Energy Sector	84,85
2	Materials Sector	79.07
3	Industrials Sector	24,98
4	Consumer Cyclicals Sector	28,01
5	Healthcare Sector	22,97
6	Financials Sector	45,22
7	Properties & Real Estate Sector	55,79
8	Technology Sector	363,26
9	Infrastructures Sector	37,69
10	Transportation & Logistic	173.72
Average		74,18
JCI		21,79

Table IV.12 Portfolio A at Late Expansion

No	Industry Sector & Indeks	HPR (%)
1	Consumer Cyclicals Sector	5,51
2	Healthcare Sector	2,68
3	Financials Sector	4,28
4	Technology Sector	2,04
5	Transportation & Logistic	65,23
Average		15,95
JCI		-0,43

Portfolio B

Table IV.13 Portfolio B at Early Contraction

No	Industry Sector & Indeks	HPR (%)
1	Materials Sector	34,43
2	Consumer Non-Cyclicals Sector	6,18
3	Consumer Cyclicals Sector	5,21
4	Healthcare Sector	32,42
5	Transportation & Logistic	61,50
Average		27,95
JCI		0,95

Table IV.14 Portfolio B at Late Contraction

No	Industry Sector & Indeks	HPR (%)
1	_	0,00
2	_	0,00
3	_	0,00
4	_	0,00
Average		0,00
JCI		-21,93

Table IV.15 Portfolio B at Early Expansion

No	Industry Sector & Indeks	HPR (%)
1	Energy Sector	84,85
2	Materials Sector	79.07
3	Industrials Sector	24,98
4	Consumer Cyclicals Sector	28,01
5	Healthcare Sector	22,97
6	Financials Sector	45,22
7	Properties & Real Estate Sector	55,79
8	Technology Sector	363,26
9	Infrastructures Sector	37,69
10	Transportation & Logistic	173.72
Average		74,18
JCI		21,79

Table IV.16 Portfolio B at Late Expansion

No	Industry Sector & Indeks	HPR (%)
1	Consumer Cyclicals Sector	5,51
2	Healthcare Sector	2,68
3	Financials Sector	4,28
4	Technology Sector	2,04
5	Transportation & Logistic	65,23
Average		15,95
JCI		-0,43

Summary of The Portfolio During The Period of Business Cycle

Table IV.17 Portfolio A

No	Industry Sector & Indeks (01 April 2018 - 31 December 2019)	HPR (%)
1	Materials Sector	34,43
2	Consumer Non-Cyclicals Sector	6,18
3	Consumer Cyclicals Sector	5,21
4	Healthcare Sector	32,42
5	Transportation & Logistic	61,50
Average		27,95
JCI		0,95
No	Industry Sector & Indeks (01 January 2020 - 30 June 2020)	HPR (%)
1	Consumer Non-Cyclicals Sector	-17,70
2	Healthcare Sector	-12,20
3	Technology Sector	-13,67
4	Infrastructures Sector	-21,28
Average		-16,21
JCI		-21,93
No	Industry Sector & Indeks (01 July 2020 - 31 March 2021)	HPR (%)
1	Energy Sector	84,85
2	Materials Sector	79.07
3	Industrials Sector	24,98
4	Consumer Cyclicals Sector	28,01
5	Healthcare Sector	22,97
6	Financials Sector	45,22
7	Properties & Real Estate Sector	55,79
8	Technology Sector	363,26
9	Infrastructures Sector	37,69
10	Transportation & Logistic	173.72
Average		74,18
JCI		21,79
No	Industry Sector & Indeks (01 April 2021 - 30 June 2021)	HPR (%)
1	Consumer Cyclicals Sector	5,51
2	Healthcare Sector	2,68
3	Financials Sector	4,28
4	Technology Sector	2,04
5	Transportation & Logistic	65,23
Average		15,95
JCI		-0,43

Table IV.18 Portfolio B

No	Industry Sector & Indeks (01 April 2018 - 31 December 2019)	HPR (%)
1	Materials Sector	34,43
2	Consumer Non-Cyclicals Sector	6,18
3	Consumer Cyclicals Sector	5,21
4	Healthcare Sector	32,42
5	Transportation & Logistic	61,50
Average		27,95
JCI		0,95
No	Industry Sector & Indeks (01 January 2020 - 30 June 2020)	HPR (%)
1	-	0,00
Average		0,00
JCI		-21,93
No	Industry Sector & Indeks (01 July 2020 - 31 March 2021)	HPR (%)
1	Energy Sector	84,85
2	Materials Sector	79.07
3	Industrials Sector	24,98
4	Consumer Cyclicals Sector	28,01
5	Healthcare Sector	22,97
6	Financials Sector	45,22
7	Properties & Real Estate Sector	55,79
8	Technology Sector	363,26
9	Infrastructures Sector	37,69
10	Transportation & Logistic	173.72
Average		74,18
JCI		21,79
No	Industry Sector & Indeks (01 April 2021 - 30 June 2021)	HPR (%)
1	Consumer Cyclicals Sector	5,51
2	Healthcare Sector	2,68
3	Financials Sector	4,28
4	Technology Sector	2,04
5	Transportation & Logistic	65,23
Average		15,95
JCI		-0,43

Table IV.19 Performance Portfolio and JCI

Portfolio	HPR (%)			
	Early Contraction 01/04/2018 31/12/2019	Late Contraction 01/01/202030/06/2020	Early Expansion 01/07/2020 31/03/2021	Late Expansion 01/04/2021 30/06/2021
Portfolio A	27,95	-16,21	74,18	15,95
Portfolio B	27,95	0,00	74,18	15,95
JCI	0,95	-21,93	21,79	-0,43

If we carry out a simulation by investing in assets that have an initial investment value of 100 million, it is assumed that assets are invested with the same value in all sectors and the same value in each stock in each sector, then the growth in asset value is as follows:

Table IV.20 Net Asset Value and Growth Rate Portfolio and JCI

Portfolio	Net Asset Value (NAV)				
	Early Contraction 01/04/ 2018 31/12/ 2019	Late Contraction 01/01/202030/06/2020	Early Expansion 01/07/2020 31/03/2021	Late Expansion 01/04/2021 30/06/2021	Growth (%)
Portfolio A	127.950.000	107.209.305	186.737.167	216.521.745	116,52
Portfolio B	127.950.000	127.950.000	222.863.310	258.410.008	158,41
JCI	100.950.000	78.811.665	95.984.727	95.571.992	- 4,42

Table IV.21 Risk and Return Portfolio and JCI

Portfolio	Return (%)	Return Risk Free (%)	SD (%)	β	Sharpe
Portfolio A	116,52	7,25	37,45	2,07	2,92
Portfolio B	158,41	7,25	31,90	1,70	4,73
JCI	- 4,43	7,25	17,86	1,00	-0,65

5. CONCLUSION AND RECOMMENDATION

From the results of this research it can be concluded several important results as will be explained below.

5.1 Conclusion

The implementation of the investment strategy over business cycle resulted in a recommendation that, during the early contraction stage, the sectors that have higher HPR performance than JCI's HPR are the materials sector, consumer non-cyclicals sector, consumer cyclicals sector, healthcare sector and transportation & logistics sector. In the late contraction stage, the sectors that have higher HPR performance than JCI's HPR are the consumer non-cyclicals sector, healthcare sector, technology sector and

infrastructure sector. In the early expansion stage, the energy sector, materials sector, industrial sector, consumer cyclicals sector, healthcare sector, financial sector, properties & real estate sector, technology sector, infrastructures sector and transportation & logistics have HPR sectors that have higher HPR than JCI's HPR. Meanwhile, in the late expansion stage of the consumer cyclicals sector, healthcare sector, financial sector, technology sector and the transportation & logistics sector has a higher HPR than JCI's HPR.

In this study, returns in the early contraction, late contraction, early expansion and late expansion stages for each portfolio and JCI are respectively as follows. Portfolio A: 27,95 %, -16,21 %, 74,18 %, and 15,95 %. Portfolio B: 27,95 %, 0,00 %, 74,18 %, and 15,95 %. JCI: 0,95 %, -21,93 %, 21,79 %, and -0,43 %. The highest return growth occurs in the early expansion stage and the lowest growth occurs in the late contraction stage. This is possibly due to the fact that at the early expansion stage, investors are starting to hope for future economic improvements which will ultimately push emitens performance towards a better one. Whereas in the late contraction stage, it is the peak condition for investors' concerns about the worsening performance of emitens, so that many investors move their assets from the stock market to investment instruments that are considered to be less risky.

From the investment calculation results for one period of the business cycle in this research, it was found that Portfolio A grew 116.52%, Portfolio B grew 158.41% and JCI grew negative - 4.43%. If it is simulated by investing assets in the form of Rp. 100,000,000 in both portfolios and JCI, then the initial investment of Rp. 100,000,000 in Portfolio A will be Rp. 216,521,745 at the end of the investment period. The initial investment of IDR 100,000,000 in Portfolio B will become IDR 258,410,008 at the end of the investment period. However, the initial investment of IDR 100,000,000 placed in JCI actually decreased to IDR 95,571,992 at the end of the investment period. From these results it can be seen that Portfolios A and B that apply the investment strategy of sector rotation over business cycle can generate return grow that is far above JCI growth. Therefore it can be assumed that this strategy can generate superior returns.

In terms of returns that have considered risk or risk adjusted returns, as stated in the Sharpe Ratio, it can be seen that Portfolios A and B do have a better value. Portfolio A with a value of 2.92, Portfolio B with a value of 4.73, while JCI has a value of -0.65.

5.2 Recommendation

To further refine this research, it is necessary to carry out further studies in the future by continuing to calculate the CAPM for each sector at each stage of the business cycle so that the relationship between risk and return generated by each portfolio becomes more visible at its fair value.

Meanwhile, the number of shares analyzed for each sector should be enlarged, so that the results obtained are closer to the actual conditions of the Indonesian stock market.

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