DOES BANK INDONESIA CERTIFICATE (SBI) AND EXCHANGE RATE AFFECT SYSTEMATIC RISK (BETA) ? (PROOF OF VALUE OF FIRM'S THEORY ON INDONESIA BANKING ISSUER)

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Abstract
The purpose of this study is to analyze the role of macroeconomic variables of Bank Indonesia Certificate (SBI) and Exchange Rate on systematic risk (BETA) in the banking sector. This type of research is quantitative research and based on the level of explanation. Data analysis method used is Structural Equation Model (SEM). The data used are annual secondary data of 24 issuers in 2007-2015 in 207 times of observations in cross-sectional banking firms listed on the Indonesia Stock Exchange (SBI). The results show interest rates (SBI) and exchange rates (KURS) have a negative and significant effect on systematic risk.

Key words: *Bank Indonesia Certificate, Exchange Rate, Systematic Risk.*

JEL Classification: *D81, F31, G32, O24*

I. INTRODUCTION

Indonesia's economic development is always moving quickly with very complex challenges. Thus, regulators must constantly adjust the banking sector policy continuously. The management is required to be able to work more effectively and efficiently so that it can perform optimally. In terms of assets, Indonesian banking is far behind, but in terms of profitability, banks in Indonesia have high profit rates. Although in the distribution of credit and deposits, it is still difficult to be able to compete with banks in ASEAN. The following Table 1 is the order of 20 (twenty) ASEAN banks based on assets in 2014.

Tabel 1. 20 ASEAN banks Based on Assets in 2014

No	Bank	Country	Assets	Thirt Party Fund (DPK)	Credit	Net Profit	NIM (%)
1.	DBS Group Holdings Ltd	Singapore	347,775	250,314	217,495	661	1.68
2.	OCBC Group	Singapore	316,649	193,765	163,787	624	1.68
3.	UOB Ltd	Singapore	242,077	184,476	154,607	620	1.71
4.	Maybank	Malaysia	183,205	125,771	115,454	1,922	2.3
5.	CIMB Group Holding Bhd	Malaysia	118,500	80,706	73,824	310	2.80
6.	Public Bank Bhd	Malaysia	101,128	81,664	71,883	339	2.20
7.	Bangkok Bank	Thailand	83,887	62,577	51,506	1,104	2.37
8.	Krung Thai Bank	Thailand	83,263	65,339	57,925	1,009	2.60
9.	Siam Commercial Bank	Thailand	82,058	57,609	54,637	1,744	3,26
10.	Kasikorn Bank	Thailand	72,619	49,539	46,400	1,529	3.80
11.	Bank Mandiri Tbk	Indonesia	68,733	51,156	42,050	1,660	5.94
12.	Bank Rakyat Indonesia	Indonesia	64,469	50,026	41,031	1,950	8.51
13.	RHB Capital	Malaysia	62,762	44,960	40,256	590	2.30
14.	Hong Leong Fin. Group	Malaysia	55,758	37,983	30,620	350	2.02
15.	Bank Central Asia	Indonesia	44,407	36,186	28,030	1,327	6.53

16.	BDO Unibank	Philipina	41,980	33,440	24,340	511	3.2
17.	AMMB Holdings Bhd	Malaysia	37,869	25,665	24,942	535	2.43
18.	Bank of Ayudhya	Thailand	36,820	25,458	30,814	435	4.32
19.	BankNegaraIndonesia Tbk	Indonesia	33,487	25,233	22,296	871	6.2
20.	Thanachart Capital	Thailand	31,174	24,175	22,968	317	2.55

Source : Investor Magazine, June 2015 (2015).

Table 1 shows, that based on 2014 assets, banks in Indonesia are not included in the top 10 ASEAN banks. Bank Mandiri and Bank BRI are ranked 11th and 12th out of 20 ASEAN banks. Bank BCA and BNI banks are in the order of 15 and 19. However, based on the acquisition of net profit, BRI is in the first rank of 20 ASEAN banks. Bank Mandiri in third place, BCA ranked sixth ,and BNI is in ninth. The profits of Indonesian banks show that the management of Indonesian banks has relatively used better assets compared to other ASEAN banks.

Based on the *Theory of The Firm* involving value of firm which was first introduced by David Duran (1952), one approach to this theory is a traditional approach that explains that the firm has an optimal capital structure when the firm's value is maximum. Thus, optimal use of debt accompanied by a maximum level of profitability can maximize the value of firm. Maximizing value of firm is very important because maximizing value of firm means that the prosperity of shareholders will increase. Investors and capital market analysis give considerable attention to the fundamental approach because they assume that investors in the capital market are rational. This assumption means that investors in the capital market receive increasing risks when they expect increasing returns. The relationship between the risks to be received and the expected rate of return is the basis for investment decisions. Fundamental analysis includes internal fundamentals and external fundamentals. According to Fuller and Farrell (1987), the internal fundamental factors that determine stock prices are firm profits that are expected in the future and dividends. The nature of the internal fundamental is the factors that can be controlled by the firm's management. While external fundamentals are factors that are beyond the control of firm's management. The nature of these factors is not controlled by the firm's management. According to David (2003), external fundamentals can be in the form of the following factors: (a) economy, (b) social, cultural, demographic and environmental, (c) political, governmental, and legal power, (d) technology, and (e) competition. According to these factors, the one that often affect stock prices is economic factors. The economic factors in question can be in the form of macroeconomic indicators such as interest rates, inflation, exchange rates, economic growth, oil prices, and so on.

Research on the effect of exchange rates and interest rates on systematic risk has also been carried out in an empirical study, conducted by Tandelilin (1997), that interest rates have a positive effect on systematic risk. On the other hand, the results of the research by Haryanto and Riyatno (2007), who found that interest rates has negatively effect to systematic risk. Hamzah's research (2005), that the exchange rate has a negative effect on systematic risk. Research on systematic risk on profitability and firm value has been carried out by Sudiyatno (2010), proving that systematic risk has a negative effect on performance. Al Ghifari's research (2013), that systematic risk has a positive effect on value of firm. Thus, an increase in profitability is accompanied by an increase in value of firm. The relationship between profitability and value of firm has been proven by Repi *et. al*., (2016), Paranita (2007) and Chen and Yu (2011), who concluded that profitability has a positive effect on value of firm. Thus, the macro economy, namely the interest rate and the exchange rate affect the systematic risk, and the value of firm. Based on the description above, this study will take external fundamental factors, that is macroeconomic factors which are proxied by interest rates and the exchange rate will be tested for its effect on profitability (ROA) and value of firm. These factors have taken special attention to investors in the capital market. When there is information on changes in interest rates and fluctuations in exchange rates from the authorized, capital market's investors will respond. If the information is considered good news then the stock price will tend to rise, and vice versa if the information is bad news then the stock price tends to decrease. The different results of the study state that the exchange rate is an exogenous variable that is not influenced by inflation and interest rates, which is the real exchange rate that occurs in period t (Emmons, 2000). Several other studies on exchange rates have been carried out, including Claude, *et al*., (1996), Suryani *et al*., (2016), Wang (2014), Dewi (2015), Mahdaleta *et al*., (2016), Lutfie *et al*., (2016); Muda (2017); Erwin *et al*., (2018) and The results of the study of Claude, et al (1996), found that economic risk (including the exchange rate) was positively related to stock returns in capital markets of developed countries. Whereas, in the new capital markets in developing countries, no significant effect was found between economic risk on stock returns. Research by Hamzah (2005) entitled Analysis of Macroeconomics, Industry and Firm Characteristics of Beta Sharia Stocks. This research was conducted with the aim to determine the effect of macroeconomic variables, industrial variables and firm characteristic variables (dividend payout, leverage, earnings variability, accounting Beta, cyclicality, profitability, and price book value) both completely and partially against risk systematic. Partial regression testing shows that the exchange rate has a negative effect on systematic risk and GDP, leverage and profitability have a positive effect on the systematic risk. This research will refer more to the research conducted

by Tandelilin (1997), Sudiyatno (2010), Wang (2014), Riaz and Mehar (2013), Syahyunan *et al*., (2017) Sadalia *et al*., (2018).

II. LITERATURE REVIEW

2.1. *Theory Of The Firm*

Theory of The Firm that involves the value of firm was first introduced by David Duran (1952) who suggested that the calculation of value of firm can be done with three approaches. The first approach is the Net Profit Approach, in this approach the cost of equity and the cost of debt are considered constant so that the firm can increase debt. The second approach, namely the Net Operating Approach, this approach is somewhat different from the first approach because the assumptions used are different from the previous assumptions. In this approach investors have different reactions to firms that use a lot of debt. In this approach the cost of debt and the average cost of capital are fixed so that the cost of equity has increased in line with the increase in firm's debt because the firm's risk is higher. The third approach, namely the traditional approach, is likely adopted by academics and practitioners because this approach is found in accordance with the fact that the firm has an optimal capital structure when the value of firm is maximum or the capital structure makes the average cost of capital becoming minimum.

Capital Assets Pricing Model (CAPM)

The CAPM was first introduced by Sharpe, Lintner, and Mossin in the mid-1960s. CAPM is a model that can show the relationship of the level of expected return of a risk asset with the risk of the asset in a balanced market condition. Some of the assumptions underlying CAPM are :

All investors have identical probability distribution rates of return in the future.

All investors have the same time period.

All investors can borrow or lend (lending) money at a level of risk-free rate of return.

Arbitrage Pricing Theory (APT)

Stephen Ross developed the Arbitrage Pricing Theory (APT) in 1976 which was abbreviated as the Ross APT. APT basically uses a thinking that states that two investment opportunities that have identical characteristics cannot be sold at different prices. The concept used is the law of one price. If the assets with the same characteristics are sold at different prices, there will be an opportunity to arbitrate by buying low-value assets, and at the same time, selling them at a higher price so it can obtain profit without risk. APT is one theory that discusses the benefits level of security and risk. Stock return is one of the factors that motivate investors to invest and is also a reward for the courage of investors to bear the risk of the investment they make (Husnan, 2001). Arbitrage Pricing Theory uses many risk measuring variables to see the relationship of return and risk. In other words Arbitrage Pricing Theory does not explain any factors that influence pricing (Tandelilin, 2001).

Until now, many studies have used the Arbitrage Pricing Theory approach, because rationally and theoretically, the development of stock prices is strongly influenced by stock demand and supply. Stock demand and supply are strongly influenced by expectations or hopes of investors (Weston and Copeland, 1995), then the expectations or courage of an investor to bid on stock prices are determined by market conditions, economic conditions and the value of firm itself (Sartono, 2001). Gehr (1975), Roll and Ross (1980), Reinganum (1981), Chen (1983), and Dhrymes, and Friend and Guiltekin (1984) concluded that there are at least three or four main factors that are very important in discussing the rate of return of securities. This is enough to show that the APT theory encourages the development of research based on variables or factors that are thought to affect a security. These factors can be seen from the firm's fundamental performance, stock performance in the market, or market and economic conditions. Ross (1976) started with a simplified version of the model, which assumes that there is only one systematic factor that influences return of securities.

$$r_t = E_t + f_t B + u_t \qquad (2.1)$$

where r_t is the vector of *m*-element column containing the rate of return observed at time t for m security. E_t is a vector of the m-element column which contains the expected return (average), while f_t is a vector of common element *k* (but cannot be observed) that affects the security return, at time t. B is the kxm matrix of the parameters that shows securities sensitivity to common factors, and u_t is the idiosyncratic component of the error term. Ross shows that if the number of securities, m, is large enough, then there is a vector of *ct- (k + 1)* element column such as:

$$Et = c_t B^*, \quad t = 1, 2, \ldots T \qquad (2.2)$$

where $B^{*\prime} = [e: B']$ and e are the other m-element columns. The empirical test of the APT model is based on a two-stage analytic approach (Dhrymes, et al. 1985).

Assuming inter-market integration is perfect, there are no inter-market arbitration opportunities and one price law, the portfolio with the same results should have the same price in different markets. In the APT model, each asset price (ex-post) is the same as the sum of product of number of random factors (source of risk) multiplied by the coefficient (generally referred to risk price) plus the realization of idiosyncratic shock. If the market is perfectly integrated, this random factor must be valued equally in every market. Thus, an increase in

the degree of integration between markets can increase the joint movement of asset prices through a decrease in the difference between the prices of shared risk factors (Ayuso and Blanco, 2001). Economic power affects discount rates, the ability of firms to drive cash flow, and future dividend payouts (Chen., 1986). Arbitrage Pricing Theory is based on the view that the expected return for a security will be affected by several risk factors. These risk factors will show general economic conditions (Tandelilin, 2001). Like the CAPM, APT describes the relationship between risk and returns, but uses different assumptions and procedures. The three assumptions underlying the Arbitration Pricing Theory (APT) model are Reilly (1992) as follows.

Capital markets are under perfect competitive conditions

Market investors always prefer more wealth more than less with certainty

Assets income can be considered following the factor model

There are no transaction costs.

There is no income tax.

There is no inflation.

There are a lot of investors, and no investor can influence the price of a security. All investors are price-takers.

The market condition is balanced *(equilibrium)*.

In its implementation, these assumptions are not realistic, for example, the absence of transaction costs, inflation, income tax and only one time change. Investors have to pay transaction fees, experience fluctuating inflation, dynamic income tax rates, and transact at many time periods. However, discussing CAPM becomes something important because the CAPM is a model that is simply able to describe or predict market reality that is complex, although not to the reality of the assumptions used.

Systematic Risk

The instability of external factors will cause investment to be more risky, and this will have an impact on the decline in capital market performance. Macroeconomic performance has very broad implications, including firm policies, capital market performance and micro-economic performance. Risks arising from macro fundamental factors are called systematic risks or market risks. As a measurement of systematic risk (systematic risk), it is used *Beta* (β) market, that is Beta of a security relative to market risk (Jogiyanto, 2010) written in the formula: $\mathbf{Ri = \alpha + \beta.RM + \varepsilon i}$

The use of market Beta as a measure of risk is due to the fact that Beta markets measure the response of each security against market movements. So the fluctuation of the return of a security statistically follows the fluctuations of market returns. In hence, that market characteristics will determine the Beta value of each security. Systematic risk has potential to influence the performance of the capital market, firm performance ,and value of firm. A firm with a Beta that is greater than 1 is classified as a high-risk firm, because the market return changes a little, then the stock return will change bigger. Due to that investors are basically afraid of risk, investors will consider investing in firms whose shares have Beta which is smaller than 1. As a result, it can be expected that the market price of the firm's shares will decline. Capital market performance can be seen from the composite stock price index (IHSG) which describes the overall stock price in the capital market through stock trading transactions. If the stock trading transaction decreases, the volume and value of stock trading also fall, as a result the JCI also falls.

Macroeconomic

Macroeconomics is part of economics that studies the mechanism of the operation of the economy as a whole. Case and Fair state that macroeconomic science is related to national aggregate-output economic behavior, national income, overall price level, and general inflation rate. The macroeconomic condition of a country is one of the factors that can affect the performance of firms in the country (Tarmizi *et al*., 2016). Changes in firm performance will affect the firm's stock price. Macroeconomic factors that can directly influence firm performance and stock performance include (1) domestic interest rates, foreign exchange rates, international economic conditions, a country's economic cycle, inflation rates and tax regulations (Tarmizi *et al*., 2017). The economic macro in this study is the interest rate and the exchange rate as follows.

Interest Rate

One of the market instruments used by Bank Indonesia to control economic liquidity is Bank Indonesia Certificate. SBI is a short-term financial instrument that is used as a benchmark by state banks, national and foreign private sector in determining the interest rates on savings, deposits and loans to each of their customers. Under normal economic conditions, the main function of the SBI is to keep the circulate money in an optimal amount. The experience in the monetary crisis that hit Indonesia in 1997, made the SBI used by the Central Bank to prevent increased demand for funds by the public and national private entrepreneurs for transaction purposes and for back-up. In these condition, the increase in demand for money by the public and the national business community is not fully used for the intended purpose, but it is used to speculate on buying dollars to obtain speculative profits. According to Sukirno (2010), that interest rates and low returns on investment tend to cause domestic capital to flow abroad. While interest rates and high returns on investment will cause foreign capital to enter the country. If more capital flows to a country, the demand for the currency increases, then the value of the

currency increases. The value of a country's currency will decline if more state capitals are channeled abroad because of higher interest rates and return on investment in other countries.

Exchange Rate

Exchange rate is the price or exchange value of a local currency against foreign currencies. The players in the international market are very concerned about determining foreign exchange rates, because foreign exchange rates will affect the costs and benefits of "playing" in the trade of goods, services and securities (Mudrajad, 1996; Ghasemi and Rostami, 2016; Selimi and Selimi, 2017). Fundamental factors that are strongly suspected of having a strong influence on foreign exchange rates are the money supply, relative real income, relative prices, inflation differential, interest rates difference, and demand and supply of assets in both countries. Gustav Cassel, a Swedish economist, in 1918, introduced the theory of Purchasing Power Parity (PPP) or in Indonesia known as the theory of Paritas Daya Beli, the theory of Interest Rate Parity (IRP), and the theory of International Fisher Parity (IFE). Purchasing Power Parity (PPP) connects foreign exchange rates with commodity prices in local currencies on international markets, which that foreign exchange rates will tend to decrease in equal proportions to the rate of increase in prices (Baillie and McMahon, 1990). Decreased exchange rates due to the rate of rising prices make production costs rise, especially for firms that use imported raw materials. As a result, the competitiveness of these firms decreases, because firms must sell their products at a higher price. The theory of PPP (Purchasing Power Parity), also explains that the spot rate of a foreign currency will change as a reaction to the inflation differential between two countries. As a result, the purchasing power of a consumer when buying goods in his own country will be the same as purchasing power when importing goods from other countries (Mudrajad, 1996). Theory of IRP (Interest Rate Parity), the forward rate of a currency containing a premium (or discount) is determined by the difference in interest rates between two countries. As a result, closed interest arbitrage will be much more profitable than domestic interest rates (Mudrajad, 1996). Likewise, according to the theory of IFE (International Fisher Parity), the currency spot rate will change according to the difference in interest rates between 2 countries. As a result, the average profit from the securities of international money markets that are not closed will be nothing more than profits derived from domestic money market securities, especially from the point of view of investors in the country of origin (Mudrajad, 1996). The three theories mentioned above, namely the theory of PPP, IRP and IFE explain the relationship between inflation, interest rates and exchange rates. So according to the theory the difference in inflation and interest rates between two countries will affect changes in exchange rates. So like inflation and interest rates, changes in exchange rates are also in line with systematic and opposite or negative risks to firm performance and stock prices or value of firm. Macroeconomic research on systemic risk has also been carried out by Tandelilin (1997). The results of the study explain that macroeconomic variables such as inflation rates, interest rates, and changes in GDP together do not have a significant effect on systematic risk, but tribal rates interest partially has a significant effect on systematic risk.

1.2. Conceptual Framework

Based on the previous explanations, the conceptual framwork of the research is as follows.

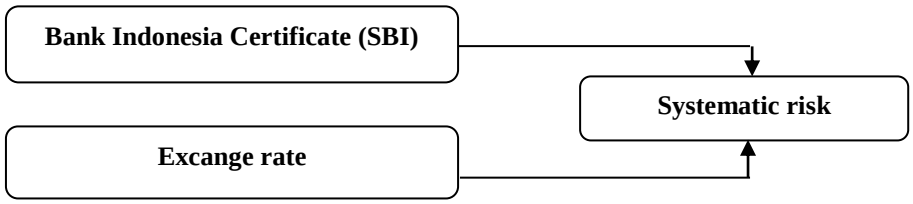

Figure 1. Conceptual Framework

Macroeconomics can affect systematic risk. All sectors in the capital market that trade several types of securities that have different risk levels. Stock is one of the securities among other securities which has a high level of risk. High risk is reflected in the uncertainty of returns that investors will receive in the future. This is in line with the definition of investment according to Sharpe (Tandelilin, 2001), that investment is a committed amount of funds to get an uncertain return in the future. Thus, there are two aspects inherent in an investment, namely the expected rate of return and the risk of not achieving the expected return. High risk in stocks is related to macroeconomic conditions. Risk from securities in the form of specific risks and systematic risks. Specific risks can be eliminated by forming a good portfolio (Stancheva, 2017). Systematic risk cannot be eliminated by forming a good portfolio, because these risks occur outside the firm. Systematic risk is also called beta because beta is a measure of systematic risk. To measure risk, the beta coefficient is used. Beta of a security is important for analyzing securities or portfolios. Beta of a security shows the sensitivity of the profit level of a security to market changes. Systematic risk can occur due to macroeconomic factors, one of which is exchange rates and interest rates. An empirical study conducted by Tandelilin (1997), that interest rates have a positive effect on systematic risk. Different findings were made by Alghifari (2013) state that interest rates negatively affect systematic risk. Hamzah's research (2005) states that the exchange rate has a negative effect on systematic risk.

III. METHODS

This research was a quantitative research and based on the level of exploration included in the research on causality. Causality research is a study that tests hypotheses about causality between one or several variables with one or several other variables (Sofiyah *et al*., 2018 & Yahya *et al*., 2018). The type of data used in this study was secondary data, namely annual data (time series) from 2007 to 2015 and cross-sectional data of banking companies listed on the IDX. Fundamental data (internal) or financial reports and ownership data were obtained through the Indonesia Stock Exchange website (www.idx.co.id) and through the Indonesia Capital Market Directory (ICMD), macroeconomic data, market share obtained through the Bank Indonesia website (www.bi .go.id).The population in this study was an affordable population. Affordable populations are part of the target population that is limited by place and time (Kesuma *et al*., 2018 & Pohan *et al*., 2018). In this study affordable populations are banks that have gone public and their shares actively traded in 2007-2015. The sampling technique in this study was saturated sampling. Saturated sampling is a sampling technique if all members of the population are used as samples (Dilham *et al*., 2018; Sari *et al*., 2018 & Muda *et al*., 2019). Population whose data was available during the study period (9 years) as many as 24 companies were used as samples. The following were measurements of variables in Table 1 :

Table 1. Identification of Variables and Variable Measurements

Variable	Defenition	Symbol	Scale	Proxy
Macro economics	The sensitivity (beta) of macroeconomic factors, namely the BI real interest rate to the stock return of each sample and the exchange rate on the stock return of each sample	SBI (X1)	Ratio	Sensitivity Real Interest Rate SBI = $\alpha i + \beta i$. (SRi) + e
		KURS (X2)	Ratio	Sensitivity Exchange Rate of Rupiah against Dollar = $\alpha i + \beta i$. (SRi) + e
Systematic risk	The risk of a stock caused by the overall stock market fluctuations (Eduardus, 1997)	BETA (Y)	Ratio	$Ri = \alpha + \beta.RM + \varepsilon$

The equation of model structure is :

$$BETA\_Y = |\beta_0 * \beta_1|SBI+\beta_2 KURS+e$$

Testing the hypothesis in this study was conducted by comparing the p-value with a significant level of α (5%). If p-value <0.05 then Ho is rejected and Ha is accepted, which means the path coefficient is significant (Dachlan, 2014).

IV. RESULT AND DISCUSSION

3.1. Result

3.1.1. Variable Description

Data description is as follows :

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
SBI	207	-61.01	88.85	.8239	.99163	14.26702	203.548
EXC.RATE	207	-2.34	3.04	-.0458	.03525	.50712	.257
SYS. RISK	207	-7.04	27.07	.7484	.14777	2.12603	4.520
Valid N (listwise)	207						

Sources : AMOS Result (2018).

Based on Table 2, the SBI variable has the lowest value of -61.01 and the highest value of 88.85 with an average value of 0.8239 and a standard deviation of 14.26702. If it is seen that the standard deviation value of SBI has a value that is greater than the average value, this indicates that there is a greater distribution of data variables or a considerable gap from the lowest and highest SBI values of each bank under study. It can also be stated that there are differences in the level of sensitivity of the level of individual profits to changes in SBI. The exchange rate has the lowest value of -2.34 and the highest value of 3.04 with an average value of -0.0458 and a standard deviation of 0.50409. If it is seen that the standard deviation of exchange rate has a value that is greater than the average value (mean), this indicates that there is a greater distribution of data variables or a considerable gap from the lowest and highest exchange rate value of each bank under study. It can also be stated that there are

differences in the level of sensitivity of the level of individual profits (individual return) to changes in exchange rate. Systematic risk has the lowest value of -7.02 and the highest value is 27.07 with an average value of 0.7484 and a standard deviation of 2.12603. If seen the standard deviation value of Systematic Risk has a value that is greater than the average value (mean), this indicates that there is a greater distribution of data variables or a considerable gap from the lowest and highest value of the Systematic Risk of each bank under study. It can also be stated that there are differences in the level of sensitivity of the level of individual profit to changes in Systematic Risk.

3.1.2. Evaluation of Data Normality Assumptions

Evaluation of normality is done to see the level of normality of the data by using critical ratio on skewness and kurtosis value. At a 0.01 or 1% confidence level, the Z number is 2.58. Thus a data distribution is said to be normal if the number of cr skewness or the number of kurtosis is between -2.58 to 2.58 (Sirojuzilam *et al*, 2016) The following are the results of testing the normality of data :

Table 3. ***Assesment of normality***

Variable	min	max	skew	c.r.	kurtosis	c.r.
Exchange rate	-.575	.468	-.569	-2.535	6.108	13.601
SBI	-29.389	39.730	1.073	4.778	2.686	5.981
Systematic risk	-.832	2.351	.141	.630	-.545	-1.214
Multivariate					7.510	1.707

Sources : AMOS Result (2018)

Based on the overall output (multivariate), the data distribution is normal because the multivariate number (1,707) is in the range of -2.58 to 2.58. This means that the research model has met the assumption of multivariate normality.

3.1.3. Evaluation of *Goodness of Fit*

The model suitability test results applies chi-square p values, CMIN / DF, CFI, TLI, NFI, and RMSEA as follows.

Table 4. Goodness of Fit Early Structural Model Index

Index	Cut-off Value	Result	Model Evaluation
Prob Chi Square	≥ 0,05	0,004	Poor
CMIN/DF	≤ 2,00	2,391	Poor
CFI	≥ 0,90	0,986	Good
GFI	≥ 0,90	0,974	Good
TLI	≥ 0,90	0,862	Low
NFI	≥ 0,90	0,978	Good
RMSEA	≤ 0,08	0,108	Poor

Sources : AMOS Result (2018).

The results of the full model test in table 5.5 are the results of the goodness of fit test. The results of the chi-square test calculation on the full model obtain the Chi Square probability value of 0.004 which is below 0.05. The CMIN/DF value is 2,391, still above 2.00. The CFI value is 0.986 above 0.90. GFI value is 0.978 above 0.90, TLI value is 0.802 which value is still below 0.90, NFI value is 0.978 above 0.90 and RMSEA value is 0.108 which is still above 0.08. The results of testing the full model show that the model is not fit. After the normality of the data is done, the results are obtained. Therefore it is necessary to modify the model. Modification of the model recommended by AMOS software is to convert E1 to FOREIGNOWN.

3.1.4. *Inner Model* or the relationship between constructs

Assessing the inner model is done by evaluating the relationship between variables seen from the R square value in Table 5 below :

Table 5. Value of R-Square

	R-squared
Systematic Risk (BETA)	0,079

Sources : AMOS Result (2018).

The model gives R-square value for systematic risk variable (BETA) of 0.079, meaning that systematic risk variation (beta) can be explained by the Exchange Rate and SBI of 7.9% and the remaining 92.1% is explained by other variables outside the model. The model structure equation is presented below:

Systematic Risk (BETA) = -0,171SBI – 0,223KURS+e

Based on the equation, the SBI variable has a negative effect on Systematic Risk which is equal to -0.171, this means that every increase in 1 unit of SBI is estimated to reduce systematic risk by 0.171. The Exchange Rate variable has a negative effect on the systematic risk that is equal to -0.223, this means that every increase of 1 exchange rate unit can reduce systematic risk by 0.223. The error rate in systematic risk management of banks listed on the IDX is 0.408.

4.1.5. Testing of Systematic Risk Hypotheses as Dependent Variable

The calculation results through the Amos program obtained the standardized value of the parameter and P-value systematic risk as the dependent variable. The following is a summary of the results of testing the hypothesis.

Table 6. Testing of Systematic Risk Hypotheses as Dependent Variable

Direct Effect	Estimate	*p*	Description
H1a: The interest rate (SBI) affects Systematic Risk	-0,171	0,053**	Significant
H1b: The exchange rate (KURS) affects Systematic Risk	-0,223	0,012*	Significant

Note= *(sig 5%), **(sig 10%), and ***(>0,001)
Sources : AMOS Result (2018).

Based on the Table 6 of interest rates, (SBI) has a negative effect with coefficient value (estimate) of -0.171 and significant (sig.0,053) against systematic risk (BETA). While the exchange rate (KURS) has a negative effect with coefficient value (estimate) of -0.285 and significant (sig.0,012) against systematic risk (BETA).

3.2. DISCUSSION

3.2.1. Interest Rate (SBI) towards Systematic Risk

Based on the output of the SBI variable coefficient on systematic risk of -0.171. The p-value is 0.053> 0.05, but 0.053 <0.10 (at 10%) so that it can be stated that SBI has a negative and significant effect on systematic risk. The results of this measurement indicate that SBI has an effect on systematic risk is acceptable. This finding does not support the results of Alghifari (2013), Kanwal and Nadem (2013), and Hamzah (2005), that interest rates negatively affect systematic risk but are consistent with the results of Tandelilin (1997) and Ouma et al., (2014), that interest rates affect systematic risk. Low interest rates will have an impact on increasing real sector activities. Increasing investment in the real sector has an impact on increasing activities in the capital market, increasing capital market activities so that capital market performance will increase. The increase in capital market activities can have an effect on decreasing market risk because firms in the industry have a positive effect from decreasing interest rates. Rising interest rates due to Bank Indonesia policies can cause investors to look for other more profitable investment alternatives. Investors try to avoid high-risk investments in the capital market. Furthermore, investors temporarily put their funds in government bonds or deposits that have a lower risk. As a result, activities in the capital market declined, transaction activities, and stock trading declined, resulting in declining capital market performance. The decline in capital market activity illustrates the decline in capital market performance and spurs the decline in stock prices in the capital market.

3.2.2. Exchange Rate towards Systematic Risk

The results of the exchange rate coefficient output on systematic risk is -0.223. The value of p-value is 0.012 <0.05 so it can be stated that the Exchange rate has a negative and significant effect on systematic risk. The results of this measurement indicate that exchange rates have an effect on systematic risk is acceptable. This finding is consistent with the results of a study by Hamzah (2005), that the exchange rate has a significant effect on systematic risk. The results of this study do not support the Tandelilin (1997) study, that the exchange rate does not affect systematic risk. The decline in the value of a country's currency exchange rates for other countries' currencies in the long run will have an impact on the country's market risk. For countries that do not implement hedging strategies (hedging) on foreign currencies, it will be more risky. This risk is very sensitive to the banking industry. A decrease in the exchange rate can have an impact on the increase in foreign exchange losses. Although the level of sensitivity to changes in exchange rates varies for each company, but if this lasts long it will be very risky. The results of this study explain that macroeconomic indicators, namely the value of the exchange rate can affect systematic risk. Systematic risk or beta of a security is important for analyzing securities. Beta of a security shows the sensitivity of the profit level of a security to market changes. Systematic risk can occur due to macroeconomics, one of which is the exchange rate. A publicly traded company that trades securities that have a different level of risk. High risk is reflected in the uncertainty of returns that investors will receive in the future. Macroeconomics can influence systematic risk. All sectors in the capital market that trade several types of securities that have different risk levels. Stock is one of the securities among other securities that have a high level of risk. High risk is reflected in the uncertainty of returns that investors will receive in the future. This is in line with the definition of investment according to Sharpe (1997), that investment is a

commitment of funds with an exact amount to get an uncertain return in the future. Thus, there are two aspects inherent in an investment, namely the expected rate of return (return) and the risk (risk) of achieving the expected return. High risk in stocks is related to macroeconomic conditions. Risk from securities in the form of specific risks and systematic risks. Specific risks can be eliminated by forming a good portfolio. Systematic risk cannot be eliminated by forming a good portfolio, because these risks occur outside the company. Systematic risk is also called beta because beta is a measure of systematic risk. To measure risk, the beta coefficient is used. Beta of a security is important for analyzing securities or portfolios. Beta of a security shows the sensitivity of the profit level of a security to market changes. Macroeconomic indicators namely interest rates (SBI) have a negative and not significant effect on systematic risk. This is not in accordance with existing hypotheses and theories. The incompatibility of research results may be caused; (a) because there is a difference in the level of sensitivity of individual profit levels to changes in SBI, this fact can be seen from the value of SBI standard deviation having a value greater than the average value, indicating that there is a greater distribution of data variables or the presence of gaps which is quite large from the lowest and highest SBI value of each bank under study, meaning that investors can choose issuers who have a relatively stable sensitivity or that are not significant to market risk. (2) Based on statistics, it is known that public share ownership of banks in Indonesia is relatively small (an average of 23%) so that when changes in interest rates (SBI) do not necessarily increase systematic risk. Internal ownership of around 77% has a long-term investment strategy so that changes in temporary SBIs do not become a focus for long-term investors so they do not have an impact on market risk.

4. CONCLUSIONS

1. Interest rates have a negative and significant effect on systematic risk. The results of this study are consistent with the results of research conducted by Alghifari (2013) showing that interest rates negatively affect systematic risk but different from the results of research conducted by Tandelilin (1997) which states that interest rates have a positive effect on risk systematic.

2. The exchange rate has a negative and significant effect on systematic risk. The results of this study are consistent with the results of research conducted by Hamzah (2005) and Growe (2014) which show that the exchange rate has a negative effect on systematic risk (Systematic Risk).

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