Proceedings Book of ICEFMO, 2013, Malaysia
Handbook on the Economic, Finance and Management Outlooks
ISBN: 978-969-9347-14-6

Sector Rotation Investment Strategy in Indonesia Stock Exchange

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Abstract

This study examines whether sector rotation investment strategy can generate superior return. In certain economic condition, one sector can perform better than the other sector. Principle of this investment strategy is investing in sectors that perform better than the other. Performance of one sector has strong correlation with economic condition and we use business cycle to describe the economic condition. We examined performance of every sector over business cycle from 2001-2012. We divide the phase of business cycle to three periods: early expansion, late expansion, and recession. The phases identified from macroeconomic analysis. Macroeconomic indicator that used to to identify the business cycle are global GDP, Indonesia GDP, and inflation rate in Indonesia. Interestingly, we found that global GDP has larger impact to Indonesia capital market than Indonesia GDP itself, so we use the global GDP as main source to identify business cycle in Indonesia. Every business cycle phase has different duration, depend on the change on economic condition. We build a portfolio simulation that implement the sector rotation investment strategy after choose the best sector in every business cycle phase. We select the most liquid and largest capitalization stock from LQ 45 Index. Return generated from implementing the strategy is higher than return of Jakarta Composite Index. We conclude that, sector rotation investment strategy is an optimal strategy that can be applied by investors to generate superior return in Indonesia Stock Exchage.

Key words: Business cycle, macroeconomic, sector rotation

1. Introduction

Sector rotation strategy is an investment strategy that expected to generate higher return than the other investment strategies by switch more weight to sector that forecasted will perform better. Performance of sectors is forecasted using business cycle because in a business cycle phase, certain sector will perform better than the other. In this study, business cycle is divided into three phases: early expansion, late expansion and recession. The business cycle phases identified using macroeconomic indicator data, GDP growth and inflation rate. The observation period of business cycle is 12 years, from 2000 to 2012.

This study examines whether sector rotation investment strategy could generate higher return compared with the benchmark, Jakarta Composite Index. The indicators that used as comparison are average quarterly return. The sector rotation strategies switch the sectors if there is a change in business cycle phase. The average quarterly return from this strategy is 8.33%, higher than average quarterly return of composite index 5.77% The period of observation is 11 year, from 2001 to 2012. The difference of invest in sector rotation strategy and composite index is quite high. Even, after subtract with the cost of transaction, the return of sector rotation strategy is still higher.

In Indonesia Stock Exchange, stock market has not developed very well. Investor can not invest in sectoral index like ETF. If investors want to invest in a sector, they have to buy the stocks that build the sector. Therefore, this study is using simulation to picked stocks from every sector and to observe the real implementation of sector rotation investment strategy in Indonesia Stock Exchange. The stocks are picked from LQ 45 Index. The LQ 45 index consists of the most liquid stocks in each sector from Indonesia Stock Exchange. Time period of the simulation is 7 year, from 2005 to 2012. The time period covers one business cycle that consists of three phases. The result is invest in stock that apply sector rotation strategy can outperform invest in composite index. 100 million Indonesian Rupiahs fund that invest in stocks in 2005 become more than 1.6 billion in 2012 compared with 400 million if invest in composite index. The return of sector rotation strategy is quite impressive relative to the return of composite index.

From the result of the simulation, can be concluded that this strategy most likely will be effective to apply in Indonesia Stock Exchange. Recently, this strategy is quite popular in Indonesia. There are several investment companies like mutual fund adopt this investment strategy and they also launched new mutual fund product that based on sector rotation strategy.

2. Sector Rotation Strategy

The idea in managing portfolio that applied sector rotation investment strategy is to switch the weight of portfolio to industries or sectors that forecasted will perform better. Based on business cycle, can be forecast what sectors will perform compared to the others. As the economy moves forward, different sectors of the business tend to perform better than the others. The performance of these sectors can be a factor of the stage of business cycle. Sector rotation takes advantages of business cycle by investing in the industries or sectors that are rising and avoiding sectors that are falling. This investment strategy is flexible and expected to generate superior return because more fund can be allocated in the promising sectors.

The example, assuming an asset management company invest in 4 sectors: consumers, property, mining, and agriculture. Each of the sectors has same weighted in company portfolio. The company analyze the business cycle and the result of the company analysis is consumer and property sector will perform better than mining and agriculture sector. Anticipating that condition, the company will increasing the weight on consumer and property sector and reducing the weight in mining and agriculture in its portfolio. If the company analysis is right, the new portfolio with more weight on consumer and property sector and less weight on mining and agriculture sector will outperform the previous portfolio with the same weight of all sectors.

Past studies show that certain sector performance was better in certain business cycle phase. Study from Jacobsen et al., (2009) show that technology and computer sector are good in early expansion and gas, utilities and telecom sector are better than the other sector during recession. We believe that same things happen in Indonesia Stock Exchange, historical data show that mining sector is good in expansion and consumer sector is good in recession. In Indonesia Stock Exchange, there are 9 main sectors: consumer, infrastructure & utility, property, financial, basic industry, agriculture, mining, trade & service and miscellaneous industry.

3. Business Cycle Identification

Burns and Mitchell (1946) define the business cycle as a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprise: a cycle consist of expansions occurring at at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle, this sequence of events is recurrent but not periodic; in duration, business cycles vary from more than one year to 10 or 12 years.

Every phase in business cycle has its own characteristic The examples of business cycle indicator are economic activity and inflation. According to Gambera et al., (2013), economic activity turn from decline to expansion in early expansion, show an accelerating rate of growth in late expansion, and show an outright decline in recession. Inflation remains moderate and may continue to fall in early expansion, picks up modestly in late expansion, and decelerates but with a lag in recession.

The first step in analysis section is business cycle identification. Business cycle divided into three phase and two turning point. The periods are early expansion, late expansion, and recession and the turning points are peak and through.

Variables that used in this study to determine the business cycle phase in Indonesia are global GDP growth, Indonesia GDP growth and inflation rate in Indonesia. Global GDP growth is preferable than Indonesia GDP growth in this study because Global GDP growth has more impact to capital market in Indonesia than Indonesia GDP growth. The example is crisis in 2008, at the time Indonesia has positive GDP growth while Global GDP growth is negative. On the other hand, Jakarta Composite Index decreases sharply at the time. The same case occurred in 2001. Exhibit 1 explained about characteristic of each business cycle phase that applied this study

Exhibit-1. Characteristic of Business Cycle Phase

Business Cycle Phase	**Characteristic**
Recession	Negative global or Indonesia GDP growth High/very high inflation
Early Expansion	Low global GDP growth Low/medium inflation Positive Indonesia GDP
Late Expansion	High global GDP growth Medium/high inflation Positive Indonesia GDP growth

In this study, GDP growth is divided into three categories: negative (less than 0%), low (between 0% and 3%) and high (more than 3%). Inflation divided into five categories: deflation (less than 0%), low (between 0% and 1%), medium (between 1% and 2%), high (between 2% and 3%), and very high (more than 3%). The data of GDP growth and inflation is quarterly data.

Duration of business cycle phase is uncertain, the duration maybe very short or very long. Generally, the economy fall has shorter time period than its rise. Time period of recession phase relatively shorter than time period of expansion phase. From Exhibit 2, can be seen that duration of recession phase in 2001 is about 5 quarter and duration of expansion phase (early and late) is about 22 quarter. Same issue happens in stock market. In the expansion phase, stock market usually grows at moderate rate but in the recession phase, stock market usually decreases sharply in the short time period.

Exhibit-2. Business Cycle Identification

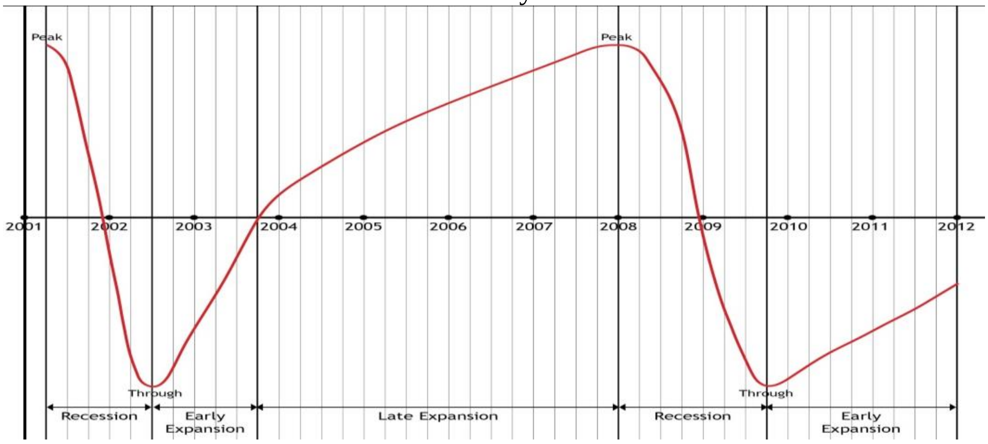

Exhibit 2 shows the business cycle phase in Indonesia from 2001 to 2012. The picture shows that the time period of one business cycle that consist of recession, early expansion, and late expansion is 7 years (from 2001 to 2008). The identification of business cycle starts from first quarter of 2001. At the time, business cycle hit the peak and entered recession phase. At the last quarter of 2007, business cycle hit the peak again and entered the recession phase. The recession phase was ended in third quarter of 2009 and the business cycle entered the early expansion phase. Until the last quarter of 2012, business cycle still on the early expansion phase. We believe that in the following years, business cycle in Indonesia will change from early expansion phase to late expansion phase considering the global economy is getting better and Indonesia GDP growth forecasted will be higher.

Economic indicator like GDP growth is a lag indicator. GDP growth is announced at the end of quarter. GDP growth in first quarter will be announced at the end of first quarter, so investment strategy that already planned will be applied in second quarter. The lag will affect our simulation. We adjust our simulation with one quarter lag from the business cycle phase identification.

We allocate 9 sectors in Indonesia Stock Exchange into 3 portfolios. Each portfolio is expected to perform better than the other portfolio in certain business cycle phase. The first portfolio consists of two sectors, consumer and infrastructure & utility. Sectors that build this portfolio are defensive sectors means that this portfolio has less impact of the economy change than the others. The second portfolio consists of three sectors: property, financial, and basic industry. This portfolio is expected to perform better than the others in early expansion phase. This portfolio is taking advantages as economy moves from recession to expansion. Characteristic of early expansion are low inflation rate, low interest rate, and low commodity price. Those conditions give more advantage to the second portfolio. The third portfolio consists of four sectors: agriculture, mining, trade & services, and miscellaneous industry. This portfolio is expected to perform better than the others as economy moves forward.

4. Sector Performance

The next step after identify the business cycle and grouping the sector in portfolio is observing the performance of the sectors in every business cycle. Portfolio of the sectors will meet the objective if average return of the portfolio is exceeds the return of other portfolio in a business cycle phase. The other benchmark that can be used is return of Jakarta Composite Index (JCI). Exhibit 3 shows the return of each portfolio in every phase of business cycle

Exhibit-3. Portfolio Return per Quarter

Sector	Return per Quarter (%)			
	Full Period	**Recession**	**Early Expansion**	**Late Expansion**
Portfolio 1				
Consumer	5.18	4.77	5.54	5.34
Infrastructure & Utility	4.98	5.13	3.64	10.48
Average	5.08	4.95	4.59	7.91
Portfolio 2				
Property	5.57	-0.91	6.13	11.17
Financial	6.12	6.36	5.25	8.52
Basic Industry	5.27	-3.85	6.67	9.03
Average	5.37	0.53	6.02	9.57
Portfolio 3				
Agriculture	5.98	-4.13	0.25	19.40
Mining	5.96	-3.89	2.26	20.63
Trade & Services	4.07	-3.68	5.22	6.95
Miscellaneous Industry	6.07	0.16	7.27	9.02

Average	5.52	-2.88	3.75	14.00
JCI	5.19	0.98	4.59	10.00

In recession phase, average return of portfolio 1 that consists of consumer and infrastructure & utility sector outperform the other portfolio. When the other portfolio generated very low or even negative return, portfolio 1 generated average return of 4.95% or the highest return in recession phase. Portfolio 1 also performs better than index which generated return of 0.98%. In early expansion phase, portfolio 2 that consist of property, financial, and basic industry sector outperform the others. Portfolio 2 generated 6.02% compared with 4.59% in portfolio 1 and 3.75% in portfolio 3. Portfolio 2 also performs better than index which generated return of 4.59%. In late expansion phase, portfolio 3 that consist of agriculture, mining, trade & service, and miscellaneous industry sector outperform the others. Portfolio 3 generated average return of 14% or the highest than the others. This portfolio also performs better than the index which generated return of 10% in late expansion phase.

Every portfolio in certain phase succeeds to outperform the composite index. This result shows that as the business cycle phase change, certain sectors will outperform the other sectors. The result will be the basis in developing sector rotation investment strategy. Investor or investment company that applied the sector rotation strategy will invest in the portfolio that gives highest return and change the investment to other portfolio of sectors as the business cycle phase changed.

5. Simulation

Capital Market in Indonesia has not developed well; there are some limitations for investing in Indonesia. One of the limitations is investor can't invest in sectoral index. Indonesia Stock Exchange doesn't provide financial products like ETF. Some securities company in Indonesia provides sectoral mutual fund but there are some considerations before applying sector rotation strategy in sectoral mutual fund like investing in mutual fund is quite costly. The other possible way is invest in stocks that represent the sector.

We build a simulation to find out the application of this investment strategy in Indonesia Stock Exchange. Several stocks picked as representative of every sectors. Criteria of choosing stock are the most liquid and largest market capitalization. We choose the stocks from LQ 45 Index, an Index that consists of the most liquid 45 stocks. The simulation start from 2005 in finished in 2012. Although the duration is relatively short, but the duration is already covers all the phases. When the simulation started, the phase was late expansion and when the simulation finished, the phase was early expansion.

Exhibit-5. shows stocks that picked from every sector.

Portfolio 1		Portfolio 2		Portfolio 3	
Sector	Stock	Sector	Stock	Sector	Stock
Consumer	INDF	Property	CTRA	Agriculture	AALI
	GGRM		LPKR		LSIP
	UNVR	Financial	BBCA	Mining	ANTM
Infra & Utility	PGAS		BMRI		BUMI
	TLKM	Basic Industry	INTP	Trade & Service	UNTR
			SMGR	Misc. Industry	ASII

Exhibit 4 List of Stocks

The simulation using initial fund of 100 million Indonesia rupiahs. We divided the fund into same weight in every stock. Portfolio 1 is consisting of 5 stocks, so the weight of every stock is 20%. There are several assumption in this simulation. One of the assumption is there is no transaction fee to buy or sell the stock. Another assumption is all fund is used to buy the stocks, there is no residual fund.

The simulation start in second quarter of 2005 when the business cycle phase was late expansion. 100 million IDR is invested in stocks in portfolio 3 with the same weight. In the first quarter of 2008, business cycle phase changed from late expansion to recession. Because of the changed in business cycle phase, we changed the investment portfolio from stocks in portfolio 3 to portfolio 1. 100 million in 2005 became about 562 million in the beginning of recession phase and became the initial investment for stocks in portfolio 1. In the fourth quarter of 2009, business cycle phase changed to early expansion from recession. The fund grew to about 777 million at the end of recession phase and this fund became initial fund for early expansion phase. In the first quarter of 2010, we changed our portfolio from portfolio 1 to portfolio 2. Initial investment for stocks was 777 million. Until the fourth quarter of 2012, business cycle phase has not changed. The ending value of investment is 1,637 million at the end of 2012. The investment in stock that applied sector rotation strategy grew more than 16 times in about 7 year.

6. Conclusion

Sector rotation takes advantages of business cycle by investing in the industries or sectors that are rising and avoiding sectors that are falling. This investment strategy is flexible and expected to generate superior return because more fund can be allocated in the promising sectors. The first step in analysis section is business cycle identification.

Business cycle divided into three phases and two turning point. The periods are early expansion, late expansion, and recession and the turning points are peak and through. Variables that used in this study to determine the business cycle phase in Indonesia are global GDP growth, Indonesia GDP growth and inflation rate in Indonesia. Global GDP growth is preferable than Indonesia GDP growth in this study because Global GDP growth has more impact to capital market in Indonesia than Indonesia GDP growth

Every portfolio that builds from sectors succeed to outperform the composite index in certain phase in certain phase. Portfolio return calculation shows that as the business cycle phase change, certain sectors will outperform the other sectors. This result will be the basis in developing sector rotation investment strategy. Investor or investment company that applied the sector rotation strategy will invest in the portfolio that gives highest return and change the investment to other portfolio of sectors as the business cycle phase changed and we build a simulation that based on this principal.

We build a simulation to observe the application of sector rotation investment strategy in Indonesia Stock Exchange and the result is very good. . The ending value of investment is 1,637 million at the end of 2012. The investment in stock that applied sector rotation strategy grew more than 16 times in about 7 year. The initial investment grew more than 16 times compared with 4 times if invested in composite index. Assumptions that used in this simulation are no transaction fee and no cash left in portfolio, all fund used to invest in stock. In fact, investor prefers to hold cash in recession period. Sector rotation investment strategy is feasible to applied in Indonesia and we optimism that this investment strategy will be effective to applied in Indonesia

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