Analysis of Factors Affecting Bond Ratings on Companies Listed on the Indonesia Stock Exchange

Imam Rohtuah Damanik, Erlina, Erwin Abubakar **University North Sumatera**

Abstract: This study aims to examine and analyze the factors that influence bond ratings on companies listed on the Indonesia Stock Exchange with the research period from 2018 to 2020. This study uses the variables of leverage ratio, liquidity, profitability, company size and operating cash flow. as independent variable, and audit quality variable as moderating variable.

The population in this study were 55 companies listed on the Indonesia Stock Exchange and ranked by PT Pefindo during 2018 to 2020, the sample selection used a census sampling technique so that all members of the population as many as 55 companies became the research sample. The data analysis method used multiple linear regression analysis and interaction test using eviews software testing tool.

The results of partial research are only the leverage ratio variable that has a positive and significant effect on bond ratings, while the variables of liquidity, profitability, firm size and cash flow from operating activities have no effect on bond ratings. Simultaneously, the variables of leverage ratio, liquidity, profitability, firm size and cash flow from operating activities have a significant effect on bond ratings. The results of the moderated regression analysis test show that the audit quality variable is significantly able to moderate the effect of the leverage variable on bond ratings, but audit quality is unable to moderate the effect of liquidity, profitability, company size and cash flow from operating activities on bond ratings of companies listed on the Indonesia Stock Exchange. and PT Pefindo for the period 2018 to 2020.

Keywords: Bond Rating, Leverage, Liquidity, Profitability, Firm Size, Cash Flow from Operating Activities, Audit Quality.

I. INTRODUCTION

The capital market is a means of funding for companies and other institutions (eg the government) and a means for investing activities (Darmadji & Fakhrudidin, 2006). The capital market is a market that provides a source of spending with a relatively long period of time, which is invested in capital goods to create and multiply the means of production and ultimately increase company profits (Latumaerissa, 2011). With the capital market, parties who have excess funds (investors) can invest their funds in the hope of getting a return (return), while those who need funds (companies) can use these funds for investment purposes without having to wait for the availability of funds from the company's operations. Bonds are one type of debt capital that is traded in the capital market.

Bonds are transferable medium-long term debt securities containing a convenant (agreement) between the issuer (issuer) and the investor to pay interest (yield) in a certain period and pay off the principal debt at a predetermined time (Latumaerissa, 2011). Bonds are attractive to investors because of their security advantages over stocks, because bondholders have the first right to the company's assets if the company goes into liquidation.

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Judging from its development, the value of bonds in Indonesia from year to year always increases which indicates that bond investment is still in great demand by investors in the capital market. Based on historical data from the Financial Services Authority (OJK) for the last 11 (eleven) years from 2010-2020, the value of Indonesian bonds (Corporate Bonds and Government Bonds) has always experienced a significant increase. In 2010, the number of bonds was worth 756.56 trillion and continued to increase until 2020. The highest increase in bond value occurred in 2020 where the increase in bond value reached 1,098.62 trillion from 2019. This phenomenon shows that bond investment continues to attract investors' attention in making decisions, the investment.

Rational investors need information and often use publicly announced information because the information has a signal about the company's prospects in the future. An investor who will buy bonds should still pay attention to default risk, namely the opportunity where the issuer will experience a condition of being unable to meet its financial obligations (default). To avoid this risk, investors must pay attention to several things, one of which is the issuer's bond rating. With the rating, investors can find out the return that will be obtained according to the risk of the bond.

There is a phenomenon where issuers with investment-grade bonds fail to pay (default). As happened to Bank Global, in July 2003 PT. Kasnic assigns an A- rating to Bank Global's subordinated bonds (of 400 billion rupiah). However, after BI officially announced the status of Global Bank on December 8, 2004, Kasnic immediately lowered the rating of the subordinated bonds to BBB-. Then, following BI's announcement regarding the suspension of Bank Global's license on December 13, 2004, Kasnic drastically lowered the rating of subordinated bonds to D (default). Another phenomenon occurred in PT Tridomain Performance Tbk (TDPM), where PT Pefindo lowered its TDPM rating from idA- to idCCC on April 28, 2021 due to the increased risk of refinancing its MTN (medium-term notes) which will mature in 2021 and the TDPM failed, pay the principal of MTN II in 2018 of Rp. 410 billion that have matured. In May 2021 Pefindo then downgraded its TDPM rating to idD (single D) due to default on debt securities of MTN I in 2017, MTN II in 2018, MTN III in 2018, Bond I in 2018 and Bond II in 2019.

This research will discuss how big the influence of financial factors on bond ratings for companies listed on the Indonesia Stock Exchange, with a research period of 2018-2020. Based on the background and the above phenomenon, a problem formulation is formed in this study;

- 1. Does the leverage ratio affect bond ratings?
- 2. Does the liquidity ratio affect bond ratings?
- 3. Does the profitability ratio affect bond ratings?
- 4. Does company size affect bond ratings?
- 5. Do cash flows from operating activities affect bond ratings?
- 6. Does audit quality moderate the effect of leverage ratios on bond ratings?
- 7. Does audit quality moderate the effect of liquidity on bond ratings?
- 8. Does audit quality moderate the effect of profitability on bond ratings?
- 9. Does audit quality moderate the effect of firm size on bond ratings?
- 10. Does audit quality moderate the effect of cash flows from operating activities on bond ratings?

II. LITERATURE REVIEW

1. Signaling Theory

Signal theory explains why companies have the urge to provide financial statement information to external parties. The company's urge to provide information is because there is information asymmetry between the company and outsiders. Lack of outside information about the company causes them to protect themselves by charging a low price for the company. Companies can increase firm value, by reducing information asymmetry (Hanafi, 2004). Information in the form of bond ratings published is expected to be a signal of the company's financial condition and describe the possibilities that occur related to the debt owned.

2. Prospect Theory

In general, the bond rating is a level of measurement of the quality and security of a bond based on the financial condition of the bond issuer. The general benefits of the bond rating process are: as an information system for the bond market related to bond products, cost efficiency for companies, as a determinant of the amount of coupons, providing information on the ability to pay debts and investment risk that is objective, and describing bond market conditions (Nugraha, 2010). One of the bond rating agencies is PT. PEFINDO or PT Pemeringkat Efek Indonesia, was established in Jakarta on December 21, 1993, through the initiative of the Capital Market Supervisory Agency (BAPEPAM) and Bank Indonesia.

3. Bond Rating

Secara umum, bond rating merupakan suatu tingkat pengukuran kualitas dan keamanan dari sebuah bond yang didasarkan oleh kondisi finansial dari bond issuer. Manfaat umum dari proses bond rating yaitu: sebagai sistem informasi bagi pasar obligasi terkait produk obligasi, efisiensi biaya bagi perusahaan, sebagai penentu besarnya coupon, memberikan informasi kemampuan pembayaran hutang dan resiko investasi yang objektif, dan menggambarkan kondisi pasar obligasi (Nugraha, 2010). Salah satu lembaga pemeringkat obligasi adalah PT. PEFINDO atau PT Pemeringkat Efek Indonesia, didirikan di Jakarta pada tanggal 21 Desember 1993, melalui inisiatif Badan Pengawas Pasar Modal (BAPEPAM) dan Bank Indonesia.

4. Leverage

Debt to equity ratio is a ratio that measures the proportion of funds sourced from debt to finance the company's capital (Sudana, 2011). The greater the company's leverage, the greater the risk of company failure, the lower the company's leverage, the better the rating given to the company (Adams, Burton, & Hardwick, 2000). Ninik (2013), Nurhariyaningsih & Nazar (2020), and Hafiz (2021) state that leverage significantly affects bond ratings.

5. Liquidity

The liquidity ratio describes the company's ability to meet short-term obligations (debt). Current ratio is a ratio that measures a company's ability to pay its current debts by using its current assets (Sudana, 2011). A high level of liquidity will indicate the strong financial condition of the company so that financially it will affect the prediction of bond ratings (Adams, Burton, & Hardwick, 2000). Hassan and Barel (2013) and Hamid (2019) found a positive relationship between liquidity and bond ratings.

6. Profitability

Profitability ratio is a ratio to assess the company's ability to seek profit (Kasmir, 2008). ROA is a ratio that shows the ability of a company to generate profit (profit after tax) by using all its assets (Sudana, 2011). The higher the level of profitability of a company, the lower the risk of inability to pay (default) so that the better the rating given to the company (Murcia, Murcia, Rover, & Borba, 2014). Azriya (2013), Hasan and Barrel (2013) and Hamid (2019) stated that profitability ratios can significantly affect bond ratings.

7. Company Size

Company size can be expressed in terms of total assets, sales, and market capitalization. The greater the total sales assets and market capitalization, the larger the company. The bigger the company, the greater the potential for diversifying non-systematic risk, so that the risk of the company's bonds decreases (Murcia, Murcia, Rover, & Borba, 2014). Hassan and Barrel (2013), Rosa & Musdholifah (2016) and Hamid (2019) state that firm size has a significant effect on bond ratings.

8. Cash Flow from Operating Activities

Operating activities are company activities related to profit (Subramanyan, 2010). Operating cash flow is associated with a high level of liquidity which will indicate the company's financial condition is strong financially so that it will affect the prediction of bond ratings (Adams, Burton, & Hardwick, 2000). Yasa (2010) and Hakim and Putra (2019) conclude that operating cash flow has a positive effect on bond ratings.

9. Audit Quality

(Almilia & Sifa, 2006) stated that the higher the audit quality of a company, the higher the level of certainty of a company so that the less likely the company will fail. External auditors can be a control mechanism for management so that management presents financial information reliably, and is free from fraudulent accounting practices. This role can be achieved if the external auditor provides quality audit services (Nuryaman, 2007). Meanwhile, according to (Rinaningsih, 2008), in Indonesia issuers audited by big 4 auditors will have investment grade bonds because the higher the auditor's reputation, the higher the level of certainty of a company so that the less likely the company will fail. Sari (2012), Febriani (2013) and Partiningsih (2016) state that audit quality has a significant effect on bond ratings. Fahmi (2014) research results show the quality of auditors can moderate leverage on bond ratings.

10. Hypothesis

Based on the theory and literature review above, to solve the problem formulation, the hypothesis is formed as follows:

- H1: Leverage ratio has a negative effect on bond ratings.
- H2: Liquidity ratio has a positive effect on bond ratings.
- H3: Profitability ratio has a positive effect on bond ratings.
- H4: Firm size has a positive effect on bond ratings.
- H5: Cash flow from operating activities has a positive effect on bond ratings.
- H6: Audit quality moderates the effect of leverage on bond ratings.
- H7: Audit quality moderates the effect of liquidity on bond ratings.
- H8: Audit quality moderates the effect of profitability on bond ratings.
- H9: Audit quality moderates the effect of firm size on bond ratings.
- H10: Audit quality moderates the effect of cash flows from operating activities on bond ratings.

III. RESEARCH METHODOLOGY

This research is a research using secondary data, with the object of research all companies listed on the Indonesia Stock Exchange and register themselves at PT. Pefindo consecutively from the period 2018-2020. The population is 55 companies, with the census sampling technique, all members of the population become the research sample.

1. Bond Rating

Bond ratings issued by PT Pefindo are stated on a qualitative measurement scale. So that the ranking needs to be converted into a number which refers to the research of Hafiz (2021). The conversion results are as follows:

BBB

Tuble 4.1. Ruting Conversion				
Rating	Nominal	Rating	Nominal	
AAA	17	BBB-	8	
AA+	16	BB+	7	
AA	15	BB	6	
AA-	14	BB-	5	
A+	13	B+	4	
A	12	В	3	
A-	11	B-	2	
BBB+	10	CCC	1	

Table 4.1. Rating Conversion

Source: www.pefindo.com (processed by the author)

2. Leverage

Using the proportion of the use of debt to finance investment to the capital or assets owned. In this study, the financial aspect ratio of the leverage ratio was measured using the debt to equity ratio proxy. With the following measurements:

D

Debt to Equity Ratio =
$$\frac{Total\ Liabilities}{Tota\ Equity}$$

3. Liquidity

Shows the company's ability to meet obligations on short-term debt. The better the liquidity ratio, the smaller the risk of failure or inability of a company. In this study, the financial aspect ratio of liquidity is measured by using the current ratio proxy. With the following measurements:

$$Current \ Ratio = \frac{Current \ Assets}{Current \ Liabilities}$$

4. Profitability

Profitability ratios provide an illustration of how effectively the company operates so as to provide benefits for the company. In this study, the profitability aspect of financial ratios is measured using the return on assets proxy. With the following measurements:

Return On Assets (ROA) =
$$\frac{Earning After Tax}{Total Assets}$$

5. Company Size

According to Miswanto and Husnan (1999 in Magreta and Nurmayanti, 2009:146) company size can be measured using total assets, sales or equity. In this study, company size is measured using total assets because the asset value is relatively stable compared to sales value and market capitalization. With the following measurements:

6. Cash Flow from Operating Activities

Operating cash flow is cash flow that comes from the company's operating activities. Operating cash flow in this study refers to research conducted by Hakim and Putra (2019) which measures cash flow from operating activities with the ratio of operating cash flow flows. The operating cash flow ratio is measured by the following formula:

Cash flow from operating activities =
$$\frac{Total\ Cash\ Flow\ from\ Operating\ Activities}{Total\ Asset}$$

7. Audit Quality

In this study, the researcher took the audit quality variable as a moderating variable which serves to moderate the variables of leverage ratio, liquidity, profitability, firm size, and cash flow from operating activities with the bond rating variable. In this study, the researcher uses a dummy variable, which gives a value of 1 if the financial statements are audited by the big 4 and 0 if the financial statements are not audited by the big 4.

8. Data Analysis Model

The data analysis model uses multiple linear regression analysis with panel data and the moderating variable interaction test with moderated regression analysis (MRA) testing. (Widarjono, 2007) there are three techniques for estimating model parameters with panel data, namely the common effect models (CEM), fixed effect models (FEM) and random effect models (REM). In determining the panel data estimation model, there are three methods of testing, namely the Chow test, Hausman test and the Lagrange Multiplier (LM) test (Widarjono, 2007). (Ghozali, 2009) moderated regression analysis (MRA) or interaction test is a special application of linear multiple regression where the regression equation contains an interaction element (multiplication of two or more independent variables). The following is the regression equation for the panel data regression model and the MRA test.

Model 1: Multiple linear regression equation $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$

Model 2: MRA test regression equation

 $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 Z + \beta_7 X_1 Z + \beta_8 X_2 Z + \beta_9 X_3 Z + \beta_{10} X_4 Z + \beta_{11} X_5 Z + e$

Keterangan:

Y: bonds rating

 X_1 : leverage

X₂: liquidity

 X_3 : profitability

 X_4 : company size

 X_5 : cash flow from operating activities

Z: audit quality

 α : constant

 $\beta_1 - \beta_5$: independent variable regression coefficien

 $X_1Z - X_5Z$: interaction of independent variables with moderation

B₆: regression coefficient of moderating variable

 $B_7 - \beta_{10}$: regression coefficient of interaction of independent variables with moderation

e : error

9. Hypothesis Test

The study will test the hypothesis that has been made with the t-test (partial) to determine the level of significance/probability between tount and ttable with a significant level of 0.05. In addition, the Coefficient of Determination Test (R2) and F Test (simultaneous) will also be carried out.

IV. RESULTS AND DISCUSSION

1. Selection of Multiple Linear Regression Model (Model 1)

In estimating model parameters with panel data, there are three techniques or three ways, namely common effect models, fixed effect models and random effect models. The

estimation was chosen by means of three tests, namely the Chow test, Hausman test and the Lagrange Multiplier test.

1. Chow test

The Chow test will determine the estimation model between the common effect models (CEM) and the fixed effect model (FEM), with the following test results:

Table 5.2. Chow test results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.744100	(54,105)	0.0000
Cross-section Chi-square	177.123879	54	

Source: Eviews 10 Software test results.

Based on the results of the Chow test in Table 5.2, it is known that the probability value of the Chi-square Cross-section is 0.0000. Because the probability value is 0.0000 < 0.05, then the hypothesis H1 is accepted, namely the estimation model used is the fixed effect model (FEM).

2. Hausman test

The Hausman test will determine the estimation model between the fixed effect model (FEM) and the random effect model (REM), with the following test results:

Table 5.3. Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.703251	5	0.0117

Source: Eviews 10 Software test results.

Based on the results of the Hausman test in Table 5.3, it is known that the probability value of a random cross-section is 0.0117. Because the probability value is 0.0117 < 0.05, then the hypothesis H1 is accepted, namely the estimation model used is the fixed effect model (FEM).

2. Hypothesis Test

Based on the model selection in determining the estimation of the panel data regression model, the fixed effect model is the best in solving this research problem.

1. Coefficient of Determination Test (R^2)

Table 5.7. Determination Coefficient Test Results (R^2)

Cross-section fixed (dummy variables)					
R-squared	0.782451	Mean dependent var	2.538897		
Adjusted R-squared	0.660209	S.D. dependent var	0.347328		
S.E. of regression	0.202463	Akaike info criterion	-0.081233		
Sum squared resid	4.304078	Schwarz criterion	1.048202		
Log likelihood	66.70169	Hannan-Quinn criter.	0.377244		
F-statistic	6.400847	Durbin-Watson stat	2.136981		
Prob(F-statistic)	0.000000				

Source: Eviews 10 Software test results.

Based on table 5.7, it is known that the coefficient of determination (Adjusted R-squared) is R2=0.660. This value can be interpreted that leverage, liquidity, profitability, company size and operating cash flow simultaneously or together can affect the bond rating by 66.00%, the remaining 34.00% is influenced by other factors outside of the variables listed, careful.

2. F Significant Test (simultaneous)

Table 5.8. F Significant Test Results

8					
Cross-section fixed (dummy variables)					
R-squared	0.782451	Mean dependent var	2.538897		
Adjusted R-squared	0.660209	S.D. dependent var	0.347328		
S.E. of regression	0.202463	Akaike info criterion	-0.081233		
Sum squared resid	4.304078	Schwarz criterion	1.048202		

Source: Eviews 10 Software test results.

Based on Table 5.8, it is known the value of Prob. (F-statistics), which is 0.0000 <0.05, it can be concluded that all independent variables, namely leverage, liquidity, profitability, company size and operating cash flow simultaneously have a significant effect on bond ratings.

3. Significant Test t (partial)

Table 5.9. Significant Test Results t

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C X1_LEV X2_LIK X3_PRO X4_UK_PER X5_AKO	1.256128	2.323383	0.540646	0.5899
	0.178807	0.030685	5.827194	0.0000
	0.095976	0.089039	1.077913	0.2835
	0.003035	0.025239	0.120233	0.9045
	-0.033894	0.787527	-0.043038	0.9658
	-0.011133	0.015500	-0.718216	0.4742

Source: Eviews 10 Software test results.

Based on table 5.9, the regression equation is formed as follows:

$$Y = 1,256 + 0,179X_1 + 0,096X_2 + 0,003X_3 - 0,034X_4 - 0,011X_5$$

From the results of partial hypothesis testing of each of the independent variables above, it can be explained:

- 1) It is known that the regression coefficient value of the leverage variable is 0.179, which is positive. This shows that leverage has a positive effect on bond ratings, with a Prob value of 0.0000 < 0.05, so leverage has a significant effect on bond ratings, so when leverage increases by 1 point, the bond rating will increase by 0.179.
- 2) It is known that the regression coefficient value of the liquidity variable is 0.956, which is positive. This shows that liquidity has a positive effect on bond ratings, with a Prob value of 0.2835 > 0.05, so liquidity has no significant effect on bond ratings, so when liquidity increases by 1 point, the bond rating will increase by 0.956
- 3) It is known that the regression coefficient value of the profitability variable is 0.003 which is positive. This shows that profitability has a positive effect on bond ratings, with a Prob value of 0.9045 > 0.05, then profitability has no significant effect on bond ratings, so when profitability increases by 1 point, the bond rating will increase by 0.003.
- 4) It is known that the regression coefficient value of the firm size variable is -0.033, which is negative. This shows that company size has a negative effect on bond ratings, with a Prob value of 0.9658 > 0.05, then company size has no significant effect on bond ratings, so when company size increases by 1 point, the bond rating will decrease by 0.033.
- 5) It is known that the regression coefficient of the operating cash flow variable is 0.011, which is negative. This shows that operating cash flow has a negative effect on the bond rating, with a Prob value of 0.4742 > 0.05, then operating cash flow has no significant effect on the bond rating, so when operating cash flow increases by 1 point, the bond rating will decrease by 0.011.

3. Test Moderating Variables (Moderated Regression Analysis)

In this study, the moderating variable was tested using an interaction test or Moderated Regression Analysis (MRA). This study examines whether audit quality is able to moderate the effect of leverage, liquidity, profitability, firm size and operating cash flow significantly on bond ratings. The results of the moderation test are presented in the tables below.

Table 5.11. Moderated Regression Analysis (MRA) Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C X1_LEV X2_LIK X3_PRO X4_UK_PER X5_AKO Z_KUL_AU	1.018505	2.986224	0.341068	0.7338
	0.231532	0.043502	5.322300	0.0000
	0.019547	0.114740	0.170363	0.8651
	-0.032605	0.040346	-0.808141	0.4209
	0.037233	0.982238	0.037907	0.9698
	-0.008546	0.025326	-0.337453	0.7365
	1.389172	1.933984	0.718295	0.4743
X1Z	-0.223581	0.099993	-2.235956	0.0276
X2Z	0.028813	0.194209	0.148359	0.8824
X3Z	0.034390	0.053296	0.645268	0.5202
X4Z	-0.040233	0.540284	-0.074466	0.9408
X5Z	0.008683	0.033193	0.261578	0.7942

Source: Eviews 10 Software test results.

Based on table 5.11, then in the form of the regression equation as follows:

 $Y = 1.018 + 0.231X_1 + 0.019X_2 - 0.032X_3 + 0.037X_4 - 0,008X_5 + 1.389Z - 0.223X_1Z + 0.028X_2Z + 0.034X_3Z - 0.040X_4Z + 0.008X_5Z$

It is known that the interaction probability value of X1Z is 0.0276 < 0.05, so it can be concluded that audit quality is able to moderate the effect of leverage on bond ratings. While the interaction probability values X2Z, X3Z, X4Z, and X5Z have a probability > 0.05, so it can be concluded that audit quality is not able to moderate the effect of liquidity, profitability, firm size and cash flow from operating activities on bond ratings.

V. CONCLUSIONS AND SUGGESTIONS

1. Conclusion

Based on the results and discussion above, it can be concluded:

- 1) The results of the partial t test show that the leverage ratio (debt to equity ratio) is significantly able to influence bond ratings in a positive direction. The ratio of liquidity (current ratio) and profitability (return on assets) produces a positive direction, company size (total assets) and cash flow from operating activities produces a negative direction that does not significantly affect the bond ratings of companies listed on the IDX and Pefindo during the period 2018 to 2020.
- 2) Simultaneous F test results show that leverage, liquidity, profitability, company size and cash flow from operating activities significantly affect bond ratings of companies listed on the IDX and Pefindo during the period 2018 to 2020, with an adjusted-R2 coefficient of determination of 66%.
- 3) The results of the moderated regression analysis test show that audit quality is able to moderate the effect of leverage on bond ratings. Audit quality is not able to moderate the effect of liquidity, profitability, company size and cash flow from operating activities on bond ratings of companies listed on the IDX and Pefindo during the period 2018 to 2020.

2. Suggestions

- 1) Further researchers can add or vary the variables or proxies in each ratio apart from the leverage ratio, liquidity ratio, profitability ratio, company size and operating activity cash flow. In addition, researchers can also use variables other than audit quality as moderating variables, or use intervening variables.
- 2) Further researchers can observe companies whose bond ratings are issued by rating agencies other than PT Pefindo, namely PT. Fitch Ratings Indonesia, Fitch Ratings, Mody's Investor Service and Standard and Poor's.
- 3) For further researchers, researchers can increase the observation period, which is more than 3 years.

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