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Sukuk Performance Using Comparison of Return and Risk Through Calculation of Market Price and Fair Price

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Abstract

Sukuk investors' important information used by investors of Sukuk (proof or claim of ownership on assets) is the market price of the Sukuk issued by the IDX and the fair price of the Sukuk issued by the Indonesian Securities Price Appraiser (PHEI). This is a signal or initial information for investors in considering the decision to invest in Sukuk. The measured performance returns as measured by Holding Period Yield (HPY), Yield To Maturity (YTM), and Sharpe Index, while Risk of Sukuk is measured based on its standard deviation. Corporate Sukuk are classified into financial and non-financial sectors and have short, medium, and long maturities. Comparative analysis is conducted using an Independent Sample t-test and ANOVA. The results showed that the average Sukuk return was calculated at a higher market price than the fair price. Sukuk return results in a pattern of movement that tends to be inversely proportional to the market price or fair price of the Sukuk, while the risk of Sukuk based on price issuing institutions had a movement pattern that tends to be in the same direction as the price. Furthermore, corporate Sukuk in the non-financial sector had a higher average return but was more susceptible to risk than the financial sector. Corporate Sukuk with long maturities had a higher average yield and risk exposure than medium and short-term Sukuk. Hypothesis testing showed a significant difference between the market price and the fair price of corporate Sukuk.

Keywords: *Sukuk, Return, Risk, Market Price, Fair Price*

INTRODUCTION

Sukuk can be interpreted as a certificate representing ownership rights intangible assets that are not proportionally divided or a collection of tangible assets and other types of assets. These assets can be specific projects or investment activities following sharia principles (IFSB, 2018, p. 8). Global Sukuk instrument trading shows continued growth. According to IIFM (2019, p. 21), global Sukuk increased 5% from USD 116.7 billion in 2017 to USD 123.15 billion in 2018. The total volume of global Sukuk circulating from various countries, 91.41% represented only by five countries, namely Malaysia 49.32%, Saudi Arabia 20.10%, Indonesia 11.98%, UAE 7.46%, and Turkey 2.55%.

Based on the publishing institution, Sukuk in Indonesia is divided into 2 (two), sovereign Sukuk and corporate Sukuk. The corporate Sukuk market fluctuates and even tends to increase since PT Indosat, Tbk, in 2002 first published the corporate Sukuk. Indosat's successful footprint was followed by other companies for funding needs and attracting a more diverse investor base. According to data published by OJK (2019), recorded at the end of 2018, there was 177 total issuance of corporate Sukuk worth Rp36.5 trillion. This amount increased by 38.8% compared to 137 emissions in 2017, with a total of Rp 26.3 trillion. The positive trend of growth shows the aggressiveness of issuers to issue Sukuk to meet its funding needs.

Corporate Sukuk in the sharia capital market can be traded on primary and secondary markets. Most of the corporate Sukuk trades that occur in the secondary market are still conducted through the Over The Counter (OTC) mechanism, thus impacting the disclosure of price information that occurs in the exchange market. Indonesian Bond Pricing Agency (IBPA) must assess IDX's market price independently to solve that problem. Currently, the market price issued by IDX and the fair price of Sukuk issued by PHEI is two essential components used by Sukuk investors. The price information is a preliminary signal for investors deciding to invest in Sukuk, obtain capital gains, or buy Sukuk on the secondary market.

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However, the problem is how much the significance level differences between price information from one source to another are calculated through the Sukuk's performance so that this research becomes essential to do.

Related empirical research on Sukuk performance and price (Aslam et al., 2021; Ayuningtyas, 2017; Barqawi, 2018; Bhuiyan et al., 2020; Desrizal, 2016; Mufidati, 2016; Razak et al., 2019; Rodoni & Setiawan, 2016; Rubiyanti, 2019; Saad et al., 2018; Suciningtias, 2019) but which focuses on the performance of corporate Sukuk using market price information and fair price with the sectoral based are missing. This research is a development of calculating investment performance in the corporate Sukuk of the financial and non-financial sectors that can be used as input material for investors to determine Sukuk investment options and reduce the risk.

This study is different from previous studies, especially in determining samples based on Sukuk agreements that are not only on Sukuk ijarah but also Sukuk mudharabah and Sukuk wakalah. The type of Sukuk studied is a corporate Sukuk by distinguishing the type of business of the corporate Sukuk issuer in the financial and non-financial sectors. In addition to period differences, the study also analyzes daily Sukuk trade data, which will then be accumulated into monthly average data. It does not use rating variables in Sukuk performance assessments because rating standards have been set in determining criteria sampling-based on purposive sampling.

LITERATURE REVIEW

Sukuk return

Return is a reward for the Investor's decision to bear the risk of his investment. Various methods can be used to calculate Sukuk returns, either using or not using risk factor considerations in their formulations. Sukuk's return can be calculated by calculating the realized return, expected return, and risk-adjusted return (Tandelilin, 2017).

Investment in Islam is also natural and allowed as long as the investment is not off and under sharia principles. According to Htay et al. (2013), the principle of investment in Islam is to apply the concept of revenue sharing in investing based on sharia principles. The concept requires the parties involved in the investment process to accept all the consequences as a result of the investment, namely obtaining profits or bearing their losses together. Allocating Islamic investment funds must be used in the halal business sector and cover all aspects of both the conditions and agreements used. The investment channels must also work under Islamic sharia.

Realized return

According to Reilly &Brown (2012, p. 6), realized return is also called holding period return (HPR), the ratio of an investment's final and initial value. To facilitate matching the return rate of an investment with other investments can be calculated by converting HPR to an annual percentage level called Holding Periodic Yield (HPY). The amount of HPY value is HPR minus 1. HPR formulations are as follows.

$$HPR_{i,t} = \frac{P_{i,t+1+ Int_{i,t}}}{P_{i,t}}$$

where:
$HPR_{i,t}$ = The holding period return for Sukuk *i* during Period *t*
$P_{i,t+i}$ = The market price of Sukuk *i* at the end of Period *t*
$P_{i,t}$ = The market price of Sukuk *i* at the beginning of Period *t*
$Int_{i,t}$ = The interest paid or accrued on Sukuk i during Period *t*
While the formulation of HPY calculation is
HPY = HPR – 1

Expected Return

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Investors obtain this return if the value of the return and the principal value of Sukuk are kept until maturity (YTM). The relative YTM value, according to Tandelilin (2017, p. 261), can be obtained through the following equation:

$$YTM = \frac{C_i + \frac{P_p - P}{n}}{\frac{P_p + P}{2}}$$

where:
P = Current Sukuk price (t=0)
n = number of years until Sukuk maturity
Ci = Payment of coupons for Sukuk *i* annually
Pp = Par value (redemption) of Sukuk

Risk-Adjusted Return

Return with risk adjustment is a method of measuring investment performance based on the return that has been adjusted to the risk (risk-adjusted return). The calculation method is with Sharpe Index. According to Reilly & Brown (2012, p. 965), the Sharpe Index represents portfolio risk premiums to standard deviations. Sharpe Index calculations can use the following equations:

$$Si = \frac{R_i - RFR}{\sigma_i}$$

where:
σi = the standard deviation of the rate of return for Portfolio i during the period.
The risk-free rate of return refers to SBIS data.

Sukuk Risk

Risk in investment is the possibility that the obtained results deviate from the expected (Hanafi, 2014). Standard deviation and beta are two parameters that can be used in investment risk measurement. The level of Sukuk risk in this study was measured using standard deviation. According to Reilly and Brown (2012, p. 14), the formulation of risk calculation with variant data from HPY is as follows:

$$\sigma^2 = \frac{[\sum_{i=1}^{n}[HPY_i - E(HPY)]^2]}{n}$$

where :σ^2 = the variance of the series

HPY_i = the holding period yield during the period *i*
E (HPY) = the expected value of the holding period yield that is equal to the arithmetic mean (AM) of the series
n = the number of observations
The standard deviation is the square root of the variance σ = $\sqrt{\sigma^2}$

Sukuk Market Price

According to Ayub (2013), Sukuk prices in the primary market are obtained by calculating the weighted average of the offers received for the premium above the benchmark. The price of Sukuk in secondary market trading depends on the security nature of the Sukuk traded. The market price is the actual price of a securities transaction in the market, or the market price is the closing price if the market is closed. In contrast to stocks, Sukuk transactions in the secondary market occur over the counter mechanism. Sukuk can only obtain the market price update sometime after the transaction.

Sukuk Fair Price

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Fair price according to Bapepam-LK Regulation No. IV.C.2 of 2012 is the acquisition of value for securities transactions from independent parties not due to pressure or liquidation. PHEI, in this case as an official institution that conducts the elimination of fair price securities using a market approach in determining reasonable market prices. Price observation of securities is also carried out on all transactions in both the primary and secondary markets.

The valuation model used by PHEI in determining the fair price of corporate Sukuk is to use the Reduce Form, NSS, and Risk Premium Model, whereby the reference yield for each Sukuk series is obtained from the yield curve of corporate bonds equivalent to the tenor and rating. In contrast, each Sukuk series's premium risk is obtained by calculating transaction data or quotes in the market.

RESEARCH METHOD

This study's objects are all types of Sukuk published by companies (corporations) and still circulating in the IDX period 2017-2019. The population is 23 issuers with 147 Sukuk. Using purposive sampling, the samples studied 18 issuers with 54 Sukuk codes with mudharabah, ijarah, and wakalah agreements. The sample consisted of 8 issuers in the financial sector with 15 Sukuk codes and ten issuers in the non-financial sector, as many as 39 Sukuk codes.

Calculated performance is the return measured by Holding Period Yield (HPY), Yield To Maturity (YTM), and Sharpe Index, while Sukuk risk is measured by standard deviation. Corporate Sukuk is classified in the financial and non-financial sectors and short, medium, and long maturity periods—comparative analysis using Independent Sample t-test and ANOVA. The data sources of this study are https://ticmi.co.id/, http://www.ibpa.co.id/, and http://www.bi.go.id/.

RESULT AND DISCUSSION

Descriptive Analysis of Research

Statistically descriptively calculated corporate Sukuk performance (Table 1) shows that market price data (IDX) on return variables calculated without consideration of risk factors with HPY and YTM indicators resulted in higher average values and standard deviations compared to fair prices (PHEI) during the observation period. The results are the same as the risk varies with the HPY Risk indicator. While the return calculated with consideration of risk factors on the RAR indicator calculated using the Sharpe Index results in a more excellent average value and standard deviation on fair price data than market prices. The results align with the concept of investment which states that if the investment can produce a high return, then the risk is also high attached to the investment.

Table 1. Description Summary of Statistical Results.

Indicator	Price Issuing Institution	Publishing Sector		TTM	
		IDX	PHEI	IDX	PHEI
HPY	IDX	NON-FIN	NON-FIN	LONG	LONG
YTM	IDX	NON-FIN	NON-FIN	LONG	LONG
RAR	PHEI	FIN	FIN	SHRT	SHRT
HPY Risk	IDX	NON-FIN	NON-FIN	LONG	LONG

Source : Output SPSS 25 (2021)

The Sharpe Index further describes the results of the risk premium measurement for each risk unit in an investment portfolio. The higher the Sharpe Index, the better the portfolio performance of an investment. Descriptively fair price data (PHEI) results in a better investment portfolio on corporate Sukuk compared to market price (IDX). This is because in addition to the traditional value of fair price deviation (PHEI) generated during the observation period is lower than the market price (IDX), PHEI

ISSN 2807-2049 (Online) | 2807-2057 (Print)

in determining the fair price of corporate Sukuk using reduce form, Nelson Siegel and Svensson Model (NSS) and Risk Premium Model wherein the framework of the model PHEI includes an estimated value of β (beta) in the measurement of the yield curve on corporate Sukuk investment.

Based on calculations using market price data (IDX) and fair price (PHEI) in the corporate Sukuk issuing sector shows that the non-financial sector on return variables with HPY and YTM indicators produces higher average values and standard deviations compared to the financial sector during the observation period. The results also apply to risk variables with HPY risk indicators. At the same time, the return calculated by the RAR indicator using the Sharpe Index results in a more excellent average value and standard deviation in the financial sector than non-finance. This is because the average coupon/fee of Sukuk samples issued in the non-finance sector is greater than the financial sector corporate Sukuk during the observation period, 9.62% versus 8.06%. In line with the investment concept that the more significant coupon/fee, the risk with the HPY Risk indicator also becomes large due to the high standard deviation value, thus based on the analysis of corporate Sukuk risk in the non-financial sector is more vulnerable to risk compared to the financial sector.

Furthermore, based on calculations using market price data (IDX) and fair price (PHEI) in the maturity period (TTM) shows that corporate Sukuk with a long maturity period on the return variables with HPY and YTM indicators produce higher average values and standard deviations compared to short and medium-term. This result is because the Sukuk yield share in the long maturity period is higher than in the short and medium term. The standard deviation value on the YTM indicator calculated from fair price data (PHEI) shows that Sukuk, with a medium maturity period, results in a higher standard deviation value than the short and long term. About 6% of the total data has a price difference more significant than three basis points. The price of PHEI is greater than the IDX is mainly in the medium term, resulting in a high standard deviation value compared to the short and long term.

RAR indicator calculated using the Sharpe Index results in a more excellent average and standard deviation value on corporate Sukuk with a short maturity period. This is in addition to the standard deviation value factor of the Sukuk; fluctuations in the price of Sukuk trading in the secondary market for a short maturity period tend to be narrower compared to the medium and long term.
Next, the HPY Risk indicator's risk variables show that corporate Sukuk with long TTM has a higher risk exposure than short and medium-term. These results align with Rauf's (2018) research in Bahrain, UAE, and Malaysia, which stated that based on maturing analysis, the longer the Sukuk maturity period, the higher the risk exposure.

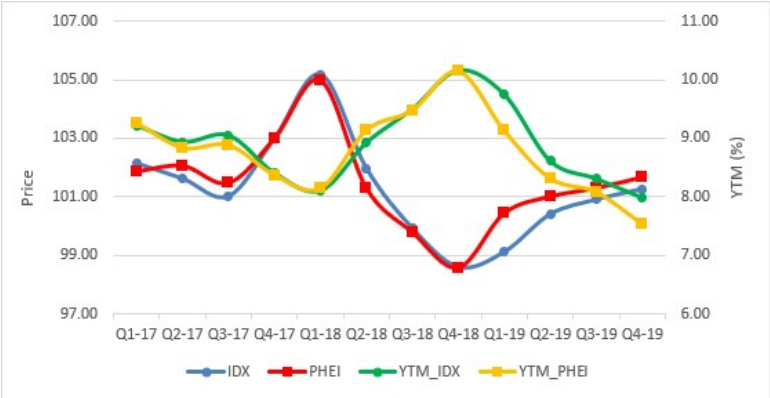

Fig. 1. Sukuk Corporation Price Movements and Yield to Maturity (YTM) Based on Sukuk Price Issuing Institution

ISSN 2807-2049 (Online) | 2807-2057 (Print)

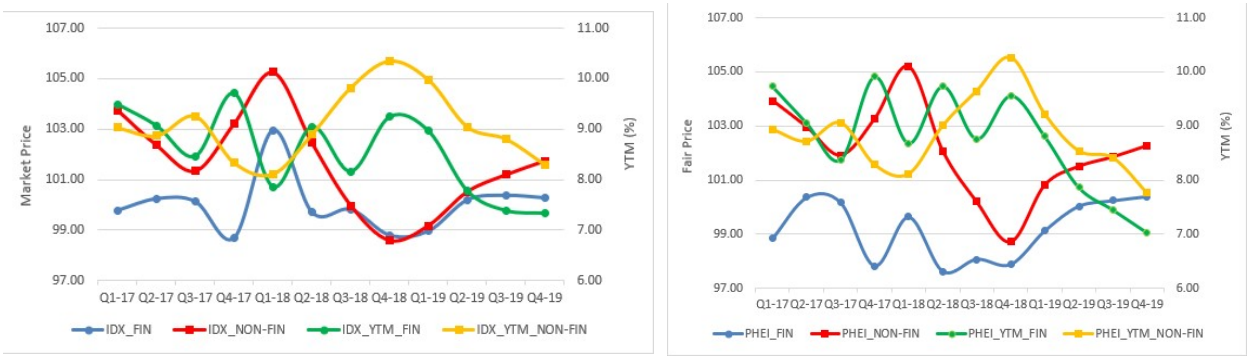

Fig. 2. Sukuk Corporation Price Movements and Yield to Maturity (YTM) Based on the issuing sector

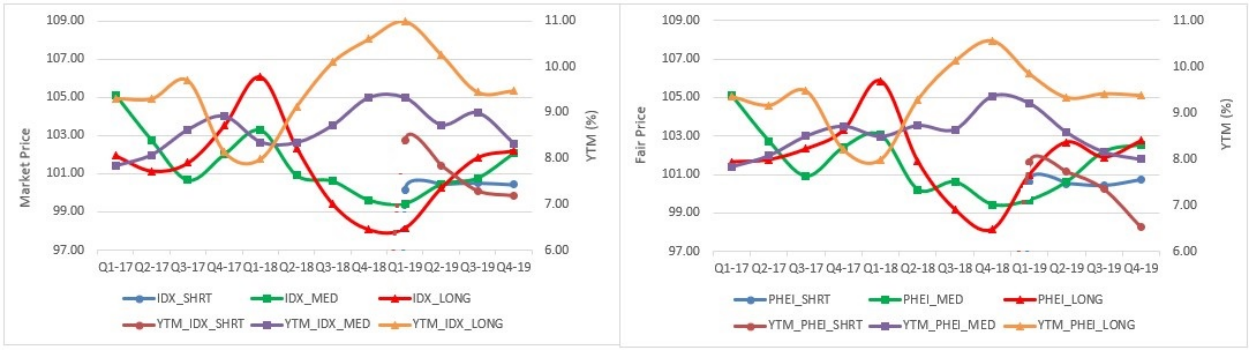

Fig. 3. Sukuk Corporation Price Movements and Yield to Maturity (YTM) Based on Time To Maturity

This study also looked at how Sukuk price movements towards return and risk. The analysis results showed a pattern of movement that tends to be the same in the YTM indicator (Figure 1 to 3), which is inversely proportional between Sukuk prices and their share of results calculated based on the issuer of Sukuk, sectoral, and maturity periods. The pattern follows the first theory of bond pricing put forward by Malkiel (1962) that bond yields fall when the bond market price rises, whereas bond yields will rise if the bond market price falls.

The negative relationship that occurs in corporate Sukuk is related to the supply and demand of Sukuk on the secondary market exchange. Investors will tend to sell Sukuk at a discount when the supply (offer) of Sukuk increases due to interest rate increases in other investment intrusions so that the price of Sukuk moves down. Conversely, if the interest rate on other investment intrusions decreases, then the Investor will tend to shift their investment to Sukuk so that the demand (demand) of Sukuk increases. As a result, the price of Sukuk will move up because Sukuk is sold at a premium price.

Hypothesis Testing Results

Sukuk Corporate Return and Risk-Based on Market Price and Fair Price

The main component of calculating return and Sukuk risk is the instrument's price on the secondary market. Based on the results of hypothesis testing in this study, it can be summarized as in Table 2. The first hypothesis (H1) is accepted and supported by the YTM indicator and Sharpe index (RAR) with a significance value of < 0.05 but is not supported on the HPY indicator because the significance value is 0.569. This is because the response of market prices and fair prices due to changes in market conditions on the exchange tends to be different. This means that if investors use YTM and Sharpe Index (RAR) as indicators to determine the value of their Sukuk return, they need to reconsider what strategies will be used because statistically, both indicators produce different calculations in the market prices and reasonable Sukuk.

ISSN 2807-2049 (Online) | 2807-2057 (Print)

Conversely, on the HPY indicator, the first hypothesis (H1) is rejected and supported by the HPY indicator but not supported by the YTM indicator and Sharpe index (RAR). This is because the response of market prices and Sukuk fair prices due to changes in market conditions on the exchange tends to be the same. This means that if investors use HPY as an indicator to determine the share value of Sukuk, then these two sources of Sukuk prices, both market price and reasonable, can be used as a benchmark.

Table 2. Summary of Hypothesis Testing Results.

Hypothesis	Hypothetical Name	Significance Value				Hypothesis Testing Results
		HPY	YTM	RAR	HPY Risk	
1	There is a difference in Sukuk performance based on calculating return using market price and fair price.	0.569	0.000	0.000		Accepted to YTM and RAR, rejected on HPY indicator
2	There is a difference in Sukuk performance based on risk calculation using market price and fair price.				0.000	Accept H2
3	There is a difference in performance between financial and non-financial sector corporate Sukuk based on calculating return using Sukuk market prices.	0.000	0.000	0.000		Accept H3
4	There is a difference in performance between the financial sector corporate Sukuk and non-finance based on the calculation of return using	0.000	0.000	0.000		Accept H4

ISSN 2807-2049 (Online) | 2807-2057 (Print)

	the fair price of Sukuk.					
5	There is a difference in performance between the financial and non-financial sector corporate Sukuk based on Sukuk market prices' risk calculations.				0.000	Accept H5
6	There is a difference in performance between financial sector corporate Sukuk and non-finance based on risk calculation using fair prices of Sukuk.				0.000	Accept H6
7	There is a difference in Sukuk performance based on the classification of maturity period (TTM) over the calculation of Sukuk return using market prices.	0.000	0.000	0.000		Accept H7
8	There is a difference in Sukuk performance based on the classification of maturity period (TTM) over the calculation of Sukuk return using fair prices.	0.000	0.000	0.000		Accept H8
9	There is a difference in Sukuk performance based on the classification of maturity period				0.000	Accept H9

ISSN 2807-2049 (Online) | 2807-2057 (Print)

	(TTM) over risk calculation using market prices.		
10	There is a difference in Sukuk performance based on the classification of maturity period (TTM) over the calculation of Sukuk risk using fair prices.	0.000	Accept H10

The first hypothesis is supported by previous research from Wahyuni (2011), which revealed that the components of Sukuk return calculated by Yield to Maturity (YTM) and Risk-Adjusted Return (RAR) have significant differences based on market price and Sukuk fair price, while Sukuk return calculated using Holding Period Yield (HPY) is no different.

The second hypothesis (H2) is the risk variable accepted on the HPY risk indicator because the response of market prices and fair prices due to changes in market conditions on the exchange tends to be different. High investment return will generally be accompanied by high risk attached to the instrument, so it takes the foresight of investors in reading existing information, especially price developments that occur in the secondary market. Sukuk with a high-risk profile tends to be avoided by risk-averse investors, so the price in the secondary market is not high because of the lack of demand. These results reinforce Desrizal (2016), which said that risks to government looting Sukuk are statistically significantly different based on market prices and fairness.

Return of Corporate Sukuk Results and Risks in the Financial and Non-Financial Sectors

The third hypothesis (H3) is accepted and supported by all return indicators with significance values of < 0.05 because the response of Sukuk market prices due to changes in market conditions on the exchange tends to differ in both financial and non-financial sectors Sukuk issuers. The mean rank value of Mann Whitney's test results on the HPY and YTM indicators shows that the non-financial sector has a higher value than finance. Sukuk issuers in the non-finance sector during the research period provided a higher average return, which is about 9.62%, compared to the financial sector, which on average only provides a return of about 8.06%. Hence, demand for Sukuk in the non-financial sector issuers is relatively higher and affects price movements on secondary market exchanges.

The Sharpe index (RAR) is different, where the mean rank of the financial sector is higher than non-finance. This is because the return of the financial sector is relatively lower, resulting in a low standard deviation value compared to the non-finance sector. This standard deviation is a dividing factor in calculating the Sharpe Index (RAR), so a low value will result in a higher Sharpe Index value. This hypothesis test is also in line with descriptive statistical results (Table 1), where the non-financial sector is superior in terms of average return given based on market price calculations (IDX) but more vulnerable to risk than the financial sector.

Furthermore, the test results showed that the fourth hypothesis (H4) was supported by HPY, YTM, and Sharpe Index (RAR) indicators, resulting in the decision to accept H4. This is because the response of Sukuk fair prices due to changes in market conditions on the exchange also tends to differ in both financial and non-financial sector Sukuk issuers. The mean rank value of Mann Whitney's test results using fair prices on the HPY and YTM indicators shows that the non-financial sector has a higher value than finance. Sukuk issuers in the non-finance sector during the research period provided a higher average return, which is about 9.62%, compared to the financial sector, which on

ISSN 2807-2049 (Online) | 2807-2057 (Print)

average only provides a return of about 8.06%, so that demand for Sukuk in non-cash sector issuers is relatively higher and affects price movements on secondary market exchanges.

In contrast to the Sharpe Index (RAR), the mean rank based on fair prices in the financial sector is higher than non-finance. The return of the financial sector is relatively lower, resulting in a low standard deviation value compared to the non-finance sector. This standard deviation is a dividing factor in calculating the Sharpe Index (RAR), so a low value will result in a higher Sharpe Index value. This hypothesis test is also in line with descriptive statistical results (Table 5.30), where the non-financial sector is superior in terms of average return given based on fair price calculations (PHEI) but more vulnerable to risk compared to the financial sector.

The fifth hypothesis (H5) is accepted and supported by the HPY risk indicator with a significance value of < 0.05 because the response of Sukuk market prices on risk calculation due to changes in market conditions on the exchange tends to differ in both the financial and non-financial sector Sukuk issuers. The price of Sukuk in secondary market trading depends on the nature of the security of the Sukuk traded. Fluctuations in price movements tend to be good if Sukuk has a guarantee of security in its investment. The mean rank value of Mann Whitney's test results on the HPY risk indicator shows that the non-financial sector has a higher average value than finance due to the high standard deviation value in the non-finance sector. This result is in line with the concept of investment which states that if the investment can produce a high return, then the high risk is attached to the investment.

The test results show that the HPY risk indicator supports the sixth hypothesis (H6), so the decision is to accept H6. The Sukuk fair price response to the calculation of risk due to changes in market conditions on the exchange also tends to differ in both financial and non-financial sector Sukuk issuers. These results are in line with the results of Rauf's (2018) research which suggested that the results of the sectoral-based analysis showed the Sukuk return of companies is very vulnerable to risk compared to other sectors. Analysis of Sukuk markets in the Gulf states shows that the corporate sector is more vulnerable to risk than the financial sector.

Corporate Sukuk Return and Risk-Based on Maturity Period (TTM)

The concept of portfolio diversification, where market returns depend not only on time variations but also on the investment's time scale, is beneficial for investors in managing their investment portfolio. Based on Table 5.31, it is seen that the seventh hypothesis (H7) is accepted and supported by all HPY, YTM, and Sharpe Index (RAR) return indicators with significance values < 0.05. The response of Sukuk market prices due to changes in market conditions on the exchange tends to differ in the short, medium, and long maturity periods.

The mean rank value of Kruskal Wallis test results on the HPY and YTM indicators shows that Sukuk, with a long maturity period, has a higher value than the short and medium-term. Sukuk, with a long maturity period during the study period, provides a higher average share of yield, which is about 9.80% compared to short and medium-term, which on average only provides a return of about 8.20% and 9.29%, respectively, so that demand for Sukuk with a long maturity period is relatively higher and affects the price movement on the secondary market exchange.

The Sharpe index (RAR) is different, where the mean rank of Sukuk with a short maturity period is higher in value than the medium and long term. The Sukuk return with a relatively lower short maturity period results in a low standard deviation value than the medium and long term. This standard deviation is a dividing factor in calculating the Sharpe Index (RAR), so a low value will result in a higher Sharpe Index value. The results of the above hypothesis test are also in line with descriptive statistical results (Table 5.30), where Sukuk, with a long maturity period, is superior in terms of average return given based on market price calculation (IDX) but more vulnerable to risk compared to short and medium-term.

The test results showed that the eighth hypothesis (H8) was also supported by all indicators of HPY, YTM, and Sharpe Index (RAR), resulting in the decision to accept H8. This is because the Sukuk fair price response due to changes in market conditions on the exchange also tends to differ in the short, medium, and long maturity periods. The mean rank value of Kruskal Wallis test results on the HPY and YTM indicators shows that Sukuk, with a long maturity period based on fair price (PHEI), has a

ISSN 2807-2049 (Online) | 2807-2057 (Print)

higher value than the short medium-term. Sukuk, with a long maturity period during the study period, provides a higher average share of yield, which is about 9.80% compared to short and medium-term, which on average only provides a return of about 8.20% and 9.29%, respectively, so that demand for Sukuk with a long maturity period is relatively higher and affects the price movement on the secondary market exchange.

The Sharpe index (RAR) is different, where the mean rank of Sukuk with a short maturity period based on fair price is higher in value compared to medium and long term. The Sukuk return with a relatively lower short maturity period results in a low standard deviation value than the medium and long term. This standard deviation is a dividing factor in calculating the Sharpe Index (RAR), so a low value will result in a higher Sharpe Index value. The results of the above hypothesis test are also in line with descriptive statistical results (Table 1), where Sukuk, with a long maturity period, is superior in terms of average return given based on fair price calculation (PHEI) but more vulnerable to risk compared to short and medium-term.

Based on Table 2, it is seen that the ninth hypothesis (H9) is accepted and supported by the HPY risk indicator with a significance value of < 0.05. This is because the response of Sukuk market prices on risk calculation due to changes in market conditions on the exchange tends to differ in the short, medium, and long maturity periods. The mean rank value of Kruskal Wallis test results on the HPY risk indicator shows that Sukuk, with a long maturity period, has a higher average value than the short and medium-term. This is due to the high standard deviation value in Sukuk with a long maturity period. The results of the above hypothesis tests are in line with the Aslam et al. (2021) study, which concluded that there is volatility in all company Sukuk returns at different maturities.

The tenth hypothesis (H10) is similar to H9. Only on H10, the same object is tested using fair prices. The test results show that the HPY risk indicator supports the tenth hypothesis (H10), so the decision is to accept H10. This is because the response of fair prices on the calculation of risk due to changes in market conditions on the exchange is likely to differ in the short, medium, and long maturity periods. The results are in line with the concept that the maturity time of bonds generally runs in line with the risk. The increase in risk in bond investment is in line with the accretion time due to changes in the time value of money and changes in macroeconomic conditions. The results of H9 and H10 hypothesis testing are also in line with descriptive statistical results (Table 1), where Sukuk with a long maturity period have a higher risk compared to short and medium-term based on HPY risk indicators both calculated using market price (IDX) and fair price (PHEI). The results are also in line with the research results from Rauf (2018), which states that the results of analysis based on Sukuk maturity show that the longer the maturity time, the higher the risk exposure.

Based on an analysis of all hypotheses in this study, in general, the significance value of the hypothesis test using the Mann Whitney and Kruskal Wallis tests showed significant differences between the comparable data (Table 2). Seen from the value of significance that is smaller than the specified level of significance (α = 5%). Recorded only HPY values that do not have a significant difference between the data compared.
This hypothesis is also supported by previous findings (Desrizal, 2016; Wahyuni, 2011), who argued that there are significant differences in the risk and yield of Sukuk based on several statistically determined classifications on Sukuk taken into account using market prices and fair prices. Furthermore, the results will relate to the level of public and Investor confidence in the validity of Sukuk price data in the secondary market. Both results of this study refer to the concept of market efficiency in a potent form where ideally, there is no difference to market price information or reasonable Sukuk. All information, both published and private, has been reflected in the market price reasonable Sukuk. However, the concept has not been supported by the results of research related to the efficiency of the Sukuk market both globally and locally.

The results of Arshad et al., (2016) research that investigated OIC member countries, including Indonesia, concluded that the stock market in Indonesia falls into the category of weak-form efficiency, but there are indications of increased efficiency. Furthermore, Ahmad et al. (2020), who investigated the Sukuk market in Malaysia, the country with the most significant volume of Sukuk issuance in the world, concluded that the Sukuk market in Malaysia indicates market efficiency in a weak form. Based on the study results, indications of the existence of information that is not symmetrical or asymmetric information (asymmetric information) among Sukuk investors and PHEI as an independent institution that issues fair prices of Sukuk is possible. Moreover, the Sukuk market

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price in the secondary market issued by the IDX is not real-time like the stock market or only released about 30 minutes after the transaction is reported.

Significant differences in market prices and Sukuk fair prices are possible given that in Sukuk pricing, in addition to being influenced by yield and its method of issuance, Sukuk prices are also influenced by macroeconomic conditions in Indonesia, industrial and issuer conditions, the performance of issuers in terms of the ability to meet debt obligations, instrument structure, and market liquidity. This is also reinforced by (H. Arshad et al., 2017; Ayuningtyas, 2017; Rubiyanti, 2019), who concluded that macroeconomic conditions influence market prices and Sukuk's fair prices in Indonesia.

Indonesia's capital market industry, especially Sukuk and bond markets, need to make breakthroughs to excite this market. Exemplifying the stock market that is more mature from the side of the market that is efficient and transparent information, this Sukuk market has to start to pursue leads and the stock market. It is undeniable that there are characteristic differences between stock instruments and Sukuk. However, with the shared vision and goals of capital market industry players, of course, this is not impossible to realize.

Concrete steps regulators and capital market industry players can take include realizing all Sukuk transactions in the secondary market through the exchange transaction mechanism. So that it will make it easier for investors and prospective investors to obtain historical and benchmark prices from the results of transactions published publicly to the public, as well as stock transaction information that has also only been transacted on the exchange. Further research is also expected to help investors interpret how and fair prices apply in the secondary market.

CONCLUSION

Measurement of investment performance is an essential part of portfolio management. Sukuk investment performance can be measured using market price information and fair prices and comparing the two. This research develops methods of calculating investment performance in financial and non-financial sector corporate Sukuk that can be used as investor input material to determine Sukuk investment options and reduce risk. YTM and Sharpe Index (RAR) and HPY risks that are statistically calculated using market price (IDX) and fair price (PHEI) data have significant differences. At the same time, the other indicator HPY does not show significant results. Calculation of sectoral-based return and risk parameters and maturity periods statistically have significant differences calculated using market and fair prices. Investors with an active management concept should use the market price as a benchmark. Evaluation materials for corporate Sukuk investments that will be roofed have been carried out based on the consideration that the return calculation results are relatively higher than the calculation using the fair price of Sukuk. Investors with the passive management concept should use fair price as the benchmark and additional information to decide capital gain based on the consideration that the fair price issued by PHEI has gone through a selective valuation process with account risk factors. This study has the limitation of only taking a period of observation for 3 (three) years. Several corporate Sukuk codes are recorded to have no trading data in the secondary market during that period. In addition, the sample used in this study is a corporate Sukuk in Indonesia, so it cannot be generalized for the entire type of Sukuk globally.

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