

THE RISK OF SYSTEMATIC OF STOCK BANKING VERSUS MANUFACTURING IN INDONESIAN STOCK EXCHANGE

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Abstract

The beta market has been widely observed by researchers. Because of beta very important to be excuse for investment criteria decision. Furthermore, relevance concept of beta is still feasible, but the result of beta estimed still mixed (some are rejected and supported). This cause not from theoretical problems, but from methodological problems concerning errors in the method of estimating beta. In the sequal, this study intend to knows about the relationship of systematic risk (beta) within securities of banking versus manufacturing in Indonesian Stock Exchange. The data used is both of Jakarta Stock Index (JKSE) rate and return stock wich has been measured (raw return and excess return) from banking and manufacturing with some criteria. It is used the big third firms have been based on asset into three observation periods (2010-2013). For measurement beta (CAPM) with single factor models, and then linked beta to return stock testing is done using OLS method and perform test for equality. The results showed that beta correction which considers to positive sigfinicance relationship within return stock banking and manufacturing. Furthermore, beta is difference between stock banking and manufacturing either no lead lag times or any lead lag times. The beta has been all correction positive, although not significane in lead lag 1 times.

Keywords: CAPM, beta, single factor models, stock return.

BACKGROUND

In making investments an investor can't ignore the risk. This is in line with the concept of the higher expectations of the desired benefits will follow the higher the risk that would be faced by an investor itself. Therefore, it requires a very precise analysis to quantify the risk itself. According to Sudarsono (2010) Capital Asset Pricing Model (CAPM) is a form of market equilibrium model parsimony. Many support aimed at CAPM model as well, some are not always supported. Eg Roll and Ross (1994) says that "the beta is dead, or if not dead is at least fatally ill". Then, Kothari, Shanken, and Sloan (1995) and Kandel and Stambaugh (1995) says that the beta remained still and can be used when using annual data, not the data monthly or daily. Black (1993) says with a different perspective, it is necessary to

define the measure of systematic risk (beta) is a market model (Market Model). Its existence is independence, in other words, is not tied to the CAPM model; thus despite the dysfunction CAPM, beta still exist. Like no ivory that is not cracked, as that model of market equilibrium is illustrated. Furthermore, the more interesting is how the model of market equilibrium is formed and used. For example in use should require some assumptions and econometric model used in the estimation. Nevertheless, the CAPM model can be applied in determining the magnitude of systematic risk (beta).

Within situations of the Indonesian Capital Market unique, the ability to analyze and estimate both of return portfolio and securities is something which is extremely important for an investors. The CAPM's model is a model that should be able to help investors to understand a problem of the relationship between return securities of companies with complex market betas through estimation parsimony (Sharpe, 1964, Litner, 1965, Mossin, 1966).

The use of beta as one of the empirical variables have been made. Differences in the character of the company, capitalization, and management and compensation management can lead to differences refer to differences in the risks that may affect the investor's decision to invest. In empirical research on the beta have been carried out either abroad or in Indonesia itself. For example we examine in particular the research conducted in Indonesia. For example, research conducted by Tandelilin (1997) who found that the financial ratio variables and firm size affects the beta. Tandelilin (2001) also found that beta portfolio of stocks able to explain return portofolio. Beta is also widely used in the event study as rights issue, signaling dividends, and various other events. While Budiarto (1998) reveals that there is no difference of abnormal return before and after the rights offer shares. For apart in Indonesia, for example Scholes (1972), Loderer and Zimmerman (1988) who found no difference before and after the abnormal return over the rights issue.

A large part of the results of previous studies tended to be inconsistent. This may be caused by differences in the perception of the approach in measuring the beta so that the results experienced variations beta estimates.

According to Tandelilin (2010) both in Indonesia and in other countries, investment managers often use beta as one of the indicators in measuring portfolio

performance, namely by applying and adopting techniques proposed by Treynor (1965) and Jensen (1969). In addition, beta is also used to calculate the cost of equity capital is then used for the assessment of the company, capital budgeting, and the calculation of economic value added (EVA). EVA itself is often used as a basic for performance measurement and determination of management compensation.

Harrington (1983) found beta carry Interstate Alaska oil company (MMR) decreased after investing Joint Venture in Indonesia in 1977. From the standpoint of investors these events provide good prospects and would reduce the risk of their investments.

Directly or indirectly, beta is an integral part of which is taught in almost all finance courses. Therefore, the issues regarding the estimation of beta and beta conclusions about very important to do a search and get attention.

Regardless of the phenomenon, the focus of this study was to estimate the beta and see relationships and the average difference (mean-difference) systematic risk (beta) from the point of view of a company that has a different character governance or management of the company, namely the magnitude beta among the banking companies versus manufacturing. Thus confirming the hypothesis of the research is built are:

H1a : Systematic Risk Impact Positively Return of Corporate Banking

H1b : Systematic Risk Impact Positively Return of Manufacturing

H1c : There is a difference between the Systematic Risk Securities Banking Company with Manufacturing Company

METHODS

This study uses monthly stock prices observed from the company by the number of levels of asset ownership companies with ratings or rankings for the top 10th banking companies and manufacturing companies in Indonesia Stock Exchange (Indonesian Stock Exchange). The research sample was selected based on criteria (purposive sampling) that goes best 5th of the ownership ratio of the company's assets. Spoken observation period is January 2010 to December 2013. The company's shares data downloaded from <http://www.finance.yahoo.com//> and

the Indonesia Stock Exchange. Data risk-free interest rate (risk free) obtained from the website of Bank Indonesia, <http://www.bi.go.id/>.

Model analysis of this study are based on the model of the market (market model), which shares historical return return regressed with a proxy historical market portfolio. The index used is the Jakarta Composite Index (^JKSE). The application of a simple model is used to estimate the market model. To see the difference in the level of beta estimates, will be used measurement return diverse, namely raw return measurement (RRM) and excess return measurement (ERM). Excess Return to measurement, this is done with regard to the required regression assumptions. Among the assumptions regarding the regression residuals are normally distributed regression, regression residuals with the same variant, autocorrelation or no correlation in residual regression. Furthermore, is it reasonable when estimating beta constant throughout the period. Therefore, the results of measurements and different assumptions would produce different estimates of the difference.

Measurement Variable

The first stage to estimate beta is measuring return. Return measurements with several approaches are expected to produce different estimates of beta.

Measurement Return

Raw Return Measurement (RMM)

- 1) Discrete Return (DR_t)

$$DR_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

- 2) Continuously Compund Return (CCRt)

$$CCR_t = \ln(1 + R_t)$$

Excess Return Measurement (ERM)

- 1) Discrete Excess Return (DER_t)

$$DER_t = DR_t - R_f$$

- 2) Continuously Compund Excess Return (CCERt)

$$CCER_t = CCR_t - R_f$$

The next step after measuring the Return of shares each company is doing the estimating beta. The following estimation techniques beta:

Beta estimation techniques in this study using Single Beta Index ($\hat{\beta}_i$ IT) which can be written as follows:

$$R_{it} = \alpha_i + \hat{\beta}_i R_{mit} + \varepsilon_{it}$$

$$\beta_i^{IT} = \hat{\beta}_i$$

Furthermore, to measure Return is using a proxy market rate of \hat{JKSE} which can be measured as follows:

$$\Delta \hat{JKSE} (R_{mt_{it}}) = \frac{\hat{JKSE}_{t+1} - \hat{JKSE}_{t-1}}{\hat{JKSE}_{t-1}}$$

To distinguish beta manufacturing and banking are with and without the used lead-lag time is one that will compare the average.

Econometric model used to test the hypothesis in the study are as follows:

$$R_{it} = \beta_0 + \beta_1 R_{mt} + \varepsilon_t \dots \dots \dots (1)$$

$$\overline{R_{it}} - \overline{R_f} = \gamma_0 + \gamma_1 R_{mt} + \varepsilon_t \dots \dots \dots (2)$$

Statistical hypothesis is as follows, H1a: $H_{1a}: \beta_1, \gamma_1 > 0$, $H_{1b}: \beta_1, \gamma_1 > 0$, $H_{1c}: \hat{\gamma}_i \neq 0$ with a level of confidence from 1-0.95 and 1-0.99, which is significant at the level $\alpha = 0.05$ and $\alpha = 0.01$. In other words, reject H_0 if P-Value $< \alpha$.

Before performing regression testing is carried out to first test the classical assumption to qualify regression of the data normality, heteroskedastic, and multikolinear data and autocorrelation (Gujarati, 2009). With statistical hypothesis as follows: $H_0: \mu = 0$, $H_0: \mu \neq 0$ not rejected H_0 if P-Value > 0.05

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 Descriptive Statistics of Market Return (Observation 2010-2013)

No.	TICK	Mean	Min	Max	Range	Std. Dev
1.	R_{it0_IHSG}	.0122113	-.09008	.13609	.22617	.04926644
3.	R_{it+1_IHSG}	.0136540	-.09008	.13609	.22617	.04920756

Sources: data processed

From table 1 above the average for the market return t_0 is equal to 0.012 or by 1.2% with a minimum value of -0.09 or by -9%. To return the maximum value of the market without any lag time or t_0 corrected by 0.136 points or 13.6% points, while the range of 22.6% with a standard deviation rate of 49.2%. Furthermore, the average for the market return on the lag time 1 or $t + 1$ is equal to 0.013 or by 1.3% with a minimum value of -0.09 or by -9%. To return the maximum value of the market without any lag time or $t + 1$ corrected by 0.136 points or 13.6% points, while the range of 22.6% with a standard deviation rate of 49.2%. when viewed either on the lead or lag time 1 lag both have no leads on average, the minimum and maximum values, as well as the same level of standard deviation.

Tabel 2 Descriptive Statistics of Return Stocks of Banking and Manufacturing (Observation 2010 – 2013)

PANEL 1

(Discrete Return (DRt) , Continously Compound Return (CCRt), Discrete Excess Return (DERt), Continously Compound Excess Return (CCERT)) Manufaktur

TICK	N	Range	Min	Max	Mean	Std. Dev
1) PT. Gudang Garam, TBk						
DRt_GGRM	48	.46026	-.15062	.30964	.0177044	.09750629
CCRt_GGRM	48	.43301	-.16325	.26976	.0131614	.09418908
DERt_GGRM	48	.46776	-.21562	.25214	-.0452123	.09816543
CCERT_GGRM	48	.44051	-.22825	.21226	-.0497552	.09482247
2) PT. HM Sampoerna, TBk						
DRt_HMSP	48	.48327	-.20122	.28205	.0412929	.08995641
CCRt_HMSP	48	.47313	-.22467	.24846	.0369114	.08472001
DERt_HMSP	48	.49077	-.26622	.22455	-.0217800	.09096648
CCERT_HMSP	48	.48070	-.28970	.19100	-.0261562	.08570575
3) PT. Indofood, Tbk						
DRt_INDF	48	.37870	-.17210	.20660	.0187792	.07678198
DERt_INDF	48	.38870	-.23960	.14910	-.0441375	.07723624
CCRt_INDF	48	.37672	-.18890	.18782	.0158393	.07513251
CCERT_INDF	48	.38672	-.25640	.13032	-.0470773	.07562410

PANEL 2

(Discrete Return (DR_t), Continuously Compound Return (CCR_t), Discrete Excess Return (DER_t), Continuously Compound Excess Return ($CCER_t$)) Perbankan

TICK	N	Range	Min	Max	Mean	Std. Dev
1) PT. Bank Central Asia, Tbk						
DRT_BCA	48	.28557	-.13040	.15517	.0186694	.07038436
CCRT_BCA	48	.28000	-.14000	.14000	.0156250	.06986023
DERT_BCA	48	.28557	-.19540	.09017	-.0449592	.07033973
CCERT_BCA	48	.28000	-.20000	.08000	-.0475000	.06972591
2) PT. Bank Rakyat Indonesia, Tbk						
DRT_BRI	48	.42000	-.20000	.22000	.0212500	.09304826
CCRT_BRI	48	.42000	-.22000	.20000	.0177083	.09112161
DERT_BRI	48	.42000	-.26000	.16000	-.0406250	.09249281
CCERT_BRI	48	.42000	-.29000	.13000	-.0447917	.09204508
3) PT. Bank Mandiri, Tbk						
DRT_BMRI	48	.60000	-.20000	.40000	.0250000	.10681063
CCRT_BMRI	48	.56000	-.23000	.33000	.0195833	.10191691
DERT_BMRI	48	.59000	-.27000	.32000	-.0387500	.10562126
CCERT_BMRI	48	.55000	-.29000	.26000	-.0439583	.10056732

Sources: data processed

Table 3 Descriptive Statistics of Systematic Risk (β) (Observation 2010 – 2013)

β	
Mean	0.692671
Median	0.751669
Maximum	1.148540
Minimum	0.023251
Observations	48

Sources: data processed

In Table 3 above can be explained that the beta value consistent overall approach 1.

Discussion

Results of testing hypotheses 1a, 1b with regression Ordinary Least Squares (OLS) is shown in Table 4 below:

Table 4 Results of Regression Ordinary Least Squares (OLS) Systematic Risk (Beta) Return of Securities Corporate Banking and Manufacturing Company

PANEL 1 (Securities of Banking)								
TICK	Tanpa Lead-Lag				Lead-Lag 1			
	Raw Return		Excess Return		Raw Return		Excess Return	
	DRT	CCRT	DERT	CCERT	DRT	CCRT	DERT	CCERT
BBRI	1.1073*** (6.1521)	1.0830*** (6.1376)	1.108623*** (6.23301)	1.104729*** (6.248379)	1.107371*** (6.152197)	1.083032*** (6.137638)	1.108623*** (6.23301)	1.104729*** (6.248379)
BMRI	1.138248*** (5.108162)	1.14854*** (5.59274)	1.14075*** (5.217379)	1.130876*** (5.572438)	1.138248*** (5.108162)	1.14854*** (5.59274)	1.140751*** (5.217379)	1.130876*** (5.572438)
BBCA	0.757833*** (5.191822)	0.750626*** (5.174735)	0.115914 (0.633717)	0.752712*** (5.21347)	0.757833*** (5.191822)	0.750626*** (5.174735)	0.115914 (0.633717)	0.752712*** (5.213465)

PANEL 2 (Securities of Manufacturing)								
TICK	Tanpa Lead-Lag				Lead-Lag 1			
	Raw Return		Excess Return		Raw Return		Excess Return	
	DRT	CCRT	DERT	CCERT	DRT	CCRT	DERT	CCERT
GGRM	0.542506* (1.933137)	0.523704* (1.93176)	0.543218* (1.921836)	0.524429* (1.92069)	0.116709 (0.400163)	0.098174 (0.348321)	0.115445 (0.393148)	0.096917 (0.341546)
HMSF	0.698268*** (2.80707)	0.7089*** (3.068842)	0.70063*** (2.781612)	0.711243*** (3.038477)	0.252207 (0.944732)	0.219162 (0.870436)	0.246922 (0.914109)	0.213808 (0.83892)
INDF	1.004518*** (5.717563)	0.978784*** (5.676402)	1.000987*** (5.626764)	0.975251*** (5.580061)	0.045228 (0.035639)	0.196672 (0.158354)	0.03284 (0.141933)	0.023251 (0.10262)

Sources: data processed

Overall in Table 4 panel 1 can be explained beta positive effect on the banking company's shares either without lead-lag and the lag-lead 1, except for shares of Bank Central Asia are insignificant in discrete excess return, while for manufacturing companies (panel 2) can be explained beta positive effect on shares of manufacturing companies to without lead-lag, but by using a lead-lag 1 all beta insignificant, either by using the technique of raw returns and excess return. Nevertheless beta coefficient is always consistent approaches a value of 1. So, it can be said positively affect systematic risk of the return of the company, both banking and manufacturing companies. The empirical results are in line with Tandelilin (1997) who found that the financial ratio variables and company size affects the beta. Tandelilin (2001) also found that beta portfolio of stocks able to explain Return portfolio. Besides beta is also widely used in the event study as rights issue, signaling dividends, and various other events.

This result is a correction to the beta that affect the company's performance both company banking and manufacturing companies. According Tandelilin (2010) both in Indonesia and in other countries, investment managers often use beta as one of the indicators in measuring portfolio performance, namely by applying and adopting techniques proposed by Treynor (1965) and Jensen (1969). In addition, beta is also used to calculate the cost of equity capital is then used for the assessment of the company, capital budgeting, and the calculation of economic value added (EVA). EVA itself is often used as a basis for performance measurement and determination of management compensation.

The last hypothesis (H1c) testing results with regression test for equality is as shown in Table 5 below:

Table 5 Average Difference between Systematic Risk Securities Banking Company with Manufacturing Company with lead-lag and without lead-lag

Panel 1 (No lead lag)			
Method	df	Value	Probability
t-test	22	-2.956561	0.0073
Satterthwaite-Welch t-test*	21.94844	-2.956561	0.0073
Anova F-test	(1, 22)	8.741254	0.0073
Welch F-test*	(1, 21.9484)	8.741254	0.0073
Panel 2 (Lead-lag 1)			
Method	df	Value	Probability
t-test	22	-4.828331	0.0001
Satterthwaite-Welch t-test*	21.91894	-4.828331	0.0001
Anova F-test	(1, 22)	23.31278	0.0001
Welch F-test*	(1, 21.9189)	23.31278	0.0001

*Test allows for unequal cell variances

Sources: data processed

The test results independent sample t-test listed in Table 5 above shows the panel 1 (No Lead-Lag) and a second panel (Lead-Lag 1) that there is an average difference between the systematic risk securities banking company with a manufacturing company with Lead- lag and no lead-lag. Results of this study indicate that the banking company with manufacturing companies contain different risks, so it will give different expectations in making investments. Furthermore, empirically Harington (1983) found beta carry Interstate Alaska oil company (MMR) decreased after investing Joint Venture in Indonesia in 1977. From the

standpoint of investors these events provide good prospects and would reduce the risk of their investments, it is can be said to be in line with the results of this study that the ups and downs of the risk of having a difference between one company and another.

CONCLUSION

Results of this study was to estimate beta always be consistent despite the different enterprise sectors. Second, the difference in relationships and the average difference (mean-difference) systematic risk (beta) from the standpoint of companies that have different characters governance or management of the company, namely the magnitude beta between banking company versus manufacturing.

For further research to multiply samples of the company and increase the sector companies to determine the consistency beta market. Then, the need to conduct analysis of the sample period, eg daily, monthly and yearly by over a longer observation. Using techniques and models that allow the calculation of beta beta corrects more precisely as described in Tandelilin (2010) in order to see the correction as well as differences beta market in some sectors of the company.

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