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Do Underlying Assets, Duration, Default Risk Level, Sukuk Liquidity, and Profitability Affect Sukuk Yield?

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ABSTRACT

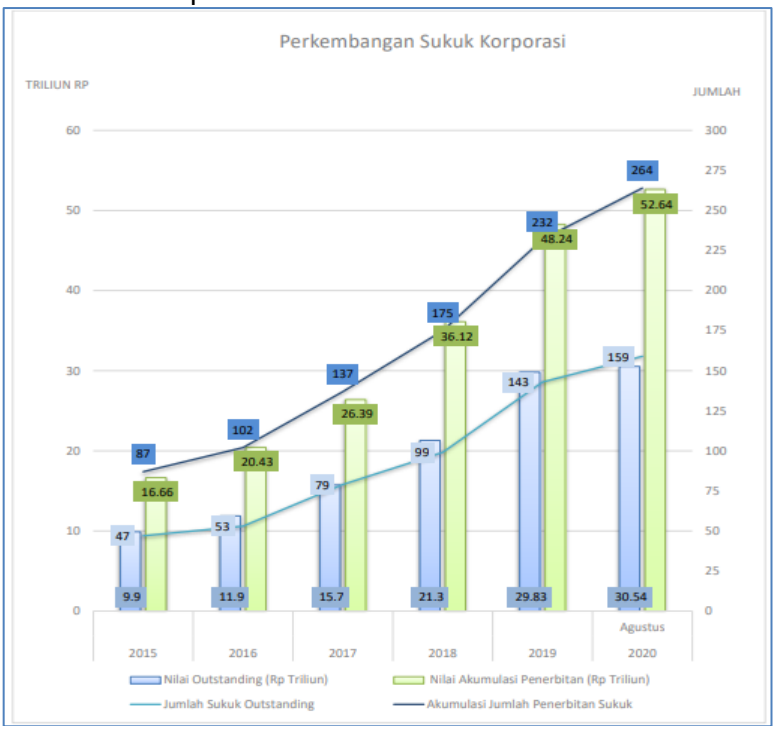
The purpose of this research is to determine how underlying assets, duration, default risk level, Sukuk liquidity, and profitability affect Sukuk yields between 2016 and 2019. One of the primary motivations for such studies was the failure of asset-based Sukuk with low default risk but not with asset-backed Sukuk. Then, this study focuses on two types of Sukuk, namely asset-based Sukuk and asset-backed Sukuk, and how the yield of each type is determined by the underlying asset. Until then, duration, default risk level, Sukuk liquidity, and profitability are used as control variables in evaluating the impact of underlying assets on Sukuk yields. This study employed an analysis of the difference between the two independent sample groups as well as multiple regression. The analysis was performed on each type of Sukuk. The analysis revealed that the Sukuk yields of the two groups differed, with an asset-based Sukuk generating more than an asset-backed Sukuk. Meanwhile, in asset-based Sukuk, the risk of default raises the yield while duration, liquidity, and profitability remain unchanged. The default risk level and profitability do not affect the yield in the asset-backed Sukuk group, whereas the duration and liquidity of the Sukuk have a positive effect on the yield.

Keywords: Asset-based Sukuk; Asset-backed Sukuk; Underlying Assets; Yield

INTRODUCTION

The Sharia economy, or Islamic economy, has existed in Indonesia since 1991, when PT Bank Muamalat Indonesia (BMI) was founded. On March 14, 2003, Capital Market Supervisory Agency and National Sharia Council-Indonesian Moslem scholars signed a memorandum of understanding to establish an Islamic capital market in Indonesia. The memorandum between the two demonstrates an intention to establish an Indonesian sharia-based capital market. The Islamic capital market continued to develop until 2018 when POJK No.3/POJK.04/2018, a refinement of POJK No.18/POJK.04/2015 concerning Sukuk Issuance and Requirements, was issued. The two government regulations serve as the legal foundation for the issuance of state sharia securities, which include both corporate and retail Sukuk. The flexibility of provisions related to the Continuous Public Offering (PUB) of Sukuk is one of the new features of this regulation. Figure 1 depicts the growth of corporate Sukuk in Indonesia.

Figure 1. The Growth of Corporate Sukuk in Indonesia



Source: Financial Services Authority (OJK, 2020)

In accordance with the data from Financial Services Authority in Figure 1, the value of Sukuk issuance increased by 52.64 trillion rupiahs between 2015 and August 2020. The existence of socialization, education, and policy development strategy has aided the expansion of the Islamic capital market (OJK, n.d.). Sukuk issuing companies are increasingly being used to fund infrastructure projects by charging a fixed fee or a percentage of the project's cost.

Retail Sukuk is also experiencing rapid development as is the Corporate Sukuk. Based on press releases announced by the Directorate General of Financing and Risk Management at the Ministry of Finance for each series of Retail Sukuk, several series of Retail Sukuk issued have exceeded the Government's indicative target (Bareksa, 2020). It shows a large public interest in buying Retail Sukuk. As a result, there is the potential

for purchase orders that are not approved by the government because the number of orders has exceeded the sales quota given to all selling agents.

It is plain to see why Sukuk is one of the options for companies looking to raise capital. Sukuk has a high demand for halal investments that are free of usury, *gharar* (risk), and *maysir* (gambling), so the instruments used must adhere to sharia principles. Currently, capital market instruments that adhere to Sharia principles have a greater potential for investors than conventional instruments, where investors include both Moslem and non-Moslem investors, both domestic and international.

However, the development of Sukuk in Indonesia is fraught with difficulties. The most difficult challenge in the development of Sukuk in Indonesia is that experts have been debating whether Sukuk is fundamentally different from bonds. Sukuk are simply assimilation products or sharia securities that have been conventionalized. Even so, Islamic finance experts agree that the main distinction between Sukuk and bonds is the presence of underlying assets in the case of Sukuk.

Further, aspects of trustworthiness in Sukuk following the failure of Sukuk in Gulf Corporation Council (GCC) countries, Malaysia, and Indonesia also slowed the development of Sukuk in Indonesia (Naifar & Mseddi, 2013; Khudari & Saad, 2019). During Sukuk default phenomenon in 2008, all asset-based Sukuk in Indonesia suffered a failure. Despite this, companies in Indonesia prefer to issue asset-based Sukuk over asset-backed Sukuk due to their simpler nature and similarities to conventional bonds (Usmani, 2007; Godlewski et al., 2016). The difference is that the yield on Sukuk is directly related to the amount of profit made from the underlying asset transaction, rather than by the rate of interest or other shariah activities. Because of that, it is assumed that the performance of the Sukuk is dependent on the performance of its underlying assets. Therefore, an analysis of the yield of Sukuk in Indonesia is still relevant and critical.

LITERATURE REVIEW

Definition of Sukuk

Sukuk is derived from the Arabic words *Sak* (singular) and *Sukuk* (plural), which means a certificate, note, or proof (claim) of ownership. In practice, a Sukuk serves as proof of ownership. Sukuk are specifically defined in Shariah Standard Number 17 concerning Investment Sukuk (Accounting and Auditing Organization for Islamic Financial Institutions [AAOIFI], n.d.a). AAOIFI (2008) defined Sukuk as a certificate of equal value representing an undivided share in the ownership of tangible assets, usufruct, and services, or (in the ownership of) the assets of particular projects or special investment activity.

Zolfaghari (2017) defines a sukuk as an asset-backed bond structured in accordance with Shariah and which may be traded in the market. In Indonesia, Sukuk is specifically defined in National Sharia Council Fatwa No.32/DSNMUI/IX/2002 as follows, “Sharia-compliant long-term securities issued by obligors to sharia bondholders that require the obligor to pay bondholders earnings in yields or margin fees, as well as repay bond funds at maturity" (Indonesia. Supreme Court, 2002).

Conforming to Financial Services Authority Regulation No.18/POJK.04/2015, Sukuk are sharia securities in the form of certificates of ownership that have the same value and represent an inseparable or undivided share of the underlying asset (OJK, 2015).

As specified by Financial Services Authority Regulation No. 36/POJK.04/2014 on the Issuance of Sukuk, a Sukuk is defined as a certificate of equal value that is verified as ownership but not distributed over an asset, certain tangible assets and services, certain project assets, and/or activities, and certain predetermined investments that serve as the foundation for issuing Sukuk (OJK, 2014).

Sukuk confirmedly is not a debt instrument like bonds, but instead part of the remark of ownership of the benefits of an asset. Sukuk certificates, like bonds, have a maturity date, and holders are entitled to a regular stream of income throughout the life of the Sukuk, in addition to payments at maturity. Furthermore, Sukuk and shares are similar financial instruments in that they represent ownership claims and the return on both investments is not guaranteed. However, Sukuk are tied to a specific asset or project for a set period of time, whereas stocks represent ownership claims on the entire company with no maturity date.

According to theories, Sukuk, ordinary bonds, and shares are distinct. There are numerous differences between the three instruments. Sukuk has an advantage over traditional bonds because it is based on a real, identifiable, economic transaction that is completely backed by a real asset or service, resulting in long-term, stable economic growth and welfare for society as a whole.

There are significant differences between Sukuk and conventional bonds, including the use of the concept of return and profit-sharing as a substitute for interest, the existence of an underlying transaction in the form of a certain number of assets that form the basis for the issuance of Sukuk, and the existence of a contract or agreement outlined between both parties. As specified by Islamic principles, it ensures that these financial instruments are secure and free of usury, *gharar* (risk), and *maysir* (gambling). Compliant with the fatwa on Sukuk issued by AAOIFI (n.d.b), the following are some characteristics of Sukuk. Sukuk represent a proportional ownership stake in an underlying asset, thereby establishing Sukuk holders as the owners of the financial rights and obligations associated with the Sukuk. These underlying assets can encompass non-monetary assets, usufruct, services, or a combination thereof, as well as intangible rights, debt, and monetary assets. The issuance of Sukuk involves Sharia contracts, ensuring compliance with Islamic principles. Furthermore, Sukuk trading adheres to sharia principles governing both issuance and trading activities. Additionally, Sukuk holders mutually share in the benefits and losses in accordance with their proportions as specified in the prospectus.

Stand on those various explanations, the underlying asset is used to avoid usury, which is required for Sukuk transactions in the secondary market, as well as to determine the type of Sukuk structure.

Sukuk Underlying Assets

A Sukuk, from a sharia perspective, is essentially a representation of the ownership rights of assets that are fully transferred by the Sukuk issuer to the Sukuk holder via an intermediary known as a Special Purpose Vehicle (SPV). As a result, the Sukuk holder has full rights to the asset's commercial selling value or profit. If the underlying asset suffers a loss, the holder must be willing to bear the risk of the loss.

In general, the principle of Sukuk is the same as that of conventional bonds. The main difference between Sukuk and conventional bonds is the use of the concepts of rewards and profit-sharing from underlying assets, which replaces the concept of interest, which

is forbidden in Islam. To prevent "money for money" transactions, which can be classified as usury. The existence of underlying assets is required by Sharia principles. Sukuk is categorized into four types based on the underlying assets, they are asset-based Sukuk, debt-based Sukuk, asset-backed Sukuk, and agency-based Sukuk.

An asset-based Sukuk is a Sukuk based on real assets that are used as the basis for the issuance of a Sukuk, but those real assets are not used as a source of payment and do not automatically become a backup for payment. Furthermore, the yield is determined as a percentage of the total amount "invested" rather than as a percentage of the total profit.

Meanwhile, an asset-backed Sukuk is a Sukuk that is pledged as collateral for assets, with asset-based issuance being real. This asset is separated from its ownership in the Special Purpose Vehicle (SPV) and becomes the source of payment.

Likewise, an agency-based Sukuk is a Sukuk that represents project ownership or business activities carried out through *wakalah* (contract of an agency), by appointing agents to manage business or investment activities on behalf of investors. The amount of return that investors receive is determined by an agreement between the agent and the investor.

Differences in the form or structure of Sukuk, of course, lead to variation in yields or returns. Due to the difference in underlying assets, investors expect varying returns from various types of underlying assets. Based on the foregoing, this study focuses specifically on two types of Sukuk, namely asset-based Sukuk and also asset-backed Sukuk, because they are the most commonly issued and traded in Indonesia. Then the following hypothesis is formulated.

H1: The yield generated by asset-based Sukuk differs from the yield generated by an asset-backed Sukuk.

Sukuk Investment Evaluation

The yield generated by a Sukuk explains its performance. A Sukuk yield essentially provides information to investors to help them make investment decisions. In conformity with Tandelilin (2017), there are five yield measures, they are nominal yield, current yield, yield to maturity (YTM), yield to call (YTC), and realized yield. Each yield represents the rate of return from a different perspective. The yield measures and definitions are summarized in Table 1 below.

Table 1. Yield Measurement and Concept

No.	Yield Measure	Concept
1.	Nominal yield or coupon rate	Bond investors regularly receive coupon interest income. The coupon rate is expressed as a percentage of the face value of the coupon. The nominal yield is calculated based on the nominal value, which is always a fixed amount.
2.	Current yield	The annual coupon interest income is divided by the bond's market price. The current yield is based on market value, which can fluctuate.

3.	Yield to maturity (YTM)	The compound rate of return is the amount of money that investors will receive if they buy bonds at the current market price and hold them until maturity.
4.	Yield to call (YTC)	The total return that will be received if the bond purchased is held only until its call date instead of full maturity.
5.	Realized yield	The actual return earned during the holding period for an investment. It can be applied to a bond sold before its maturity date.

Source: Tandelilin (2017)

Following Sharpe et al. (2005), investments can be evaluated and explained through yields that are reliant on several valuation attributes. namely as follows.

The Period to Maturity or Duration

This attribute determines the amount and timing of cash flows promised to Sukuk holders by the obligor. At current market prices, this attribute, together with the coupon rate, can be used to determine yield. Each bond has maturity, also known as a maturity date, which is the date on which the principal value of the bond must be repaid by the bond issuer. Likewise, with Sukuk, when the Sukuk matures, the obligor must pay the Sukuk holder the nominal value of the Sukuk. This is significant because it impacts the amount and timing of cash flows promised by the obligor to bond or Sukuk holders. The interest rate structure theory can be used to explain the link between duration and yield. The longer the bond's duration, the greater the risk of uncertainty and hence the predicted interest rate (Tandelilin, 2017). As a result, the following hypothesis emerges.

H2: The duration of a Sukuk does have a beneficial impact on its yield.

The Default Risk Level

When investors elect to hold a Sukuk to maturity, they are exposed to a variety of risks, including are: (a) default risk as that is the risk of not receiving payment; (b) liquidity risk, which is a potential loss if a Sukuk owner needs cash before maturity and is unable to sell securities in the secondary market at an acceptable price. If this happens, investors can offer Sukuk to selling agents as a backup.

Risk, including default risk, can be used as a deciding factor in an investment decision based on how far an investor is willing to go with risk. Investors who dislike risk will choose a low-risk investment, even if the return obtained is also low. However, investors who enjoy high risk will choose the type of high-risk investment with higher returns (Junaeni, 2020).

Default risk, often known as credit risk, is the danger that the counterparty will fail to satisfy its commitments, whether principal or coupon. Sukuk structures have an asset-backed financing feature and are completely secured; all cash flow and profits generated by the asset are allocated to Sukuk holders based on their share and the type of the Sukuk. However, in practice, the vast majority of Sukuk issued are not truly asset-backed. For example, in the case of Ijarah Sukuk, the performance of the asset is no longer of importance to Sukuk holders. Borrower agrees to repurchase the asset at maturity in an amount equivalent to the face value of the Sukuk outstanding. Sukuk holders are interested in coupon payments upon maturity. Sukuk that are strictly built in accordance with Shariah will have no credit risk because they are completely backed by assets.

Because shariah forbids debt trading, rescheduling debt for a higher markup is prohibited under Sukuk. This ban increases the risk of default for Sukuk compared to ordinary bonds, as Sukuk issuers are more likely to default.

Furthermore, although a conventional bond is a debt obligation, a Sukuk is a certificate of ownership, so in the event of a default, Sukuk investors have a very limited opportunity to recover their original investment. Sukuk managers are only responsible for any Sukuk default within the scope of their control and skills. As a result, if default occurs due to external circumstances, such as the global financial crisis, Sukuk holders will bear all losses. However, some Sukuk offerings do not give for legal ownership of underlying assets, but rather a right to return, which is not Shariah-compliant (Usmani, 2007).

All Sukuk offerings should be backed by physical assets, but determining which asset is appropriate can be tricky. The asset should be shariah-compliant and capable of producing good returns. These principles can be difficult to apply in non-Muslim societies because the distinction between Haram (forbidden by shariah) and Halal (permissible by shariah rules) activities is frequently misunderstood and more complex than in countries with established Shariah principles. Until recently, the primary underlying asset employed in Sukuk issuance was real estate. Because it is impossible to specify the market value of an underlying asset at the time of issue in order to determine its fair value, the parties must also clarify the methods for determining the market value, as well as procedures and valuation techniques.

Sukuk risks are essentially considered as systematic and unsystematic. Risks are handled or mitigated, but they cannot be removed completely. Risk management is a crucial aspect of financial planning. Risk management is a process in which risks are analyzed, evaluated, managed, and measured. It is a constant process. The following table reclassifies the Sukuk risk into systematic risk and non-systematic risk.

Table 2. Risk Associated with Sukuk According to Conventional Risk Classification

Systematic (Market) Risk	Non-systematic (Specific) Risk
Regulatory risk	Risk of default
Sharia compliance risk	Asset related risk
Liquidity risk	Staff-related risk
Rate of return risk	
Foreign exchange risk	

The credit risk for Sukuk holders is that the commitment to honour financial obligations, such as rentals, profit sharing, and asset repurchases, as and when due, may not be fulfilled. Sukuk rating benefits both investors and issuers. For investors, ratings quantify the risk of timely payment of financial risk in comparison to other Sukuks. Sukuk rating offers numerous advantages to issuers, including (1) it facilitates the pricing or assessment of necessary returns; (2) it promotes access to capital markets; and (3) it boosts investor trust. Many jurisdictions require Sukuk rating.

Rating opinions are based on a forward-looking, through-the-cycle perspective and are assigned following a rigorous analytical procedure. Sukuk Rating, like other financial instrument rating scales, has nine alphanumeric categories ranging from AAA to C. "AAA" is the highest possible rating.

The rating is frequently used as an indicator of the possibility of an obligor default to estimate the level of default risk of a Sukuk. According to the Pefindo rating, one of the top four available ratings is a bond's investment grade (AAA). The speculation rating, on the other hand, includes the bonds in the lower four ratings (BB to D). This rating indicates the greatest credit quality of the instrument, indicating an extraordinarily good potential for payback. D stands for default and represents the actual condition of default for Sukuk.

The Sukuk ratings are listed in the following order highest to lowest.

Table 3. The Sukuk Rating, Category, and Rating Value

Sukuk Rating	Category	Rating Value
Investment Grade		
idAAA(sy)	Most excellent	8
idAA(sy)	Very strong	7
Ida(sy)	Strong	6
idBBB(sy)	Adequate	5
Non-Investment Grade		
idBB(sy)	A little frail	4
idB(sy)	Weak	3
idCCC(sy)	Vulnerable to default	2
IdD(sy)	Failed to pay	1

Rating agencies like Standard & Poor's and Moody's Investors agencies also evaluate the default risk of bonds to help investors assess their future payment chances. Bond ratings have been a useful guide in determining the danger of default. greater-rated bonds have low default rates, while lower-rated bonds experience greater rates. The better the ratings, the fewer the issues that would eventually default. With lesser ratings, the default proportion rises considerably. As a result, the default premium increases as ratings fall.

Sukuk ratings include an assessment of the issuer and a view on the projected loss to be covered in the case of default via the "security structure" underlying the debt instrument. As a result, a sukuk rating combines two factors: the likelihood of default and the prospects for recovery. This allows the rating to be pitched "higher" (for secured instruments) or "lower" (for subordinated instruments) compared to the issuer rating.
Sukuk in the Investment grade category have a super-premium price and a low yield, whereas bonds within the Noninvestment grade category have a low price and a high yield. The difference in yield gain between Investment as well as Noninvestment rated bonds is the difference in default risk. In other words, the higher the default risk, the higher the yield generated. As a result, the following hypothesis emerges.

H3: The level of default risk positively affects the Sukuk yield.

Trading Simplicity or Sukuk Liquidity

Liquidity is defined as the ease with which an asset can be sold while remaining close to its fair value (Bodie et al., 2014). Sukuk liquidity can be defined as an investor's ability to quickly sell assets without significantly changing prices (Sharpe et al., 2005). It can be said that a liquid Sukuk is a Sukuk that is widely circulated among Sukuk holders and is frequently traded by Sukuk market investors (Fabozzi & Fabozzi, 2021). Sukuk's high liquidity reduces risk. If liquidity grows, yields will fall. Investors should expect low yields

due to low risk. So active Sukuk should have lower yields and a higher intrinsic value than less actively traded Sukuk (Sharpe et al., 2005).

Individual and institutional investors use liquidity as the basis for deciding when to release assets from their investment portfolio. According to Pribadi (2020), Sukuk liquidity harms yield. By Nurfauziah and Setyarini (2004), Sukuk liquidity affects yield.

In terms of bonds, actively traded bonds typically have lower bid-ask spreads than inactive bonds so that active bonds should have lower yields but greater intrinsic value. As a result, the following hypothesis emerges.

H4: Sukuk liquidity negatively affects the Sukuk yield.

Profitability

Profitability is the company's ability to generate profits at a given level of sales, assets, or capital. Bond-rating agencies use several financial ratios to evaluate bonds, one of which is the profitability ratio. Companies with high asset returns can raise capital in the stock market because they provide better return prospects (Bodie et al., 2014). Profitability ratios are commonly used by investors to evaluate investment opportunities and risks. High profitability sends a positive signal to investors, leading to an increase in bond yields. As a result, the following hypothesis emerges.

H5: The profitability of the obligor positively affects the Sukuk yield.

RESEARCH METHOD

Design of Research

This study was carried out on the Indonesia Stock Exchange (IDX) between 2016 and 2019, employing a test of two independent sample groups as well as multiple linear regression. The difference test of two independent sample groups was used to determine whether there was a difference in yield due to differences in underlying assets. Meanwhile, a multiple linear regression analysis was performed to investigate the impact of duration, default risk level, liquidity, and profitability on Sukuk yields. The purposive sampling technique was utilized for determining the sample based on criteria set by the researcher (Sekaran & Bougie, 2016). The following criteria were used to select sample members: (1) A corporate Sukuk is issued by a non-governmental organization; (2) Sukuk are issued by companies that are listed on the IDX and have not been delisted between 2016 and 2019; (3) Sukuk are actively traded between 2016 and 2019; (4) Sukuk are still outstanding and have not yet matured between 2016 and 2019; (5) A type of asset-backed or asset-based Sukuk; and (6) During the observation periods, the obligor issues a complete financial report.

Variable Operational Definition and Variable Measurement

Sukuk Yield

This research employed yield to maturity as the measure of Sukuk yield. The following formula is used to calculate yield:

$$\text{YTM} = \frac{C + \frac{F-p}{n}}{\frac{F+p}{2}} \times 100\%$$

Where:
YTM = yield to maturity
C = coupon
F = face value

p = market value
n = due date

Underlying Asset

The underlying asset is an asset that serves as the foundation for Sukuk issuance transactions. It was classified into two types based on the contract, namely asset-based Sukuk and asset-backed Sukuk. After being selected based on the criteria, there were 57 Sukuk in the asset-based category and 44 Sukuk in the asset-backed category. In Indonesia, *Ijarah* (rent) and *Murabahah* (cost plus financing) Sukuk are two types of asset-based Sukuk. Meanwhile, *Mudharabah* (profit & loss sharing) and *Musyarakah* (joint enterprise) Sukuk are included in asset-backed sukuk.

Duration

Duration denotes the time elapsed between the initial issuance of the Sukuk and the maturity date at which the Sukuk must be repaid by the bond issuer. The maturity period of the Sukuk, expressed in years, is used to calculate the duration.

Risk Level by Default

The default risk level is reflected in the Sukuk rating. It is represented by qualitative symbols which were converted into quantitative forms using an ordinal scale (score). A Sukuk rated in the Investment category receives a score ranging from Most Excellent (4) to Adequate (1). Meanwhile, Sukuk in the Non-Investment category is given a score of zero. Table 4 presents the quantitative scores of the qualitative ratings.

Table 4. Sukuk Rating, Category, and Score

Sukuk Rating	Category	Score
Investment Grade		
idAAA(sy)	Most excellent	4
idAA(sy)	Very strong	3
Ida(sy)	Strong	2
idBBB(sy)	Adequate	1
Non-Investment Grade		
idBB(sy)	A little frail	0
idB(sy)	Weak	0
idCCC(sy)	Vulnerable to default	0
IdD(sy)	Failed to pay	0

Sukuk Liquidity

The liquidity of a Sukuk is the ease with which it can be traded. It is estimated using the volume of Sukuk trading. Researchers consider trading volume as a proxy for liquidity because it reflects the degree of demand for retail sukuk, namely the sukuk demanded and offered by investors in the secondary market. Furthermore, trading volume might indicate the level of purchasing and selling interest in market transactions. The width and depth dimensions of liquidity can be measured using trade volume as the basis. Thus, increased trade volume shows that sukuk are more liquid. Trading volume is shown as follows.

$$V = \Sigma P_i - Q_i$$

Where:
V = trading volume
P_i = the price of the *i-year* instrument traded in a certain period
Q_i = number of instruments traded

The annual price and number of instrument traded data was obtained from the Indonesian Bond Market Directory (IBMD).

Profitability

Profitability refers to a firm's ability to generate returns from all its assets, sales, or equity capital. Return on equity (ROE) is an indicator of the extent to which a business is able to manage the capital of its investors. Investors can decide whether or not to invest based on ROE. For the company itself, For the company itself, ROE is a measure used to determine whether or not to expand. Moreover, profitability can be used as an evaluation of the effectiveness of the management of the business entity (Lumapow & Tumiwa, 2020). Then, ROE was calculated by dividing earnings before taxes by its equity.

Analytic Tools

The Two-Sample Independent t-test was used to confirm the difference between the yields produced by the asset-based Sukuk group and the yields produced by the asset-backed (Hypothesis 1). Moreover, a multiple linear regression analysis was used to test H2, H3, H4, and H5, with the following formula for each group.

$$Y = \alpha + \beta_2 Duration + \beta_3 DefaultRisk + \beta 4 SukukLiquidity + \beta_5 Profitability + \mathcal{E}$$

RESULTS

The following Table 5 shows the descriptive statistics for the data.

Table 5. Descriptive Statistics for the Asset-based and Asset-backed Sukuk Group

Asset-based Sukuk Group								
Description	M	Med.	Min.	Max.	Kurtosis	Skewness	Count	Confidence Level (95%)
Yield	3.5543	3.5278	3.4349	3.9889	5.9152	1.8132	57	0.02605
Duration	7.6428	7	5	12	-1.1149	0.3835	57	0.6095
Default Risk Level	0.8036		0	4	2.7665	1.7773	57	0.2996
Sukuk Liquidity	11.321		1	84	9.6006	2.8469	57	4.0829
Profitability	2.7245		-0.04	8.99	2.5621	1.7128	57	0.5374
Asset-backed Sukuk Group								
Yield	2.1699	1.8562	1.7369	3.6582	1.1572	1.6956	44	0.1909
Duration	4.5455	5	3	8	0.7390	0.8567	44	0.4421
Default Risk Level	0.9091	1	0	3	-0.2053	1.0131	44	0.3266
Sukuk Liquidity	3.7727	3	1	10	1.1636	1.2491	44	0.7208
Profitability	2.6915	2.18	0.15	7.44	1.1139	1.4022	44	0.5875

Source: Processed data (2020)

Table 5 shows that the data of the asset-based and asset-backed Sukuk groups are not normally distributed. Because the data was of the panel variety, this was not a problem to continue the analysis. Furthermore, testing of H1 was investigated using a different test for two groups of independent samples. The results are as follows.

Table 6. The Difference Test for the Two-Sample Groups

t-Test: Two-Sample Assuming Equal Variances		
	The Yield of Asset-based	The Yield of Asset-backed
Mean	34.8264	11.2768
Variance	7.5992	108.8748
Observations	57	44
Pooled Variance	52.0365	
Hypothesized Mean Difference	0	
df	98	
t Stat	16.2050	
P(T<=t) one-tail	0.0000885**	
t Critical one-tail	1.6606	
P(T<=t) two-tail		0.0000177**
t Critical two-tail		1.9845

Note: * $p < .10$; ** $p < .05$

The analysis revealed that the yields on Sukuk differed between the two groups, with an asset-based Sukuk generating more than an asset-backed Sukuk. A t-statistical value greater than t-Critical, and a p-value less than 0.05 implied that. Tables 7 below show the results of hypotheses tests 2, 3, 4, and 5.

Table 7. Multiple Regression Analysis Results for the Asset-based and Asset-backed Sukuk Group

Asset-based Sukuk Group			
Construct	Coefficient	SD	*t Stat*
Intercept	32.3669	1.2871	25.1475***
X2 (Duration)	0.1658	0.1397	1.1869
X3 (Default Risk)	1.2399	0.3155	3.9297***
X4 (Sukuk Liquidity)	0.0315	0.0221	1.4239
X5 (Profitability)	-0.0591	0.1557	-0.3795
R^2	0.6945		
Asset-backed Sukuk Group			
Intercept	-5.0700	2.4569	-2.0636**
X2 (Duration)	1.2528	0.5096	2.4586**
X3 (Default Risk)	0.4704	0.6059	0.7762
X4 (Sukuk Liquidity)	2.5575	0.2683	9.5314*
X5 (Profitability)	0.7538	0.4605	1.6371
R^2	0.8565		

Note: * $p < .10$, ** $p < .05$, SD = Standard Deviation.

DISCUSSION

According to Table 7, for the asset-based Sukuk group, the default risk level has a positive effect on the yield (coefficient = 1.2399; p-value = 0.0003) while duration, liquidity, and profitability do not affect the yield of a Sukuk. The occurrence of defaults on Sukuk obligors in the 2008 crisis was actually experienced by asset-based Sukuk but not by asset-backed Sukuk. At that time, many investors seemed to not understand the meaning of the difference between the terms "asset-based" and "asset-backed" and their implications for investor protection yet. As reported by the analysis, investors' understanding of the default risk level on asset-based Sukuk has improved, as have their characteristics and implications for investor protection, thereby affecting yields. Teoh et al. (2021) asserted that some experienced investors prefer to take on a high level of risk, while others prefer to take a low level of risk. These direct investors are constantly updating their knowledge in order to be more conscientious in reading price and risk levels at all times.

Because asset-based Sukuk are bond replications, they share similarities in terms of debt and risk of failure. Unlike asset-based Sukuk, asset-backed Sukuk does not have a debt structure. The type of asset-backed Sukuk operates on the profit-and-loss sharing principle. Thus, the level of default risk is that a higher type of asset-based Sukuk causes investors to seek higher yields as compensation for the risks they face. The greater the expected risk, the greater the anticipated return.

In the matter of yield in the asset-backed Sukuk group, it reveals a different condition. Table 7 indicates that the level of default risk and profitability does not affect the amount of yield generated. Meanwhile, duration and liquidity have a positive effect on the yield, at 5% and 10%, respectively.

Concerning the duration of the Sukuk, the longer the duration, the higher the perceived risk by investors. As a result, the price of Sukuk is lower while the yield is higher. The findings are consistent with previous research by Chen et al. (2011), Putri et al. (2020), Yuliani et al. (2016), Paisarn (2012), and Che-Yahya et al. (2016), who discovered that duration had a positive effect on bond yield. This means that the longer the duration, the higher the yield. Fabozzi and Fabozzi (2021) showed the longer the remaining life of a Sukuk, the greater the change in the Sukuk's price level due to changes in yield.

Furthermore, Sukuk liquidity, as measured by trading frequency, positively affects yield. This is inconsistent with the theory. Even so, in line with Friewald et al. (2012), the positive relationship between Sukuk liquidity and yield can be explained by market conditions for Sukuk with smaller trades. As a result, while trading volume indicates good liquidity, it is still volatile, so it does not always lower yields and has a negative relationship with yields. Moreover, investors in asset-backed Sukuk tend to keep the Sukuk until maturity. This is most likely due to asset-backed Sukuk's higher average yield and shorter-term when compared to asset-based Sukuk.

This finding is consistent with those of Utz et al. (2016) on German Mittelstand Bonds. They demonstrated that Sukuk liquidity has a positive effect on the yield spread. Helwege et al. (2014) also found that liquidity has a positive impact on bond yield spreads. This finding, on either hand, differs from that of Bao et al. (2011), who discovered that liquidity reduces bond yields, implying that the higher the bond liquidity, the lower the expected yield.

CONCLUSION

Based on the analysis, it becomes apparent that there exist notable distinctions in the yield generated by asset-based Sukuk compared to asset-backed Sukuk. Asset-based Sukuk demonstrate a higher yield when juxtaposed with their asset-backed counterparts. Within the asset-based Sukuk sample, the yield variation is primarily influenced by the level of default risk, indicating a direct correlation between default risk and yield. Conversely, factors such as duration, Sukuk liquidity, and profitability do not exert significant impact on the yield of asset-based Sukuk. In contrast, the asset-backed Sukuk group displays a different pattern, wherein both duration and liquidity demonstrate a positive correlation with yields, suggesting that longer durations and higher liquidity levels tend to enhance yields. Surprisingly, neither the level of default risk nor profitability appear to significantly influence the yield within the asset-backed Sukuk category.

Based on these findings, it is advisable for investors to consider the specific characteristics and risk profiles associated with asset-based and asset-backed Sukuk when making investment decisions. For those seeking higher yields, asset-based Sukuk may present a more attractive option, given their tendency to offer higher returns. However, investors should be mindful of the associated default risk, which appears to play a significant role in determining yields for asset-based Sukuk. Conversely, asset-backed Sukuk may be preferred by investors looking for stability and predictability in returns, as factors such as duration and liquidity positively impact yields within this category. Nevertheless, investors should conduct thorough due diligence and consider their risk tolerance and investment objectives before allocating funds to either type of Sukuk. Additionally, further research into the underlying assets and market conditions may provide valuable insights for optimizing investment strategies in Sukuk.

The study's findings can assist investors decide whether to invest in sukuk. Future research should include cross-country data analysis or additional Sukuk series, as well as other aspects. Further researchers may conduct cross-country analysis or include several other Sukuk series; further elements are required in future research.

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DECLARATION OF CONFLICTING INTERESTS
I hereby declare that neither the conduct nor the results of this research will lead to any conflicts of interest among the parties involved.

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