BULL BETA VS BEAR BETA IN THE INDONESIA STOCK EXCHANGE

Robiyanto[1,*] and Irene Rini Demi Pangestuti[2]

ABSTRACT

This study investigates the systematic risks in two different market periods (the bearish and the bullish) in the Indonesia Stock Exchange (IDX), and examines whether there is a systematic risk difference in the two market periods. The data used in this research is the daily closing stock price data of selected stocks and the daily closing of the Jakarta Composite Index (JCI) during the period January 2, 2014, through March 31, 2016, with data obtained from Bloomberg. The sampling method used was a purposive sampling method with the criteria: never done a stock split, never suspended, and traded actively during the observation period, in order to avoid bias. A total of 26 stocks were found which fulfilled these criteria. The results showed that there is no difference between the bull and bear beta. Also there is no difference between the overall period and either the bull or the bear beta. The findings imply that investors and portfolio managers could use an all period beta as their systematic risk proxy.

Keywords: Bullish period, Bearish period, Beta, Systematic risk, Indonesia Stock Exchange (IDX).
JEL Classification: G10; G12.

INTRODUCTION

The capital market is an indicator of the economic progress of a country and supports the economy of the country concerned. In carrying out economic functions, capital markets provide facilities to move funds from those who experience excess funds, to parties in need of funds (Yuliati, Prasetyo, & Tjiptono, 1996). While carrying out a financial function, the

[1,*] Asst. Prof. Dr. Robiyanto obtains a Ph.D. in Finance from Universitas Diponegoro, Indonesia. Currently he is working as a Lecturer in the Management Department, Faculty of Economics and Business, Satya Wacana Christian University, Indonesia. Email: robiyanto@staff.uksw.edu

[2] Asst. Prof. Dr. Irene Rini Demi Pangestuti obtains a Ph.D. in Finance from Universitas Diponegoro, Indonesia. Currently she is working as a Lecturer in the Management Department, Faculty of Economics and Business, Universitas Diponegoro, Indonesia.

capital market provides the funds needed by the party requiring the funds, and the party with the excess funds is able to become involved in the ownership of the company without needing to invest real assets (Ernayani & Robiyanto, 2016).

Capital markets can be an alternative source of funds for financing a company's operations through the sale of shares and the issuance of bonds by the company in need of funds (Ang, 1997). Meanwhile, for investors, the capital market is an alternative vehicle to be able to participate in moving the state economy through investment in the form of shares (Yuniarti, 2010). Shares represent proof of ownership of an investor over a company in the form of a limited liability company. Those who invest in the shares of a company are then called shareholders. A shareholder's liability is limited to the liabilities of the paid-up capital. With ownership of the shares of the company, investors expect returns in the form of stock returns, which may be dividends or capital gains (Husnan, 2005).

The stocks of companies traded on the stock exchange have a high level of risk because the stock exchange is so sensitive to changes in the political and economic conditions that occur within and outside the country, as well as changes that occur within the company itself (Handayani, Muharam, Mawardi, & Robiyanto, 2018; Natarsyah, 2000). These changes can have a positive or negative impact on the company's stock price. Therefore investors must take a cautious stance when investing in stocks to prevent possible losses. One effort to prevent such losses is to analyze the performance of the company concerned. Investors also need to conduct a stock-related risk analysis.

Investors will be exposed to the risks associated with the expected rate of return on a secure investment, so investors will always look for an optimum portfolio that offers the maximum expected return at a given risk level, or a portfolio that offers the minimum risk at a given expected return rate (Pangestuti, Wahyudi, & Robiyanto, 2017). Hartono (2015), and Husnan (2005) stated that the relationship between risk and the required return can be explained by the Capital Assets Pricing Model (CAPM), which states that the greater the risk of an investment, the greater the return required by the investor; the relationship between risk and the expected return for investors is positive and linear. According to Jogiyanto and Hartono (1998), risk can be grouped into two parts, namely: (1) systematic risk, a risk that affects all companies, and (2) unsystematic risk, a risk that affects only one, or a small group of companies.

This systematic risk is also referred to as market risk (Robiyanto, 2017). Systematic risk is called market risk because fluctuations are caused by factors affecting all companies operating in the market. Some factors such as economic conditions, tax policies, and so forth, lead to a tendency for all stocks to be

affected widely, and these always exist in every stock. The role of a stock against well-diversified portfolio risk cannot be seen only by how large the risk of the stock is if it is owned separately, but rather by measuring its market risk, and this encourages the measurement of the stock's sensitivity to market changes. This market risk appeals to investors because market risk (systematic) cannot be eliminated through diversification of stocks (Hartono, 2015; Husnan, 2005). The measure of this systematic risk is called β (beta) which is a coefficient that shows the sensitivity of the profit rate of a stock (Ri) to the market rate gain (Rm) (Hartono & Surianto, 1999).

Several studies have shown that risk, especially systematic risk, tends to change across time. Fabozzi and Francis (1997) found that there was a systematic risk difference in the stock market in bullish and bearish conditions. Bharwaj and Brooks (1993) also suggested a study of the systematic risk differences of stocks in bullish and bearish conditions. While Pettengill, Sundaram, and Mathur (1995) confirmed that beta remains a good tool to reflect the systematic risk regarding market conditions. Unfortunately, research on systematic risk in Indonesia still tends to ignore the existence of systematic risk differences in the bullish and bearish market conditions (Sembiring and Rahmah, 2014; Septiani and Supadmi, 2014). This study, therefore, investigates the systematic risks in two different market periods (the bearish and the bullish) in the Indonesia Stock Exchange and examines whether there is a difference in the systematic risk between the two market periods.

LITERATURE REVIEW

The most commonly used methodology in research that examines systematic risk issues, is to do a time series regression to estimate Beta, and then perform a cross-sectional regression between the average profit rate with Beta estimated from time series regression (Akey, 2006; Cooper & Kaplais, 1994; Hartono, 2015; Sharpe, 1964). The research conducted by Lintner (1965), and Sharpe (1964) reveals a positive relationship between asset risk level and the rate-of-return, where the relationship is shown through the security market line (SML) consisting of α and β. This method became known as the Capital Asset Pricing Model (CAPM), where initially CAPM was developed to assume that expected returns would be related to systematic risk.

The studies conducted shortly after the time that CAPM was first used, still tended to use a series of very time-bound coherent data. Sharpe (1964) developed a simple single index model for estimating stock returns. The key idea of the single index model is that the only factor affecting stock return is its sensitivity to changes in market portfolio return (Robiyanto, Ernayani, & Ismail, 2019).

Much research has been undertaken to further examine the systematic risks of stocks, among them, are Fama and French (1992). Based on the assumption that the beta is constant over time, Fama and French (1992) found that beta does not relate to stock returns, and even mentioned that beta is not a good measure of stock risk. Collins and Kothari (1989) examined the relationship of cross-sections between returns and beta as measured by annual data, in contrast to Fama and French (1992) who used monthly data. The findings of this study were that there is a strong relationship between returns and beta, and thus this finding is very different from the findings of Fama and French (1992). This finding is very important because, in their research, Collins and Kothari (1989), and Talbot, Artiach, and Faff (2013) showed that the significance of the beta is very sensitive to how it is measured.

The above studies still show the opinion that beta is constant over time, but over time this opinion has begun to be questioned, especially in the light of empirical findings which cast doubt upon it. Research conducted by Fabozzi and Francis (1997) found a change in systematic risk during bullish and bearish times. Bharwaj and Brooks (1993) also developed research on beta changes during bullish markets, and further developed an asset pricing model with varying risk over time in the context of a bear market. The result of the research was that there was a significant difference between the beta in the bullish market and the bearish market. Pettengill et al. (1995) found that, in general, systematic risks in different periods tend to be consistent, even explicitly supporting the assertion that beta is a continuous, systematic risk gauge. Fletcher (2000) found results consistent with this study, in his research on beta relations and return on stocks in the international market, Fletcher (2000) used the same method as Pettengill et al. (1995).

METHOD

Data

The data used in this research is the daily closing stock price data of selected stocks and the daily closing of the Jakarta Composite Index, during the period from January 2, 2014, to March 31, 2016. This period was used as during this period, the IDX still followed the three stock price fractions policy (the stock price movement fraction was divided into three categories, Rp1 for stock prices under Rp500, Rp5 for stock prices between Rp500 and Rp5000, and Rp25 for stock prices above Rp5000). After this period, the IDX imposed a new stock price fractions policy which divided the stock price movement into five categories. There are a total of 547 observation days during the given period. Data were obtained from Bloomberg.

Population and Sampling

The population used in this study includes all stocks listed on the Indonesia Stock Exchange. The

sampling method used was a purposive sampling method with the criteria: never done a stock split, never suspended, and traded actively during the observation period. These criteria were used because split stocks could generate bias in the return calculations (as the stock price must be adjusted for the pre and post stock split period), a stock trading suspension could also generate a bias in the stock return calculation (if the stock price could not change this would make the stock return equal to zero) as trading would be suspended rather than showing stock trading activity. A total of 26 stocks could fulfill these criteria. The names of the stocks included in the sample are presented in Table 1.

Operational Definition of Variables

The operational definitions of the variables used in the study are described as follows:

a. Stock Return (R_{it}) is the result of investing in a stock, and reflects an appreciation or depreciation of stock price in one day of observation compared to a previous observation. Stock return is measured by the formula:

$$R_{i,t} = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where:

$R_{i,t}$ = stock return i on day t

P_t = stock price i on day t

P_{t-1} = stock price i on day t-1

Table 1. Samples

No.	Stock Quote	No.	Stock Quote
1.	ICBP	14.	ADRO
2.	UNVR	15.	INTP
3.	UNTR	16.	AALI
4.	MNCN	17.	SMGR
5.	AKRA	18.	JSMR
6.	CPIN	19.	BBNI
7.	INDF	20.	LPKR
8.	ASII	21.	BBRI
9.	BBCA	22.	LSIP
10.	KLBF	23.	ASRI
11.	BMTR	24.	PGAS
12.	BSDE	25.	PTBA
13.	GGRM	26.	BMRI

b. Market Return (R_{mt}) is the level of market advantage, and in this study was measured by the formula:

$$R_{m,t} = \left[\frac{JCI_t - JCI_{t-1}}{JCI_{t-1}} \right]$$

Where:
$R_{m,t}$ = market return on day t
JCI_t = JCI on day t
JCI_{t-1} = JCI on day t-1

c. Systematic risk of stocks is measured by the stock beta coefficient. Beta is a popular measure in measuring the risk level of secure stock regarding the security market itself (Hartono, 2015). Beta also shows the sensitivity of the stock return on changes in market return (Robiyanto, 2018b). The beta of the stock is obtained by regression of market returns to stock returns, the regression coefficient of market return that is often referred to as beta stock (Pangestuti et al., 2017; Robiyanto, 2018b). Beta was calculated by using the formula:

$$\beta = \frac{Cov(R_i R_m)}{\sigma_m^2}$$

Where:
β = Stock return
$Cov(R_i R_m)$= Covariance of stock return, market return
σ_m^2 = Market return variance

d. With regard to the condition of the stock market, in order to distinguish the bullish and bearish conditions, this study uses a method introduced by Bharwaj and Brooks (1993) which uses the average of the stock market returns that exist at the time of the study, if the stock market returns in a particular month are higher than the mean then the market in that month is categorized as bullish, while lower returns indicate a bearish market. This method has been tested for its validity, using data from the National Bureau of Economic Research (NBER). The method proves that there is a significant difference between the stock market returns under bullish and bearish conditions.

To test the differences between the bull beta and the bear beta, a paired sample t-test was used in this study.

RESULTS AND DISCUSSION

By using Bharwaj and Brooks (1993) method, there were 309 days that the stock market return was higher than the mean, and conversely there were 238 days that the stock market return was lower than the mean. The results of the beta calculation and its summary are shown in Table 2 and Table 3. While, the result of the paired sample t-test for bull, bear, and the overall period are shown in Table 4.

Table 2. Beta Calculation

Stock	All	Bullish	Bearish
AALI	1.13	0.87	1.27
ADRO	1.39	1.29	1.42
AKRA	0.62	0.87	0.52
ASII	1.55	1.58	1.65
ASRI	1.72	1.72	1.88
BBCA	1.11	1.23	1.11
BBNI	1.52	1.75	1.37
BBRI	1.73	2.16	1.56
BMRI	1.51	1.76	1.47
BMTR	1.11	0.61	1.28
BSDE	1.76	1.64	1.85
CPIN	1.86	1.88	1.90
GGRM	1.03	1.21	1.09
ICBP	0.92	1.09	0.65
INDF	1.28	1.45	1.41
INTP	1.62	1.66	1.50
JSMR	1.13	1.15	1.29
KLBF	1.12	1.61	0.96
LPKR	1.22	1.23	1.10
LSIP	0.97	0.73	1.10
MNCN	1.39	1.48	1.70
PGAS	1.19	0.86	1.61
PTBA	1.07	0.94	0.91
SMGR	1.46	1.34	1.56
UNTR	1.27	0.93	1.32
UNVR	1.12	1.34	0.90

Table 3. Summary of Beta Calculation

	All Period	Bullish Period	Bearish Period
Mean	1.30	1.32	1.32
Maximum	1.86	2.16	1.90
Minimum	0.62	0.61	0.52
Standard Deviation	0.29	0.39	0.35
N	547	309	238

The average beta over the whole period was 1.30, while the highest beta was 1.86 and was found in the CPIN stock; the lowest beta for the overall period was 0.62 and was found in the AKRA stock. This finding shows that CPIN stock is the most volatile stock in the overall period, on the contrary, AKRA stock is the least volatile stock in the overall period. The average value of beta in the bullish period was 1.32, while the highest beta in the bullish period was 2.16 found in BBRI stock, and the lowest beta in the bullish period was 0.61 which was found in BMTR stock. This finding shows that BBRI stock is the most volatile stock in the bullish period, on the contrary, BMTR stock is the least volatile stock in the bullish period. The average beta in the bearish period was 1.32, the highest was 1.90 also found in CPIN stock, while the lowest beta in the bearish period was 0.61 and was found in AKRA stock. This finding shows that CPIN stock is the most volatile stock in the bearish period, while AKRA stock is the least volatile stock in the bearish period.

Table 4. shows that none of the t values are significant at the 95% level of confidence. It is therefore concluded that there is no difference between the overall period and the bullish period, and also that there is no difference between the overall period and the bearish period. Likewise there was no significant difference between the bullish period and the bearish period. This finding does not support Bharwaj and Brooks (1993), or Fabozzi and Francis (1997) who found that there was a difference between the bullish beta and bearish beta. This discrepancy may occur, as these other studies have been done in a developed market, while this study was done in an emerging market, and emerging markets tend to be segmented (according to Muharam, Mawardi, Arfinto, and Najmudin, 2019; Robiyanto, 2017, 2018a; and Wahyudi, Najmudin, Laksana, and Rachmawati 2018).

Table 4. Results of Paired Samples t-Test

	t	df	Sig. (2 tailed)
All Period – Bullish Period	-0.63	23	0.53
All Period – Bearish Period	-0.92	23	0.37
Bullish Period – Bearish Period	-0.02	23	0.98

CONCLUSION

The results of the study indicate that there is no difference in the stock beta of the overall period, the bullish period, and the bearish period. Nevertheless, the results of the study do indicate that the beta in the bullish period and the bearish period tend to be higher than the overall period. This result may occur because investor psychology during the bullish period is more sensitive to good news, and in the bearish period is more sensitive to bad news. The investor will overreact to bad news in the bearish period by selling stocks but tends to do nothing when there is good news in the bearish period. Conversely, they will overreact to good news in the bullish period, while doing nothing when the bad news comes during the bullish market. Also, because the overall period beta combined both the bullish beta and the bearish beta during the research study the overall period beta tends to be lower.

The findings suggest that under the bearish and bullish conditions stocks tend to be more sensitive to stock market fluctuations. The study also found that certain stocks, such as AKRA, BBCA, BBNI, BBRI, BMRI, GGRM, ICBP, INDF, INTP, KLBF, LPKR, and UNVR have a greater bullish beta value than their bearish beta and overall period beta.

Managerial Implications and Future Research Agenda

The results of this study imply that to invest and prepare their portfolios, investors and investment managers, in the long run, need not separate the bullish and bearish periods in the calculation of systematic risk. However, for trading stocks with short-term time horizons, investors and investment managers should pay attention to stock market conditions in order to obtain maximum returns. Short-term investors or traders can trade mainly on the high bullish beta stock when the stock market is bullish; on the contrary, they should avoid stocks with a high bearish beta when the stock market is bearish. In order to carry out this strategy, they must trade or invest in actively traded stocks.

Researchers interested in conducting a similar study may use stock price indices other than those used in this study and use stocks that fall into other categories, such as socially responsible investment stocks that enter into the calculation of the SRI- KEHATI or Sharia stocks.

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