

Effect of Debt-to-Asset Ratio, Maturity, Guarantees, and Company Size on Bond Ratings in Construction Companies

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ABSTRACT

Purpose: The purpose of this study was to determine and analyze effect of the debt-to-assets ratio, maturity, guarantee, and company size on construction company bond ratings.

Design/methodology/approach: The population and sample of this research is construction companies that publish complete financial reports from 2014 to 2022. Data analysis uses logistic regression analysis.

Findings: The results showed that: 1) Debt to assets ratio has no significant effect on the probability of bond ratings, because investors tend to buy bonds because they see the company's reputation not from the Debt to Assets Ratio obtained by the company; 2) Maturity has no significant effect on bond ratings, because investors tend to buy bonds with ages under 3 years, because companies with maturity under 3 years are able to pay off their obligations to pay the loan principal at maturity; 3) Guarantees have no significant effect on bond ratings, because investors tend to buy bonds because they look at the company's reputation, not from what is guaranteed and not guaranteed to the company; 4) Company size has no significant effect on bond ratings, because investors tend to buy bonds not in terms of company size but from the company's reputation; 5) The debt-to assets ratio, maturity, guarantee, and company size affect bond ratings.

Paper type: Research Paper

Keyword: Debt-To-Asset Ratio, Bond Age, Guarantees, Company Size, Bond Rating

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I. INTRODUCTION

A. Introduction

1. Background

The capital market is a means of forming capital and accumulating funds aimed at increasing public participation in directing funds to support national development financing. In its activities, the government has provided various facilities to companies that offer stocks or bonds to the public by providing facilities and also providing regulations so that the interests of the community are guaranteed and that every company that is going to go public is examined for its feasibility. Currently, the only capital market in Indonesia is the Indonesia Stock Exchange (IDX). Adhisyahfitri Evalina Ikhsan, M Nur Yahya & Saidaturrahmi, 2008). There are two types of financial investments in the capital market: investments in certificates of ownership (shares) and investments in debt securities (bonds). Investments in debentures (bonds) are more attractive to investors because they can bring in a fixed income derived from the principal of the bond and interest that will be received periodically at maturity (Adhisyahfitri Evalina Ikhsan, M Nur Yahya & Saidaturrahmi, 2008).

Sources of financing are an important part of the survival of a business, especially for business expansion and as a means to strengthen the company's capital. One form of funding that the company can obtain is by issuing bonds. Bonds are attractive and in demand by investors because they have the advantage that bondholders have first rights over company assets if the company goes into liquidation (Brigham & Huoston, 2010; Barus et al., 2020)

The development of investment in the bond market has become increasingly attractive in recent years. This is indicated by the increasing value of bond market capitalization in Indonesia in December 2012, which recorded the highest record since 2006 with the achievement of IDR 60.50 trillion. The issuance of corporate bonds in 2011 amounted to IDR 45.93 trillion. Bond issuance until the third week of December 2010 reached IDR 35.897 trillion, an increase of 31.9% compared to last year's achievement of IDR 27.215 trillion (Baepam-LK, 2012; Veronica, 2015).

To find out whether a bond investment is safe, investors can look at bond ratings. The bond rating agency in Nusantara is PT. Pefindo (Indonesian Securities Rating Agency). Every year, PT Pefindo rates the issuer's bonds and disseminates them both on its website and in other media. PT Pefindo uses various factors to rank issuer bonds (Arafah, 2019). The bond rating agency is an independent institution that provides risk scale rating information, one of which is bond securities, as an indicator of how secure a bond is for investors. This security is shown by a company in paying its obligations or loans.

Several previous studies regarding bond ratings conducted by Veronica (2015) used multiple logistic regression analysis tools and found that profitability, liquidity, company size, debt-to-asset ratio (DAR), and bond age have a significant effect on bond ratings. The results of the study Arafah (2019) tested the effect partially and dominantly using a logistic regression analysis tool and found the result was profitability, growth, DAR and bond age have an effect on bond ratings, and liquidity, collateral, and company size have no significant effect. And one variable that has no significant effect, namely profitability, in determining bond ratings.

This study accommodates previous research by adding collateral variables to be tested and analyzed against bond ratings. This is in accordance with the objectives of this study, which are to test and analyze:

1. The partial effect of Debt to Assets Ratio (DAR), maturity, guarantee, and company size on bond ratings in construction companies;
2. The simultaneous effect of DAR, bond age, collateral, and company size on bond ratings in construction companies.

Based on the background description, the problems in this study can be formulated as follows:

- 1) Does the debt-to-asset ratio affect the bond ratings of construction companies?
- 2) Does the maturity affect the rating of bonds in construction companies?
- 3) Does the guarantee affect the bond ratings of construction companies?
- 4) Does company size affect bond ratings for construction companies?
- 5) Does the debt-to-assets ratio, maturity, guarantees, and company size affect the bond rating of construction companies?

B. Literature review

1. Bond

Bond investing is one of the most popular investments among investors. This is because bonds have a fixed income, which is obtained from interest that will be received periodically and the principal of the bond at maturity. For issuers, bonds are safe securities because their emission costs are cheaper than stocks. In addition, the issuance of bonds is also to avoid investors' bad judgment compared to if the company issues new shares (Husnan, 2007; Veronica, 2015).

Bond rating is a measure of quality and security for investors to invest in bonds. Security can be seen in the company's ability to pay loan principal and interest. Investors can obtain information about bond ratings through PT. Pefindo (the Indonesian Rating Agency) and PT. Kasnic Credit Rating Indonesia. There are many benefits provided by bond ratings, namely being able to minimize conflicts between investors and companies. The company wants all of its bonds to be sold, and investors expect a guarantee that the company is healthy and not losing money. In addition, bond ratings eliminate guarantee costs by the company and eliminate costs for analyzing the health condition of a company by investors (Simatupang & Naz'aina, 2022)

2. Debt to Assets Rasio

Solvability analysis measures the company's ability to cover all of its obligations. Solvency also indicates the amount of capital issued by investors in order to generate profits (Rachmawati, 2008). The solvency of companies in this study is measured by comparing the amount of debt (both short-term and long-term) with total assets. This comparison figure is stated in the debt-to-asset ratio. The purpose of using the debt-to-assets ratio is because this ratio indicates the health of the company.

The debt-to ratio is a debt ratio used to measure the ratio between total debt and total assets. In other words, how much of the company's assets are financed by debt or how much the company's debt affects asset management (Kasmir, 2014; Andhani, 2019) In other words, this ability leads to a picture of the company's financial health, which includes the availability of costs or the company's ability to bear the debts of the entity. The Debt to Total Asset Ratio variable uses the following formula: $\text{Debt-to-Asset Ratio} = (\text{Total Debt} / \text{Total Assets}) \times 100\%$.

3. Maturity

Ma'arij et al, (2014) stated that the maturity of the bond (maturity) is the date on which the bondholder will receive repayment of the principal or nominal value of the bond it owns. Bond maturity periods vary from 365 days to over 5 years. In general, the longer the maturity of a bond, the greater the level of uncertainty, so the greater the maturity risk. Bonds with shorter ages (Andry, 2005) have less risk, so companies with high bond ratings use shorter bond ages than companies that use longer bond ages. Saiful Arafah's research (Arafah, 2019) shows that the age of bonds affects the bond ratings of property, real estate, and construction companies. This is in line with the results of Aries Veronica's analysis (Veronica, 2015) using a multiple logistic regression analysis tool, which found that bond age has a significant effect on bond ratings. Simultaneously, maturity has a significant effect on bond ratings. The maturity variable in this study uses a dummy variable, where the following measurements are taken: a value of 1 if the bond has a life of one to five years and a value of 0 if the bond has a life of more than five years.

4. Guarantees

Guarantees that exist in bonds can attract investors to own them. This can reassure investors if the company experiences a bond default. If the bonds are secured by high-value assets, the bond rating will be better. One other reason is that by guaranteeing the assets owned by the company for bonds, the company can reduce the risks that will be accepted by the company (Wijayanti et al., 2019).

Saiful Arafah's research (Arafah, 2019) shows that guarantees have no effect on the bond ratings of property, real estate, and construction companies. This study contradicts the results of Arvian Pandutama et al., (2012) showing that bond guarantees have a significant effect on predicting the bond ratings of manufacturing companies in 2007– 2010. The guarantee variable in this study uses the following classification: Value 0 for unsecured bonds, Value 1 for guaranteed bonds.

5. Company Size

Company size is a measure that shows the size of the company. Company size can be measured using total assets, sales, and equity (Andry, 2005) . Small companies have a much greater risk than large companies. Because large companies have large assets to guarantee a bond, large assets minimize the risk of investors having their funds invested in a bond issuing company. Saiful Arafah's research (Arafah, 2019) shows that company size has no effect on the bond ratings of property, real estate, and construction companies. This also occurs in research conducted by Arvian Pandutama (2012) , which shows that company size does not prove to have a significant effect on predicting the bond ratings of manufacturing companies in 2007– 2010. The company size variable is calculated using the following formula: $Size = \log(\text{total assets})$

6. Bond Rating

Bond rating is a measure of quality and security for investors to invest in bonds. Security can be seen in the company's ability to pay principal and loan interest. Investors can obtain information about bond ratings through PT. iPefindoi (Pemeringkat Efeki Indonesia and PT. Kasnici Credit Rating Indonesia). There are many benefits provided by rating bonds, namely being able to minimize conflicts between investors and companies. Companies want all of their bonds to be sold, and investors expect guarantees from a company that is healthy and not losing money. In addition, bond ratings eliminate guarantee costs by company and the cost of analyzing the health condition of a company for investors (Simatupang & Naz' aina, 2022). A bond rating is a signal of a company's performance that is used as a basis for making decisions for users of information. Investors must have the ability to read signals that indicate a possible risk of default (Simatupang & Naz' aina, 2022).

Bonds are attractive to investors (Purwaningsih, 2008) due to their advantages in terms of security when compared to stocks. A good rating not only shows the company's ability to pay off its obligations, but can also show that the company's performance is taking place effectively and efficiently because it is able to manage debt for the progress of the business being carried out.

According to the theory of Brigham and Houston (2010) in (Kustiyaningrum et al., 2016) that: "bond ratings are based on several qualitative and quantitative factors consisting of various ratios, funds, redemption, maturity, regulation, overseas operations and product responsibility". There is a strong correlation between bond ratings and ratios.

To find out whether a bond investment is safe or not, investors can look at the bond ratings. The bond rating agency in Nusantara is PT Pefindo (Indonesian Securities Rating Agency).

Table 1. Bond Rating issued by Pefindo.

<i>Rating</i>	<i>Ability to meet long-term financial obligations</i>
<i>idAAA</i>	<i>Superior, the highest rating</i>
<i>idAA</i>	<i>Very strong</i>
<i>idA</i>	<i>strong</i>
<i>idBBB</i>	<i>Adequate</i>
<i>idBB</i>	<i>A bit weak in</i>
<i>idB</i>	<i>Weak</i>
<i>idCCC</i>	<i>Vulnerable</i>
<i>idSD</i>	<i>Partially failed</i>
<i>idD</i>	<i>Defaulted (default)</i>

Source: PT Pefindo (Tandelilin, 2010; (Terhadap et al., 2016)

The highest rating is idAAA, which indicates the best quality or that the company has the lowest level of default risk. While the lowest rating classification is idD, which indicates a default company. Bonds rated idAAA to idBBB are included in the investment grade category, while bonds below idBBB are included in the non-investment grade category and are considered speculative for investment (Tandelilin, 2010; Kustiyaningrum et al., 2016)

C. Conceptual Framework

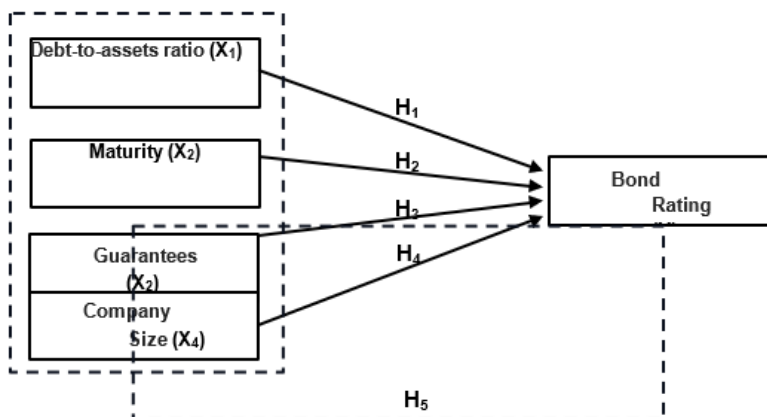


Image 1: Conceptual Framework

D. Hypothesis

Development Based on the theory and previous research, the basis for the development of the proposed hypothesis is that:

- 1) the debt-to ratio has a significant effect on bond ratings in construction companies.
- 2) Does the age of bonds have a significant effect on bond ratings for construction companies?
- 3) Does the guarantee have a significant effect on the bond ratings of construction companies?

- 4) Does company size have a significant effect on bond ratings for construction companies?
- 5) Does the debt-to-assets ratio, bond age, collateral, and company size have a significant effect on bond ratings in construction companies?

II. METHODS

A. Type of Research

The approach in this study uses an associative approach. An associative approach is one that uses two or more variables to determine the relationship or influence between one variable and another. An associative approach is taken to determine the relationship between variables debt-to-asset ratio, bond age, collateral, company size, and bond ratings, either partially or simultaneously. The type of data in this study uses quantitative data types, and the data sources in this study use secondary data as data sources. Secondary data is data related to the problem under study, but the data obtained is not directly obtained, namely through intermediaries. Secondary data related to this study uses documentary data in the form of corporate financial reports from PT. Pefindo through the website <https://www.pefindo.com> and published reports.

B. Population and Sample

The population in this study is composed of construction companies registered at PT. Pefindo in the 2014–2021 research period, totaling four companies. The sample for this research was taken using a purposive sampling technique, which is a method that uses a sampling technique with certain criteria, so that 4 companies were obtained as samples with a research period of 2014– 2021 for annual financial reports.

C. Data Analysis Method

Data analysis techniques in quantitative research use statistical techniques with the help of the IBM SPSS Statistics version 26 for Windows program. The analytical method used in this study is Logistic Regression. The multiple linear regression formula in this study is as follows:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Description:

Y = Bond Rating α = Constant

$\beta_1, \beta_2, \beta_3$ = Regression Coefficient X1 = Debt to Assets Rasio X2 = Maturity

X3 = Guarantee

X4 = Company Size

ε = Error/interfering variable

Before being analyzed, the variables in this study must be tested first using the feasibility test of the logistic regression model. The feasibility test of the logistic regression model includes the overall model fit test, the Hosmer and Lemeshow test, the Nagelkerke R square test, and the classification matrix test.

III. RESULTS AND DISCUSSION

A. Partial Test

The logistic regression model can be formed by looking at the estimated parameter values in the Variables in The Equation. The regression model formed based on the estimated parameter values in the Variables in the Equation is as follows:

	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>
<i>Step 1a Debt to Assets</i>	2.043	1.622	1.585	1	0.208	7.711
<i>Maturity</i>	-2.071	4.323	0.230	1	0.632	0.126
<i>Guarantee</i>	-2.143	2.310	0.860	1	0.354	0.117

Company Size -0.004 0.004 1.105 1 0.293 0.996

Constant -156.541 127.056 1.518 1 0.218 0.000

Source: Data processed in 2022

Based on Table 1, the logistic regression equation is formed as follows:

$$\text{Bond Rating} = -156.541 + 2.043 X_1 + 2.071 X_2 + 2.143 X_3 - 0.004 X_4$$

From the logistic regression equation above, it can be explained as follows:

- 1) The results of the Wald test between the variable debt to assets ratio have a significant value greater than 0.05, which is equal to 0.208. In addition, the debt to assets ratio variable has a positive regression coefficient of 2.043, so the influence of the debt to assets ratio variable in proportion to the debt to assets ratio on bond ratings is not significant in a positive direction. It can be concluded that there is no significant effect of the variable debt-to-assets ratio on bond ratings in construction companies. The results of the Wald test between the maturity variables have a significant value greater than 0.05, which is equal to 0.632. Besides that. The maturity variable has a negative regression coefficient of 2.071, so the effect of the maturity variable on bond ratings is not significant in a negative direction. It can be concluded that there is no significant effect of the maturity variable on bond ratings for construction companies. The results of the Wald test between the guarantee variables have a significant value greater than 0.05, which is 0.354. Besides that, the guarantee variable has a negative regression coefficient of -2.143, so the effect of the guarantee variable on the bond rating is not significant in a negative direction. It can be concluded that there is no significant effect of guarantee variables on bond ratings for construction companies.
- 2) The results of the Wald test between company size variables have a significant value greater than 0.05, which is 0.293. Besides that. The variable company size has a negative regression coefficient of 0.004, so the effect of the variable company size on bond ratings is not significant in a negative direction. This means that there is no significant effect between company size variables and bond ratings in construction companies.

B. Simultaneous Test

This test was conducted to test whether the independent variables consisting of debt-to-asset ratio, bond age, collateral, and company size simultaneously affect the dependent variable, namely bond ratings. The results of hypothesis testing are carried out by comparing the Omnibus Test of Model coefficients, namely the value, with the probability chi square calculated with an alpha value of 5% (0.05). If the obtained value of the calculated chi square probability is smaller than 0.05, then it can be said that the independent variables simultaneously affect the dependent variable.

Table 2: Simultaneous and Omnibus Tests of Model Coefficients

	Chi-square		df	Sig.
<i>Step 1</i>	<i>Step</i> 10.974		4	0.027
	<i>Block</i> 10.974		4	0.027
	<i>Model</i> 10.974		4	0.027

Source: Data processed in 2022

Table 2 shows a chi-square value of 10.974 with a sig value < a below 0.05. This calculation shows that the debt-to-assets ratio, maturity, collateral, and company size have a significant effect simultaneously on bond ratings.

C. Discussion of Research Results

1. Effect of debt-to-asset ratio on Bond Ratings

The test results using statistics using logistic regression show that the debt-to-asset ratio has an insignificant effect on a company's bond rating. The results of logistic regression testing show that the debt- to-assets ratio in the Variable in The Equation table has a coefficient value of 2.043, a significant level of 0.208, and a Wald statistic in the table of 1.585. With a significant value greater than 0.05, the debt-to-assets ratio has no effect on bond ratings.

The results of this study are not relevant to the results of research conducted by Aries Veronica (2015), and Saiful Arafah (2019), who say the debt-to-asset ratio affects bond ratings. This is because for companies, especially construction companies, having large debts in the company's funding structure can be a big risk in the industry. The reason for H1 being rejected is that the debt-to-assets ratio is partially not taken into account in determining the company's bond rating. These conditions indicate that long-term debt-related obligations do not affect bond ratings, so there are differences between companies that are included in high investment grade and low investment grade. Investors tend to buy bonds because they see the company's reputation, not the debt-to-asset ratio that the company earns.

2. Effect of Bond Age on Bond Rating

The test results using statistics using logistic regression show that the ratio of bond age has no significant effect on a company's bond rating. The results of the logistic regression test show that the bond age in the Variable In The Equation table has a coefficient value in the table of -2.071 with a significant level of 0.632 and a Wald statistic of 0.230. The results of this study are not relevant to the results of research conducted by Aries Veronica (2015) and Saiful Arafah (2019). This is because bond age is one of the considerations of investors before buying bonds from a company, and PEFINDO takes this into account when assigning a company's bond rating. The reason for rejecting H2 is that statistically, the age of the bonds cannot be used as an indicator that can affect a company's bond rating. This provides evidence that the company's bond life is longer, but the company is said to be able to pay its bonds, so the bond life is not taken into account in the bond rating. Investors tend to buy bonds with ages under 3 years because companies with bonds aged under 3 years are able to pay off their obligations to pay the loan principal at maturity.

3. Effect of Guarantee on Bond Ratings

The results of testing using statistics and logistic regression show that the guarantee ratio does not have a significant effect on a company's bond rating. The results of logistic regression testing show that the guarantee is in the variable. The Equation table has a coefficient value of -2.143, a significant level of 0.354, and a Wald statistic of 0.860. With a significant value greater than 0.05, guarantees have no effect on bond ratings, and the results of this study are relevant to the results of research conducted by Saiful Arafah (2019), which says guarantees have no significant effect on determining bond ratings. This is because for companies, especially construction companies, having a large guarantee on the company's funding structure can be a big risk in the industry. The reason H3 was rejected is because partially collateralized debt is not taken into account in determining the company's bond rating. Bonds guaranteed by special assets and bonds that are not guaranteed by special assets are not taken into account in determining the bond rating. Based on observational data, it was found that most of the bond issuing companies did not guarantee their bonds with special assets. Investors tend to buy bonds because they look at the company's reputation, not what is guaranteed or not guaranteed by the company.

4. The Effect of Company Size on Bond Ratings

The test results using statistics using logistic regression show that the ratio of company size proxied by Size has no significant effect on a company's bond rating. The results of logistic regression testing show that firm size in the Variable The Equation table has a coefficient value of -0.004, a significant level of 0.293, and a Wald statistic of 1.105. With a significant value greater than 0.05, Size has no effect on bond ratings, and the results of this study are not relevant to the results of research conducted by Aries Veronica (2015) that company size has a significant effect on bond ratings. This is because the larger the company, the more it will be known by the public. so that there will be more and more information about the company that can be received by investors.

Saiful Arafah's research (Arafah, 2019) found that company size has no significant effect on determining bond ratings. The reason for rejecting H4 is that company size is not taken into account in determining corporate bond ratings. This may be because to see bond ratings in terms of company size, it is better to look at the terms of its obligations or pay off its obligations, so that no matter how large the total assets of a company are, it will not affect the prediction of bond ratings. Investors tend to buy bonds not in terms of company size but based on the company's reputation.

5. Effect of Debt to Assets Ratio, Bond Age, Guarantee, and Company Size on Bond Ratings

The simultaneous test results (table 2) produce a chi square value of 10.974 with sig $0.027 < 0.05$, which means that H5 is accepted. This shows that there is a significant probability of influence between debt to assets ratio, bond age, collateral, and company size on bond ratings.

V. CONCLUSION

Based on the results of testing the data using logistic regression analysis, the conclusions of this study are:

- 1) The debt-to-assets ratio has no significant effect on the probability of bond ratings because investors tend to buy bonds because they see the company's reputation, not the debt-to-assets ratio obtained by the company.
- 2) The maturity has no significant effect on the probability of bond ratings because investors tend to buy bonds with ages under 3 years because companies with bonds aged under 3 years are able to pay off their obligations to pay the loan principal at maturity.
- 3) Guarantees have no significant effect on the probability of bond ratings because investors tend to buy bonds because they look at the company's reputation, not whether it is guaranteed or not.
- 4) Company size has no significant effect on the probability of bond ratings because investors tend to buy bonds not in terms of company size but based on the company's reputation.
- 5) The debt-to-income ratio, maturity, guarantee, and company size affect the probability of bond ratings.

REFERENCES

- Ma' arij, A, Analysis of accounting and non-accounting factors affecting prediction of bond ratings on non-financial firms listed on the Stock Exchange and rated by PEFINDO period 2009-2013, JOM 1 (2), 1– 13.
- Andhani, D. (2019). Pengaruh Debt To Total Asset Ratio (DAR) dan Debt To Equity Ratio (DER) Terhadap Net Profit Margin (NPM) Serta dampaknya terhadap Harga Saham pada Perusahaan Elektronik di Bursa Efek Tokyo tahun 2007-2016, Jurnal Sekuritas, 3 (1), 45– 64, 2014.
- Andry, W. Analisis faktor-faktor yang mempengaruhi prediksi peringkat obligasi, Ekoonomi Moneter Buletin dan Perbankan 243– 262, 2005.
- Arafah, S. Analisis faktor-faktor yang mempengaruhi peringkat obligasi pada faktor yang mempengaruhi peringkat obligasi pada perusahaan properti real estate dan kontruksi yang tercatat di PT Pefindo tahun 2013-2017. Simba, 1000– 1013, 2019.
- Barus, A. C., & Tarihoran, A. Peran Profitabilitas dalam Memoderasi Pengaruh Predictor Peringkat Obligasi, Riset dan Jurnal Akuntansi, 4 (2), 379-386, 2020
- Pandutama, A, Faktor-Faktor Yang Mempengaruhi Prediksi Peringkat Obligasi Pada Perusahaan Manufaktur di BEI, Mahasiswa Akuntansi, 82-87, 2012.
- Rachmawati, Sistya. Pengaruh Faktor Internal dan Eksternal Perusahaan terhadap Audit Delay dan Timeliness, Jurnal Akuntansi dan Keuangan, 10 (1), 1-10, 2008.