The role of financial factors and non-financial factors on corporate bond and sukuk rating Indonesia

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Abstract

Purpose – This study aims to analyze the determinants of ratings of corporate bonds and sukuk issued by firms listed on the Indonesia Stock Exchange (IDX) for the 2013–2019 period.

Design/methodology/approach – This study uses a quantitative approach by testing hypotheses and using logistic regression. Ordinal logistic endogenous (or dependent) variables (Y) in ordinal logistics use data in the form of levels (ordinal scale). Independent (or exogenous) variables (X), include financial and non-financial factors for dependent (or endogenous) variables (Y), namely, of corporate bonds and sukuk ratings. There are two approaches to the study they are Logit and Gompit (Negative Log-Log. The population of the study is Indonesian companies listed on the IDX that issued bonds and sukuk for the 2013–2019 periods. The sampling technique is purposive. In total, 16 corporate companies adhering to the above criteria and issuing bonds and sukuk were chosen. In total, 270 types of bonds and 280 types of sukuk were selected as samples.

Findings – The results of the Logit and Gompit regression show that leverage ratio, firm size, security structure and maturity date are important determinants of corporate bond ratings while profitability and liquidity ratios appear to have no influence on the rating. In the case of sukuk, profitability, liquidity and maturity date play important roles in influencing the corporate sukuk rating. However, there is no evidence to suggest that leverage ratio, company size and security structure may affect sukuk ratings.

Research limitations/implications – For both sukuk and bond issuers, it is necessary to pay attention to the factors that may affect the ratings. Specifically, Sukuk issuers need to pay attention to the return of asset, current ratio, growth and structure. On the other hand, bond issuers need to consider depth to equity, structure and maturity. As for investors, the findings of this study reveal that both bond and sukuk ratings reflect their performance.

Practical implications – This study provides useful information for investors that allows them to assess the risk of sukuk or bonds chosen based on rating and financial performance.

Originality/value – The novelty of this study lies in its econometric methodology used to identify factors which influence sukuk and bond ratings. Specifically, this study used two different techniques that allow a robust conclusion to be drawn. Furthermore, this study provides a systematic analysis which allows comparison between factors which affect bond and sukuk ratings in Indonesia.

Keywords Corporate bond, Corporate sukuk, Rating determinant, Indonesia

Paper type Research paper

1. Introduction

1.1 Background

Activities in the capital market have recently become a very important issue. Capital markets are those that work operate in an organized manner to bring together deficits and

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units of surplus. The capital market has a key role for companies to obtain additional capital for business expansion. As for the government, the capital market also plays an important role in raising funds to meet budget deficit. Sukuk are debt instruments traded in the Islamic capital market which all operational activities and methods are based on Sharia principles and free from *riba*, *maysir*, *gharar* and *bathil* (Qizam *et al.*, 2020). Sukuk serves as a vital tool for mobilizing financial resources and as an important instrument for Islamic financial market development.

A considerable body of research has been conducted in exploring the comparisons between Sukuk and conventional bonds have been undertaken by several scholar. Alam *et al.* (2013) report, for example, the impact of conventional bonds and the sukuk announcement on shareholder wealth and its determinants using 79 sukuk and 87 conventional bonds over the period 2004–2012 in six developed Islamic financial markets. The whole time frame is split into three parts: 2004–2006 (before to the crisis), 2007–2009 (during the crisis), and 2010–2012. (after the crisis). It has been found that market reaction to Sukuk announcements prior to and during the 2007 global financial crisis was negative. The market reaction to the publication of a conventional bond, on the other hand, is positive before the crisis point and negative during and after the crisis. In the Sukuk instance, the magnitude of the bond supply appears to have a negative impact on the cumulative abnormal return, but a positive impact in the traditional bond situation.

Having greater insight into bond and sukuk rating would yield useful information for economic actors. The bond rating and sukuk rating are very important for investors to minimize the dangers they face when they have a clear bond and sukuk rating. Bonds and sukuk are well-known financial instruments that offer fixed income securities in the capital market, but investors frequently face knowledge gaps due to the features of bond and sukuk issuers. Investors will be at risk due to the features of the company. Errors in understanding company information can prevent investments from being made, which can cause some investors to hesitate. An easy way to predict investment failure is for the bond issuer and Sukuk issuers to disclose data about the company's financial performance. This financial performance can be used as a reference that is essential for accountability in managing the funds invested (February, 2016). Investors can also read bond and sukuk ratings from securities rating firms. Furthermore, the research is supposed to be valuable to businesses, investors, and connected parties as a source of extra information and references when investing. Bond and Sukuk ratings are used to communicate a company's performance; These ratings can also determine whether the company is suitable for investment (investment or non-investment grade). A good corporate rating is good news for investors since it indicates the company's ability to determine the timely payment of the face value of bonds and sukuk; this represents the risk scale of all bonds and sukuks traded. The ratings of securities enable investors to measure the risk and return of the investments made Mahomed *et al.* (2018).

Profitability will increase for companies with high stock ratings because investors trust them more. Businesses get many benefits from having high ratings. To achieve a high company ranking, the company's stakeholders need to know which factors can influence the ratings of corporate bonds and sukuks (Widiastuti and Rahyuda, 2016). To the best of the authors' knowledge, there is no paper that examines the determinants that can influence the ratings of bonds and sukuks in Indonesia using data from financial statements.

To the best author's knowledge, there is no study that examines the factors that affect the rating of conventional bonds and sukuk in Indonesia using data from financial statements. The factors that determine the ratings of conventional sukuk and bonds are very important information for economic actors. Data from financial statements are used in this study to

measure the company's financial performance. Financial performance is a reference for measuring accountability in managing investment (February, 2016). Another novelty of this study is to answer the research question 'what factors influence the Sukuk rating and the bond rating?' The double application of this method, as a robustness test and as a validity test, should provide more precise conclusions. To the best of the author's knowledge, there has never been a study that uses two analytical methods simultaneously to examine factors affecting conventional Bond and Sukuk ratings.

1.2 Objective

In line with the discussion above, this study is set out to explore whether profitability, liquidity, leverage, company size, sukuk and bond structures and maturity dates affect the likelihood of high and low ratings of bonds and corporate sukuk. This research was carried out to fill in gaps in previous studies, for example, by adding the security structures (Arundina *et al.*, 2015) and maturity date (Sudaryanti *et al.*, 2014) of Sukuk and bonds as non-financial variables. The study's findings are intended to contribute to empirical studies on the factors influencing corporate bond and Sukuk rating. Furthermore, the research is supposed to be valuable to businesses, investors, and connected parties as a source of extra information and references when investing.

This study uses a sample of bond and sukuk issuing companies listed on the Indonesia Stock Exchange (IDX) during the period 2013 to 2019. The reason why 'why chose Indonesia company as a sample' is because based on data from the Indonesian financial regulator, the trading activities of investors in Indonesia's capital market has experienced significant developments in recent years, especially for trading activities of sukuk and bonds in 2019. The growth of sukuk in the Indonesian market also looks quite high even though the market share of sukuk is smaller than bonds.

2. Literature review

2.1 Theoretical review

2.1.1 Signaling theory. It is important to have some awareness of current issues highlighted in the literature. Brigham and Houston (2006), a cue or signal is an action that a company takes to influence decisions or inform investors about how management views the company's prospects. This signal in the form of advertising or performance material about the company reflects its situation. The information is valuable for possible investors and business actors, as well as for external elements of the corporation, as it represents information, notes or illustrations for both past and present circumstances, as well as for the future continued existence of the company and the effects of the current situation on the company.

Complete, relevant, precise and up-to-date information necessitated by investors in the capital market as an analytical tool for making investment decisions. If the announcement encompasses positive relevance in the information, it is hoped that the market will illustrate a positive reaction at the time of the announcement. It was accepted by the market. Signal theory is also useful for providing information to avoid information asymmetries *vis-à-vis* external parties so that this information can later be taken into account by the rating company, as it knows much more about the state of the bond and sukuk issuer company and its prospects than that of external parties (investors and creditors) come.

After the information has been delivered to the external parties, the rating firm that gets the information and rates it first interprets and analyzes the information to determine if it is a positive sign (good news) or a bad signal (bad news). A solid signal from the company will add a lot of value to it while also shielding investors from making bad bets. A favorable

signal will attract investors to participate in the market by purchasing and selling equities. The automation of corporate securities trading volume will improve in response to positive signals received by market participants.

Then the connection between the publication of information (either annual financial statements, financial situation or social policy) and fluctuations in the traded volume of securities with regard to market efficiency can be seen. By and large, the signal theory is closely related to the availability of information on financial statements and can be used by investors in decision-making as financial statements are the most crucial part of the company's fundamental analysis. The key figure review of these annual financial statements is also used to rank corporations that have gone public. This analysis is carried out to enable the understanding of the financial statements proven by management.

2.1.2 Securities ratings. A stocks valuation agency calculates securities ratings on a regular basis. This institution is a private company that appraises securities traded on the stock exchange. The objective of this ranking is to provide viewpoints (independent, objective, and honest) on a security's hazards. Investors can use security ratings to gauge a company's reliability and measure investment risk. This rating is also useful to present the company's performance or prospects.

When the securities ratings decrease, it is an indication that the company will possibly fail to pay the returns due while at the identical time, the price of the securities will also decline. The necessity for the securities reduction is because the securities are unattractive to investors. This paper uses reference rating issued by PT. Pemeringkat Efek Indonesia (PEFINDO) and PT. Fitch Ratings Indonesia (Fitch).

PEFINDO was pioneered on December 21, 1993, by OJK and the Bank of Indonesia. PEFINDO began assessing local governments in 2011. PEFINDO is the only stock valuation company owned by domestic shareholders and has valued numerous companies and stocks shown on the Indonesian Stock Exchange (IDX).

Fitch is a division of PT Fitch Ratings. Fitch is Indonesia's sole worldwide ratings agency. PT. Fitch was established in 2005, and in 2006, they were granted a license by the Indonesian Capital Market and Financial Institution Supervisory Agency and Bank Indonesia. Fitch strives to bring international transparency standards to the ranking criteria and rating technique in the local market. Meanwhile, the ratings of bonds and sukuk factors in corporate companies can be seen through financial and non-financial variables.

2.2 Previous studies

Here, we examine several recent examples of work in this area that concentrate on sukuk or bond rating. Arundina *et al.* (2015) found that the neural network model is stronger than the multinominal logistics regression in predicting Sukuk scores with 317 data scores as a sample in their study utilizing multinominal logistics and neural network inferences. According to Arundina *et al.* (2015), the Wald-Test analyzes if the independent variable in distinguishing between the 2 kinds in each of the embedded binary logistic comparisons is statistically significant. In this case, BBB is considered as the reference category. Therefore, the models for the Sukuk rating are estimated; A relative to BBB, rating AA to BBB and rating AAA relative to BBB.

According to Arundina *et al.* (2015), the probability ratio test takes stock price, sukuk structure, industrial sector, ensure status, return on investment, log gross domestic product, long-term debt to total assets, subordinated status, total debt to total assets, and cash proportion to be important variables.

Meanwhile, in their Malaysian case, Arundina and Omar (2010) present in their survey of multi-nominal logistics regression that the variables that most affect Sukuk's rating are the

guarantee and value of return of asset (ROA) companies while the variables that affect the Sukuk's rating in the investigation includes total assets, long-term debt, interest coverage and ongoing key figure.

Studies by Sudaryanti *et al.* (2014) showed, using ordinal logistics regression, that the factor influencing the Sukuk rating is only the variance in company size. In addition, then variable company size, profitability, liquidity, leverage proportion and maturity of more than five years can influence the bond rating. On this basis, we try to analyze various elements that can influence the ratings of bonds and sukuks with the application of ordinal logistic regression in the case of Indonesia.

However according Elhaj *et al.* (2015), the primary elements influencing Sukuk ratings are corporate governance, financial ratios, and Sukuk structure. While Rozi and Sofie (2010) demonstrated that the company's liquidity, leverage ratio, and auditor's repute are all factors that influence Sukuk rating projection (opinion). Growth, firm size, profitability, declining funds, and collateral (collateral) are all criteria that have no bearing on the sukuk rating.

In her paper, Saputri (2017) examined the impact of financial performance on sukuk's rating using the regression multi-nominal logistics model. In their econometric model, ROA and current ratio (CR) have a positive outcome on the concept of the rating category compared to the ideal rating. In the second model, the ROA and CR also have a positive influence on the rating idea compared to the non-peril.

That according Sari and Yasa (2016), effective corporate governance and company liquidity measures have a favorable and significant impact on bond ratings, however profitability metrics have very little impact. Sucipta and Rahyuda (2015) were challenged in their survey to examine the impact of company growth, corporate liquidity, and bond life on PT's bond rating. PEFINDO was listed on the Indonesia Stock Exchange (IDX) from 2009 to 2012. This study employed a non-participatory observation mechanism, evaluating financial statements and corporate bonds published on the exchange's official website (www.idx.co.id). The sample consisted of 15 companies chosen using a targeted sampling strategy. Logistic regression is the data analysis approach used. The findings of this inquiry indicate that the development of the firms, the liquidity of the enterprises, and the maturity of the bonds have a partially positive and considerable effect on the ratings of the bonds issued by PT. PEFINDO on the Indonesian Stock Exchange from 2009 to 2012.

Widiastuti and Rahyuda (2016) claimed that partialize in society and the liquidity proportion do not significantly impact bond ratings; Maturity has a significant positive impact on bond ratings; and the activity incidence has a positive, insignificant impact on bond ratings. In addition, at the identical time, they claimed that the company's growth, liquidity ratio, maturity and activity ratio have a major influence on bond ratings. Sari and Yasa (2016), Sucipta and Rahyuda (2015), Widiastuti and Rahyuda (2016) analyzed not only the corporate bond but also the Sukuk company and had comparable research methods.

Borhan and Ahmad (2018) discovered that just three variables have a substantial impact on the Sukuk rating. Their responses show that a guaranteed sukuk *ijarah* or a guaranteed sukuk *musyarakah* created by a highly profitable company is more likely to receive a AAA or AA rating than than an A grade. The key variable influencing sukuk rating is the sukuk type, most notably sukuk *murabahah*. However, the size of the firm has no bearing on the Sukuk rating in this context.

The difference between our study and previous research is that our research purpose is to compare the factor of bond rating and sukuk ratings at the same time. In addition, our study has a more complicated set of research factors than earlier studies.

2.2.1 Profitability. The return on assets (ROA) represents the company's income. The company's greater ROA means that it has a high net income, implying that the company's performance will be better (Brigham and Houston, 2006). This ratio signifies the repayment for all investors. The profitability proportion measures the company's capacity to generate a profit. The profit is the origin of funding for the company's operational activities. As the company's profits increase, so does the company's liquidity, generating the company unlikely to get into financial trouble or risk of default by investors (Brigham and Ehrhardt, 2010; Borhan and Ahmad, 2018). Qizam and Fong (2019) found that sukuk and bond rating is influenced by ROI, with ROI and ROA showing a significant correlation.

H1. Company profitability has a significant effect on corporate bond rating and corporate sukuk rating.

2.2.2 Liquidity. A currency ratio is a liquidity indicator that reflects a company's ability to pay down its current liabilities in relation to its overall assets (Brigham and Houston, 2006). This ratio is implemented as a tool to compute liquidity in the banking industry. Loan-to deposit ratio (LDR) reflects the strength of banks to fill their short-term obligations (Adhidarma and Purbasari, 2015). This ratio is also habituated describe bank management in allocating customer funds or third party funds to financing (Riyadi *et al.*, 2015).

H2. Company liquidity has a significant effect on corporate bond ratings and corporate sukuk rating.

2.2.3 Leverage. Depth to equity (DER) reflects the financial situation of a society built on debt leverage (Brigham and Houston, 2006). Capital adequacy requirement (CAR) is used to calculate leverage in the banking industry. CAR reflects banks' ability to provide funds used to manage potential default risks Utami *et al.* (2019). Qizam and Fong (2019) conducted a study comparing sukuk and bond ratings in numerous countries and discovered that the quality of financial disclosure and accounting risks such as leverage and ROI compared to Sukuk ratings in Indonesia and Malaysia and affect the bond rating in Australia. Bond ratings are influenced more by fluctuations in financial performance than Sukuk ratings (Elhaj *et al.*, 2015). The authors also showed that financial leverage is negatively linked to financial action and the correlation between Sukuk ratings.

H3. Company leverage has a significant effect on corporate bond ratings and corporate sukuk rating.

2.2.4 Growth. The size of a corporation with increasing total assets is an indicator of the safety and security of the sponsorship. High growth companies will have greater access to capital than low growth companies. High growth firms will be listed with a decent range of financial amenability to limit the danger of default for investors. Growth affects the company's ability to manage its assets (Kahya, 2020).

H4. Company growth has a significant effect on corporate bond ratings and corporate sukuk rating.

2.2.5 Securities structure. Companies issue bonds and Sukuk under a variety of circumstances. Sukuk come in a variety of forms. Sukuk can be categorised based on the name or purpose of the issuing entity. The first type of sukuk is a *mudharabah* contract sukuk, which is used for capital financing, and the second type of sukuk is an *ijarah* sukuk, which is used to develop fixed assets such as buildings.

Bond and Sukuk classifications can also be determined based on the risk profile and expected outcome. Of course, the higher the risk, the greater the potential return, which is lower than that of *mudharabah* sukuk. Malaysian Rating Corporation Berhad MARC believes that a company's ratings for each aspect of the debt effect are not the same in terms of investment security and predictability of returns. As a result, the social system of securities can be used to determine Sukuk and bond ratings (Kahya, 2020).

Elhaj *et al.* (2015) discovered that Sukuk *Ijarah* is related to the Sukuk structure and the Sukuk rating relationship in a positive way. Elhaj *et al.* (2018) demonstrate that empirical results are based on a sample of 25 Malaysian listed companies rated by Malaysian rating agencies RAM and MARC, which correspond to Standard and Poor's 500 (S&P), between 2008 and 2012.

H5. The structure of securities has a significant effect on corporate bond ratings and corporate sukuk rating.

2.2.6 Maturity date. The maturity date is the date on which the debt security holder receives repayment of the securities' face value (Majumdar and Puthiya, 2021). Because investors lose cash quickly, they have a minimal chance of default in the short term. The longer the maturity date, the greater the danger of default for investors because it leads them to lose liquidity for a longer period of time. As a result, the larger the return that the corporation must bear, the longer the maturity period. This produces future payment difficulties and has an influence on the low grade of the company's securities (Majumdar and Puthiya, 2021).

H6. Maturity date has a significant effect on corporate bond ratings and corporate sukuk rating.

2.3 Conceptual framework and hypothesis

Figure 1 shows analysis models for independent or exogenous variables (X), namely, financial and non-financial factors for dependent or endogenous variables (Y), namely of corporate bond and sukuk ratings (Figure 1).

2.3.1 Profitability. ROA reflects the earnings of society. The higher ROA value of the company implies that the company owns a high net income so that the company's performance is going better (Brigham and Houston, 2006). This ratio indicates the repayment for all investors. The profitability ratio measures the company's ability to generate profits. Profit is a source of financing for the company's operational activities. If the company's profit increases, the company's liquidity will also increase so that it is unlikely that the company

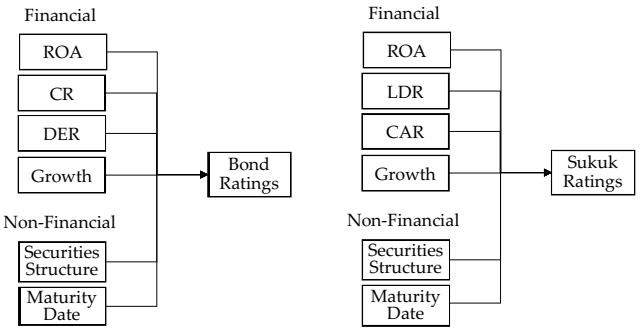

Figure 1.
Bond and sukuk ratings analysis models

will experience financial difficulties or experience the risk of default to investors (Brigham and Ehrhardt, 2010; Borhan and Ahmad, 2018). Qizam and Fong (2019) found that Sukuk and Bond Rating is influenced by ROI where ROI and ROA have a significant correlation.

H1. Company profitability has a significant effect on corporate bond rating and corporate sukuk rating.

2.3.2 Liquidity. Currency Ratio is a liquidity indicator that measures a company's capacity to pay down its current liabilities in relation to its total assets (Brigham and Houston, 2006). This ratio is used in the banking industry to measure liquidity. LDR reflects banks' ability to meet their short-term obligations (Riyadi *et al.*, 2015).

H2. Company liquidity has a significant effect on corporate bond ratings and corporate sukuk rating.

2.3.3 Leverage. DER reflects the financial situation of a society established on the lever of the debt (Brigham and Houston, 2006).

CAR is used to measure leverage in the banking industry. CAR reflects the ability of banks to provide funds used to overcome possible default risk (Adhidarma and Purbasari, 2015). Inquiry on the comparison of sukuk and bond ratings in several nations has been conducted by Qizam and Fong (2019), who found that financial disclosure quality and accounting-based risks such as leverage and ROI affect sukuk ratings in Indonesia and Malaysia and bond rating in Australia. Bond ratings are more determined by variations in financial performance than Sukuk Ratings. Elhaj *et al.* (2018) also demonstrated that financial leverage is negatively linked to financial measures and the sukuk rating relationship.

H3. Company leverage has a significant effect on corporate bond ratings and corporate sukuk rating.

2.3.4 Growth. The expansion of a company's total assets is a measure of security and collateral for the partnership. Companies with high growth will have greater access to capital than those with low growth. High-growth societies will maintain a reasonable level of financial flexibility in order to reduce default risk for investors. Growth has a consequence on the company's ability to handle its assets (Widiastuti and Rahyuda, 2016).

H4. Company growth has a significant effect on corporate bond ratings and corporate sukuk rating.

2.3.5 Securities structure. Bond and sukuk are issued by societies of different cases. Sukuk has many types. Sukuk can be classified according to the designation or purpose of the issuing company. The first type of sukuk is a sukuk with a *mudharabah* contract with the aim of financing capital while the second type of sukuk is an *ijarah* sukuk with the aim of building fixed assets such as buildings.

Bond and sukuk classifications can also be identified based on the risk profile and outcome expectations, of course the greater the risk, the higher the potential for return, for example, *ijarah* sukuk has lower return expectations than *mudharabah* sukuk because the risk profile of *ijarah* sukuk is lower than *mudharabah* sukuk. According to Malaysian Rating Corporation Berhad, the ratings for each part of a company's debt effect are not the same for the level of investment security and predictability return. As a result, the social system of securities can be used to determine sukuk and bond rating (Arundina *et al.*, 2015). However according Elhaj *et al.* (2018), sukuk *ijarah* is favorably associated to sukuk

structure and sukuk rating relationship. Elhaj *et al.* (2018) present empirical findings collected from a sample of 25 Malaysian publicly traded enterprises rated by Malaysian rating agencies RAM and MARC, which are equal to S&P, between 2008 and 2012.

H5. The structure of securities has a significant effect on corporate bond ratings and corporate sukuk rating.

2.3.6 Maturity date. The maturity date is the date when the debt security holder receives payback of the nominal value of the securities held (Brigham, 2010). Considering investors lose liquidity in a short period of time, the short maturity date has a low probability of default. Long maturity dates pose a greater risk of default for investors because they will lose liquidity for an extended period of time. As a result, the higher the degree of return that must be borne by the corporation, the longer the maturity date. This increases the likelihood of future payment difficulties and has an impact on the company's securities' low grade (Fauziah and Iskandar, 2015).

H6. Maturity date has a significant effect on corporate bond ratings and corporate sukuk rating.

3. Methodology

By investigating hypotheses, this study takes a quantitative approach. The goal of this study is to determine if financial characteristics (profitability ratios, liquidity ratios, leverage ratios, and company size) and non-financial elements (security structure and maturity) have an impact on the likelihood of high and low corporate bond and sukuk ratings.

3.1 Data

The research data are yearly from 2013 until 2019. The data taken is bond and sukuk outstanding from 2013 to 2019 and accessed through the IDX website. The financial statements are partly accessed through the IDX and partly taken from the websites of each company that issues the securities. Company ratings are based on the rating history of the company conducted by the company rating agencies, PT. PEFINDO and PT. Fitch Ratings Indonesia.

The population of the research is companies in Indonesia which issued bonds and sukuk for the period 2013–2019. The sampling technique was purposive sampling. Purposive sampling is a sampling technique with certain considerations (Lavrakas, 2008) and is used so that the research has limitations imposed on its observations. The sample criteria used are as follows:

- Corporate bonds and sukuk were placed on the IDX for the period 2013–2019.
- Corporate bonds and sukuk are rated by the institution PT. Indonesian Ratings Agency and PT. Fitch Ratings Indonesia.
- Issuers or issuing and sukuk companies have reports and Audited Financials for the period of December 31, 2013–2019 (seven years).
- Rupiah-denominated financial statements.

Based on these criteria, 16 corporate companies issuing bonds and sukuk were chosen. In total, 270 types of bonds and 280 types of sukuk were selected as samples. Ratios of variable measurement indicators are taken based on the company's financial statements that are accessed through the website of each company. The data of samples can be seen in the Appendix.

3.2 Model development and analysis method

Ordinal regression models are used in this research. Ordinal logistic regression is one method used to look for influences on or relationship between exogenous or independent variables (X) against endogenous or dependent variables (Y). Endogenous or dependent variables (Y) in ordinal logistics use data in the form of levels (ordinal scale). This model is suited for this study as it is unaffected by the loss of levels in endogenous or dependent variables (Y).

Ordinal logistics regression: consider the response variable Y with k categories coded in *1,2,…,k* and $x = (x_1, x_2, \ldots, x_p)$ the vector of explanatory variables (co-variables). The k categories of Y conditionally to the values of co-variables occur with probabilities $\pi_1, \ \pi_2, \ldots, \pi_k$ that is $\pi_j(X) = P(Y = j|X)$ *for* $j = 1,2,\ldots,k$ and $\gamma_j(X) = P(Y \leq j|X)$ is the probability of the dependent variable (Hosmer *et al.*, 2013). There are various approaches, such as the use of mixed models or another class of models, Logit and Gompit (Negative Log-Log), for example. The difference between Logit and Gompit models is in each link function.

The link function of Logit is as follows:

$$g\Big(\ \gamma_j(X)\Big) = ln\left(\frac{\gamma_j(X)}{1 - \gamma_j(X)}\right)$$

(Hosmer *et al.*, 2013) so the ordinal logistics regression with Logit link is:

$$ln\left(\frac{\gamma_j(X)}{1 - \gamma_j(X)}\right) = \alpha(i) \ + \ \beta 1 \ \mathrm{X1} \ + \ \beta 2 \ \mathrm{X2} \ + \ \beta 3 \ \mathrm{X3} \ + \ \beta 4 \ \mathrm{X4} + \ \beta 5 \ \mathrm{X5} + \ \beta 6 \ \mathrm{X6} \tag{1}$$

$$Logit(i) = \alpha(i) \ + \ \beta 1 \ \mathrm{X1} \ + \ \beta 2 \ \mathrm{X2} \ + \ \beta 3 \ \mathrm{X3} \ + \ \beta 4 \ \mathrm{X4} + \ \beta 5 \ \mathrm{X5} + \ \beta 6 \ \mathrm{X6} \tag{2}$$

Description:
Logit(*i*): the probability of corporate bonds/sukuk for rating *i*
$\alpha(i)$: Constant for rating category *i*
β: Coefficient
X1: Sukuk/bond structure
*X*2: Maturity
X3: ROA
X4: CR
X5: Growth
X6: Debt to equity ratio

The link function of Gompit (Negative Log-Log) is as follows:

$$g\Big(\ \gamma_j(X)\Big) = ln\Big(-ln\Big[1 - \gamma_j(X)\Big]\Big)$$

(Hosmer *et al.*, 2013) so the ordinal logistics regression with Gompit link is as follows:

$$ln\left(-ln\left[1-\gamma_j(X)\right]\right) = \alpha(i) + \beta 1\ \mathrm{X1} + \beta 2\ \mathrm{X2} + \beta 3\ \mathrm{X3} + \beta 4\ \mathrm{X4} + \beta 5\ \mathrm{X5} + \beta 6\ \mathrm{X6} \quad (3)$$

$$Gompit(i) = \alpha(i) + \beta 1\ \mathrm{X1} + \beta 2\ \mathrm{X2} + \beta 3\ \mathrm{X3} + \beta 4\ \mathrm{X4} + \beta 5\ \mathrm{X5} + \beta 6\ \mathrm{X6} \quad (4)$$

Description:
Gompit(i): the probability of corporate bonds/sukuk for rating i
$\alpha(i)$: Constant for rating category i
β: Coefficient
X1: Sukuk/bond structure
$X2$: Maturity
X3: ROA
X4: CR
X5: Growth
X6: Debt to equity ratio.

The way to estimate parameters in ordinal logistic regression is the maximum likelihood method. The maximum likelihood method is used to explain the chance of observing data as a function of unknown parameters that can be built with a function called the likelihood function (Hosmer and Lemeshow, 2000). The stages of testing in the ordinal logistic regression model are followed by three statistics test, including the goodness of fit test, the coefficient of determination test and the Wald Test. To choose the best approaches to the ordinal logistics regression model, we can see from the value of significance of the goodness of fit test for each link model. When the value of deviance is more significant than the other models, we can choose the best one of the link models to use.

Endogenous or dependent (Y) variables used are sukuk ratings and bond ratings based on ratings issued by rating agencies, namely, PT. PEFINDO and PT. Fitch Ratings Indonesia. The ID code or IDN indicates that the company issuing the sukuk and bonds is a company from Indonesia. The selected categories are as follows:

The rating categories used in this study as shown in Table 1 are bond ratings ranging from the highest to the lowest as follows: AAA, AA+, AA, A+, A, A− and BBB+; while for the sukuk, the rating categories used, starting from the highest, are AAA, AA+, AA, A+, A and A−. There are differences between bond and sukuk ratings only with respect to the BBB + ratings, which is due to the limited sample data on outstanding sukuk 2013–2017 with BBB+ ratings.

The exogenous variables are related to the company's financial statements in terms of ratios because the data take from the company's annual financial statements. Also, non-

Securities	Ratings						
	AAA	AA+	AA	A+	A	A−	BBB+
Bonds	√	√	√	√	√	√	√
Sukuk	√	√	√	√	√	√	

Source: IDX

Table 1. Operational definition of endogenous or dependent variables (Y)

financial factors can be identified directly on the effect for sukuk and bond rating. The following is a description of exogenous or independent variables (X) in our structural equation modeling econometrical model (Table 2).

4. Results and analysis

4.1 Results

This study aims to discover the effect of the ROAs ratio, CR, loan to deposits ratio, capital adequacy ratio, debt to equity ratio, growth, security structure and maturity date on bond ratings and sukuk ratings (with Logit and Gompit Link) for corporate companies listed on the IDX during the 2013–2018 period. The analytic technique used is the ordinal logistic regression model, using IBM Statistical Package for the Social Sciences Software version 24 (for Windows). The significance level of the alpha used is 0.05 ($\alpha = 5\%$) or the level of trust is 0.095 (95%).

4.1.1 Goodness of fit test logit. The goodness of fit test is done to see whether the resulting model is feasible to use or not. The following are the test results of the goodness of fit test based on the deviance statistic:

If the significance is ≤0.05 ($\alpha \leq 5\%$), then the resulting model is unable to follow the pattern within the available data; whereas if the significance value is ≥0.05 ($\alpha \geq 5\%$), then the resulting model is feasible enough to be used for hypothesis testing. According to the test results with a significance value of 1 on the deviance value of bond and sukuk, respectively, means that the significance value is more than 0.05 (≥0.05) and it can be concluded that an ordinal regression model is suitable to model the bond and sukuk sample data. Thus, the resulting model can be used for hypothesis testing.

4.1.2 Goodness of fit test Gompit. Goodness of fit test is done to see whether the resulting model is feasible to use or not. The following are the test results of the goodness of fit test based on deviance statistic:

Based on Table 4 the test results of goodness of fit for Gompit have significance 1 on the deviance value of bond and sukuk. The result, respectively, means that the significance value ≥0.05 ($\alpha \geq 5\%$) and can be concluded that ordinal regression model is appropriate with model the bond and sukuk sample data. Thus, the resulting model can be used for hypotheses testing.

4.1.3 Conclusion to decide the best link for this model. Base on the result from Tables 3 and 4 about the goodness of fit Logit and Gompit link, all of the deviance values of bonds and sukuk, respectively, the significance value more than 5% or ≥0.05 ($\alpha \geq 5\%$). To choose a more suitable model, we must compare the Chi-square (χ^2) value of them, according to Table 3 the χ^2 of the Logit model is 291.285 for Bond and 121.976 for sukuk, on the other side χ^2 of Gompit is 291.175 and 122.192. So, it can be concluded that the ordinal regression model with the Logit link is the more suitable model to use because it has high value than Gompit. Thus, the resulting model can be used for hypothesis testing.

4.1.4 Determination of coefficient logit. Table 5, shows the value of R^2, which explains the amount of information in endogenous or dependent variables (Y) that can be explained or influenced by exogenous or independent variables (X). The determination coefficient is seen in the Pseudo R^2 table with the values of Cox and Snell. From the table it is known that the value of R^2 on bonds for Cox and Snell is 0.719. It means that six factors included in the model are able to explain or influence 71.9% of the information within the bond rating determinant while the remaining 28.1% is influenced by other unknown variables. R^2 for sukuk for Cox and Snell is 0.604, which means that 60.4% of the information within the sukuk rating determinant is able to be explained by the resulting model while the remaining 39.6% is influenced by other unknown variables.

Table 2. Operational definition of exogenous or independent variables (X)

Variable	Variable scale	Indicator
ROAs ratio	Ratio	$\text{ROA} = \frac{\text{Net Proft}}{\text{Total assets}}$
CR (bond)	Ratio	$\text{CR} = \frac{\text{Current assets}}{\text{current liabilities}}$
Loan to deposits ratio (sukuk)	Ratio	$\text{LDR} = \frac{\text{Total credit (non} - \text{bank third parties)}}{\text{total Third Party Funds}}$
Debt to equity ratio (bond)	Ratio	$\text{DER} = \frac{\text{total debt}}{\text{total equity}}$
Capital adequacy ratio (sukuk)	Ratio	$\text{CAR} = \frac{\text{capital}}{\text{Risk Weighted Asset (AMTR)}}$
Growth	Ratio	$\text{Growth} = \frac{\text{total assets(t)} - \text{total assets (t} - 1)}{\text{total assets (t} - 1)}$
Securities structure	Nominal	1 = fixed interest bonds 2 = subordinated bonds 1 = ijarah sukuk 2 = mudharabah sukuk
Maturity date	Nominal	1 = 1 year 2 = 3 year 3 = 5 year 4 = 6 year 5 = 7 year 6 = 10 year

Source: Centre for Macroeconomic Policy (2012)

4.1.5 Determination coefficient Gompit. Table 6 shows the value of R^2 Gompit, from the table it is known that the value of R^2 on bonds for Cox and Snell is 0.719. It means that six factors included in the model are able to explain or influence 71.9% of information within the bond rating determinant while the remaining 28.1% is influenced by other unknown variables. R^2 for sukuk for Cox and Snell is 0.603, which means that information within the sukuk rating determinant is able to be explained for 60.3% by the resulting model while the rest 39.7% is influenced by other unknown variables.

4.1.6 Wald test logit. If the level of significance in the variable ≤ is 0.05 ($\alpha \leq 5\%$), it can be concluded that the independent or exogenous variable (X) is able to influence the dependent variable or endogenous (Y) partially. However, if the level of significance has a value of ≥0.05 ($\alpha \geq 5$), it can be concluded that the independent or exogenous variable (X) is unable to influence the dependent variable or endogenous (Y) partially.

Based on Table 7 above, it can be seen that there are as many as three variables which have a significance value of ≤0.05 ($\alpha \leq 5\%$). The variables are a debt to equity ratio, bond structure and maturity date. This means that those variables can influence the probability of high and low corporate bond ratings significantly. There are also three variables which have a significance value of ≥0.05 ($\alpha \geq 5\%$). The variables are CR, ROA and growth. This means that those variables cannot influence the probability of high and low corporate bond ratings significantly.

Based on Table 8 above, it can be seen that there are as many as four variables which have a significance value of ≤0.05 ($\alpha \leq 5\%$). The variables are CR, ROA, growth and sukuk structure. This means that those variables can influence the probability of high and low corporate bond ratings significantly. There are only two variables which have a significance value of ≥0.05 ($\alpha \geq 5\%$). The variables are a debt to equity ratio and maturity date. This means that those variables cannot influence the probability of high and low corporate bond ratings significantly.

4.1.7 Wald test Gompit. If the level of significance in the variable ≤0.05 ($\alpha \leq 5\%$), it can be concluded that the independent or exogenous variable (X) is able to influence the dependent variable or endogenous (Y) partially. However, if the level of significance has a

Table 3. Goodness of fit

Models	χ^2	df	Significance
Bonds model	291.285	447	1.000
Sukuk model	121.976	242	1.000

Table 4. Goodness of fit

Models	χ^2	df	Significance
Bonds model	291.175	447	1.000
Sukuk model	122.192	242	1.000

Table 5. Pseudo R^2

Models	Cox and Snell R^2
Bonds model	0.719
Sukuk model	0.604

value of ≥0.05 ($\alpha \geq 5$), it can be concluded that the independent or exogenous variable (X) is unable to influence the dependent variable or endogenous (Y) partially.

Based on Table 9 above, it can be seen that there are as many as three variables which have a significance value of ≤0.05 ($\alpha \leq 5\%$). The variables are a debt to equity ratio, bond structure and maturity date. This means that those variables can influence the probability of high and low corporate bond ratings significantly. There are also three variables which have a significance value of ≥0.05 ($\alpha \geq 5\%$). The variables are CR, ROA and growth, which have a value of ≥0.05, which means that those variables cannot influence the probability of high and low corporate bond ratings significantly.

Based on Table 10 above, it can be seen that there are as many as four variables which have a significance value of ≤0.05 ($\alpha \leq 5\%$). The variables are CR, ROA, growth and sukuk structure. This means that those variables can influence the probability of high and low corporate bond ratings significantly. There are only two variables which have a significance value of ≥0.05 ($\alpha \geq 5\%$). The variables are a debt to equity ratio and maturity date. This means that those variables cannot influence the probability of high and low corporate bond ratings significantly (Table 11).

4.1.8 Analysis on profitability. ROA, CR and Growth of Assets do not affect the probability of low and high corporate bond rating. However, they significantly affect the corporate sukuk rating. The Wald test statistic ordinal logistic regression model for bonds in the ROA variable has a coefficient of −15,575 and a significance value of 0,247. ROA could decrease the chances of getting a high rating, but is not significant at the 5% level. The relationship between the ROA variable on the high probability of rating corporate

Table 6. Pseudo R^2

Models	Cox and Snell R^2
Bonds model	0.719
Sukuk model	0.603

Table 7. Parameter estimates of bonds

Variables and categories		Estimate	Standard error	Wald	DF	Sig.
Ratings (Y)	AAA	14,137	0,701	407,172	1	0,000
AA	14,870	0,644	533,887	1	0,000	
A+	15,996	0,561	813,266	1	0,000	
A	18,378	0,389	2,228,945	1	0,000	
A−	20,595	0,368	3,138,276	1	0,000	
BBB+	21,451	0,440	2,382,070	1	0,000	
BBB−	14,137	0,701	407,172	1	0,000	
Determination of bond ratings (X)						
ROA	−15,575	13,466	1,338	1	0,247	
CR	−0,084	0,072	1,353	1	0,245	
Growth	−0,252	1,054	0,057	1	0,811	
DER	−0,182	0,072	6,338	1	0,012	
Fixed interest bond	−5,171	0,735	49,482	1	0,000	
Subordinated bond	0	–	–	0	–	
3 year maturity	20,852	0,953	478,618	1	0,000	
5 year maturity	18,432	0,510	1,305,352	1	0,000	
6 year maturity	17,802	0,798	497,963	1	0,000	
7 year maturity	19,977	0,000		1		
10 year maturity	0	–	–	0	–	

bonds is negative and insignificant. Each increase or decrease of one company's ROA has no effect on decreasing or increasing the probability of the corporate bond rating. This means that profitability has no effect on the high and low probability of corporate bond ratings. The possibility of the insignificance of this profitability is first because investors do not look at the ROAs provided by the company only, but all other performance such as the ratio of the company's liabilities to pay the debt. The other reason is that the insignificance could be caused by the low level of the company's ROA in the observation period. The insignificance of ROA in predicting corporate bonds? as found by this study echoes the findings from Utami *et al.* (2017), who yield similar results for Indonesian corporate bond rating.

Table 8.
Parameter estimates of sukuk

Variables and categories		Estimate	Standard error	Wald	DF	Sig.
Ratings (Y)	AAA	6,303	1,669	14,260	1	0,000
AA	9,217	1,944	22,486	1	0,000	
A+	11,711	2,271	26,585	1	0,000	
Determination of bond ratings (X)						
ROA	56,833	13,433	17,900	1	0,000	
CR	0,877	0,172	26,067	1	0,000	
Growth	4,537	1,467	9,564	1	0,002	
DER	−0,146	0,225	0,424	1	0,515	
Ijarah Sukuk	2,885	1,002	8,288	1	0,004	
Mudharabah Sukuk	0	–	–	0	–	
1 year maturity	0,733	1,749	0,176	1	0,675	
3 year maturity	0,669	1,261	0,281	1	0,596	
5 year maturity	0,906	1,263	0,515	1	0,473	
6 year maturity	30,817	0,000		1		
7 year maturity	1,482E-15	1,421	0,000	1	1,000	
10 year maturity	0	–	–	0	–	

Table 9.
Parameter estimates of bonds

Variables and categories		Estimate	Standard error	Wald	DF	Sig.
Ratings (Y)	AAA	15,208	0,398	1,459,546	1	0,000
AA	15,692	0,359	1,909,753	1	0,000	
A+	16,378	0,314	2,722,109	1	0,000	
A	17,799	0,219	6,627,000	1	0,000	
A−	19,425	0,287	4,594,131	1	0,000	
BBB+	20,193	0,378	2,847,667	1	0,000	
BBB−	15,208	0,398	1,459,546	1	0,000	
Determination of bond ratings (X)						
ROA	−14,977	9,185	2,659	1	0,103	
CR	0,043	0,043	0,992	1	0,319	
Growth	0,343	0,733	0,220	1	0,639	
DER	−0,151	0,045	11,297	1	0,001	
Fixed interest bond	−3,438	0,540	40,467	1	0,000	
Subordinated bond	0	–	–	0	–	
3 year maturity	19,480	0,672	840,849	1	0,000	
5 year maturity	16,800	0,353	2,265,858	1	0,000	
6 year maturity	17,378	0,463	1,410,188	1	0,000	
7 year maturity	18,418	0,000		1		
10 year maturity	0	–	–	0	–	

If the Sukuk in the ROA variable has a coefficient of 56,833 and a significance value of 0.000, then the relationship between the ROA variable and the probability of high and low corporate sukuk rating is significantly positive. This means that any increase in profitability can increase the sukuk rating, which is because investors consider that when returns increase, investors will get the expected profit sharing; on the other hand, Islamic principles emphasize profit sharing in accordance with the returns received by the company, so if the ROA increases, the returns will also increase. It is also inferred from this finding that probability significance higher profitability may lead to higher sukuk rating because higher profit means the sukuk issuer will be able to meet their obligations with little problem (Ashbaugh-Skaife *et al.*, 2006; Elhaj *et al.*, 2015).

Bonds and sukuk have different significance for each rating. ROA is not significant for bond rating while ROA on sukuk shows a significant result. The difference in concept between Islamic and conventional plays a role in showing that these results are different. In Islamic the concept of profit sharing is the main concern and is important. Therefore, when the ROA goes up or down, it will affect the sukuk rating because if the ROA goes up, the possibility of obtaining the results to be obtained is greater and this will show better profitability performance and the sukuk rating will increase. However, in conventional terms where interest payments are mandatory, the rise and fall of ROA will not reduce the obligation to pay bond interest. The estimations from Logit and Gompit models show similar results meaning that the variable is robust for the sukuk rating and bond.

4.1.9 Analysis on liquidity. The Wald test statistic result in an ordinal logistic regression model for bonds in the CR variable has a coefficient of −0,084 and a significance value of 0,245, so the relationship between the CR variable and the probability of a high and low corporate bond rating is negative and not significant. Each increase or decrease of one company's CR number has no effect on decreasing or increasing the probability of the corporate bond rating. This means that the company's liquidity has no effect on the high probability of the rating of corporate bonds. Actually, in theory, the CR is used to examine the company's ability to pay off current liabilities or short-term debt that must be paid in the short-term (less than one year). This means first, that the company must have current assets to cover current liabilities that will mature at any time. If this ratio has no effect, it is because the CR is not much different from previous reports or it is the ideal CR of the company.

Variables and categories		Estimate	Standard error	Wald	DF	Sig.
Ratings (Y)	AAA	5,144	1,307	15,495	1	0,000
AA	7,970	1,596	24,948	1	0,000	
A+	10,105	1,910	27,990	1	0,000	
Determination of bond ratings (X)						
ROA	43,750	10,250	18,217	1	0,000	
CR	0,732	0,137	28,570	1	0,000	
Growth	2,968	1,164	6,502	1	0,011	
DER	−0,144	0,163	0,782	1	0,377	
Ijarah Sukuk	2,213	0,739	8,975	1	0,003	
Mudharabah Sukuk	0	–	–	0	–	
1 year maturity	0,587	1,473	0,159	1	0,690	
3 year maturity	0,466	1,045	0,199	1	0,656	
5 year maturity	0,660	1,047	0,397	1	0,528	
6 year maturity	12,691	0,000		1		
7 year maturity	0	1,189	0,000	1	1,000	
10 year maturity	0	–	–	0	–	

Table 10.
Parameter estimates of sukuk

Table 11.
Results comparison between bond and sukuk (Logit and Gompit link)

	Logit		Gompit	
Independent variables	Bonds (Dependent variables)	Sukuk (Dependent variables)	Bonds (Dependent variables)	Sukuk (Dependent variables)
ROA	*ROA coefficient (−15,575), t-stat 0,247, cannot influence the corporate bond ratings significantly*	*ROA can influence the probability of high and low corporate bond ratings significantly*	*ROA cannot influence the probability of high and low corporate bond ratings significantly*	*ROA can influence the probability of high and low corporate bond ratings significantly*
CR	*CR coefficient −0,084, t-stat 0,245, cannot influence corporate bond ratings significantly*	*CR can influence the probability of high and low corporate bond ratings significantly*	*CR cannot influence the probability of high and low corporate bond ratings significantly*	*CR can influence the probability of high and low corporate bond ratings significantly*
Growth	*Growth coefficient −0,252, t- stat −0,811, cannot influence corporate bond ratings significantly*	*Growth can influence the probability of high and low corporate bond ratings significantly*	*Growth cannot influence the probability of high and low corporate bond ratings significantly*	*Growth can influence the probability of high and low corporate bond ratings significantly*
DER	*DER can influence the probability of high and low corporate bond ratings significantly*	*DER cannot influence the probability of high and low corporate bond ratings significantly*	*DER can influence the probability of high and low corporate bond ratings significantly*	*DER cannot influence the probability of high and low corporate bond ratings significantly*
Structure	*Structure of bonds can influence the probability of high and low corporate bond ratings significantly*	*Structure of sukuk can influence the probability of high and low corporate bond ratings significantly*	*Structure of bonds can influence the probability of high and low corporate bond ratings significantly*	*Structure of sukuk can influence the probability of high and low corporate bond ratings significantly*
Maturity	*Maturity date can influence the probability of high and low corporate bond ratings significantly*	*Maturity date cannot influence the probability of high and low corporate bond ratings significantly*	*Maturity date can influence the probability of high and low corporate bond ratings significantly*	*Maturity date cannot influence the probability of high and low corporate bond ratings significantly*

Another reason is, the interest bond payment is compulsory for the company, as even the CR decrease or increases do not affect the obligation to pay the interest. The above finding on the effect of CR (as a proxy for corporate liquidity) on bonds is in opposition to that of Utami *et al.* (2017), who found CR significantly and positively affects Indonesian corporate bond.

In the case of sukuk, whereas the result for sukuk in the LDR variable has a coefficient of 0,877 and significance value of 0.000, the relationship between the LDR variable on the probability of high and low corporate sukuk rating is significantly positive. The CR in this study can significantly increase the chance for a higher sukuk rating. LDR in banking shows banking liquidity; the higher the LDR, the more banks will face difficulties in fulfilling their profit-sharing obligations. This research shows positive results, where high LDR could increase the sukuk rating. It should be noted that LDR also shows the amount of bank financing has taken out. If there is significant financing, it is possible to get a higher profit sharing. A high level of financing indicates that the bank is able to distribute third party funds to other parties who need capital, which is shows that the bank's main business as an intermediary institution is running well. This good performance can encourage investors to buy sukuk so that they can raise the sukuk rating. This study's finding is parallel with that of Arundina *et al.* (2015), who found that liquidity ratio is a significant and positive determinant of Malaysian corporate sukuk rating. This finding inferred that the sukuk issuer must ensure their liquidity to maintain their creditworthiness in the market.

Analysis of the difference between the two (LDR and CR) is that the liquidity variable bonds have no effect on bond ratings while the liquidity on the sukuk does. In this case, the liquidity ratio is known as the ratio that measures the company's ability to cover its current debt obligations. A high liquidity ratio can indicate excess cash, which can be mean two things as follows: first the amount of profit that has been obtained or second, that the company did not invest effectively. The CR for bonds and LDR used for sukuk has a different character, where this CR is the availability of current assets that are ready to be used to pay the debt in the short-term while the LDR here is the amount of financing compared to third party funds which can be withdrawn by customers at any time.

The concept explained in Islam is that there is no idle money. If higher LDR, there is less idle money in the bank because it is used for financing or used for something productive. So, naturally, investors would think, there is a possibility of getting better profit sharing when LDR is increased, in turn, making the sukuk rating increase. Meanwhile, the concept of return on the bond is coupon based, which is binding for the company and not based on productivity, so that investors are sure that they will get a return even if the CR changes. So, investors will not respond to CR and will not affect the rating.

4.1.10 Analysis on leverage. The Wald test statistic result ordinal logistic regression model for bonds in the DER variable has a coefficient of −0,182 and a significance value of 0,012. Then, the relationship between the DER variable and the probability of high and low corporate bond rating is significantly negative. DER is classified as a solvency ratio, namely, the company's ability to meet all of its debts or liabilities by using all of its assets. The higher the DER, means that the liability is greater than the total amount of capital that they own, which means the company is burdened by investors from outside of the company for whom they must pay a return. Increasing liability shows that the company's sources of capital are highly dependent on outside parties. A company's inability to manage its debt properly and optimally, will have a negative impact on the company's financial performance, which, in turn, will have an impact on the bond rating. In the case of DER, as a proxy for corporate leverage, higher leverage can give higher exposure to credit risk for the issuer (Ashbaugh-Skaife *et al.*, 2006).

While the results for sukuk in the CAR variable have a coefficient of −0,146 and a significance value of 0,515, the relationship between the CAR variable and the probability of high and low corporate sukuk rating is insignificantly negative. CAR is a capital adequacy ratio that shows the ability of banks to provide funds to be used to overcome the possible risk of loss. This ratio is important because keeping CAR at a safe limit (at least 8%) means protecting customers and maintaining overall financial system stability. In the results of this study, CAR does not affect the Sukuk rating because this CAR is a variable that must show good performance in accordance with PBI No. 3/21/PBI/2001 concerning the Minimum CAR for Commercial Banks. Because it is protected by law, the CAR is always required to be good, so the value tends to be stable and does not affect the sukuk rating. This result is opposite that of Elhaj *et al.* (2018), who found that leverage negatively and significantly affects the rating of Malaysian corporate sukuk.

The difference between these two results is with regard to the solvency ratio or the capital adequacy ratio. In leverage case, a company that has a lot of debt does not experience financial difficulties, although it can increase the risk that must be borne by the company. With its debt, the company can use external funds to meet operational needs, so that fund management can be carried out properly and it would be expected to generate good higher profits. However, this management methods would not be good for companies that are unable to turn over their existing capital into profit because it puts investors in an unprofitable position. If a company does not generate profit from debt, investors will doubt the company's ability to pay the interest that they have agreed on, so investors may sell bonds and indirectly make the rating bond decrease.

In Islam, capital does not mean debt. Debt is strictly prohibited if we ask for compensation for this debt because it generates *Riba*. Islam places more emphasis on the use of investor funds or partnerships under a profit sharing concept. The profit will be distributed based on the contracts of each investor. Islam emphasizes the need to be productive with the capital, not the debt to meet their needs. That is the difference between Islamic and non-Islamic leverage in managing sufficient working capital.

4.1.11 Analysis of growth. Wald test statistic ordinal logistic regression model for bonds in the growth (asset growth) variable has a coefficient of −0,252 and a significance value of 0,811. As a result, the relationship between the growth variable and the probability of high and low corporate bond rating is insignificant. Asset growth does not change in bond ratings. This can be because asset growth is not the main consideration of investors when choosing bonds. Analysis of the growth of assets only is certainly not enough when investing; it is necessary to look at other variables such as asset turn over ratios. Many companies have large assets but are little able to turn their assets into profits, so investors are not interested in just getting asset growth.

While the results for sukuk in the growth variable have a coefficient of 4,537 and significance value of 0,002, the relationship between the growth variable and the probability of a high and low corporate sukuk rating is positive and significant. Some studies (Arundina *et al.*, 2015; Borhan and Ahmad, 2018; Elhaj *et al.*, 2018, 2015) use total assets as a proxy for sukuk issuer size and find that it has a positive and significant effect on sukuk rating. This study's finding, however, inferrs that sukuk rating is also determined by the ability of the sukuk issuer to increase their size, not by the size itself, i.e. of total assets, *per se*. This is because if the sukuk issuer has had positive assets growth in recent years, it is expected that they have good prospects for the future and can meet their obligations.

The difference between the two results is that asset growth bonds do not change the rating while in the sukuk, asset growth affects the rating. In this case, it is necessary to remember that sukuk is based on the underlying assets; if the assets grow, it can be said that

the company is able to develop the assets of the sukuk investor. The development of assets encourages investors to think that the sukuk issuer has the capability to manage the sukuk assets. Another difference is that Sukuk is always backed up with assets such as property or projects that have value. Meanwhile, for bonds based on interest, investors may not be motivated to see their assets because bond investors are focused on the company's ability to pay interest.

4.1.12 Analysis of security structure. Based on the results of the model in this study, it is known that companies with fixed interest bonds may earn a rating decrease. The Wald test statistic results in ordinal logistic regression models in fixed interest bond variables have a coefficient of −5,171 and a significance value of 0.000. The subordinated bond variable has a coefficient of 0 and an infinite significance value (∞). So, fixed interest bonds have a higher probability of bond rating compared to subordinated bonds. The possibility is negative significant because an interesting bond is not flexible and cannot adjust with macroeconomics conditions; because if the macroeconomics is in recession or maybe in high inflation, the interest of obligation may not be of value any longer. So the investor only gets a profit if the value of bank interest decreases in the future.

The results in the *ijarah* sukuk variable have a coefficient of 2,885 and significance value of 0.004 and the *mudharabah* sukuk variable has a coefficient of 0 and infinite significance value (∞). The results of this study are in line with the research conducted by Elhaj *et al.* (2015), which stated that *ijarah* sukuk had a significant positive result on sukuk rating. Based on the results of the model, it is known that companies with *Ijarah* sukuk have the opportunity to get a higher rating. *Ijarah* sukuk sales always see their nominal value at maturity by considering the time value of money effect. This might be viewed by investors when the basic asset in *Ijarah* Sukuk is the property and the value of the property is always in appreciation. On the other hand, investment-based sukuk (*mudharabah*) certainly must be more accepting of volatile returns in accordance with the financial status of the sukuk issuer. Therefore, Sukuk *Ijarah* has a higher probability of obtaining a valuation. For the case of sukuk, this finding is similar to that of Arundina *et al.* (2015) and Borhan and Ahmad (2018), who found that sukuk structure, i.e. sukuk's type of contract, significantly determines sukuk rating in Malaysia with the tendency that sukuk with *ijarah* contract will get a higher rating.

The difference between the proceeds of fixed interest bonds and sukuk *ijarah* Is that although both promise fixed yields, those from bonds are based on interest while those from sukuk *ijarah* are based on rental fees. However, the *ijarah* structure actually increases the sukuk rating while the fixed interest bonds ratings decrease. In this regard, it is necessary to remember that an Islamic contract must have an underlying asset. *Ijarah* sukuk in this case certainly has underlying assets, the majority of which is property. Throughout the history of property, the property value of a building will usually continue to increase along with the increasing demand for land and the access attached to the property. Therefore, the value of *ijarah* assets does not experience a decline and instead increases over time, which is what attracts investors so that the rating on sukuk with an *ijarah* structure increases. It should also be noted that investments with underlying assets are very safe against crises because these underlying assets are still used for business productivity even though the economy is sluggish and the value of assets rarely decreases. On the other hand, is the case of the fixed income bond structure. Fixed income bonds are based on debt and interest. While this interest rate can be better or worse depending on economic conditions, there is no back up of the company's assets; therefore, if the bond interest rate is low compared to bank interest, investors will very quickly leave and bring the bond rating down. It can be said that the

difference between the two is based on the contract used and the presence of the underlying asset.

4.1.13 Analysis on maturity. The Wald test statistic results of the ordinal logistic regression model for bonds in the maturity date variable are significant positive, with *t*-statistic 0.000 for 3, 5 and 6 years and the coefficient 20.852; 18,432 and 17,802. Based on maturity, it appears that the longer the maturity, the less influence the maturity has on the bond rating. This result was in line with the theory that the maturity date affects the bond rating, where the longer the maturity date, the higher the risk of a decline in the probability of rising bond rates. In the case of maturity, the finding from this study is dissimilar to that of Hsu *et al.* (2015), who found that higher maturity leads to lower bond premiums while a higher rating typically leads to higher bond premiums. The results for sukuk on the maturity date variable are insignificant for all degrees of maturity. The possible reason is that the investors may not see the maturity date in the long or short-term. If the sukuk return is less than the interest rate risk, the investor can immediately sell the sukuk and invest in deposits without waiting until the maturity date. The selection of maturity date is based on the preferences and needs of each investor.

5. Conclusions and recommendations

This research is intended to extend the relevant body of knowledge by investigating the effect of various factors, including financial (profitability ratios, liquidity ratios, leverage ratios and firm size) and non-financial (securities structure and maturity) on the probability of high and low corporate bond and sukuk ratings. This study found that financial factors tend to be influential in determining the probability of sukuk ratings but to be insignificant in affecting bond rating. The opposite, however, is found for the leverage ratio which is found to be influential in determining the bond rating, but no effect is found in the case of sukuk rating. Each non-financial factor in this study has a different result. While the effect of maturity on security rating is similar to the leverage ratio, security structure is found to be influential in determining the probability for the ratings of both securities.

Findings from this study have several implications. Practitioners, i.e. sukuk and bond issuers, in choosing the source of financing between sukuk and bond, must consider different factors. Sukuk issuers must consider their financial factors before issuing sukuk and structure their sukuk with guaranteed schemes like *ijarah* to attain higher ratings. For bond issuers, the leverage ratio is the most important part of the financial aspect to be considered apart from bond structure and maturity.

For regulators, supervision of credit rating agencies is important to ensure that sukuk and bonds issued will attain appropriate ratings that reflect their true creditworthiness. In addition, the sharia screening process for sukuk issuers must be taken seriously to ensure that Sharīʿah-compliance is taken note of by the issuers, apart from the good rating *per se*.

For investors, this study's findings imply that looking into the ratings of securities when considering the investment, must be done carefully because there are differences among bonds and sukuk. A better sukuk rating may reflect better profitability, liquidity, size growth of the issuer or a more guaranteed sukuk structure. On the other hand, a better bond rating may be a reflection of a lower leverage rate, subordinated bond structure or shorter maturity period. In this regard, investors with more concern about internal issuer conditions may look toward sukuk while investors that are more concerned with the investment instrument's structure, may look toward bonds.

For sukuk issuers and bond issuers, it is necessary to pay attention to the factors that significantly affect the ratings of sukuk and bonds. Some important factors for sukuk rating that Sukuk issuers need to pay attention to are ROA, CR, Growth and Structure. Some

important factors for bond ratings that need to be considered are DER, Structure and Maturity. The results of this study show that the bond rating and sukuk rating reflect their performance.

Further research may enhance the body of literature by looking into cross-country comparisons, especially into countries with dual financial systems like Indonesia and Malaysia, to gain a comprehensive understanding of the circumstances of credit rating activities. Furthermore, aspects that relate to securities issuance, such as firm governance and social responsibility, may be included in future research to develop a broader picture of how security issuers' internal conditions and engagement with society may affect their creditworthiness.

References

Adhidarma, G. and Purbasari, D. (2015), "Memahami hubungan antara investasi dan GDP", Retrieved from Macroeconomic Dashboard Fakultas Ekonomika dan Bisnis UGM, available at: http://macroeconomicdashboard.feb.ugm.ac.id/memahami-hubungan-antara-investasi-dan-gdp

Alam, N., Hassan, M.K. and Haque, M.A. (2013), "Are islamic bonds different from conventional bonds? International evidence from Capital market tests", *Borsa Istanbul Review*, Vol. 13 No. 3, pp. 22-29.

Arundina, T. and Omar, M.A. (2010), "Determinant of sukuk rating; the case of Malaysia", Thesis Kulliyah of Economics and Management Science, International Islamic University Malaysia.

Arundina, T., Omar, M.A. and Kartiwi, M. (2015), "The predictive accuracy of sukuk ratings; multinomial logistic and neural network inferences", *Pacific-Basin Finance Journal*, Vol. 34, pp. 273-292.

Ashbaugh-Skaife, H., Collins, D.W. and LaFond, R. (2006), "The effects of corporate governance on firms' credit ratings", *Journal of Accounting and Economics*, Vol. 42 No. 1-2, pp. 203-243, available at: https://doi.org/10.1016/j.jacceco.2006.02.003

Borhan, N.A. and Ahmad, N. (2018), "Identifying the determinants of Malaysian corporate Sukuk rating", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 11 No. 3.

Brigham, E.F. and Ehrhardt, M.C. (2010), *Study Guide for Brigham/Ehrhardt's Financial Management: Theory and Practice*, Nelson Education London.

Brigham, E.F. and Houston, J.F. (2006), *Dasar-Dasar Manajemen Keuangan*, edisi 11. Salemba Empat. Jakarta.

Centre for Macroeconomic Policy, Fiscal Policy Agency, Ministry of Finance Republic of Indonesia (2012), *Investor Dedication Relations Report*, Jakarta Ministry of Finance of the Republic of Indonesia.

Elhaj, M.A.A., Muhamed, N.A. and Ramli, N.M. (2015), "The influence of corporate governance, financial ratios, and Sukuk structure on Sukuk rating", *Procedia Economics and Finance*, Vol. 31, pp. 62-74.

Elhaj, M.A., Muhamed, N.A. and Ramli, N.M. (2018), "The effects of board attributes on sukuk rating", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 11 No. 2, pp. 312-330, available at: https://doi.org/10.1108/IMEFM-03-2017-0057

Fauziah, F. and Iskandar, R. (2015), "Determinants of capital structure in the Indonesian Banking sector", *International Journal of Business and Management Invention*, Vol. 4 No. 1, pp. 36-44.

Hosmer, D.W. and Lemeshow, S. (2000), *Applied Logistic Regression*, John Wiley and Sons. *New York, NY*.

Hosmer, D.W., Jr, Lemeshow, S. and Sturdivant, R.X. (2013), *Applied Logistic Regression*, (Vol. 398): John Wiley and Sons New York, NY.

Hsu, P.H., Lee, H.H., Liu, A.Z. and Zhang, Z. (2015), "Corporate innovation, default risk, and bond pricing", *Journal of Corporate Finance*, Vol. 35, pp. 329-344.Available at: https://doi.org/10.1016/j.jcorpfin.2015.09.005

Kahya, E.H., Ersen, H.Y., Ekinci, C., Taş, O. and Simsek, K.D. (2020), "Determinants of capital structure for firms in an islamic equity index: comparing developed and developing countries", *Journal of Capital Markets Studies*, Vol. 4 No. 2.

Lavrakas, P.J. (2008), "Encyclopedia of survey research methods", doi: 10.4135/9781412963947.

Mahomed, Z., Ramadilli, S. and Ariff, M. (2018), "Sukuk announcement effects during financial crisis: the case for Indonesia", *Journal of Islamic Accounting and Business Research*, Vol. 9 No. 4.

Majumdar, S. and Puthiya, R. (2021), "Role of signaling in issuance of sukuk versus conventional bonds – an empirical analysis of the bond market in the UAE", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. ahead-of-print No. ahead-of-print.

Pebruary, S. (2016), "Pengaruh rasio profitabilitas, rasio likuiditas, rasio leverage dan pendapatan bunga terhadap rating sukuk korporasi periode 2010-2013", *Jurnal Dinamika Ekonomi and Bisnis*, Vol. 13 No. 1.

Qizam, I. and Fong, M. (2019), "Developing financial disclosure quality in sukuk and bond market: evidence from Indonesia, Malaysia, and Australia", *Borsa Istanbul Review*, Vol. 19 No. 3, pp. 228-248.

Qizam, I., Ardiansyah, M. and Qoyum, A. (2020), "Integration of islamic capital market in ASEAN-5 countries: preliminary evidence for broader benefits from the post-global financial crisis", *Journal of Islamic Accounting and Business Research*, Vol. 11 No. 3.

Riyadi, S., Iqbal, M. and Lauren, N. (2015), "Strategi pengelolaan non performing loan (NPL) bank umum yang go public", *Jurnal Dinamika Manajemen*, Vol. 6 No. 1.

Rozi, F. and Sofie, A. (2010), "Analisis Faktor-Faktor yang mempengaruhi prediksi peringkat obligasi syariah (sukuk)", *Jurnal Akuntansi Islam*, Vol. 1 No. 1.

Saputri, D.A. (2017), *Pengaruh Kinerja Keuangan Terhadap Rating Sukuk Dengan Menggunakan Model Regresi Multinomial Logistik Tahun 2013-2015*, Universitas Airlangga. Airlangga.

Sari, I.K. and Yasa, G.W. (2016), "Pengaruh penerapan good corporate governance", *Profitabilitas Dan Likuiditas Terhadap Peringkat Obligasi. E-Jurnal Akuntansi*, Vol. 1, pp. 2198-2224.

Sucipta, N.K.S.N. and Rahyuda, H. (2015), "Pengaruh pertumbuhan perusahaan, likuiditas, dan maturity terhadap peringkat obligasi perusahaan di bursa efek indonesia", *E-Jurnal Manajemen*, Vol. 4 No. 3.

Sudaryanti, N., Mahfud, A.A. and Wulandari, R. (2014), "Analisis determinan peringkat sukuk dan peringkat obligasi di Indonesia", *Tazkia Islamic Finance and Business Review*, Vol. 6 No. 2.

Utami, E.S., Anitasari, D. and Endhiarto, T. (2017), "Determinants of corporate bond rating in Indonesia: additional evidence", *Review of Management and Entrepreneurship*, Vol. 1 No. 2, pp. 27-33.

Utami, D.E., Trinugroho, I. and Sergi, B.S. (2019), "What determines sukuk issuance type in Indonesia?", *Asia-Pacific Contemporary Finance and Development*, Emerald Publishing Limited. Bingley.

Widiastuti, N.P.T. and Rahyuda, H. (2016), "Pengaruh pertumbuhan perusahaan, rasio likuiditas, maturity, dan rasio aktivitas terhadap peringkat obligasi pada perusahaan jasa", *E-Jurnal Manajemen*, Vol. 5 No. 11.

Further reading

Abdul Hamid, N.H., Zakaria, N.B. and Ab Aziz, N.H. (2014), "Firms' performance and risk with the presence of sukuk rating as default risk", *Procedia – Social and Behavioral Sciences*, Vol. 145, pp. 181-188.

Affandi, S. (2019), "The impact of financial measures, earnings management and sukuk structure on sukuk rating".

Ahmad, N. and Rahim, S.A. (2013), "Sukuk ijarah vs. sukuk musyarakah: investigating post-crisis stock market reactions", *International Journal of Humanities and Management Sciences (IJHMS)*, Vol. 1 No. 1, pp. 87-91.

Azmat, S., Skully, M. and Brown, K. (2017), "The (little) difference that makes all the difference between islamic and conventional bonds", *Pacific-Basin Finance Journal*, Vol. 42, pp. 46-59.

Bursa Efek Indonesia (2017), "Data pasar laporan statistik tahunan idx 2017", available at: www.idx.co.id/data-pasar/laporan-statistik/statistik/diakses (accessed 7 September 2018).

Bursa Efek Indonesia (2018a), "Data pasar obligasi dan sukuk korporasi", available at: www.idx.co.id/data-pasar/data-obligasi-sukuk/obligasi-sukuk-korporasi/diakses (accessed 7 September 2018).

Bursa Efek Indonesia (2018b), "Data perusahaan tercatat laporan keuangan dan tahunan", available at: www.idx.co.id/perusahaan-tercatat/laporan-keuangan-dan-tahunan/diakses (accessed 7 September 2018).

Bursa Efek Indonesia (2018c), "Data perusahaan tercatat", available at: www.idx.co.id/perusahaan-tercatat/profil-perusahaan-tercatat/diakses (accessed 7 September 2018).

Departemen Agama, R. (1989), *al-Qur'an Dan Terjemahnya*, *Toha Putra*. *Semarang*.

Hamida, L. (2017), "Pengaruh likuiditas dan leverage terhadap yield sukuk dengan peringkat sukuk sebagai variabel intervening (study pada perusahaan non keuangan di bursa efek Indonesia)", *Jurnal Ekonomi Dan Bisnis*, Vol. 18 No. 1, pp. 71-86.

Hardwick, P., Adams, M. and Burton, B. (2000), "The determinants of credit ratings in the United Kingdom insurance industry".

Kamarudin, M.F., Kamaluddin, N., Manan, S.K.A. and Ghani, G.M. (2014), "Defaulters profile in Malaysia sukuk market", *Procedia – Social and Behavioral Sciences*, Vol. 145, pp. 277-285.

Keuangan, O.J. (2018), "Statistik pasar modal minggu ke-5 2018", Diakses pada 1 September 2018.

Sharif, A.R.A. and Abdullah, A. (2018), "Impact of time value of money theory in ijarah sukuk genuineness: the case of Bahrain and Malaysia", *International Business Research*, Vol. 11 No. 7, pp. 56-63.

Yaakub, N.I., Shah, H., Mujani, W.K., Jusoff, K. and Hamid, M.A. (2011), "Asset ownership and investor's protection under sukuk ijarah", *Middle-East Journal of Scientific Research (Special Issue of Diversity of Knowledge on Middle East)*, Vol. 7, pp. 22-30.

Appendix

Table A1.
Research samples

No.	Issuer	Obligation and Sukuk
1.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* II Phase II Series A 2017
2.	PT XL AXIATA Tbk. (EXCL)	Sukuk *Ijarah* I phase I Series B I 2015
3.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Sukuk *Ijarah* I Phase II Series A 2013
4.	PT Summarecon Agung Tbk. (SMRA)	Sukuk *Ijarah* I Phase I 2013
5.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* V 2012
6.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I Phase IV Series B 2016
7.	PT Summarecon Agung Tbk. (SMRA)	Sukuk *Ijarah* I Phase II 2014
8.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I Phase I Series B 2014
9.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Sukuk *Ijarah* IV Series B 2010
10.	PT XL AXIATA Tbk. (EXCL)	Sukuk *Ijarah* I Phase II Series B 2017
11.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I Phase II Series C 2015
12.	PT Aneka Gas Industri Tbk. (AGII)	Sukuk *Ijarah* I Phase I Series A 2017
13.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Sukuk *Ijarah* I Phase I 2013
14.	PT Global Mediacom Tbk. (BMTR)	Sukuk *Ijarah* I Phase II 2017
15.	PT Timah Tbk. (TINS)	Sukuk *Ijarah* I Phase I Series A 2017
16.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* II Phase II Series B 2017
17.	PT XL AXIATA Tbk. (EXCL)	Sukuk *Ijarah* I Phase I Series C 2015
18.	PT Aneka Gas Industri Tbk. (AGII)	Sukuk *Ijarah* I Phase II Series A 2017
19.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I Phase IV Series C 2016
20.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I Phase I Series C 2014
21.	PT XL AXIATA Tbk. (EXCL)	Sukuk *Ijarah* I Phase II Series C 2017
22.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* Phase II Series D 2015
23.	PT Aneka Gas Industri Tbk. (AGII)	Sukuk *Ijarah* I Phase I Series B 2017
24.	PT Global Mediacom Tbk. (BMTR)	Sukuk *Ijarah* I Phase I Series A 2017
25.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Sukuk *Ijarah* Phase I Series A 2017
26.	PT Timah Tbk. (TINS)	Sukuk *Ijarah* I Phase I Series B 2017
27.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Sukuk *Ijarah* II Phase II Series A 2017
28.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* II Phase II Series C 2017
29.	PT XL AXIATA Tbk. (EXCL)	Sukuk *Ijarah* I Phase I Series D 2015
30.	PT Aneka Gas Industri Tbk. (AGII)	Sukuk *Ijarah* I Phase II Series B 2017
31.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I Phase III Series A 2015
32.	PT Global Mediacom Tbk. (BMTR)	Sukuk *Ijarah* I Phase I Series B 2017
33.	PT ANGKASA PURA I (PERSERO) (APAI)	Sukuk *Ijarah* I Series B 2016
34.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Sukuk *Ijarah* I PLN Phase II Series B 2013
35.	PT XL AXIATA Tbk. (EXCL)	Sukuk *Ijarah* I Phase II Series D 2017
36.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* II Phase I Series C 2017
37.	PT Global Mediacom Tbk. (BMTR)	Sukuk *Ijarah* I Phase I Series C 2017
38.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* II Phase II Series D 2017
39.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I I Phase II Series E 2015
40.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I Phase III Series B 2015
41.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* I Phase IV Series D 2016
42.	PT ANGKASA PURA I (PERSERO) (APAI)	Sukuk *Ijarah* I Phase I Series C 2016
43.	PT XL AXIATA Tbk. (EXCL)	Sukuk *Ijarah* I Phase II Series E 2017
44.	PT Indosat Tbk. (ISAT)	Sukuk *Ijarah* II Phase I Series D 2017
45.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Sukuk *Ijarah* II Phase I Series B 2017
46.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Sukuk *Mudharabah* III Phase I Series A 2017
47.	PT Bank Maybank Indonesia Tbk. (BNII)	Sukuk *Mudharabah* I Phase II 2016
48.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Sukuk *Mudharabah* II Phase II Tahun 2016 Seri B
49.	PT AdiraDinamika Multi Finance Tbk. (ADMF)	Sukuk *Mudharabah* II Phase III Series B 2017
50.	PT Bank Maybank Indonesia Tbk. (BNII)	Sukuk *Mudharabah* II Phase I 2017
51.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Sukuk *Mudharabah* III Phase I Series B 2017

(*continued*)

No.	Issuer	Obligation and Sukuk
52.	BPD Sumatera Barat (Bank Nagari) (BSBR)	Sukuk *Mudharabah* II 2015
53.	BPD Sulawesi Selatan Dan Barat (Bank Sulselbar) (BSSB)	Sukuk *Mudharabah* II 2016
54.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Sukuk *Mudharabah* II Phase II Series C 2016
55.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Sukuk *Mudharabah* II Phase III Series C 2017
56.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Sukuk *Mudharabah* III Phase I Series c 2017
57.	PT Indosat Tbk. (ISAT)	Bond I Phase III Series A 2015
58.	PT Indosat Tbk. (ISAT)	Bond VIII Series A 2012
59.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Bond I Phase II Series A 2013
60.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Bond II Phase II Series C 2013
61.	PT Maybank Indonesia Finance (BIIF)	Bond I Phase II Series A 2016
62.	PT Summarecon Agung Tbk. (SMRA)	Bond I Phase I 2013
63	PT Indosat Tbk. (ISAT)	Bond II IPhase II Series A 2017
64.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Bond IV Phase I Series A 2017
65.	PT PP Properti Tbk. (PPRO)	Bond I Series A 2016
66.	PT Summarecon Agung Tbk. (SMRA)	Bond I Phase II 2014
67.	PT Maybank Indonesia Finance (BIIF)	Bond I Phase III Series A 2016
68.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Bond III Phase III Series B 2016
69.	PT Aneka Gas Industri Tbk. (AGII)	Bond I Phase I Series A 2017
70.	Bank Victoria International Tbk. (BVIC)	Subordinate bond III fixed interest 2013
71.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Bond I Phase I Series A 2013
72.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Bond XI Series B 2010
73.	BPD Sumatera Barat (Bank Nagari) (BSBR)	Bond VII 2015
74.	PT Maybank Indonesia Finance (BIIF)	Bond I Phase II Series B 2016
75.	PT Maybank Indonesia Finance (BIIF)	Bond I Phase IV Series A 2017
76.	PT Indosat Tbk. (ISAT)	Bond I Phase III Series B 2015
77.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Bond III Phase VI Series B 2017
78.	PT Summarecon Agung Tbk. (SMRA)	Bond II Phase II 2017
79.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Bond III Phase II Series C 2015
80.	PT Global Mediacom Tbk. (BMTR)	Bond I Phase II 2017
81.	PT Aneka Gas Industri Tbk. (AGII)	Bond I Phase II Series A 2017
82.	PT TimahTbk. (TINS)	Bond I Phase I Series A 2017
83.	Bank Victoria International Tbk. (BVIC)	Bond I Phase I 2017
84.	PT PP Properti Tbk. (PPRO)	Bond I Series B 2016
85.	PT Aneka Gas Industri Tbk. (AGII)	Bond I Phase I Series B 2017
86.	PT Indosat Tbk. (ISAT)	Bond VIII Tahun 2012 Series B
87.	PT Global Mediacom Tbk. (BMTR)	Bond I Phase I Series A 2017
88.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Bond III Phase IV Series C 2016
89.	PT Bank Maybank Indonesia Tbk. (BNII)	Bond II Phase I Series A 2017
90.	BPD Sulawesi Selatan Dan Barat (Bank Sulselbar) (BSSB)	Bond I Phase I 2016
91.	BPD Sulawesi Selatan Dan Barat (Bank Sulselbar) (BSSB)	Bond I Phase II 2016
92.	PT ANGKASA PURA I (PERSERO) (APAI)	Bond I Series A 2016
93.	PT Angkasa Pura II (Persero) (APIA)	Bond I Series B 2016
94.	PT Angkasa Pura II (Persero) (APIA)	Bond I Series A2016
95.	PT Maybank Indonesia Finance (BIIF)	Bond I Phase IV Series B 2017
96.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Bond I Phase I Series B 2013
97.	PT Adira Dinamika Multi Finance Tbk. (ADMF)	Bond III Phase VI Series C 2017
98.	PT Global Mediacom Tbk. (BMTR)	Bond I Phase I Series B 2017
99.	PT Aneka Gas Industri Tbk. (AGII)	Bond I Phase II Series B 2017
100.	PT Timah Tbk. (TINS)	Bond I Phase I Series B 2017
101.	PT Global Mediacom Tbk. (BMTR)	Bond I Phase I Series C 2017
102.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Bond II Phase I Series C 2017

(*continued*)

Table A1.

Table A1.

No.	Issuer	Obligation and Sukuk
103.	PT Perusahaan Listrik Negara (Persero) (PPLN)	Bond II Phase II Series C 2017
104.	PT Indosat Tbk. (ISAT)	Bond I Phase I Series D 2014
105.	PT Indosat Tbk. (ISAT)	Bond I Phase II Series E 2015
106.	PT Indosat Tbk. (ISAT)	Bond I IPhase III Series D 2015
107.	PT Angkasa Pura II (Persero) (APIA)	Bond I Series C 2016
108.	BPD Sumatera Barat (Bank Nagari) (BSBR)	Subordinate bond II 2012
109.	Bank Victoria International Tbk. (BVIC)	Subordinate bond II 2012
110.	Bank Victoria International Tbk. (BVIC)	Subordinate bond I Phase I 2017

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