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COMPANY GROUP AFFILIATIONS AND CORPORATE BOND YIELD SPREAD: STUDY NON-FINANCIAL COMPANIES

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Abstract

This study examines the impact of corporate groups on corporate bond yield. The results of the study indicate whether related groups issue bonds with higher yield spreads than independent companies. In Indonesia, research is still limited to further analyse the impact ofcorporate groups, in particular, on bond yields. In this study, the study period was taken from non-financial services corporate bond issuances from 2013 to 2022, and a total of 328 series of conventional bonds from 48 non-financial services corporate and bank issuers were used.

Keywords: Corporate Bonds, Business Groups, Bond Yields, Yield Determinants, Bond Costs.

Introduction

Issuance of corporate bonds instruments on the Indonesia Stock Exchange in 2013 – 2022 have increased rapidly in Indonesia in the last 10 years (Rachmany & Tajudin, 2022). The increase in issuance of corporate bonds was partly due to the need for corporate funding from the capital market which is used by issuers to support issuer business activities such as investment, expansion and for refinancing (Tolliver et al., 2020).

Apart from increasing supply, high demand for debt securities by investors corporations also increased (Chiesa & Barua, 2019). Demand for corporate bonds is likely to come from the reinvestment motive for corporate bonds maturing in the current year, as well as potential additional demand from potential investor asset growth (Ni'mah et al., 2020). Thus, the total potential demand for corporate bonds can always meet the existing supply in the market (Liu et al., 2019). As December 2022, cite from the Financial Services Authority Statistics data, the financial services sector and banks are the most active issuers in public offerings of debt securities in Indonesia, followed by issuers from the infrastructure and basic industry sectors (Zhao et al., 2022).

The issuance of corporate bond instruments on the Indonesia Stock Exchange has been increasing rapidly in the past 10 years (Azhgaliyeva et al., 2020). This trend can be attributed, in part, to the need for corporate funding from the capital market,

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which companies can use to support various business activities such as investment, expansion, and refinancing (Ng & Tao, 2016). In addition to the increasing supply of corporate bonds, there has been a rise in demand from investors, including corporations (Graham et al., 2014). This demand is expected to come from the reinvestment motive for corporate bonds maturing in the current year, as well as potential additional demand from investors looking to grow their assets (Gagnon et al., 2018). As a result, the total potential demand for corporate bonds is likely to meet the existing supply in the market (Falato et al., 2021).

According to Financial Services Authority Statistics data as of December 2022, the financial services sector and banks are the most active issuers of public offerings of debt securities in Indonesia (Zhao et al., 2022). These are followed by issuers from the infrastructure and basic industry sectors. This suggests that a diverse range of industries is taking advantage of the opportunities presented by the capital market to access funding through corporate bond issuance (Bhutta et al., 2022).

Bond issuance will attract more investors if the range of coupons offered has a higher premium compared to other similar bonds that are also offered on the market at the same time. Determination of this coupon is the motivation for issuers to assess further, investors' appetite to buy bonds in accordance with the issuer's funding needs. Tenor and rating are the main determining characteristics in determining the range of coupons offered, apart from that external factors such as macroeconomic conditions and others also determine the range of coupons in the primary market (Rudiyanto & Rani Diana Balqis, 2022; Saed et al., 2021).

On the PT Pemeringkat Efek Indonesia (Pefindo) website, it is explained that the rating determined by Pefindo on the company and its instruments, not only analyses the assessment of the industry, business and financial risk profile which can affect the company's overall credit profile but also takes into account the capacity of the parent company or group. Controllers to support the company concerned, as well as the possibility of support based on the level of interest of the parent company or business group. Like companies that conduct initial public offerings (IPOs), companies are assessed not only in terms of financial prospects but also in terms of law, corporate governance and the track record of their business group if the issuer is in a company group (Cheng et al., 2022). Potential investors should pay special attention to their rights in the event of default. In addition to identifying the basic bond characteristics, investors should carefully review such as the legal identity of the bond issuer, source of sinking funds, guarantees and others. If the bonds are issued by a parent company that has few (or no) assets to pledge as collateral in the event of default, investors face a higher level of credit risk than if the bonds were issued by one of the operating companies within the group (Petitt & Brandt-Off, 2022), so that investors will ask for a higher premium for the bonds offered.

In research by Cheng et al. (2022) in China, it was found that business group companies that issue corporate bonds have higher yields compared to independent companies. Meanwhile, a study by Byun et al. (2013) in South Korea found that

companies affiliated with major Korean business groups (ie, chaebols) enjoyed much lower costs of public debt than independent companies.

Corporate groups are a unique feature of concentrated holdings in emerging markets like Indonesia. The presence of group companies in Indonesia has existed since the end of the 19th century. Oei Tiong Ham Concern was the first group company in Indonesia and the first in Southeast Asia (Post, 2021). Claessens (2006) investigated the costs and benefits of group membership using East Asian countries and reported that over 70% of his Indonesian firms were controlled by corporate groups. Business groups have contributed significantly to the Indonesian economy since the 1990s (Varkkey et al., 2018). In 2010, the total turnover of Indonesia's top 10 group companies reached 9.27% of Indonesia's GDP (Eryilmaz & Mercan, 2015).

This research will examine non-financial service issuers affiliated in business groups or corporate groups that can affect yields when issuing bonds on the primary market in Indonesia. The research period was taken from the issuance of bonds by non-financial services issuers from 2013 to 2022. This study contributes to the literature by highlighting the relationship between corporate groups and bond yields.

Litterateur review

Corporate Bonds

Bonds are securities issued in connection with a loan agreement. The borrower issues (that is, sells) bonds to the lender for a cash sum; the bond is the “agreement” of the borrower. The arrangement requires the issuer to make certain payments to the bondholders on a certain date. A typical coupon bond requires the issuer to make semi-annual payments of interest to bondholders over the life of the bond. Corporate bonds are usually issued at face value. This means that underwriters of bond issues (companies that market bonds publicly to issuing corporations) must choose a coupon rate that is close to market yields (Bodie et al., 2017).

Bond investors rely on a steady stream of interest income, and if the bond is held to maturity, the investor receives the face value of the bond back. Companies that issue bonds must be profitable to be able to pay their interest and principal. To offset this added credit risk and default risk, corporate bonds offer higher yields than government bonds (Farber et al., 2016).

A bond may be issued by a holding company that is the legal parent of a group of companies rather than one of the operating companies of the group. This is important for investors to consider as holding companies may be valued differently than operating companies and investors may not have recourse to the assets held by these companies. If a bond is issued by a parent company with few (or no) assets requiring default, investors are exposed to greater credit risk than if the bond was issued by one of the operating companies within the group (Pettit et al., 2015).

Group Companies

The existence of group companies in Indonesia has existed since the end of the

19th century. Oei Tiong Ham Concern is the first group company in Indonesia, even the first in Southeast Asia. Group companies in Indonesia, such as Oei Tiong Ham Concern, started from a trading business or trading company, just like the Astra Group which also started from a trading business. Group companies are the preferred form of business-by-business actors in Indonesia. The formation and growth of group companies cannot be separated from business reality, when business management into a group company is considered to provide more economic benefits compared to a single company (Sulistiowati et al., 2013).

The absence of juridical recognition of the legal entity status of group companies has resulted in laws and regulations that do not regulate the construction of group companies. In contrast, laws and regulations still use the single company approach from companies that are constituents of group companies, so laws and regulations still maintain formal juridical recognition of the legal entity status of the parent and subsidiary companies. The involvement of the parent and subsidiary companies in the construction of group companies does not abolish the juridical independence of the status of legal entities of the parent and subsidiary companies, even though the subsidiary companies are subject to the control of the parent company (Sulistiowati et al., 2013).

When compared to company law, group company law deals with specific symptoms of the arrangement of companies which are juridically independent in a close arrangement one to another, so that from an economic point of view they are seen as a unit under a central leadership. A group company is an economic entity composed of independent legal entity companies which are seen as parent and subsidiary companies (Sulistiowati et al., 2013).

Based on internal capital market theory, business groups can overcome market frictions and provide economic benefits to its affiliates (Yeh et al., 2020). There are many ways affiliates of a corporate group can benefit from group membership. This includes funding benefits, diversification risks, and information sharing. In terms of funding advantages, corporate groups create value by enabling subsidiaries to redistribute capital among their member companies (J. He et al., 2013). Establishing an internal capital market) to become one of the most profitable companies within the group. you can find a use for it. Associated companies with good investment opportunities have better access to investment capital and are less constrained by liquidity than independent companies (Almeida et al., 2015).

Bondholders demand lower yields on bonds issued by group companies for financial gain. When the bonds are issued, the affiliate receives the face value of the bond fund and is obliged to repay the principal and interest when due. Major shareholders control the use and allocation of bonds fund within the corporate group. They tend to transfer funds to themselves and other companies associated with corporate groups with higher cash flow rights. Tunnelling effects exacerbate representation conflicts between controlling shareholders and bondholders, leading to higher borrowing costs (Cheng et al., 2022).

From previous research, Cheng et al. (2022) examine the impact of corporate groups on corporate bond costs. A study using a sample of private corporate bonds issued in China between 2007 and 2019 showed that companies associated with corporate groups issued bonds with higher yield spreads than independent companies. It has been. In contrast to Cheng, Byun's (2013) previous study of the impact of corporate groups on bond costs, it provides evidence for the relationship between group membership and bond returns in South Korea from his 2001 to his 2007 offers. The main analysis focuses on yield differentials in the market for new bond issuances, and as a result, companies belonging to large Korean corporate groups (chaebol) have much less influence than independent companies. The different results may be due to the different ownership structures of business groups in China and South Korea. Pyramid vs Mutual Engagement (Cheng et al., 2022). Several other studies, including those in Indonesia, have also investigated the positive impact of ownership structure, BOD links, and shareholders on borrowing costs (Boubakri & Ghouma, 2010; Joni et al., 2020).

Data description

This research is quantitative with a focus on processing publication data from both conventional corporate bond issuers. The research aims to see whether business groups can affect bond yields.

The methods used are cross-sectional studies. The data collection is carried out based on references from journals or previous research related to corporate bond yields. Based on references, the data needed for research is included in the secondary data category. Secondary data is downloaded from the website of the official institution that publishes the data. Sources of data acquisition include OJK, KSEI, IDX, PHEI, Bloomberg, and issuer websites.

The corporate bonds in this study limited to conventional bonds, th/.e sample includes corporate bonds issued by state-owned and private companies listed on the IDX website from 2013 to 2022 that meet the following inclusion criteria:

1. bond issuers are non-financial companies and banks,
2. no value is lost in the bond-specific information and the bond issuer's financial information, and
3. Information on business group affiliated bond issuers is same during the entire sample period (2013–2022).
4. Companies with a minimum rating of BBB.
5. Companies with positive equities.

The dependent variable is the yield spread, which is the difference between the yield on corporate bonds at the time of issuance and the yield on government bonds with similar maturities. Bond yield differentials calculate this risk as the premium that bond issuers pay bondholders to raise funds from the corporate bond market (Cheng et al., 2022; Wang et al., 2020).

The independent variable in this study is business group or business group. It is an indicator of business group membership by identifying the companies associated

with the business group if the controlling shareholder controls more than one company listed that year. The group variable equals 1 if the entity belongs to a group and 0 otherwise. In line with the literature (Cheng et al., 2022; De Faccio Carvalho et al., 2021; H. He et al., 2013).

Control variables include the size of the bond issuance (issue nominal), bond maturity (or tenor or series), and bond ratings (rating). Additionally following the literature, firm size (size) (Byun et al., 2013; Cheng et al., 2022). Financial leverage (Lev), return on assets (ROA), and bond indicator variables with a rating equal to 1 if the rating is higher than A+ and 0 otherwise (rating) (Cheng et al., 2022), for tenors of bonds are limited to BBB only.

In line with Cheng et al., (2022) year and industry indicators were also added to the regression model to further control for potential differences in bond issuance over time and across industries.

Methodology

This study uses to test the hypothesis. Based on previous research (Byun et al., 2013; Chang et al., 2020, Faccio et al., 2021), using Model (1) to test H0 / H1, is the yield of corporate bonds issued by group affiliated companies significantly effected? Low/high compared to those issued by independent companies. Inside Eq. Yield spread is the dependent variable, and business group is the key variable that identifies the influence of the dependent variable. Here is the equation to test the hypothesis:

$$\text{Bond Yield } t+1 = \alpha + \beta 1\text{Group}it + \sum \beta 2\text{Control}t + \varepsilon$$

The dependent variable is the adjusted credit spread (bond yield it) in year t. t is used to maintain data availability. The independent variable is the business group in year t. To test the hypothesis about the role of corporate groups in credit distribution, the coefficient between corporate groups and bond yields +1 is examined.

Control is a control variable that can affect bond yields in year t, including the bond period (tenor); size of bond issuance (nominal); company size; and company characteristics including total company (size), total debt to equities (Lev), return on assets (ROA).

First to analyse using descriptive statistics to describe only the data collected and are used to analyse the data without drawing conclusions (Rahayuningsih & Ghozali, 2021). Descriptive statistics provide a summary description of study data, including data minimum, maximum, mean, and standard deviation. Descriptive analysis in this research using the Stata 17 application.

In this study, the effect of company group, nominal, tenor, assets, ROA and leverage on corporate bond yields will be tested using multiple linear regression analysis. The stages in the multiple regression analysis include the classical assumption test stage and the regression model test stage.

Empirical Results and Analysis

Table 1
Descriptive statistics

	Spread	Nominal (IDR million)	Tenure (year)	Aset (Rp Billion)	ROA (%)	DER (x)
Mean	2.528598	531630.3	5.167683	221396.4	5.488735	1.477927
Std Dev	1.506136	532776.5	2.440595	484728.5	13.77705	1.28359
Max	6.46	3364000	10	198000	88.88	.36
Min	-.45	1000	1	1639844	-7.02	7.42
Variance	2.268445	2.84e+11	5.956506	2.35e+11	189.8072	1.647602
Skewness	.3266604	1.935275	.5443242	2.568138	5.401791	2.749533
Kurtosis	2.180239	7.718732	2.691481	7.663469	32.96529	12.42426
Observations	328	328	328	328	328	328

Descriptive statistical analysis on the variables in this study from table above can be explained as follows:

1. The yield spread measured in this study period has a minimum value of -0.45, which means that the bond yield is lower than the government bond yield and a maximum of 6.46 or 646 bps is greater than the government bond benchmark.
2. The nominal value of the bonds has a minimum value of IDR 1,000 million and a maximum value of IDR 3,364,000 million and the average issuance during the study period is 531,630.
3. The measured tenor is 1 to 10 years, where the average bond issuance tenor during the study period is 5 years.
4. The total assets of companies issuing bonds have a minimum value of IDR 198 million and a maximum value of IDR 1,639,844 million and the average total assets of companies is IDR 221,396 million.
5. The company's profitability as measured by ROA has a minimum value of -7.02% and a maximum of 88.08% with an average company ROA of 5.48%.
6. The capital structure is measured using DER which has a minimum value of 0.36x, meaning that the company has less debt than its capital (equity) and a maximum of 7.42x, which means that the company has 7.42 times more debt than equity.

After that we do the multivariate data analysis, in this study data analysis was performed by processing data with the Stata 17 program using cross section methods.

Classical Assumption Test

The normality test in multiple linear data regression can be done by looking at the probability value of the normality test results of Shapiro Wilk. In this test, if the probability value obtained is > 0.05, it can be concluded that the regression residuals are normally distributed so that the normality assumption is fulfilled, whereas if the probability value obtained is <0.05, it can be concluded that the regression residuals are not normally distributed.

Table 2
Shapiro Wilk W test for normal data

Variables	Obs	w	v	z	Prob>z
res	327	0,99277	1,663	1,199	0,11533

Based on table above, the probability value of the normality test results for Shapiro Wilk is 0.11533 > 0.05 which indicates that the residual regression data is normally distributed.

Multicollinearity Test

The multicollinearity test is carried out by looking at the correlation value between the independent variables. In this test, all independent variables are declared not experiencing multicollinearity if the VIF value of all variables is < 10.

Table 3
Results of the Correlation

Variables	VIF	1/VIF
Asset	1,40	0,714221
Group	1,29	0,774009
Rating	1,22	0,820641
Tenor	1,21	0,826333
Nominal	1,13	0,883150
DER	1,06	0,944510
ROA	1,02	0,978155
Mean VIF	1,19	

Based on the results of the correlation test between independent variables in the table above, the VIF value of all variables is <10, which means that there is no multicollinearity in the regression model.

Heteroscedasticity Test

The linear regression test must have homoscedasticity properties or be free from heteroscedasticity symptoms. The heteroscedasticity test can be carried out using the Breusch- Pagan method. In this test, the model is declared to contain heteroscedasticity if the Chi Square probability is <0.05, whereas if the Chi Square probability is > 0.05, it is stated that the model does not contain heteroscedasticity.

Table 4
Results of the Heteroscedasticity

. **hettest**
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity Ho: Constant variance
Variables: fitted values of Yield
Chi2(1) = 0.01

Prob > chi2	= 0.9396

Based on the results of the heteroscedasticity test in table above, it can be seen that the chi square probability value obtained is 0.9396 > 0.05, this means that there is no heteroscedasticity in the regression model.

Regression Models

Table 5
Difference Test

T test Y, by (x1)
Two sample t test with equal variances

Group	Obs.	Mean	Std. Err	Std Dev	[95% Conf.	Interval]
Grup	263	118.8631	4.199456	68.10373	110.5941	127.1321
Independen	65	127.7692	7.979233	64.33063	111.8289	143.7096
Combined	328	120.628	3.719911	67.37046	113.3101	143.7096
Diff		-8.906113	9.333215		-27.26704	9.454818

Diff = mean (grup) – (independen)		t = -0.9542
Ho: diff = 0		degrees of freedom = 326
Ha: diff < 0	Ha: diff ! = 0	Ha: diff > 0
Pr (T < t) = 0.1703	Pr (|T| > |t|) = 0.3407	Pr (T > t) = 0.8297

The results of the different test in table above show that group companies have higher bond yields than group companies.

Partial Effect Test (t test)

In multiple linear data regression analysis, the t test is used to test the effect of the independent variables partially on the dependent variable. With a significant level of 0.05, the independent variables are declared to have a significant effect on bond yields if the probability value is <0.05 and the independent variables are considered to have no effect on bond yields if the probability value is > 0.05.

Table 6
Multiple Linear Data Regression

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Group	-18.3509	12.6069	-1.4600	0.1460	-43.1541	6.4522
Tenure	-6.1191	2.5742	-2.3800	0.0180	-11.1836	-1.0546
Rating	-7.3426	7.7048	-0.9500	0.3410	-22.5012	7.8161
Nominal	-25.8424	8.2187	-3.1400	0.0020	-42.0122	-9.6726
Asset	-13.7689	2.5707	-5.3600	0.0000	-18.8265	-8.7113
ROA	0.0026	0.0006	4.3400	0.0000	0.0014	0.0038
DER	-19.1354	5.0325	-3.8000	0.0000	-29.0364	-9.2344

Based on the results of the t test in the table above, the following results are obtained:
Company Group on bond yields

The company group has no effect on bond yields as indicated by probability = 0.146 > 0.05, this means that the high or low of the company group has no significant effect on the high or low bond yields.

Tenor of bond yields

The tenor has a negative effect on bond yields as shown by probability = 0.018 <0.05 and a negative regression coefficient of -6.119072, meaning that the higher/longer the tenor, the higher the bond yield, and vice versa the lower the tenor, the lower the bond yield.

Rating on bond yields

The rating has no effect on bond yields as shown by probability = 0.341 > 0.05, this means that the high or low rating has no significant effect on the high or low bond yields.

Nominal to bond yields

Nominal has a negative effect on bond yields as shown by probability = 0.002 <0.05 and a negative regression coefficient of 25.8424, meaning that the higher the nominal, the higher the bond yield, and vice versa, the lower the nominal, the lower the bond yield.

Assets to bond yields

Assets have a negative effect on bond yields as shown by probability = 0.000 <0.05 and a negative regression coefficient of -13.76886, meaning that the higher the assets, the higher the bond yields, and vice versa the lower the assets, the lower the bond yields.

ROA on bond yields

ROA has a positive effect on bond yields as shown by probability = 0.000 <0.05 and a positive regression coefficient of 0.003597, meaning that the higher the ROA, the lower the bond yields, and vice versa, the lower the ROA, the higher the bond yields.

DER on bond yields

DER has a negative effect on bond yields as shown by probability = 0.000 <0.05 and a negative regression coefficient of -19.13544, meaning that the higher the DER, the higher the bond yield, and vice versa the lower the DER, the lower the bond yield.

Based on the results of the analysis in the table above, the regression equation is obtained as follows:

Y = 383,1591 – 18,35092 (X1) – 6,119071 (X2) – 7,342573 (X3) – 25,8424 (X4) – 13,76886 (X5) + 0,002597 (X6) – 19,13544 (X7)

With:

Y = bond yield
X1 =company group
X2 = tenors
X3 = ratings

X4 = nominal
X5 = assets
X6 = ROA
X7 = DER

Simultaneous Test

The simultaneous test in the regression analysis is used to test the simultaneous effect of the independent variables on the dependent variable. In the simultaneous test regression model, it can be seen from the calculated F value and the p value of the F test results. If the probability value of the F test <0.05, it can be concluded that all independent variables simultaneously have a significant effect on bond yields, whereas if the F test probability value is > 0, 05 it is concluded that all independent variables simultaneously have no significant effect on bond yields.

Table 7
The Results of The F Test

Source	SS	df	MS	Number of obs = 327
Model	330782.198	7	47254.5997	F (7,319) = 13,23
Residual	1139343.66	319	3571.6102	Prob > F = 0,0000
Total	1470125.85	326	4509.58851	R Squared = 0,2250
				Adj R Squared = 0.2080
				Root MSE = 59,763

The results of the F test in table show a probability value of 0.0000, because the probability value is <0.05, it is concluded that all independent variables simultaneously affect bond yields.

Coefficient of Determination

The coefficient of determination in multiple linear regression analysis shows the magnitude of the simultaneous influence of the independent variables on the dependent variable. The value of the coefficient of determination in the estimation results of the regression model can be seen from the adjusted R Square value.

Based on the adjusted R square model value of 0.2080, which means that the contribution is 20.80%, the remaining 79.20% yield on corporate bonds is influenced by other factors outside of all these factors.

Conclusion

This study examines the effect of business groups on corporate bond costs. Even though the t test result shows group company has no significant effect with the yield spread but number of corporate bonds issued by Indonesia firms from 2013 to 2022, show that business group- affiliated firms issue bonds at higher yield spreads than independent firms. These results in line with Cheng et al. (2022) who find that corporate

bonds issued by Chinese privately owned firms from 2007 to 2019, that affiliated with business group issue bonds at higher yield spreads than independent and contrast to Byun et al. (2013) who find that firms affiliated with major Korean business groups enjoy substantially lower public debt costs than independent firms.

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