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## THE EFFECT OF CREDIT RISK AND INTEREST RATE RISK ON THE PROFITABILITY AND STOCK RETURNS, INDONESIA

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### ABSTRACT

The return and risk of investing in stocks is very important for investors in considering an investment. The purpose of this study was to determine the significance of the effect of credit risk and interest rate risk on profitability and returns of banking stocks. These samples included 27 banks which were determined using purposive sampling method. Data were obtained from published financial reports of banks in 2012-2016. The analytical tool used in this research is path analysis and Sobel test. The results show that credit risk has a positive and significant effect on stock returns and had a significant negative effect on profitability, the risk of interest rates negatively affecting stock returns and insignificant negative effects on profitability, profitability had a significant positive effect on stock returns. Sobel test in this study showed that the profitability variable capable of mediating the credit risk on stock returns. This research can be used as information for investors in determining investment decisions by considering the risks contained in the investment to be made. For banking management, the results of this study can be used as a consideration to review the bank's performance in risk management which can affect returns by taking into account credit risk, interest rate risk, and profitability.

### KEY WORDS

Return, profitability, credit risk, interest rate risk.

Banking is an attractive financial sector for investment. Its efficient and effective performance makes the banking industry an index of financial stability for a country. A bank is an institution that acts as a financial intermediary between parties who have funds and parties requiring funds as well as an institution that functions to smooth the flow of payment traffic, also has a role as the implementation of monetary policy and the achievement of financial system stability, so that banking perform well, be transparent and can be accounted for. For this reason, the direction of banking policies that have been established by Bank Indonesia in early 2011 constitutes a basis for enhancing and strengthening Bank Indonesia regulations. This regulation is aimed at encouraging the intermediation function, increasing banking resilience, and strengthening supervisory and macro prudential functions (LPPBI, 2011).

Almost all activities of all companies require banking. Banks collect funds from the public and distribute the collected funds to people in need in the form of loans. These savings and loans are what accelerate the movement of the Indonesian economy. People want to save the funds they have in the bank because they believe that the funds they have will not be lost. The large number of banking shares that are one of the most expensive stocks listed on the IDX requires banks to maintain the value of shares and increase it in order to maintain investor confidence. Trust is one of the main keys for people to save funds in the bank.

If the value of bank shares continues to decline, the public or investors will not be able to trust the bank so that its banking business will not run smoothly. So this research is expected to help banking managers to make decisions or make strategies that can help increase stock returns. These strategies lead to investment decisions, both those taken by investors and investment decisions by companies.

Investment decisions are important decisions for investors. An investment decision is a decision to purchase company assets which can be in the form of tangible assets and

intangible assets (Rohmah et al. 2019). Investment decisions can be grouped into short-term investments, such as investments in cash, short-term securities, accounts receivable, and inventories as well as long-term investments in land, buildings, vehicles, machinery, production equipment and other fixed assets. The investment activities carried out will determine the profits the company will get in the future. Sumantyo (2019) states that there are various factors that affect the profitability of investors in investing in the IDX, namely investor experience, length of sale of shares, level of education and amount of capital.

Hanafi (2019) explains that every business investment or company seeks to get the maximum benefit from its operations to improve and strengthen its business amidst increasingly fierce business competition. Company managers must anticipate determining strategies in both the long and medium term. Some things that companies need to pay attention to in determining financial strategies are investment decision making, investment planning, business development, and investment risk taking.

Putra and Wiagustini (2019) state that banking activities have special characteristics that are different from industrial activities in general, namely most of the bank's assets are monetary assets or liquid assets which are invisible, while tangible assets are relatively small. Bank income and fees arise over time, such as interest on credit and interest on deposits. The bank manager is responsible to various parties, namely the owner of the bank, savings customers, customers who take credit, employees of the bank itself, and the government (Bank Indonesia as the Central Bank). Public trust in saving funds in a bank is strongly influenced by the information it gets about the quality and performance of the bank concerned. One of the indicators is to assess the soundness of the bank.

Banks that are already listed on the Indonesia Stock Exchange have the right to sell their general ownership in the form of shares. Stock is one form of investment that is quite good in the capital market because by having shares in a company, there will be benefits that we can receive in the form of dividends that the company gives. Stocks are also a form of investment that is very easy to sell back on the capital market if we need funds (Sibutar, et al., 2019). According to Sulaeman, et al. (2019) stock returns are the results obtained from investment, stock returns can be in the form of realized returns that have occurred or expected returns that have not occurred but are expected to occur in the future. Investors in investing their funds in shares aim to get a stock return even though they have risks that must be faced.

Sibutar, et al (2019) stated that stock prices fluctuated in the Indonesia Stock Exchange (IDX). This fluctuating share price means that the stock price constantly changes up and down. The causes of changes in share prices are influenced by internal factors and external factors of the company. Internal factors are factors that come from within the company and can be controlled by the management of the company such as the ability of the company management to generate profits in the form of dividends and capital gains that will be received by shareholders, the rate of return on investment, the level of company risk. External factors which are non-fundamental factors are usually macro in nature, such as the political and security situation, changes in currency exchange rates, decreases in bank interest rates, as well as rumors made up of speculators or people who want to benefit from the situation Fahmi (2015: 55).

Stock investment has a greater level of risk because the expected return from this investment is uncertain (Taswan, 2014: 55). Therefore, all information regarding the return and risk of investing in stocks is very important for investors in considering an investment. Stocks have the characteristics of "high risk high return". Investors will keep investing their shares, the greater the risk of the stock, the greater the return that investors will get. The return that investors expect from an investment can be realized in the form of capital gains or dividends. Capital Gain is the amount of shares that can provide benefits for investors. Dividends are a portion of the company's profits that the company distributes to its shareholders based on the number of shares it owns.

This study uses banks that are listed on the Indonesia Stock Exchange because banks have a role in running their business in the form of collecting and lending funds. This advantage is in the form of the difference between loan interest and deposit interest. The

bank's ability to generate profits in a period is called profitability. Profitability is the final result of a number of company management policies and decisions that show company performance (Sari and Ariesta, 2019). Measurement of company performance is generally proxied by Return On Equity (ROE) and Return On Assets (ROA) to measure bank profitability and are used to measure the effectiveness of banks in generating profits by utilizing total assets they have (Agustiningrum, 2013). Therefore, the profitability of the bank must be increased so that it can be accounted for by various parties and for this we need a proper banking management or management.

Banking management has an important role and must be owned by all financial institutions considering that all business activities really need a management in order to be more developed, this is because the bank accepts deposits from parties with excess funds, for example in the form of savings or deposits and channel it to parties that need funds in the form of loans. Banks providing loans or credit to the public have a risk called credit risk. Dura and Muniarti (2019) state that credit risk is the risk faced by the bank where the credit has not been repaid. To measure the level of credit risk in this study, researchers used Non-Performing Loan (NPL) as a proxy. The smaller the NPL, the smaller the credit risk that is borne. Banks in providing credit must first analyze the debtor to pay their obligations. After the credit is given, the bank is obliged to monitor the use of credit and the ability and compliance of the debtor in fulfilling their obligations. Banks provide loans to customers, but when customers fail to fulfill their obligations, the problem of bad credit will increase (Kargi, 2014).

Research conducted by Haneef et al (2012), Malik et al (2015) and Kolapo et al (2012) states that non-performing loans (NPL) have a significant negative effect on profitability. Gunawan and Agustinus (2012) and Widodo (2007) in their research state that non-performing loans (NPLs) do not have a significant effect on stock returns, whereas in research conducted by Drobetz et al (2007) and Ekinci (2016) credit risk has a significant negative effect. to stock returns. Research conducted by Anwaar (2016), Khan et al. (2013), Allozi and Obeidat (2016), Ganerse and Suarjaya (2014), and Adiyadnya et al. (2016) did find results where profitability has a positive effect on stock returns. Research that Mahampang (2016) conducted found different results, namely that profitability had no significant effect on stock returns. The results of the research that Maringka et al. (2016), Sari (2013), and Widyastuti et al. (2017) show that significant profitability mediates the effect of interest rates on stock returns. Marnoko (2011) and Agustiningrum (2013) show that NPL has an effect on profitability in contrast to the research conducted (Sari; Tia Melya, 2012) and (Wibowo; Syaichu, 2013) which state that NPL has no effect on profitability.

Tanderlin (2010) states that the interest rate and share price have a negative relationship. Low interest rates will result in lower borrowing costs. Whereas in the research of Farida and Darmawan (2017), it is found that interest rates and stock returns have a positive and insignificant relationship or influence, which means that the interest rate has no effect on stock returns. This is because the movement in the BI rate tends to be stable. The BI rate is the reference interest rate for banks in Indonesia, if the BI rate rises, the interest rates such as deposits and savings will also increase, and vice versa. In addition, due to the lack of attractiveness of changes in the BI rate as a control for the amount of money in circulation, investors do not move their investments in savings or time deposits. Research conducted by Maditinos & Eljko S, et al (2009) and MadhaviE & MSV Prasad (2015), states that ROA has a positive and insignificant effect on stock returns. Research shows that the ups and downs of the profitability ratio have no effect on the ups and downs of stock returns.

This study has a mediating variable because of the different research results (research gap) between the independent variables, namely credit risk and interest rates, and the dependent variable, namely stock returns. In these studies, it is said that the relationship between credit risk and stock returns has a but not significant relationship, likewise with interest rate risk having a relationship with stock returns but not significant. Therefore, it is hoped that the existence of a connecting variable can be found an indirect relationship between credit risk and interest rates and stock returns. Profitability is used as a mediating variable because many studies have found credit risk and interest rates have a significant

relationship to profitability. Profitability itself also has a significant relationship to stock returns. It is expected that profitability can mediate credit risk and interest rates on profitability. Based on this background, the hypothesis can be formulated as follows:

- H1: Credit risk has a significant negative effect on stock returns;
- H2: Interest rate risk has a significant negative effect on stock returns;
- H3: Credit risk has a significant negative effect on profitability;
- H4: Interest rate risk has a significant negative effect on profitability;
- H5: Profitability has a significant positive effect on stock returns;
- H6: Profitability mediates the effect of credit risk on stock returns;
- H7: Profitability mediates the effect of interest rate risk on stock returns.

## METHODS OF RESEARCH

The research design used in this study is causal associative. The scope of research is the effect of credit risk and interest rate risk on the profitability and return of banking stocks listed on the IDX in 2012-2016. The location of the research is carried out on the Indonesia Stock Exchange (IDX) by taking banks that have gone public and listed on the IDX. The quantitative data in this study are published financial reports for the period 2012-2016. The population of this study is all banks that have gone public, which are listed on the Indonesia Stock Exchange for the period 2012-2016, totaling 42 banks. The sample of this study amounted to 27 banks, this is because there are companies that are not included in the research criteria, such as not having complete data in certain years, if there is missing data it is feared that the data will be collected and used for analysis not normally distributed. The data analysis technique used is path analysis.

## RESULTS AND DISCUSSION

Descriptive statistics are used to provide an overview and description of data from all the variables in the study including the mean, maximum value, minimum value, and standard deviation. The results of descriptive statistical testing are presented in Table 1.

Table 1 – Descriptive Statistic

n/n	N	Minimum	Maximum	Mean	Std. Deviation
Stock returns	135	64	9250	1744.67	1942.969
Profitability	135	-11.150	6.200	1.79793	1.743237
Credit risk	135	0.14	15.82	2.5024	1.83518
Interest rate risk	135	0.058	0.075	0.06652	0.00719
Valid N (claywise)	135				

Source: Processed Data, 2020.

Based on Table 1, it can be seen that the stock return variable in the banking period 2012-2016 has the lowest value of 64 and the highest value of 9250 and the average value (mean) of 1744.67. The stock return variable also has a standard deviation value of 1942,969 which means that during the period observations, the variation in stock returns deviates from the average by 194296.9%.

The bank profitability variable in 2012-2016 in Table 5.1 has the lowest value of -11,150 which indicates that there is a sample of banks that have negative profitability and a maximum value of 6,200 indicates that there are also banks that have positive profitability. The calculated mean value (mean) is positive which is indicated by a value of 1.79793 illustrates that the company average has positive profitability. The standard deviation of the profitability variable is 1.743237 which indicates that during the observation period, the bank profitability variable deviated from an average of 174.3237%. The bank credit risk variable in 2012-2016 had the lowest value of 0.14. The maximum value of bank credit risk is 15.82, which indicates that the rate of return of credit extended is still very small, which creates credit risk. The average value (mean) is indicated by a value of 2.5024 and a standard

deviation value of 1.83518. The standard deviation shows that during the observation period, the bank credit risk variable deviates from the average by 183.518%.

The risk variable for bank interest rates in 2012-2016 has the lowest value of 0.058, indicating fluctuating interest rates. The maximum value of banking interest rate risk is 0.075. The calculated average value (mean) is indicated by a value of 0.06652 and a standard deviation value of 0.00719. The standard deviation indicates that during the observation period, the variation in bank interest rate risk deviates from an average of 0.719%.

Table 2 – Regression Results of the Effect of Credit Risk and Interest Rate Risk on Profitability and Stock Return

Variable	Profitability (X3)		Stock Return (Y)	
	P(1,2)	Sig	P(3,4,5)	Sig
Credit Risk (X1)	-0,596	0,000	0,308	0,001
Interest Rate Risk (X2)	-0,111	0,111	-0,034	0,659
Profitability (X3)			0,615	0,000
	R <sup>2</sup>	0,364	R <sup>2</sup>	0,254

Source: Processed Data, 2020.

Based on Table 2, the results of the path analysis regression of the effect of credit risk and interest rate risk on profitability and stock returns can be described as follows.

Based on the regression results in Table 2, a structural equation can be determined from the path analysis as follows.

Structural 1:

$$\text{Profitability} = P3RK + P4RNT + e1 \quad (1)$$

$$\text{Profitability} = -0,596RK + -0,111RNT + e1$$

Substructural 2:

$$\text{Return saham} = P1RK + P2RNT + P3\text{Profitability} + e2 \quad (2)$$

$$\text{Return saham} = 0,308RK + -0,034RNT + 0,615\text{Profitability} + e2$$

Calculating the variance of variables not examined in the model (e1 and e2) which is shown in the following equation.

$$Pe1 = \sqrt{1-R1^I}$$

$$Pe1 = \sqrt{1-R1^I} = \sqrt{1-0.364} = 0.79$$

$$Pe2 = \sqrt{1-R2^I} = \sqrt{1-0.254} = 0.86$$

If presented in the path model, the coefficient P1 value and the standard error value will be shown in Figure 1 below.

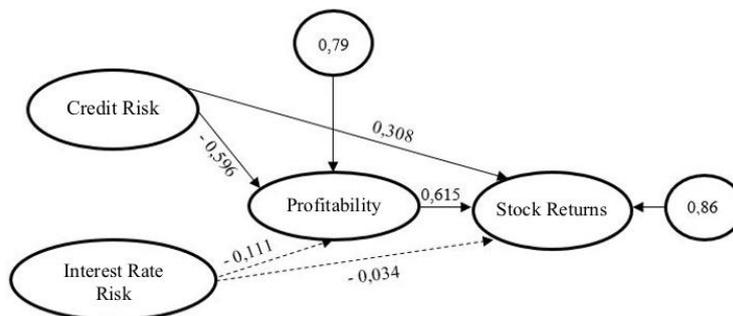


Figure 1 – Validation of the Final Path Image Model

Information:

→ = Exogenous variables have a significant effect on endogenous variables;

- - → = Exogenous variables have no significant effect on endogenous variables.

The calculation of the effect between variables is as follows.

Table 3 – Direct and Indirect Effects and Total Effects of Credit Risk (X1), Interest Rate Risk (X2), Profitability (X3) and Stock Returns (Y)

Variable Effect	Direct Effect	Indirect effect	Total effect
X1 -> Y (P1)	0,308		
X2 -> Y (P2)	-0,034		
X1 -> X3 -> Y (P3P5)		(0,308x0,615)= 0,1894	
X2 -> X3 -> Y (P4P5)		(-0,111x0,6150)= 0,0682	
(P3P5) x (P4P5)		-0,0129	
P1 +P2+{(P3P5) x (P4P5)}			0,2611

Source: Processed Data, 2020.

Note: X1 = credit risk; X2 = interest rate risk; X3 = profitability; Y = stock return.

Check the validity of the model can be done by calculating the total coefficient of determination, where the results obtained are as follows.

$$R^2_m = 1 - (P_e)^2 / (P_e)^2$$

$$R^2_m = 1 - (0,79)^2 / (0,86)^2$$

$$R^2_m = 0,538$$

This means that the variation of data that can be affected by the model is 53.8% or in other words, the information contained in the data is 53.8% which can be explained by the model, while the remaining 46.2% is explained by other variables outside the model and errors. .

This test is conducted to determine the significance of the effect of credit risk, interest rate risk on profitability and stock returns by comparing the significance level (sig.) With the error rate ( $\alpha$ ) = 0.05. If the level of significance (sig.)  $\leq \alpha$  (0.05), then the hypothesis (H1) is accepted and if the level of significance (sig.)  $\geq \alpha$  (0.05), then the hypothesis (H1) is rejected. The results of each test can be seen in Table 4.

Table 4 – Summary of Regression Coefficients and the Significance of the Relationship Between Variables

Regression	Standard Regression Coefficient	Standard Error	t test	Sig.	Information
X1 →X3	-0,596	0,066	-8,591	0,000	Significant
X2 →X3	-0,111	16,831	-1,605	0,111	Not significant
X1 →Y	0,308	99,826	3,270	0,001	Significant
X2 →Y	-0,034	20604,008	-0,442	0,659	Not significant
X3 →Y	0,615	105,523	6,492	0,000	Significant

Source: Data Processed, 2020.

Note: X1 = credit risk; X2 = interest rate risk; X3 = profitability; Y = stock return.

The regression results of the study were used to determine the effect of the mediating variables, namely unstandardized coefficients, standard error and the level of significance can be seen in Table 5.

Table 5 - Summary of Unstandardized Coefficients, Standard Error, Significance Level of Intervariable Relationships

Regression	Unstandardized Coefficients	Standard Error	Level of Significance
X1 -> M	-0,567	0,066	0,000
X2 -> M	-27,016	16,831	0,111
X1 -> Y	326,471	99,826	0,001
X2 -> Y	-9,106,631	20,604,008	0,659
M -> Y	685,101	105,523	0,000

Source: Data processed, 2020

Note: X1 = credit risk; X2 = interest rate risk; X3 = profitability; Y = stock return.

The results of statistical tests show that credit risk has a significant positive effect on stock returns. The higher the credit risk, the higher the return received and the lower the credit risk, the lower the return received. Credit risk is the risk due to the failure of the debtor to fulfill obligations to the bank. Credit risk is an internal determinant of bank performance. The higher the credit risk received by banks that provide a lot of credit, the higher the firm value, which causes a higher stock return. The results showed that credit risk had a significant positive effect on stock returns. This is due to the increasingly stringent regulations that require banks to apply risk management by Bank Indonesia, so that banks are very careful in extending credit to potential borrowers. This Bank Indonesia policy is to suppress the NPL ratio in banks to remain below the provisions set by Bank Indonesia, so that bank profitability does not decline and can provide positive signals for investors. The results of this study are supported by research conducted by Alshatti (2015), Li and Zou (2014) which state that credit risk has a significant positive effect on profitability.

The results of statistical tests in this study indicate that interest rate risk has a significant negative effect on stock returns. The research hypothesis about interest rate risk has a significant negative effect on stock returns accepted. That is, the higher the interest rate risk, the lower the return received by investors and the lower the interest rate risk, the higher the return that investors will receive. An increase in the BI rate will cause a surge in transaction costs so that the rate of return on shares received will be lower.

Based on the results of statistical tests it is stated that credit risk, which is proxied by the NPL ratio, has a significant negative effect on profitability. The higher the credit risk ratio, the lower the profitability, and vice versa, if the lower the credit risk ratio, the profitability will increase. NPL is the ratio between total non-performing loans and total credit extended by banks to debtors. The NPL ratio shows the risk of bad credit that can be experienced by banks and their impact on bank performance (Syauta and Indra, 2009). Credit risk plays an important role in profitability because higher credit risk will increase costs so that banks have to bear losses in their operational activities which have an effect on decreased profitability and have the potential to cause bank losses (Susilowati and Tri, 2011).

Bank Indonesia in accordance with PBI No.13 / 3/2011 stipulates a maximum NPL ratio of 5% of total loans. If the NPL ratio is below the provisions, this indicates that the bank can manage its credit risk and minimize bad credit. Bank Indonesia requires all banks to implement risk management in order to minimize the risk of bad credit that can be faced by banks. Banks that will provide credit to prospective debtors must be able to analyze the ability of the prospective debtors to pay back their obligations, because bank income comes from the credit interest given by the bank to the debtor. If a bank is able to manage credit risk so that it remains under the provisions of Bank Indonesia, the bank will receive income from the credit interest paid by the debtor so that it can significantly increase the bank's profit. The results of this study are supported by research conducted by Bejaoui and Houssam (2014), Gizaw et al (2015), and Ekinici (2016) which state that credit risk has a significant negative effect on profitability.

Based on the results of statistical tests, it is stated that interest rate risk has a negative and insignificant effect on profitability. The higher the interest rate, the lower the profitability and the lower the interest rate, the higher the profitability. The results showed that there was no significant negative effect on interest rate risk on profitability. This is because interest is part of operational costs, so the higher the interest rate, the lower the company's profit. The results of this study indicate that interest rate risk has a negative and insignificant effect.

Based on the results of statistical tests, it is stated that profitability has a significant positive effect on stock returns. The higher the profitability, the higher the return received and the lower the profitability, the lower the return received. Profitability in this study is proxied by using ROA, which is a measure of profitability that shows the effective and efficient use of total assets to generate profit from each unit of asset investment. The increasing ROA illustrates that the company's performance is getting better and shareholders will benefit from increasing dividends received, or the increasing price and stock returns (Susilowati and Tri, 2011).

Profitability can be a positive signal for investors to carry out investment activities. This

positive signal will have an impact on rising stock prices and increasing returns. Profitability is an important indicator to determine the extent to which the investment will be able to provide returns as required by investors. The results showed that profitability is a measure used by investors to predict the return that will be obtained. This result is supported by research conducted by Muhammad and Frank (2014) and Vardar (2013) which states that profitability is one of the fundamental variables that affects stock returns.

Based on the results of statistical tests, it is stated that credit risk has a significant effect on stock returns through profitability as an intervening variable and this situation is called partial mediation, this indicates that the higher credit risk experienced by banks will reduce bank profitability and this will give a bad perception about the ability of banks to provide returns to investors. Profitability is a measure of banking performance which is used as an important indicator in research before investors decide to invest, because profitability shows a bank's ability to provide returns in accordance with investors' expectations. The results of this study are supported by research conducted by Dewi (2016) which states that profitability is a mediating variable.

Based on the results of statistical tests, it is stated that interest rate risk has a significant direct effect on stock returns without going through profitability as a mediating variable and this situation is called no mediation. This means that credit risk directly affects stock returns. Interest rate risk does not need to be mediated by profitability to significantly influence stock returns. The profitability variable cannot mediate the effect of credit risk and interest rate risk on stock returns.

The implication of this research is that this research also shows that interest rate risk and profitability have a negative and insignificant effect on stock returns. The results of research on the effect of profitability on stock returns support the signal theory which explains that the information content in the disclosure of a financial report can be a positive signal for investors. However, the results of research on the effect of interest rates on stock returns do not support the initial theory of research which states that the high risk of interest rates faced can reduce returns obtained by investors. The results of this study are used as information for investors in determining investment decisions by considering the risks involved in the investment to be made. For banking management, the results of this study can be used as a consideration to review the bank's performance in risk management which can affect returns by taking into account credit risk, interest rate risk, and profitability.

## **CONCLUSION AND SUGGESTIONS**

Based on the results of data analysis and discussion of the effect of each of the variables described, it can be concluded that credit risk has a significant positive effect on stock returns. Interest rate risk has a negative and insignificant effect on stock returns. Credit risk has a significant negative effect on profitability. This indicates that an increase in credit risk will reduce profitability. Interest rate risk has a negative and insignificant effect on profitability. Profitability has a significant positive effect on stock returns. Profitability is able to mediate the effect of credit risk on stock returns. Profitability can act as a mediator for credit risk on stock returns. However, profitability cannot be a mediator for interest rate risk on stock returns. We advise bank management to pay attention to credit risk and stock returns, because the results of this study indicate that credit risk has a significant positive effect on stock returns. Investors and potential investors who will invest in stocks, should pay more attention to the company's financial condition before making a decision to invest in stocks so that they do not suffer losses. For future researchers who will conduct research on the same topic, the next researcher can add other risk variables that affect stock returns such as liquidity risk and leverage.

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