



Key Aspects of the Bond Ratings in Indonesia

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Authors' contributions

This work was carried out in collaboration between both authors. Author JUB designed the study, wrote the protocol and wrote the first draft of the manuscript. Author JUB and DRP managed the literature searches, analyses and interpretation of the results of the research. Both authors read and approved the final manuscript.

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ABSTRACT

Very few research projects based on bonds are conducted in Indonesia, compared to those based on stocks. In fact, investors who do not like taking risks tend to prefer investing in bonds. Several previous studies have reached differing conclusions about the effects of the variables observed, so the factors that affect bond ratings need to be examined once more. This study aims to determine the effects that firm size, liquidity, profitability, leverage, productivity, security and the age and reputation of the auditor, have on bond rating. 35 corporate bonds listed on the Indonesian Stock Exchange in 2012 were chosen as the sample, and analyses were performed using logistic regression analysis. As a result, this study found that the only variable significantly influencing bond ratings is their profitability. Investors, in order to avoid the risk of a company's default, can thus measure profitability and take that into consideration.

Keywords: Bond rating; company size; liquidity; profitability; leverage; productivity; security; age; auditor reputation.

ACRONYM

| | |
|-----|--|
| DER | : Debt Equity Ratio |
| KAP | : Haryanto Sahari affiliated with Price Waterhouse Coopers - Haryanto Sahari Public Accounting Firm affiliated with Price Waterhouse Coopers |
| KAP | : Osman, Bing, Satria affiliated with Deloitte Touche Tohmatsu – Osman, Bing, Satria Public Accounting Firm affiliated with Deloitte Touche Tohmatsu |
| KAP | : Sidhartha, Sidhartha, Widjaja affiliated with KPMG - Sidhartha, Sidhartha, Widjaja Public Accounting Firm affiliated with KPMG |
| PT | : Fitch Ratings Indonesia – Fitch Ratings Indonesia Limited Company |
| PT | : ICRA Indonesia – ICRA Indonesia Limited Company |
| PT | : Pemeringkat Efek Indonesia (Pefindo) – Pemeringkat Efek Indonesia (Pefindo) Limited Company |
| PT | : Adhi Karya Tbk – Adhi Karya Limited Company |
| PT | : Jasa Marga Tbk – Jasa Marga Limited Company |
| QR | : Current Ratio |
| ROI | : Return on Investment |
| STA | : Sales divided by Total Assets |

1. INTRODUCTION

Investors who have a high degree of risk aversion will prefer to invest in bonds rather than in stocks. Ilmanen [1] declared that the reasons that investors prefer to invest in bonds rather than stocks are the higher volatility of stocks than that of bonds, thereby reducing the attractiveness of investing in stocks, and the fact that bonds offer positive returns with fixed income, so that they give a greater guarantee than stocks. Investors' interests in investing in bonds are also expressed by Adrian and Muharam [2], who state that an investor who has a conservative nature tends to invest in the bond market as it is considered to be more secure and does not fluctuate. In spite of the fact that the bond is considered to be a safe investment, however, it remains at risk. One such risk is the default risk, i.e. the risk that occurs due to the inability of the issuer to repay the bonds to investors, including debt interest and principal payments [3].

Investors, therefore, have to obtain any information which may signal a possible default risk. One of the signals that can be used to determine default risks of bonds is their bond rating. This is information used to indicate whether bonds are worth the investment, as well as to determine their level of risk. Nurmayanti [4] declared that ranking (rating) provides one reference that will assist investors in deciding whether to buy a bond. Bond ratings should be given by an independent agency, as this will be objective and trustworthy, then the rating agency provides information for investors about the

safety of a bond. Safety is demonstrated by the ability of a company to pay interest and repay principal. The rating process is conducted to assess the performance of the company, so that the agency can declare whether or not its bonds should be invested in. Six agencies are recognized by the Indonesian Bank and listed in the Annex of Circular Letter of Bank Indonesia, No. 13/31/DPNP dated December 22, 2011. These are Fitch Ratings, Moody's Investors' Service, Standard and Poor's, PT. Fitch Ratings Indonesia, PT. ICRA Indonesia and PT. Pemeringkat Efek Indonesia (Pefindo).

The rating agencies use a number of factors to assess and determine ratings for bond enterprises. The variables that could be expected to affect the bond rating refer to previous research models. The study of Nurmayanti [4] found that the variables that have a significant influence on bond rating are profitability, productivity and security, while firm size, liquidity, leverage, the age of the bond, and the reputation of the auditor do not have a significant effect on bond ratings. Various studies, such as Suharli [5], Susilowati [6], Sunarjanto and Tulasi [7], Yuliana [8], Yulianingsih [9] have been conducted to identify similar factors that influence the bond ratings, but their results varied.

The many differences from previous studies motivated the researcher to test the consistency of the results of those earlier studies on the factors affecting bond rating. This research, therefore, will test the effect of firm size, liquidity, profitability, leverage, productivity, auditor reputation, age of bond, and insurance on the

bond ratings listed in the Indonesian Stock Exchange. This study is expected to provide significant inputs to each company in order for them to improve performance continuously, and to increase their bond ratings, so they can continue to compete in the Indonesian capital market. It is also expected to provide an overview of the factors that affect bond rating, so that, in the future, investors will be more careful and use bond ratings as an important consideration in deciding whether to invest in particular bonds in order to minimize any default risk that may occur.

In order to meet the objectives of the research, it is structured into 5 sections where the first section covers the introduction of the research. The review of literature is addressed in section two where it includes agency and signalling theories, bond ratings and the development of hypotheses. Section three explains how the research is designed. It consists of population and sample, dependent and independent variables in the research and data analysis. Results and discussion of findings are included in the section four where they comprise an overview of data, an assessment of model fit and discussions of findings. The last section finalises the discussion and presents a conclusion.

2. THE LITERATURE OVERVIEW AND HYPOTHESES DEVELOPMENT

2.1 Agency and Signalling Theories

Arif and Yuyetta [10] explained that agency theory describes a contract between the managers (agent) and the owner (principal). Compared to the owners, managers have more complete information about the state of the company, due to the fact that they are more aware of the workings of the firm. The imbalance of information between owners and managers is called information asymmetry. This will lead to a conflict of interest, and potential conflicts of interest will in turn lead to the emergence of costs, such as those of underwriting, monitoring and residual loss.

In relation to the issuance of bonds, such conflict of interest may occur between management and creditors. The bond issuer is concerned that the issued bonds must be entirely sold. The lenders, on the other hand, are interested in the insurance that the company issuing the bond is in a good condition so that harm will not ensue. To reduce these conflicts, management uses the services of

the bond rating agencies so that the cost of insurance can be reduced. Bond ratings are the result of the rating agency's stated risk scale, or the level of security achieved by an issued bond.

In this study, the signal theory explains that a given company provides a form of financial reporting information to the rating agencies. Each rating agency then issues a bond rating for that company. This bond rating will then give a signal in the form of information about the condition of the bond, indicating whether or not the bond company might potentially fail to pay.

2.2 Bond Ratings

Bonds, as an alternative investment product, are very flexible and offer highly prospective future development. They are preferred by institutional investors who want an investment with variation in its revenue structure. The presence of a variety of debt instruments will be one of the factors influencing their choices [2]. Nevertheless, investing in bonds has some risk, the most feared being that the issuer of the bond goes into liquidation is unable to pay the principal debt obligations.

The rating is a standardized assessment of the ability of a company to pay its debts. According to Adrian and Muharam [2], the ranking is a statement about the state of the debtor and the possibility of what could happen to the debt held. It can be said that ratings attempt to measure the risk of failure, especially the chance that the borrower will not be able to meet its financial obligations. In investment, ranking is important because it determines whether a company can obtain financing from the issuance of bonds or not, and it indicates to prospective investors the value of returns that might be paid. The rating announced by the independent rating agency can also affect the ability of bond itself [11]. These indications can influence an investor's choice of bonds. Rating can affect the decisions of investors, because ratings can provide information about the companies whose risk of default is greater [12]. The ratings are issued by agencies, and to become a rating agency, those agencies must obtain official permission from the government.

One rating agency is appointed to conduct the rating process and once there is an agreement between the issuer and the rating agency, the agency management notifies the issuer of the date required to submit information needed in the

rating process. Then the surveys and interviews will be carried out. Data collection and analysis takes more than 1 month. Some agencies recognized by the Bank of Indonesia listed in the Annex of Circular Letter of Bank of Indonesia No. 13/31/ DPNP dated December 22, 2011 include:

1. Fitch Ratings
AAA; AA+; AA; AA-; A+; A; A-; BBB+; BBB; BBB-; BB+; BB; BB-; B+; B; B-; CCC; CC; C; RD; D
2. Moody's Investor Service
Aaa; Aa1; Aa2; Aa3; A1; A2; A3; Baa1; Baa2; Baa3; Ba1; Ba2; Ba3; B1; B2; B3; Caa1; Caa2; Caa3; Ca; C
3. Standard and Poor's
AAA; AA+; AA; AA-; A+; A; A-; BBB+; BBB; BBB-; BB+; BB; BB-; B+; B; B-; CCC+; CCC; CCC-; CC; C; D
4. PT. Fitch Ratings Indonesia
AAA(idn); AA+(idn); AA(idn); AA-(idn); A+(idn); A(idn); A-(idn); BBB+(idn); BBB(idn); BBB-(idn); BB+(idn); BB(idn); BB-(idn); B+(idn); B(idn); B-(idn); CCC(idn); CC(idn); C(idn); RD(idn); D(idn)
5. PT ICRA Indonesia
[Idr]AAA; [Idr]AA+; [Idr]AA; [Idr]AA-; [Idr]A+; [Idr]A; [Idr]A-; [Idr]BBB+; [Idr]BBB; [Idr]BBB-; [Idr]BB+; [Idr]BB; [Idr]BB-; [Idr]B+; [Idr]B; [Idr]B-; [Idr]C+; [Idr]C; [Idr]C-; [Idr]D
6. PT. Pemeringkat Efek Indonesia (PEFINDO)
idAAA; idAA+; idAA; idAA-; idA+; idA; idA-; idBBB+ ; idBBB ; idBBB ;idBB+; idBB; idBB-; idB+; idB; idB-; idCCC; idSD; idD

2.3 Hypotheses Development

2.3.1 Firm size

The size of the company, whether large or small, is based on total assets, sales or equity. Pandutama [13] explained that a logarithm of assets, sales, or equity reflects the size of a company. Sejati [14] found that the companies that have greater assets tend to have better capabilities than those with smaller assets. This makes the risk of default faced by large corporations lower, and these corporations obtain a better bond rating.

2.3.2 Liquidity

A ratio that indicates a company's ability to meet its financial obligations [15]. The ratios commonly used to measure liquidity are the Current Ratio and Quick Ratio. The effect of liquidity on bond

ratings is explained by Maharti [16], who stated that the repayment ability of the company's short-term liabilities do not directly impact on its long-term liabilities (repayment of bonds). The high level of a company's ability to pay off the bond debt (which leads to the risk of default faced by the investor) becomes smaller.

2.3.3 Profitability

A ratio that indicates a company's ability to obtain a good profit from sales, total assets and profits of their own capital. The profitability provides an overview of how effectively a company operates in order to provide benefits to itself [17]. Nurmayanti [4] explained that factors commonly used to measure the ratio of profitability are; Return on Assets and Return on Equity.

2.3.4 Leverage

A ratio that shows the proportion of debt that a company uses to finance its capital investments [13]. This ratio is used to measure the extent to which the company uses debt to finance its investment. Companies with low leverage levels tend to be preferred by investors, because investors are confident that the company will be able to pay off all the debt obligations when they are due [15]. This indicates that firms with high leverage tend to have a low ability to meet their obligations, therefore the lower the leverage of the company, the higher the rating that is given to the company.

2.3.5 Productivity

A ratio that measures how effectively companies use their assets [9]. Nurmayanti [4] stated that the ratio of the productivity has a positive effect on bond ratings. They show that companies that have high productivity are able to generate sales and high profits, so they can meet all their obligations to investors in a timely manner. This course will make a better bond rating. Research conducted by Nurmayanti [4]; Yulianingsih [9] showed that productivity has a significant effect on bond ratings.

2.3.6 Security

Bonds are grouped into secured and unsecured bonds (debentures). Nurmayanti [4] stated that, a debenture is an unsecured bond and in general it is guaranteed from the wealth of the issuers. Secured bonds are guaranteed to have a general

claim on the assets of the business enterprise. Assets used to guarantee bonds have the higher priority claim than the specific assets of the issuer.

2.3.7 Age of bonds

Bond maturity is the date on which the bondholders will receive principal payment of the nominal value of the bond. The bond maturity period varies from 365 days to more than 5 years. Bonds maturing within 1 year will be easier to predict, so they have less risk than a bond that has a maturity period within 5 years [9].

2.3.8 Auditor reputation

Ikhsan and Yahya [18] stated that in order for the financial statements or information about a company's performance to be accurate and reliable, the company needs to use the services of the accounting profession. To enhance the credibility of a report, companies must choose the accounting firms with both high reputations and a good name. This is usually indicated by the fact that the firm is affiliated with the Big Four Accounting Firms Worldwide. Ikhsan and Yahya [18] pointed out that the firms that are affiliated with the Big Four are:

- a. Purwanto, Sarwoko, Sandjaja affiliated with Ernst & Young
- b. KAP Osman, Bing, Satria affiliated with Deloitte Touche Tohmatsu
- c. KAP Sidhartha, Sidhartha, Widjaja affiliated with KPMG
- d. KAP Haryanto Sahari affiliated with Price Waterhouse Coopers

According to Yuliana [8], auditor reputation has a significant effect on bond ratings, while Nurmayanti [4] stated that it does not.

Nurmayanti [4] stated that there are several factors that must be considered in the analysis of the bond. The factors are generally seen by agencies to be based on three aspects; the performance of industry, finance and non-finance. This statement contrasts with that of Almilia and Devi [19] which stated that the rating assessment process is achieved just by looking at two aspects; namely considering all things related to financial and non-financial aspects. This is in line with Adrian and Muharam [2]'s conclusion, which states that bond rating is affected by the financial and non-financial factors.

Based on the descriptions above, the hypothesis on this study are

- H1: Company size influences bond ratings
- H2: Liquidity has an influence on bond ratings
- H3: Profitability has an influence on bond ratings
- H4: Leverage has an influence on bond ratings
- H5: Productivity has an influence on bond ratings
- H6: Security has an influence on bond ratings
- H7: The age of the bond has an influence on bond rating
- H8: An auditor's reputation has an influence on bond ratings
- H9: Firm size, liquidity, profitability, leverage, productivity, security, auditor's age and reputation simultaneously have an influence on bond ratings.

3. RESEARCH METHODOLOGY

This research is designed using causative explanatory research. It is useful to analyse the effect of one variable with several other variables, and this method aims to see how far the independent variables affect the dependent variable [20]. Independent variables in the research include firm size, liquidity, profitability, leverage, productivity, security, bond age and auditor reputation while dependent variable, bond ratings and the measurements of each variable are shown in Table 1. In answering the objective of the research, which is to evaluate the effect between both independent and dependent variables, the data is analysed using logistic regression in the Statistical Package for the Social Science (SPSS) version 23.

3.1 Population and Sample

The population in this study comprises companies listed on the Indonesian Stock Exchange in 2012. Samples were selected using purposive sampling method. Sample selection criteria in this study are as follows:

1. Companies are listed on the Indonesian Stock Exchange and have issued bonds outstanding in 2012.
2. Firms are not included in the banking sector and other financial institutions.
3. The companies studied have complete audited financial statements up to December 31, 2012.

4. The bond examined has a high bond investment criterion (AAA, AA, A) and goes as low as (BBB).

The data used in this study are secondary data. They are obtained from the database of financial reports and corporate bond list in the Indonesian Bond Market Directory that are accessible through the Indonesian Stock Exchange (www.idx.co.id) and the Stock Exchange Indonesia Representative Office, Jayapura.

The raw data was first downloaded from the web of the Indonesian Stock Exchange by selecting the financial statements generated by all companies in 2012. Purposive sampling method was then performed where first of all, only the financial companies which provided their financial statements and issued bonds outstanding in 2012 were selected and considered. The selection then excluded the banking sector and other financial institutions from the sample. The selection was continued to identify only companies which provided complete audited financial statements at the end of December 31 in 2012, and it excluded the companies which did not have complete financial statements. The bond rating was finally examined to identify whether the company has a high bond investment criterion or low one. The process in undertaking the sample selection took almost 2 months.

3.2 Dependent and Independent Variables

The dependent variable in this study is a bond rating. In general, bond ratings are divided into two criteria: investment grade (AAA, AA, A, BBB) and non-investment grade (BB, B, CCC, D). This study uses criteria that have investment grade because those bonds are eligible to be used as an investment. Bonds with an investment grade criteria are then divided into two categories: the category of high investment bonds (AAA, AA, A) and that of low investment (BBB). The division of these two categories refers to research conducted by [4]. The measurement scale used

is a nominal scale where 1 represents high investment bonds and 0 represents the low investment. The measurement of independent variables can be formulated as in the following Table 1.

All complete audited financial statements compiled by the companies in 2012 were then analysed to identify all independent variables used in the research. Calculations using the formula of each variable shown in table 1 above were performed to obtain information of each independent variable in the research. Once all independent and dependent variables in the research were identified, data was then analysed in SPSS.

3.3 Data Analysis

The data in this study use the logistic regression analysis. This analysis method is used because the dependent variable is categorical (non-metric) and the independent variable is a mixture of continuous variables (metrics) and categorical (non-metric) [20]. Ghozali [20] also stated that the regression logistic analysis normally does not require normality test of the independent variables. The normality test can be used if the assumptions of multivariate normal distribution are not fulfilled. The assessment steps required to analyse data using the logistic regression consist of several tests: the overall fit model to explain good regression model; Nagelkerke's R Square test to show the how the model can explain the dependent variable; the Hosmer and Lemeshow's test to identify any differences between the model and data and to ensure that the model must be fit; and the Classification table to calculate the estimated values of the true and the wrong. The four tests performed are shown to measure the quality of the data obtained in the research [20]. Once variables have been examined for the model fit, the analysis to identify the effect of independent variables to dependent variables is then performed.

The model equations used logistic regression analysis are as follows:

$$\ln \frac{P}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + e$$

Specification:

$$\ln \frac{P}{1-p} : \text{Bond rating. These variables are categorical 1 for the high investment bonds and 0 for the low investment bonds.}$$

| | | |
|---------------|---|------------------------|
| β_0 | : | Constants |
| β_{1-8} | : | Coefficient regression |
| X1 | : | Firm size |
| X2 | : | Liquidity |
| X3 | : | Profitability |
| X4 | : | Leverage |
| X5 | : | Productivity |
| X6 | : | Security |
| X7 | : | Age |
| X8 | : | Auditor Reputation |
| e | : | Error |

process, based on the established criteria, can be seen as follows:

4.2 Overall Model Fit

The first step is to assess the overall fit model to the data.

Table 3 and Table 4 show the comparison between the value of the initial block and a value -2LogL -2LogL final block. -2LogL the column at the beginning of the block shows the value of 28,708, while -2LogL at the end of the block shows the value of 18,294. This means that once new variables are included, the value changes to 18,294 or a decline of 10,414. The decrease in the value of the block -2LogL -2LogL value at the beginning and end of the block indicates that the model of this study declared fit, meaning that the additions of independent variables in the research model will improve the model fit.

4.3 Test Nagelkerke's R Square

This test aims to determine how much the combination of independent variables can explain the variation in the dependent variable. Table 4 shows the value of the Nagelkerke R Square of 0,460. This value means that the dependent variable can be explained by the variability of the independent variables while the remaining 46% is explained by other variables outside the model.

4.4 Hosmer and Lemeshow's Test

The test is performed to determine whether there are differences between the models and the data. If there is no difference, then the model can be considered to fit.

In addition, the research also is trying to answer the reasons why most of the companies chose PT. Pemeringkat Efek Indonesia (Pefindo) as their bond rating agency. This required further analysis where, in order to answer the question, the research then attempted to conduct interviews for the chosen companies in the sample. The process to obtain information about the reasons that most of the companies selected PT. Pefindo was performed by telephone and electronic emails. From 10 companies which were approached, two of them responded with the answers. These were PT. Adhi Karya Tbk and PT. Jasa Marga Tbk. The positive responses accepted were then used to explain the strengths of PT. Pefindo in the last section of the research.

4. RESULTS AND DISCUSSION ANALYSIS

4.1 Overview of Data

The data of this study are secondary data, obtained from the website of the Indonesian Stock Exchange (IDX), www.idx.co.id and also on the Indonesian Stock Exchange Representative Office Jayapura. The sampling

Table 1. Measurement of independent variables

| Variable | Measurement |
|--------------------|---|
| Firm Size | <i>Log Assets</i> |
| Liquidity | $QR = \text{Current assets} - \text{inventories} / \text{Current liabilities}$ |
| Profitability | $ROI = \text{Net Profit After Taxes} / \text{Total Assets}$ |
| Leverage | $DER = \text{Total liabilities} / \text{Total equity}$ |
| Productivity | $STA = \text{Sales} / \text{Total asset}$ |
| Security | 1 = Secured bond 0 = Unsecured bond |
| Age | 1 = if the age is 1-5 year 0 = if the age is > 5 year |
| Auditor reputation | 1 = audited by <i>the big four</i> 0 = audited by other than <i>the big four</i> |

Table 2. Sample selection

| No | Criteria | Total |
|----|--|-----------|
| 1 | Companies issuing bonds outstanding in 2012 | 97 |
| 2 | Firms are included in the banking sector and other financial institutions | (51) |
| 3 | Bonds with non-investment grade criteria | (6) |
| 4 | Companies did not publish an audited financial statement in 31 December 2012 | (4) |
| | Total | 36 |
| 5 | Outlier | (1) |
| | Sample | 35 |

Source: Secondary data, 2014

Table 3. Iteration history^{a,b,c}

| Iteration | -2Log likelihood | Coefficients | |
|-----------|------------------|--------------|-------|
| | | Constant | |
| Step 0 | 1 | 29,324 | 1,429 |
| | 2 | 28,715 | 1,752 |
| | 3 | 28,708 | 1,791 |
| | 4 | 28,708 | 1,792 |

Source: Output SPSS (2014)

Table 4. Model summary

| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|------|---------------------|----------------------|---------------------|
| 1 | 18,294 ^a | ,257 | ,460 |

Source: Output SPSS (2014)

Table 5 shows that the value of Chi Square of 4.339 and significant at 0.740. From these values it appears that significant value is greater than 0.05, which means there is no difference

between the model and the value of his observations, so that the model is concluded to be fit and acceptable.

Table 5. Hosmer and Lemeshow test

| Step | Chi-square | df | Sig. |
|------|------------|----|------|
| 1 | 4,339 | 7 | ,740 |

Source: Output SPSS (2014)

4.5 Classification Table

The classification table is used to calculate the estimated value of the true and the wrong. If the logistic model has homoscedasticity the correct percentage value will be the same for both rows.

From Table 6 it can be seen that predicted bonds with the low investment rate (BBB) is 5 bonds, but the results of the observation showed only 2 bonds that are rated low investment, so the classification accuracy is 40.0%. The bonds with the high investment rate (A, AA, AAA) totals 30 bonds, but the results of observations show that 29 bonds are rated high investment. So the classification accuracy was 96.7%.

4.6 Estimation of Parameters and Interpretation

Table 7 (variables in the equation) describes the estimation of its parameters and shows the results of logistic regression analysis to test hypotheses partially for the variables that significantly influence the bond rating. Table 8 (variables not in the equation) declares the variables that do not enter the logistic regression model and shows no significant effect on bond rating in the partial hypothesis testing results.

Table 6. Classification table^a

| | Observed | | Predicted | | Percentage Correct |
|--------|--------------------|------------|-----------|------------|--------------------|
| | | | Rating | | |
| Step 1 | Rating | BBB | 2 | A, AA, AAA | 40,0 |
| | | A, AA, AAA | 1 | 29 | 96,7 |
| | Overall Percentage | | | | 88,6 |

Source: Output SPSS (2014)

Table 7. Variables in the equation

| | | B | S.E. | Wald | df | Sig. | Exp(B) |
|---------------------|---------------|--------|--------|-------|----|------|----------|
| Step 1 ^a | Profitability | 32,188 | 15,957 | 4,069 | 1 | ,044 | 9,530E13 |
| | Constant | ,933 | ,678 | 1,896 | 1 | ,169 | 2,543 |

Source: Output SPSS (2014)

Table 8. Variables not in the equation

| | | | Score | df | Sig. |
|--------|-----------|--------------------|-------|--------|------|
| Step 1 | Variables | Size | 2,767 | 1 | ,096 |
| | | Liquidity | ,036 | 1 | ,849 |
| | | Leverage | ,698 | 1 | ,403 |
| | | Productivity | 2,599 | 1 | ,107 |
| | | Security(1) | ,837 | 1 | ,360 |
| | | Age(1) | ,113 | 1 | ,737 |
| | | Reputation(1) | 2,646 | 1 | ,104 |
| | | Overall Statistics | | 11,229 | 7 |

Source: Output SPSS (2014)

The use of a stepwise method in this study led to several independent variables that did not have a statistically significant effect on the dependent variable, so they will not appear in the regression equation. The logistic regression equation is written as follows:

$$\ln \frac{p}{1-p} = 0,933 + 32,188 \text{ PROFIT}$$

The above equation can also be written as follows:

$$\frac{P}{1-p} = e^{0,933} \times e^{32,188 \times \text{PROFIT}}$$

A positive sign of the coefficient profitability indicates that the log of the odds will increase if profitability increases. The relationship between odds and profitability variables are as follows: odds bonds will have a rating of A, AA, AAA with factor ($e^{32,188}$) for each increase of one unit profitability. It can be stated that the higher the value of profitability, then the probability of bonds rated A, AA, AAA also will be higher.

4.7 Hypothesis Testing and Discussion

4.7.1 The effect of firm size on bond ratings

Results of logistic regression testing indicate that company size proxied by the log of total assets has a significance value of 0.096. Significance value is greater than 0.05, which means that H1 is not successfully supported, so the first hypothesis was rejected. These results indicate that the size of the total assets owned by the company does not have a significant effect on the bond ratings given by rating agencies.

The result of this study is not consistent with research of Yuliana [8], Yulianingsih [9] who found that the size of the company has a

significant effect on bond ratings, however it is consistent with the research conducted by Nurmayanti [4], Susilowati [6]. The results of this study indicate that the size of the company does not guarantee that the company is able to meet its financial obligations, so no matter how many assets a company owns, they will not affect the bond rating. Sejati [14] also stated that, in general, all things considered in the bond rating equal the total of a company's obligation or debt. Companies that have many assets do not necessarily use those assets to pay bond debt, so the amount of total assets does not affect the bond rating. These results indicate that firm size is not a relevant indicator in determining the bond ratings issued by rating agencies.

4.7.2 The effect of liquidity on bond ratings

The second hypothesis stated that liquidity affects bond ratings and the result of logistic regression testing indicates that liquidity measured by the quick ratio has significance value of 0.849 and is greater than 0.05, which means that H2 is not successfully supported, so the second hypothesis is rejected. This result indicates that liquidity does not have a significant effect on bond ratings. The result of this study differs from research conducted by Suharli [5], Susilowati [6], but is consistent with research conducted by Nurmayanti [4], Sunarjanto and Tulasi [7], Yulianingsih [9] which concluded that liquidity does not have a significant effect on bond ratings.

Statistically, the results of this study indicate that companies considered liquid do not necessarily have higher bond ratings. The fact that the company has good liquidity means that it is regarded as a good company, but high liquidity indicates a problem, such as, too much stockpiling of cash and bad debts. High liquidity, thus, can be bad for a company, because it indicates that there is no effective management

of assets in the form of unproductive funds invested, the existence of current assets and a high amount of accounts receivable that are difficult to convert into cash immediately [10]. Liquidity, thus, is not relevant to the determination of bond ratings issued by the rating agencies.

4.7.3 The effect of profitability on bond ratings

The result found that the value of the profitability significance is 0.044, and is smaller than 0.05, which means that the H3 is successfully supported, so the third hypothesis is accepted. It shows that the profitability variable proxied by return on investment has a significant effect on the bond ratings. The result is consistent with the previous research [4,7-9] but not consistent with the research conducted by Suharli [5], Susilowati [6]. The result indicates that companies with a high level of profitability have good bond ratings. Companies that are able to generate profits with the number of assets owned indicate that they are able to optimize all available resources. This means that the company also has a low risk of liquidation, the income generated can also be distributed to the coupon payments of interest and principal on bonds issued, so that the holders of the notes were guaranteed to get a regular fixed income [19].

Profitability in this study is used to measure a company's ability to generate net income by the total assets it owns. If the company has high corporate profits, the company's ability to meet its obligations can be confirmed on the due date, which will reduce the default risk that may occur. Therefore, high profitability will provide high bond ratings for the company. In addition, high levels of profitability can indicate that the company is in good condition, so that in these circumstances the company will attract many investors. It will also improve bond ratings.

4.7.4 The effect of leverage on bond ratings

The result shows that leverage proxied by Debt to Equity Ratio has a significance value of 0.403 and the value is greater than 0.05. This means that H4 is not successfully supported, so the fourth hypothesis is rejected. The results of testing this hypothesis indicate that leverage does not have a significant effect on bond ratings. The results of this study differ from the results of research conducted by Suharli [5], but are consistent with previous research [4,7-9],

stating that leverage does not have a significant effect on bond ratings. No significant results of this research can be caused by the use of debt as a funding source and considered as something that is still allowed as long as it still has a positive impact on the company's operations.

In addition, leverage has two sides, namely risks and benefits. On the one hand, the increase of high debt may increase the potential for loss and even bankruptcy, but on the other hand, the increase in debt also brings benefits in the form of tax savings [4]. It is therefore irrelevant when used as an indicator in determining bond ratings, because the tax savings can reduce the magnitude of the potential losses that may occur.

4.7.5 The effect of productivity on bond ratings

The logistic regression testing in this study indicates that productivity measured by Sales Total Assets has a significance value of 0.107 and is greater than 0.05, meaning that H5 is not successfully supported, so the fifth hypothesis is rejected. This result indicates that the ability of the company to use the assets owned does not have a significant effect on bond ratings given by rating agencies.

The results of this study are consistent with Sari [17] but in contrast to the previous research [4,9], which stated that productivity has a significant effect on bond ratings. The difference of the results in this study means that a higher level of productivity indicates that companies are increasingly effective in using their assets. It indicates, also, that they should be able to increase sales and profit generated, however the sales and profits produced by the company are not fully used to settle the obligations associated with the bonds. It shows that the size of a company's productivity does not affect bond ratings issued by rating agencies, so that productivity is not relevant as an indicator in determining bond ratings.

4.7.6 The effect of security on the bond rating

Hypothesis six states that security affects bond ratings and it has a significant value of 0.360, greater than 0.05, which means that H6 is not successfully supported, so the sixth hypothesis is rejected. These results indicate that the bonds, whether they be secured or unsecured bonds with a particular asset, are not taken into account

in determining bond ratings. The result contrasts with the results of previous research [4,8], which stated that security has a significant effect on bond ratings.

No significant results in this study may be due to assessment conducted by the bond rating agencies which are not only limited by the presence or absence of secured bonds, but which prefer to assess the value of the security. Such information can be obtained from the management and, if the value of security is greater, the bonds of the company will have a good bond rating. This is because the value of the security is more definite and promising [16]. This result indicates that the security of the bonds used as an indicator is not relevant in determining bond ratings.

4.7.7 The effect of age on bond ratings

Hypothesis seven stated that the age of the bond affects bond ratings and the result of logistic regression test indicates that the age has a significant value of bonds 0.737, greater than 0.05, which means that H7 is not successfully supported, so the seventh hypothesis is rejected. The result indicates that the length of life of the bonds does not have a significant effect on bond ratings given by rating agencies. The result is consistent with that of the research conducted by Susilowati [6], Yuliana [8], Maharti [16], which stated that the age of the bonds does not have a significant effect on bond ratings. However, it differs from that of Yulianingsih [9], which stated that the age of the bond has a significant effect on bond ratings.

This research contains no significant result showing that the length of life of a bond cannot determine bond ratings [6]. The result of the analysis concludes that any decrease in the age of the bond does not affect the probability of an increase in the bond rating. The corporate bond's age in this study indicates that most companies choose to issue bonds with a short life, but this is not offset by any increase in the bond rating; it is proved that the rating agencies do not pay much attention to the age of the bond in their bond rating.

4.7.8 The effect of auditor reputation on bond ratings

The result of logistic regression test shows that the auditor's reputation has a significance value of 0.104. As the significance value is greater than

0.05, meaning that H8 is not successfully supported, the eighth hypothesis is rejected. This result indicates that the reputation of the auditor does not have a significant effect on bond ratings.

The result is consistent with the research of Nurmayanti [4], which states that the auditor's reputation does not have a significant effect on bond ratings. This contrasts with the research of Yuliana [8], which states that the auditor's reputation has a significant effect on bond ratings. This study has no significant result indicating that any company audited by the big four auditors does not guarantee that they are able to pay off all debt obligations including bonds [13]. If a company values auditor reputation, this only guarantees the accuracy of the financial statements issued, but does not guarantee the company's ability to repay its obligations. It is therefore irrelevant that the reputation is used as an indicator to determine bond ratings.

4.7.9 The effect of firm size, liquidity, profitability, leverage, productivity, security, age and reputation of the auditor simultaneously on bond ratings

At the Table 9, the value of significance in the Omnibus Tests of Model Coefficients is 0.001, this value is below 0.05, which means that the firm size, liquidity, profitability, leverage, productivity, security, age and auditor reputation simultaneously affect its bond ratings. The results of this study indicate that the independent variables used together can affect bond ratings given by rating agencies.

These results are in line with Sari [17], who stated that the determination of the ranking criteria of a bond is affected by several factors. Nurmayanti [4] also stated that there are several criteria that must be considered in the analysis of the bond. This is generally seen by agencies based on three aspects of industrial, financial and non-financial performances. This research examined two features of the financial and non-financial aspects. Adrian and Muharam [2] also stated that the bond rating is affected by a variety of factors, namely both the financial and non-financial factors. In this study the financial aspects are seen from firm size, liquidity, profitability, leverage and productivity and the non-financial aspects are seen from the security, age and auditor reputation. The significant influence of the independent variables taken

simultaneously in this study indicates that the rating agencies will use as much information as possible in deciding the bond rating.

Table 9. Omnibus tests of model coefficients

| | | Chi-square | Df | Sig. |
|--------|-------|------------|----|------|
| Step 1 | Step | 10,414 | 1 | ,001 |
| | Block | 10,414 | 1 | ,001 |
| | Model | 10,414 | 1 | ,001 |

Source: Output SPSS (2014)

4.8 The Strengths of PT. Pemeringkat Efek Indonesia (Pefindo)

From a sample of 35 companies, 31 companies chose bonds rated by PT. Pefindo while the remaining 4 were rated by other rating agencies. This raises the question why most of the companies listed on the Indonesian Stock Exchange prefer Pefindo rather than other rating agencies.

This study shows that from 6 rating agencies recognized by the Bank of Indonesia, bond samples in this study are rated by only two rating agencies, namely PT. Pefindo and PT. Fitch Ratings Indonesia. The table below shows the two rating agencies used in this research.

The Table 10 shows that 88.6% of the companies listed on the Stock Exchange chose their bonds rated by PT. Pefindo while the remaining 11.4% of the companies chose PT. Fitch Ratings Indonesia. The number of companies that prefer the PT. Pefindo indicates that some rating agencies have advantages not possessed by other agencies. Some of the reasons these companies choose PT. Pefindo can be seen from the results of interviews conducted at PT. Adhi Karya Tbk and PT. Jasa Marga Tbk. Interviews were conducted by telephone and email because these companies are far away from the researcher. The first interview of the PT. Adhi Karya Tbk shows there are several reasons why the company

chose PT. Pefindo, as expressed by one of the following sources:

"Some considerations in selecting PT. Pefindo among others is that PT. Pefindo is affiliated with the Indonesian Stock Exchange. The number of clients showed a good experience when the bonds are rated by this agency. The cost of using the company's rating is also certainly another consideration that may be compared with the more expensive foreign agencies. Regardless of these considerations, the selection process passed through the tender process at the beginning of the selection of the company rating". (Staff at the Investor Relations)

Other reasons are also obtained from PT. Jasa Marga Tbk, as expressed by one of the following sources:

"PT Jasa Marga (Persero) Tbk, this time chose to use the services of PT. Pefindo, because this agency is the oldest and most reliable rating company in Indonesia. PT Pefindo's services are also used by most of the companies listed in Indonesia Stock Exchange, both private companies and state enterprises nationwide. With experience in assessing the listed companies, PT. Pefindo is the main choice of PT. Jasa Marga (Persero) Tbk in use rating services Valuation". (Staff at the Investor Relations).

The results of the interviews showed that PT. Pefindo has advantages compared to other agencies. These results are in line with the Sejati [14], research, which states that the reason this agency is chosen the most is due to a high degree of confidence. A high level of confidence, thus, can attract companies to use the services of this agency. Similar statements expressed by Maharti [16] declared that the number of companies that use the services of PT. Pefindo may indicate that these companies have confidence in the assessment given by PT. Pefindo.

Table 10. Rating agencies

| | | Frequency | Percent | Valid percent | Cumulative percent |
|-------|-----------------------------|-----------|---------|---------------|--------------------|
| Valid | PT. Fitch Ratings Indonesia | 4 | 11,4 | 11,4 | 11,4 |
| | PT. Pefindo | 31 | 88,6 | 88,6 | 100,0 |
| | Total | 35 | 100,0 | 100,0 | |

Source: Output SPSS (2014)

5. CONCLUSION

The results of this study found that the profitability variable only partially significantly influences the bond rating, while the firm size, liquidity, leverage, productivity, security, age and auditor reputation do not. These results indicate that the ratings agencies issue their ratings based on the level of profitability of the company, so investors who want to invest in bonds can consider how big is the company's ability to generate profits based on the total asset. Therefore, in order to improve the performance of the bond ratings and to keep competing among other companies in the Indonesian capital market, the companies need to increase their profitability. The study also found that PT. Pefindo has advantages compared with other agencies, so that the companies listed in Indonesia's Stock Exchange can choose this agency to rank their bonds. The number of companies that choose PT. Pefindo indicates the high level of confidence in this rating agency [14, 16]. This leaves more space for further studies to identify possible disadvantages of PT Pefindo compared with those of other agencies.

The limitation of this study is that it considers only the financial aspects in the form of firm size, liquidity, profitability, leverage, productivity and the non-financial aspects of security, age and reputation of the auditor. As macroeconomic conditions have significant influence on the securities the firms to raise the capital [21] and the capital structure choices [22], both financial and non-financial aspects of the effects of bond rating are influenced by the economic and political conditions of the country in this specified year of the research, so different findings and interpretations can occur in the future. Other future researchers, thus, are expected to add further factors from other aspects from economic and demographic characteristics of the country, such as population, income, employment, industrial mix and earnings of employees, and the fiscal condition of the country [23].

The bond rating is used in the two categories: high investment and low investment. The bonds can be rated, using the value of 4 for the AAA rating, the value of 3 for AA, 2 for A and 1 for BBB. This study only compares PT. Pefindo to PT. Fitch Ratings Indonesia to identify the differences in general. Further research is expected to reveal further details of these differences among all rating agencies recognized by the Bank of Indonesia so that it can be seen

why the companies issuing bonds are more interested in choosing bond rates assessed by PT. Pefindo or PT.Fitch Ratings Indonesia than those of other agencies.

The study selected all types of listed companies in the Indonesian Stock Exchange that issued bonds in 2012 and excluded all companies in the banking industries in Indonesia. Further studies including all types of companies in Indonesia in this specified year can help better overall findings. Analysis of the government bond ratings with its special characteristics and rating agency can also be conducted for further studies in order to evaluate the key aspects and other relevant factors influencing the ratings. The study can also compare bond ratings in other countries, however the similar structures of economy and politics in other countries and the sensitivity analysis used to evaluate other relevant factors can help to provide a better comparison.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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