

Determinants of Banking Bond Yields on the Indonesia Stock Exchange

Giriati , Hansen Tandra

Economic and Business Faculty University of TanjungpuraPontianak,West Kalimantan

ABSTRACT

This study purpose to find the factors that influence bond yield. Because the yield of the bond can reflect the performance of a bond that will be useful as information in decision making by investors. The data used in this research is the bond data of banking sector companies listed on the Indonesia Stock Exchange in 2012-2016. The research variables used are the ratio of liquidity (Current Ratio), firm size (Ln Total Asset), BI-Rate, and yield of the bond (Yield to Maturity). The analysis technique in this research is panel data regression using Eviews 9. The result of research shows that the Fixed Effect Model used for the interpretation of the research with the details of the effect of each of the following variables: (1) The current ratio has negative effect significant, (2) Company size (Ln Total Asset) has significant negative effect, (3) BI-Rate has significant positive effect.

Keywords: Bond yield, Liquidity Ratio, Company Size, BI-Rate, Panel data regression

1. Introduction

Bond yield is a measure of bond income that investors will receive based on interest rates and tend to be non-permanent (Tandelilin, 2010). Investors must consider the risks contained in a bond will affect the yield level obtained so that it is necessary to know the factors that are determinants of bond yields. According to Paisarn (2012), there are factors that can influence bond yields, namely external factors, internal factors of the company, and characteristics of bonds. Basically, economic conditions affect market conditions, so in turn market conditions will affect investors, making it difficult for investors to get investment returns that are reversed by market trends (Husnan, 2009). Securities gains are related to the risk that high profits will coexist with high risk. One type of bond that has a high risk is corporate bonds. The following statement is supported by the statistical data of one index that measures the total return of bonds in Indonesia, namely the Indonesian Bond Index (INDOBex). The following are the performance returns of the types of bonds below:

Table 1.1
Indonesian Bond Index (INDOBex) Total Return

Period	INDOBex Total Return		
	Composite	Government	Corporate
2014	175.8939	174.6143	178.8612
2015	183.2792	180.3796	196.5327
2016	208.4493	205.5032	221.2946

Sumber : Indonesia Stock Exchange 2017

Based on Table 1.1, it is seen that corporate bonds have a higher rate of return compared to government bonds in the last 3 years. Corporate bonds can produce high returns due to a faster time period and the sensitivity level of corporate bonds tends to be

stable compared to government bonds. Based on the classification of the industrial sector in corporate bonds, banking is the highest number of sectors in issuing bonds, even increasing from year to year. The statement comes from the table below:

Table 1.2
Corporate Bond Classification Table

Sector	Number of Issuers	Value Market (Billion)
Banking	108	119,254.31
Infrastructure	28	14,697.07
Financing	88	54,500.24
Telecommunication	38	24,418.65
Other firms	85	59,363.15

Based on Table 1.2, it can be seen that the banking sector has the largest number of publishers, namely 108 issuing companies, then the non-bank financial sector is ranked second with 88 publishing companies. In other sector columns, it consists of various sectors so that they are not specifically classified into the type of sector of the company operating. Other sectors have an amount of 85 issuing companies. From the following data, it is known that the banking sector corporate bonds are the sectors that have the highest bid price in the bond market. Based on the problems and references of previous research, researchers are interested in knowing how much influence from internal factors of the company and external factors of the company on bond yields. Therefore, the researcher intends to conduct research on the determinants of yield of banking corporate bonds listed on the Indonesian stock exchange for the period 2012-2016).

2. Research Methodology

2.1 Explanation Research

Based on the type of expansion, this research is classified as associative research. According Sugiyono (2016) Associative research is research that aims to determine the influence or also the relationship between two or more variables.

2.2 Research Variables

According to Sugiyono (2016: 38), the research variable is everything that is shaped and applied by the researcher to be studied so that information is obtained about it, then the conclusions are drawn. In this study, there are 2 kinds of research variables including:

1. Independent Variables

Another name for the dependent variable is the independent variable. This variable is a variable that influences or causes changes or the emergence of a dependent variable. In this study the independent variables are liquidity, company size, and BI-Rate

2. Dependent Variables

Another name for this variable is the dependent variable. This variable is a variable that is affected or that results from an independent variable. In this study the dependent variable is bond yield.

2.3 Population and Sample

Population is a combination of all elements in the form of events, things, or people who have similar characteristics that are the center of attention of the researcher, therefore are seen as a universe of research (Reza, 2010). The population used in this study are banking sector companies listed on the Indonesia Stock Exchange in 2012-2016 which trade bonds. While the meaning of the Sample is a subset of the population, consisting of several members of the population (Ferdinand, 2006). The sampling technique in this study uses a purposive sampling technique that is sampling which aims to take samples from the population based on certain criteria. The sample criteria in this study are as follows:

1. A conventional banking sector company that issues bonds and trades during 2012-2016 and is listed on the Indonesia Stock Exchange
2. Bonds that are still in circulation or not yet due from 2012-2016
3. Bonds that have complete data, namely prices, coupons, nominal, and maturity of bonds.
4. Banking bonds registered in the Bond Rating issued by PT. PEFINDO.

In accordance with the criteria to be examined, the following research samples obtained 17 bond issuing companies from PT. Indonesia Stock Exchange from 2012 to 2016. The total observations in this study were 85 observations

2.4 Selection of Panel Data Processing Models

1. Chow Test

Chow test is used to select one model in panel data regression, which is between the fixed coefficient model (CEM) or fixed effect model (FEM). The model selection hypothesis is as follows:

H0: PLS model

H1: FEM model

The basis for rejecting the null hypothesis uses the consideration of the chi-square test statistic. Determination of the Chow Test results can be done as follows: if the probability of the Chow test is less than the signification level ($\alpha = 5\%$) then the null hypothesis is rejected and the FEM model is used.

2. Hausman Test

Hausman test is used to select one model in panel data regression, which is between the random effect model (REM) or fixed effect model (FEM). The model selection hypothesis is as follows:

H0: REM model

H1: FEM model

The basis for rejecting the null hypothesis uses the consideration of the chi-square test statistic. Determination of the Hausmann test results can be done as follows: if the probability of the Hausmann test is less than the signification level ($\alpha = 5\%$) then the null hypothesis is rejected and the FEM model is used.

3. Langrange Multiplier Test

This test is done by choosing the REM and PLS methods. The model selection hypothesis is as follows:

H0: PLS model

H1: REM model

The basis for rejecting the null hypothesis uses the consideration of the chi-square test statistic. Determination of LM test results can be done as follows: if the probability of the LM test is less than the signification level ($\alpha = 5\%$) then the null hypothesis is rejected and the REM model is used.

4. Research Results

4.1 Panel Data Regression Analysis

Regression analysis on panel data uses 3 estimation models namely Common Effect Model, Fixed Effect Model, and Random Effect Model. The model will then be tested again to determine the best model equation using the Chow Test, LM-Test, and Hausmann Test. Following are the results of the regression analysis of the panel data model attached:

a. Common Effect Model

Dependent Variable: YIELD

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.00198	2.515002	6.362613	0.0000
CR	-1.326799	1.437166	-0.923206	0.3586
SIZE	-0.395929	0.399395	-0.991321	0.3245
RATE	0.353054	0.970147	0.363918	0.7169
R-squared	0.085672	Mean dependent var		10.29446
Adjusted R-squared	0.051808	S.D. dependent var		1.102676
S.E. of regression	1.073733	Akaike info criterion		3.026075
Sum squared resid	93.38509	Schwarz criterion		3.141023
Log likelihood	-124.6082	Hannan-Quinn criter.		3.072311
F-statistic	2.529879	Durbin-Watson stat		0.939003
Prob(F-statistic)	0.062953			

b. Random Effect Model

Dependent Variable: YIELD?

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.57256	2.350512	5.348860	0.0000
CR	-0.554396	1.028278	-0.539150	0.5913
SIZE	-1.781761	0.345892	-5.151203	0.0000
RATE	3.923459	0.810067	4.843373	0.0000
			S.D.	Rho
Cross-section random			0.539917	0.3846
Idiosyncratic random			0.682918	0.6154

Weighted Statistics

R-squared	0.192599	Mean dependent var	5.068472
Adjusted R-squared	0.162696	S.D. dependent var	0.880941
S.E. of regression	0.806099	Sum squared resid	52.63344
F-statistic	6.440648	Durbin-Watson stat	1.091676
Prob(F-statistic)	0.000576		

Unweighted Statistics

R-squared	-0.076242	Mean dependent var	10.29446
Sum squared resid	109.9222	Durbin-Watson stat	0.522721

c. Fixed Effect Model

Dependent Variable: YIELD?

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.263017	7.013688	1.320706	0.1912
CR	0.152508	1.234571	0.123531	0.9021
SIZE	-2.772972	0.639754	-4.334437	0.0001
RATE	6.568899	0.953600	6.888525	0.0000

Cross-section fixed (dummy variables)

R-squared	0.703193	Mean dependent var	10.29446
Adjusted R-squared	0.616434	S.D. dependent var	1.102676
S.E. of regression	0.682918	Akaike info criterion	2.277439
Sum squared resid	30.31446	Schwarz criterion	2.852180
Log likelihood	-76.79115	Hannan-Quinn criter.	2.508616
F-statistic	8.105126	Durbin-Watson stat	1.757354
Prob(F-statistic)	0.000000		

4.2 Model selection

From the three regression analysis results above, the model will be tested to determine the best model of the three selected as part of dividend policy determinants and obtained the following results:

- a. Chow Test (Common Effect Model vs. Fixed Effect)

Redundant Fixed Effects Tests

Effects Test	Statistic	d.f.	Prob.
Cross-section F	8.452218	(16,65)	0.0000
Cross-section Chi-square	95.634080	16	0.0000

Chow test is done to determine the regression model by comparing the common effects and fixed effects seen through the Chi-Square probability both. Based on Chow testtable, the results of the chow test show the fixed effect model.

- b. Hausmann Test (Fixed Effect Model vs Random Effect Model)

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	34.856167	3	0.0000

Hausmann test used to determine the regression model by comparing fixed effects and random effects that are seen through the probability of Chi-Square both. Based on Hausmann testtable, the results of the hausmann test show that the probability of Chi-Square is 0.0000. Because the Chi-Square probability value is below 0.05, the fixed effect model is selected.

4.3 Testing in the Model

Based on the results of the model selection, the model used to examine the effect of each independent variable on the dependent variable is Fixed Effect Model. The basis for decision making in the t test if the significance level 5% then H₀ is accepted and H_a for rejected.

Fixed Effect Model Table

Dependent Variable: YIELD?

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.263017	7.013688	1.320706	0.1912
CR?	0.152508	1.234571	0.123531	0.9021
SIZE?	-2.772972	0.639754	-4.334437	0.0001
RATE?	6.568899	0.953600	6.888525	0.0000
Cross-section fixed (dummy variables)				
R-squared	0.703193	Mean dependent var	10.29446	
Adjusted R-squared	0.616434	S.D. dependent var	1.102676	
S.E. of regression	0.682918	Akaike info criterion	2.277439	
Sum squared resid	30.31446	Schwarz criterion	2.852180	
Log likelihood	-76.79115	Hannan-Quinn criter.	2.508616	
F-statistic	8.105126	Durbin-Watson stat	1.757354	
Prob(F-statistic)	0.000000			

4.4 Discussion**4.4.1 The Effect of Liquidity on Bond Yields**

Based on the results of statistical tests, it shows that liquidity has a negative effect on bond yields. This is seen from the regression coefficient value in the Current_Ratio t-test of 0.152508 with a significant 0.9021. Thus, if the liquidity value increases, the bond yield will increase and it states that the first hypothesis (Ha1) of the researcher is rejected. This states that the effect of liquidity on bond yields is not relevant. The liquidity variable does not affect the bond yield due to the low level of the company's average liquidity used for the sample, which ranges from 0.855516 (minimum) to 1.320686 (maximum). In general, the level of liquidity ratio that is considered good is 2: 1 (Fahmi, 2015). So that the level of liquidity that is still below 2 is still considered unable to influence bond yields. The company's liquidity also tends to pay off short-term debt, while the sample used is bonds with maturities of more than five years.

4.4.2 The Effect of Company Size on Bond Yields

Based on the results of statistical tests, it shows that liquidity has a negative effect on bond yields. This is seen from the regression coefficient value in the t-test Size of -2.772972 with a significant 0.001. Thus, if the liquidity value increases, the bond yield will decrease and it states that the first hypothesis (Ha2) of the researcher is accepted. This states that the effect of firm size negatively affects bond yields. The size of the company shows the size of the company's ability as measured by total assets that can be an assessment for outsiders in providing loans. Companies that enter the scope of the capital market will include one of the information in the financial statements, one of which is total assets. The greater the total assets owned, the greater the company or vice versa. However, based on the risk-return theory, the trade off states that the higher the rate of return of a high security will be accompanied by the same risk of height. Therefore, the larger a company, the smaller the level of risk because its assets can guarantee the sustainability of a company and this will affect the rate of return on securities held in the capital market, one of which is a lower

bond. Companies that tend to have low assets will have high risks and are accompanied by high returns. The size of the company can still be used as a reference for investors but its nature and influence are opposite.

4.4.3 The Effect of BI-Rate on Bond Yields

Based on the results of statistical tests, the BI Rate has a positive effect on bond yields. This is seen from the regression coefficient value in the BI_Rate t-test of 6,568899 with a significant 0,000. Thus, if the BI Rate increases, the bond yield will increase and it states that the first hypothesis (Ha3) of the researcher is accepted. The BI rate affects the amount of bond yields, this is because the bond yield depends on the interest rate, one of which is the BI Rate. If the BI Rate has increased, it will be responded to by the increase in yield by investors because the bond price tends to fall due to the increase in the BI interest rate, in other words if the BI rate increases then the yield required by investors will also increase. This can occur in investment products that have a greater risk and longer tenors will provide higher returns. The characteristics of these investment products are clearly owned by bonds. This is also in line with the APT theory which states that macro factors possess influence on securities products which in this study use the reference of bond yields.

5. Conclusions and Suggestions

5.1 Conclusion

Based on the test results from the analysis of yield determinants of bonds of banking corporations listed on the Indonesia Stock Exchange for the period 2012-2016), the conclusion is that this study found that the fixed effect is the chosen model to estimate the variables used as determinants of bond yields. As for the determinant variable, Liquidity does not affect the bond yield, while the Company Size and BI-Rate affect the bond yield.

5.2 Suggestions

Based on the discussion and conclusions presented above, the authors suggest:

1. Investors

If investors are interested in buying bonds of banking companies listed on the Indonesia Stock Exchange, it is better to consider factors such as the size of the company and the condition of the BI Rate that can affect the bond yield that will be received by investors.

2. Further Researchers

For further research, it is better to add other independent variables that are predicted to have an effect on bond yields and it is recommended to conduct other testing tools in addition to panel data regression and expand the object to be studied.

References :

- Bank Indonesia, (2016). *BI Rate dan BI 7 Days Repo Rate*. Access From <http://www.bi.go.id/id/moneter>
- Bursa Efek Indonesia, (2012). *Pengertian Obligasi*. Access from <http://www.idx.co.id/id/id/beranda/informasi/bagiinvestor/obligasi.aspx>
- Fauzani. W. (2017). *Analisis Faktor-Faktor Yang Mempengaruhi Yield Obligasi*. *Jurnal Ilmuan Riset Manajemen* Volume 6, Nomor 8, Agustus 2017

- Kasmir. (2012), *Analisis Laporan Keuangan*. Jakarta : PT. Raja GrafindoPersada.
- Fahmi, I. (2013). *Rahasia Saham dan Obligasi: Strategi Meraih Keuntungan Tak Terbatas Dalam Bermain Saham dan Obligasi*. Bandung: Alfabeta.
- _____ (2015). *PengantarManajemenKeuangan*. Jakarta :Alfabeta
- Indonesian Bond Pricing Agency*. (2016). *StatistikObligasiTahun 2016*. Jakarta: IBPA
- Jones, Charles P. (2000). *Investment Analysis and Management, Eventh Edition*.John Willey and Sons, Inc
- Keown, Arthur J. Et al. (2005). *Financial Management : Principles and Aplications10th Edition*, New Jersey, Pearson Prentice Hall.
- Manurung, A. H., &Tobing, W.R.I. (2010). *Obligasi, Harga Portofolio & Perdagangannya*. Jakarta : ABFI Institute Perbanas
- Undang-UndangNomor 21 Tahun 2011 tentangPengertianPasar Modal, access from <http://www.ojk.go.id/id/regulasi/otoritas-jasa-keuangan/undangundang/Pages/undang-undang-nomor-21-tahun-2011-tentang-otoritas-jasa-keuangan.aspx>
- Tandelilin, E. (2010). *PortofolioidanInvestasi, EdisiPertama*. Yogyakarta :Kanisius
- Vernianti. (2005). *PengaruhBungaPasarUangTerhadapNilaiObligasi (Tesis)*, UniversitasGadjahMada, Indonesia.
- Widarjono, A. (2015). *Ekonometrika :PengantardanAplikasinyadisertaiPanduanEviews*, Yogyakarta : UPP STIM YKPN
- Winarno, W. W. (2015). *AnalisisEkonometrikadanStatistikadenganEviewsEdisi 5*, Yogyakarta : UPP STIM YKPN