**MEASUREMENT OF FINANCIAL RISK TO ECONOMIC POLICY IN INDONESIA**

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**Abstract:** The world of economy is in a state of uncertainty as shown by the improvement in the projected growth of the world by international institutions. The state of development of the world economy is flutuative due to declining economic growth of developed and developing countries, lower commodity prices, and the difference in direction between monetary and fiscal policy. The development of the world economy can be seen from the Real Effective Exchange Rate (REER) indicator, which sees the exchange rate as a measure of the state of the world economy. This can attract investors to invest in Indonesia due to good REER conditions. REER can be used as one of the reference by investors to make investment decisions in the company that will later affect the company's decision-making. Decision-making will determine how far the company will experience the financial risks that will be set up in risk management. There are 120 non-financial companies registered with IDX Indonesia. The sampling techniques in this study used nonprobability sampling. The inferential statistical analysis conducted in this study is through classic assumption tests, regression analysis, mediation tests and hypothesis tests. The results of the study showed that the Risk Measurement of Economic Policy in Indonesia had a significant positive effect.

***Keywords****: Risk Measurement, Economic Policy*

**Introduction**

The economy is being there on the condition that overwhelmed the uncertainty shown by the improvement of the projected growth in economic by institutions internationally. The weak growth of the world economy was caused by the economic growth of developed and developing countries, the difference in direction between monetary and fiscal policies, and the decline in commodity prices .

According to the Ministry of Finance, the development of the world economy can be seen from the indicators Real Effective Exchange Rate ( REER ), the development of the world economy can be seen from the indicators Real Effective Exchange Rate ( REER ), which saw the exchange rate as a measure AKAT world economic conditions . This can attract investors to invest in Indonesia due to good REER conditions. REER can be used as a reference by investors in making investment decisions in companies which will later affect the company's decision making. Decision making will determine how far the company will experience financial risk which will be regulated in risk management.

Decision making will determine how far the company will experience financial risk which will be regulated in risk management. Yoseva (2016) states that risk management is defined as a process of identifying, measuring and controlling financial risk that may arise and caused losses on assets . The emergence of risk due to the existence of an uncertainty that uncertainty is a condition that results in the growth of risk caused by doubt someone ability to predict the results of future.

The conditions of the uncertainty of the policy decision-making due to various reasons including the difference between planning and implementation, and execution that generates output . Where, throughout the longer the time, the more panja ng uncertainty of the policy will be given. The limited information needed in the design of a plan is also an indicator that causes uncertainty about a policy which also results in a lack of access to accurate information making it difficult to make or plan a policy which leads to doubts in deciding policies. (Yoseva, 2017)

Knowing with certainty a risk can be said to be able to measure the risk with a good method so as to make the method a reference for taking appropriate action and minimizing the occurrence of an uncertainty in a policy. This is also the right basis for what policies will be carried out. Methods in risk management were first developed by and for the financial industry as well as banks and these methods were developed and adopted by funding companies mainly in Indonesia which is for hedging and industrial companies (Crouhy et al., 2001).

The most well-known method of measuring market risk is the Value at Risk (VaR) method which was originally developed by JP Morgan in 1993 and still has a continuing impact on current risk measurement practices in the financial industry. According Jorion (2002), VaR is a method to measure risk by using statistical techniques.

In 2007, survey results showed that more than 60% of global financial institutions manage their risk exposure by applying this VaR technique (Deloitte, 2007). Furthermore, VaR was adopted under the Basel II agreement as the method used by bank regulators in determining the amount of bank risk capital (Gulp et al., 1998). VaR has been widely used by regulators to set capital adequacy requirements for financial services companies. Andre'n et al (2005) stated that the developmental advantages of this method can mainly be attributed to the fact that it offers the possibility of combining multiple risk exposures into a single measure, thereby increasing the efficiency and effectiveness of risk monitoring and decision-making activities.

Currently, the implementation of risk management in Indonesia is increasingly being recognized as important and this is also encouraged by the issuance of several regulations related to the application of risk management and hedging applications for the banking industry and state-owned enterprises institutions. At times like this, as explained earlier, it requires the non-financial industry to implement risk management. On the other hand, studies on risk measurement methods in non-financial institutions are still relatively few in Indonesia. The success of the VaR methodology in the financial sector has stimulated interest in the non-financial industry to develop this method in an "at risk " technique adapted for the corporate environment (Hommel, 2012). According to Culp, (2002) that Var may be useful in financial companies in the context of the determination of derivative prices of the exotic and monitors trading risk on a daily basis, but it does provide limited benefits for non-financial companies to manage risk exposure in the market illiquid ( illiquid market ) and over a longer time horizon.

Based on the explanation above, the application of risk management measurement in determining policies in the non-financial industry in Indonesia is interesting to be discussed further and in depth. The discussion in this paper is to measure risk using the C-FaR method for an equivalent comparison of Go-public non-financial companies on the IDX and to conduct an analysis to see the benefits in determining a future policy related to risk management applications.

**Method**

According to Sugiyono (2010), the sample is part of a number of characteristics shared by the population. The sample is representative of the population partly or studied. The sampling technique in quantitative research is non- probability sampling (non-random sampling). Nonprobability sampling is a sampling technique does not provide opportunities or opportunities equal for each element or members selected into the sample (Sugiyono, 2010). As part of nonprobability sampling , purposive sampling was used. Purposive sampling is a sampling technique by meanscertain considerations (Sugiyono, 2010). Sampling is done by taking samples from the population based on certain criteria. In this study, the criteria used are with certain considerations, namely: Indonesian companies listed on the Indonesian stock exchange and IPOs in the research year. From the above criteria, this resulted in a final sample consisting of 138 companies selected for analysis. Based on the sample selected in the five years' period used to determine the data, so the unit of analysis is 120 samples x 4 years.

Explanative research will collect data through secondary sources. In this study, secondary data were collected from the Indonesia Stock Exchange (IDX) database. The researcher uses financial information data from financial statements and annual reports of Indonesian non-financial and financial companies listed on the Indonesia Stock Exchange (IDX) during the sample period 2015-2019. The purposive sampling technique was chosen to collect and the researcher has a final sample of 120 companies in 2015-2019 .

To find out the analysis, testing must be done is to use the following tools:

1. Test Normality: testing aims to examine the residual confounding variables have a normal distribution or not. One of the easiest ways to see residual normality is to look at a histogram graph that compares the distribution of data with observations that are close to a normal distribution. A more reliable method is to look at a normal probability plot comparing the cumulative distribution with the normal distribution. The normal distribution will form a straight diagonal line, and plotting the residual data will be compared with the diagonal line. If the residual normal distribution of the data, then the line that describes the actual data will follow the diagonal line Ghozali (2006 ).
2. Multicollinearity: This test aims to find a correlation between the independent variables (independent). The regression model should not have a good correlation between variables. If the independent variables are correlated with each other, then this variable is not orthogonal. Ghozali (2006 ) . In a technical study to detect whether there is multicollinearity in the regression model, it can be seen from the tolerance value and the Variance inflation factor (VIF), the tolerance value which is above 0.1 and 10 below the VIF value indicates that there are independent variables among the multicollinearity Ghozali ( 2006).
3. Heterocedasticity Test: This test is carried out to analyze whether there is an inequality of variance in the residual observations of other observations or not. We can see it from the graph plot between the predictive variable (ZPRED) and residual (SRESID). The basic analysis used is: If there is a certain pattern, such as dots that have a certain pattern or irregular shape, it indicates that Heterocedasticity has occurred . On the other hand, when the points are spread below and above 0 on the y-axis, there is no heteroscedasticity (Ghozali, 2006).
4. Autocorrelation: It is used to find out the relationship between the occurrences of a sample of members sorted by time. The consequence of autocorrelation in the regression model is that the sample variance cannot describe the population.

**Results and Discussions**

Data processed by downloading NOTICE simple linear regression done through several stages that aims to determine the effect of the independent variable on the dependent variable with the variable control. Multiple regression analysis were as follows

**Table 1. Regresion Test Result**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coefficients a | | | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| B | Std. Error | Beta | Tolerance | VIF |
| 1 | (Constant) | 6.062 | 2013 |  | 3.011 | .003 |  |  |
| Measurement\_Risk | .356 | .191 | .098 | 1.99 4 | .063 | .975 | 1.026 |
| ROA | .120 | .073 | .100 | 1,652 | .100 | .738 | 1.354 |
| Firm\_Size | -2.027 | .767 | -.153 | -2,641 | .009 | .801 | 1,249 |
| Debt\_Ratio | .981 | .160 | .414 | 6.128 | .000 | .591 | 1,693 |
| Current\_Ratio | -.092 | .095 | -.065 | -.964 | .336 | .595 | 1,679 |
| a. Dependent Variable: Policy | | | | | | | | |

Source: processed data, 2020

Based on table 1 , there are results from simple linear regression of risk-taking policy :

Policy = 6.6062 + 0.356 Risk Measurement + 0.120 ROA -2.027 Firm Size +0.981 Debt Ratio -0.092 Current Ratio. From the multiple regression model above, it can be interpreted as follows:

1. The constant of 6.6062 indicates that if there are no independent variables or in other words all independent variables are zero, then the Decision Making Policy is 6.6062.
2. Pe ngukuran Risk has a value of 0.356. This shows that every change in Risk Measurement is 1 unit with the assumption that other variables are considered constant, then the Decision Making Policy will increase by 0.356.
3. ROA has a value of 0.120 . This shows that every change in ROA is 1 unit with the assumption that other variables are considered constant, then the Decision Making Policy will increase by 0.120 .
4. Firm Size has a value of -2,027 . This shows that every Firm Size change is 1 unit with the assumption that other variables are considered constant, then the Decision Making Policy will decrease by 2.027 .
5. Debt Ratio has a value of 0.981 . This shows that every change in the Debt Ratio is 1 unit with the assumption that other variables are considered constant, then the Decision Making Policy will increase by 0.981 .
6. Current Ratio has a value of -0.092 . This shows that every change in the Current Ratio is 1 unit with the assumption that other variables are considered constant, then the Decision Making Policy will experience a Current Ratio of 0.092 .

Simultaneously test the hypothesis , the F test (F test) is used, where the calculatedF value is compared with the F tablevalue at a certain level of confidence. This simultaneous significance test is used to test all independent variables. The following are the results of the Simultaneous Significance test:

**Table 2**. **Simultaneous Significance Test Results**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ANOVA a | | | | | | |
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 265,779 | 7 | 37,968 | 17,138 | .000 b |
| Residual | 556,088 | 251 | 2.215 |  |  |
| Total | 821,867 | 258 |  |  |  |
| a. Dependent Variable: Policy | | | | | | |
| b. Predictors: (Constant), Current\_Ratio, Measurement\_Risk, Firm\_Size, ROA, Debt\_Ratio | | | | | | |

Source: processed data, 2020

From the table above it can be seen that the value of F arithmeticamounted to 17.138.  F arithmeticamounted to 17.138 larger than the F tableof 3.25 and a significance value of 0 .000 smaller than the value of α (0.05). This shows that all independent variables have a simultaneous effect on the dependent variable, therefore H0 is rejected, and Ha is accepted which is controlled by the ROA, Firm Size, Debt Ratio and Current Ratio variables for the control variables of Decision Making Policy.

The t test is intended to partially test the regression relationship of the independent variables to the t testto test the level of significance of the relationship between each regression coefficient. The t test is used to partially test the relationship between the independent and dependent variables. This hypothesis test uses the t-test (t test), where t count iscompared with t tableat a certain level of confidence. The test results are as follows :

**Table 3**. **Partial Significance Test Results**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | t count | t table | Information |
| Measurement\_Risk | 1.99 4 | 1979 | Significant |
| ROA | 1,652 | 1979 | Not significant |
| Firm\_Size | -2,641 | 1979 | Significant |
| Debt\_Ratio | 6.128 | 1979 | Significant |
| Current\_Ratio | -.964 | 1979 | Not significant |

Source: processed data

              Testing on the Risk Measurement variable shows that t count> t tableis (1.99 4 ) > 1.979 . This shows that Ha is accepted which means that  *Risk Measurement*has a partial effect on Decision Making Policy. Testing on the ROA variable shows that t count> t tableis (1,652 ) < 1,979 . This shows that Ha is rejected, which means that the  *Risk Measurement*does not partially affect the Decision Making Policy. Testing on the Firm Size variable shows that t count> t tableis (-2,641 ) > 1,979 . This shows that Ha is accepted which means that  *Firm Size*has a partial effect on Decision Making Policy. Testing on the Debt Ratio variable shows that t count> t tableis (6,128 ) > 1,979 . This shows that Ha is accepted which means that the  *Debt Ratio*has a partial effect on Decision Making Policy. The test of the *current ratio*variable shows that t count> t tableis (-0.964 ) > 1.979 . This shows that Ha is accepted which means that the  *Current Ratio*has a partial effect on Decision Making Policy.

ccording to Soesino (1999), to analyze risk, it is necessary to know beforehand about the position of risk, including hazard ( a condition that can increase the possibility of a peril ), peril ( a condition that can cause a loss, such as: loss of debt, bankruptcy, and loss of a market share ) and losses ( are losses suffered as a result of an unexpected event but it happened ) .

This indicates the impact of uncertainty on a policy from unexpected risks. Uncertainty will also hamper economic growth and this will lead to a decrease in the level of surplus. Risk management is one of the important elements in a company even in a country. This is related in an effort to minimize the occurrence of a risk that occurs in carrying out the flow of the economy which is as stated by Djojosoedarso (2003) which states that risk management is the application of the management function in overcoming the risks faced by companies, families and communities. Public. So cover the activities planned, mengorg a nisir, organize, lead or coordinate, and supervise and evaluate programs pen n ggulangan risk.

Knowing with certainty a risk can be said to be able to measure the risk with a good method so as to make the method a reference for taking appropriate action and minimizing the occurrence of an uncertainty in a policy. This is also the right basis for what policies will be carried out. Methods in risk management were first developed by and for the financial industry as well as banks and these methods were developed and adopted by funding companies mainly in Indonesia which is for hedging and industrial companies (Crouhy et al., 2001).

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In the results of the study, it is known that the measurement of risk, firm size and debt ratio can be used as a basis for determining company policies. This is because Firm Size is the size of the company that determines the size of the company that can be the basis for determining company decision making, the larger the size of the company, the company must be more careful in making decisions because if the wrong decision is made it will affect the capital structure and assets. company, the decisions taken by the company are also determined by the company's many stakeholders. The debt ratio is also a determinant of the company's decision making because of the importance of the company knowing the company's debt ratio so that the decisions made do not increase the company's debt and can even reduce the company's debt.

In the results of the study, it is known that ROA and Current Ratio have no direct effect on company decision making because company decision making in non-financial companies does not refer to assets or assets owned by a company, but rather to company size and company debt ratio. Based on the explanation above, the application of risk management with measurements in policy determination in the non-financial industry in Indonesia has significant results between risk measurement, firm size and debt ratio on corporate decision making, while ROA and current ratio have no effect on company decision making.

**Conclusions and Recommendations**

The results of the study indicate that the development of financial risk management and uncertainty on economic policies in Indonesia in its measurement using the influence of risk management measurements on economic decision-making policies has a significant positive effect. Research should be carried out over a longer period of time (above 5 years) and cover all industries in Indonesia in order to see a longer effect. The development of financial risk management and the uncertainty of economic policy in Indonesia can be used for risk management as a standard measurement of decision making so that non-financial companies in Indonesia can be careful in taking economic policies in accordance with their risk management measurements.

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**References**

Bank Indonesia, (2010). *Statistik Ekonomi Keuangan Indonesia* Access on March 23rd, 2021 form <http://www.bi.go.id/web/id> /Statistik/Statistik+Ekonomi+dan+Keuangan+Indonesia/Versi+HTML/Sektor+Moneter/

Barro, Robert J., (1991) . Economic Growth in Cross Section Countries. *Quarterly Journal of Economics.*

Cooper, D.R. dan P.S. Schindler, (2006). *Metode Riset Bisnis*, Edisi Terjemahan : Budijanto dan Didik Djunaedi.Jakarta: PT. Media Global Edukasi

Damodar Gujarati, (2001). *Ekonometrika Dasar.* Jakarta: Erlangga.

Djohanputro, B, (2006). *Prinsip-Prinsip Ekonomi Makro*. Jakarta: Penerbit PPM

Dornbusch, R, S. Fischer, dan R Startz, (2009). *Makroekonomi,* Edisi Bahasa Indonesia. Jogjakarta: MGE

El-Masry, A., O.A. Salam, dan A. Altraby, (2007). The Exchange Rate Exposure of UK Non-Financial Companies. *Managerial Finance* Vol 33(9) : 620-641

Fisher,S, (2001). *Risk Management in Top Priority in Bank Restructuring.* Jakarta: The Boston Consulting Group.

Ghozali, Imam, (2005). *Aplikasi Analisis Multivariate dengan Program SPSS.*

Semarang: Badan Penerbit Universitas Diponegoro

Hsiao, F S.T and MCH Hsiao, (2001). Capital Flows and Exchange Rates : Recent Korean and Taiwanese : Experience and Challenges. *Journal of Asian Economics* Vol 12: 353-381

Husnan, Saud, (2004). *Dasar-dasar Manajemen Keuangan*. Yogyakarta : UPP AMP YKPN

Indriantoro, Bambang, (2002). *Metode Penelitian Bisnis: Untuk Akuntansi & Manajemen. Edisi pertama. Cetakan kedua.* Yogyakarta: BPFE

Karl E. Case, Fair, Ray C, (2001). *Prinsip-prinsip Ekonomi Makro*. Jakarta: Prenhalindo

Kemenperin, (2013). *Pertumbuhan Industri Manufaktur*  Access on March 23rd, 2021 form <http://www.kemenperin.go.id/artikel/8256/Pertumbuhan-Industri-Non-Migas-2013-Lampaui-Pertumbuhan-Ekonomi>

Levi, M D, (1996). *Keuangan Internasional*, Edisi Terjemahan : Handoyo Prasetyo. Yogyakarta: Andi

Lipsey, R G, Courant, P N, Purvis, D G, dan Steiner, P O, (1995). *Pengantar Makro Ekonomi,* Edisi Terjemahan. Jakarta Barat : Binarupa Aksara

Lipsey, Ragan, (1997). Market, Pricing, and Efficiency. *Microekonomic*

Madura, (2007). *Pengantar Bisnis.* Jakarta: Salemba Empat

Manufaktur Industri, (2013). *Statistik Industri* Access on March 23rd, 2021form [http://www. mindustri.co.id/manufaktur-indonesia-terkuat-di-asean/](http://www.mmindustri.co.id/manufaktur-indonesia-terkuat-di-asean/)

Maryati, (2014). *Pertumbuhan Ekonomi Indonesia* diakses tanggal 16 Maret 2021 form <http://www.antaranews.com/berita/417529/ekonomi-indonesia-tumbuh-578-persen-pada-2013>

Moeljadi, (2006). *Manajemen Keuangan Pendekatan Kuantitatif dan Kualitatif*. BPFE: Yogyakarta

Mulyadi, (2001). *Sistem Akuntansi*. Jakarta: Salemba Empat

Nopirin, (1992). *Ekonomi Moneter*. Jilid 1. Yogyakarta : BPFE

Prastowo, Dwi, (2005). *Analisis Laporam Keuangan Konsep dan Aplikasi*. Yogyakarta : UPP AMP YKPM.

Priyatno, Dwi, (2012). *Belajar Cepat Olah Data Statistik dengan SPSS.* Yogyakarta: C.V. Andi Offset

Ramirez, Miguel dan Khan, (1999). Conintegration Analysis of PPP. USA: Trinity Collage

Ross, (2009). *Corporate Finance Fundamentals,* Edisi Terjemahan : Ali Akbar Yulianto, Rafika Yuniasih, dan Christine. Jakarta: Salemba Empat

Sugiono, (2007). *Metode Penelitian Kuantitatif Kualitatif dan R&D.* Bandung: Alfabeta

Sukirno, S, (2003). *Pengantar Teori Mikroekonomi* (Edisi Ketiga). Grafindo. Jakarta

Sunariyah, (2004). *Pengantar Pengetahuan Pasar Modal.* Yogyakarta : UPP AMP YKPN

Yuliati, Handoyo Prasetyo dan Fandy Tjiptono, (1996). *Manajemen Portofolio dan Analisis Investasi*. Yogyakarta: PT. Andi