

# **CORPORATE SUKUK INDONESIA'S RESPONSE TO MACROECONOMIC CHANGES**

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## **ABSTRACT**

This study investigates the short-term and long-term responses of changes in macroeconomic variables, including exchange rate (EXC), interest rate (IR), inflation (CPI), money supply (JUB), and world oil price (WTI), to the outstanding value of corporate sukuk in Indonesia (SKK) from January 2011 to December 2022. The regression method used is the Error Correction Model (ECM). The results obtained in this study show that in the short-term exchange rates, interest rates, inflation, the amount of money in circulation, and the world oil prices do not influence the outstanding value of Indonesian companies. In the long run, it was found that the exchange rate had a significant negative effect, the money supply had a significant positive influence, while interest rates, inflation, and world oil prices did not affect the outstanding value of Indonesian company sukuk.

**Keywords:** Corporate Sukuk, Macroeconomic Variables, Indonesia

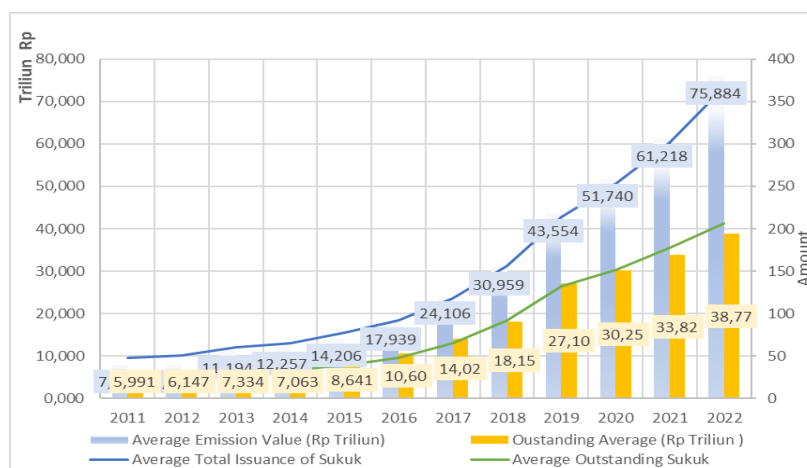
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## Introduction

The development of the Sharia financial markets from year to year has seen good growth (OJK 2022). The Islamic Financial Services Board (2020) reported that the Islamic finance industry in 2020 reached \$2.70 trillion, a jump of 10.65% from 2019. This proves that the demand for products and services that conform to Shariah is gaining increasing attention all over the world, not just in areas where the majority of the population is Muslim. The Islamic Financial Services Board (2020) reports that Islamic finance globally today has reached more than 600 institutions operating in 70 countries, both in Asia, Africa, Australia, Europe, and even the United States. Thus, one of the sharia financial instruments that is conducive to the current development is sharia bonds known as sukuk.

Sukuk is also known as a certificate or proof of ownership of a tangible asset (IDX 2022). Widespread sukuk began to be published in February 1988 in Jeddah, Saudi Arabia, The sukuk publication is a demand of issuers and investors in Muslim countries as an alternative to financing and investment needs in accordance with the principles of Shariah (Academy 1985). According to POJK No. 3 Year 2018, Sharia bonds or sukuk bonds are the sharia effect of a certificate on assets that are not contrary to the Sharia principle that is the foundation of the academy, the way of management, business activities, and the issuance of the assets of that academy itself (POJK 2018). For this purpose, a sukuk is a certificate that presents proof of ownership of a tangible asset that has the value of benefits, services, or ownership assets of a project of its investment activities (Laila dan Anshori 2021).

The Islamic Finance Development Report (Revinitiv 2022). In terms of assets, globally, Sukuk is ranked the second largest, with a value of \$713 billion or 14% of the total Shariah financial industry assets. With the total assets, Indonesia ranks third as a country with a major contribution to the Shariah financial industry. Although still new, in Indonesia in the last 11 years, corporate family publications have been increasing (OJK 2022). Referring to data from the Financial Services Authority (OJK), the development of corporate sukuk in Indonesia can be seen in Figure 1 below:



**Figure 1.** Development of Indonesia Corporate Sukuk Period January 2011 – December 2022 in (OJK 2022) (Data Processed)

As the sub-sector with the second largest contribution to Islamic financial assets, the trend of sukuk issuance and issuance continues to increase until the end of December 2022 (OJK 2022). Even through public offerings until semester 1 of 2022, the number of sukuk raised by Securities Crowdfunding (SCF) reached IDR 54.32 billion, a significant increase of 859% at the end of 2021. The amount of sukuk reached 98% of the total sukuk and bonds collected through SCF as of June 28, 2022 (Sopacua H 2021). This shows that the trend of sukuk issuance has consistently increased, even though in 2020, Indonesia's economic growth contracted due to the COVID-19 pandemic.

As one of the attractive investment instruments in the capital market, sukuk can be used as an alternative long-term investment because it has good prospects, minimal risk (Laila dan Anshori 2021), and is immune to recession (Apriani et al. 2023). For this reason, the development of the sukuk market plays an important role because it helps the country to mobilize resources and cover the budget deficit, especially used to finance large projects (Zulkhibri 2015; Benbekhti, Boulila, dan Benbouziane 2019). At the end of 2022, it was recorded that 52.94% of the 221 corporate sukuk issuers were issuers from the infrastructure sector, 16.74% from the raw materials sector, 15.85% from the financial sector, and other sectors below 10% (OJK 2022).

The increasing number of corporate sukuk issuance in each country can be caused by various factors, both in the form of internal conditions and state economic conditions (Benbekhti, Boulila, dan Benbouziane 2019). Moreover, the occurrence of financial and economic crises will certainly have an impact on the performance of sukuk (Asri dan Wulandari 2021). In addition to institutional quality and economic openness, the performance of the sukuk market development can be influenced by macroeconomic factors (Said dan Grassa 2013). Thus, the stability of economic and macroeconomic conditions is necessary for the development of investment instruments, especially for the issuance of Islamic bonds or sukuk.

Chen et al. (1986) also reveal that macroeconomic variables can have an impact on the performance and development of financial instruments. Because good macroeconomic conditions can reflect the investment climate in a country (Ulfah, Yetm, dan Khairunnisa 2022). For this reason, it does not rule out the possibility that the poor macroeconomic conditions of a country will increase systematic risks that can reduce the performance of a company. This is in line with the Arbitrage Pricing Theory (APT) developed by Ross (1976) (Connor dan Korajczyk 1995), which explains that the general level of market profits can be influenced by several macro factors and events/noise in the company. Therefore, to create good sukuk investment conditions, it is necessary to pay attention to economic conditions, especially domestic macroeconomic conditions, as a form of risk mitigation.

Referring to Arbitrage Pricing Theory (APT), macroeconomic factors such as exchange rates are expected to affect sukuk market performance. The overvaluation of the exchange rate will result in economic instability that will affect the volume of sukuk issuance (Al-raeai, Zainol, dan Khilmy 2018). There are some inconsistent research results on the effect of

exchange rates on sukuk development, such as those conducted (Alqurnia et al. 2023) that the exchange rate has a positive influence on the development of the sukuk market. In contrast to the results of the study, Ardiansyah & Lubis (2017); Smaoui & Khawaja (2016) found that the exchange rate did not have a significant influence on the development of the sukuk market.

Furthermore, high interest rates will have an impact on the issuance and development of the sukuk market (Said dan Grassa 2013). Research conducted by Asri & Wulandari (2021) found a significant influence of interest rates on the development of the sukuk market. The result was challenged by Longstaff et al. (2018) and Wahidah et al. (2023), which states that an increase in interest rates will suppress the development of the sukuk market. Then inflation, the high rate of inflation rate can lead to low market returns (Modigliani dan Cohn 1979). So that a high inflation rate will have an impact on the number of sukuk-issued companies Jaafar et al., 2021; Smaoui & Khawaja, 2016). These results differ from the findings of Said & Grassa (2013), which reveal that inflation does not have a strong influence on the development of the sukuk market.

In addition to inflation, the factor predicted to influence the development of sukuk is money supply (Hanifa, Masih, dan Bacha 2015). Because an increase in the money supply will affect people's activities, including investing, especially sukuk as one of the open market instruments. These results are supported by research by Ardiansyah & Lubis (2017) and Apriani et al. (2023), which shows positive results, an increase in money supply against the development of the sukuk market. Different results of research: Mulyadi et al. (2022) found that money supply had a negative influence on the development sukuk market. Then, an increase in world oil price is expected to affect the development of the sukuk market, through its impact on high inflation due to rising prices of goods and services in a country (Halim, How, dan Verhoeven 2016). In line with this opinion Sadorsky (1999) revealed that the increase in oil prices had a negative impact on the development of sukuk market. These results are different from study Suciningtias, (2019) which revealed that increase in world oil prices did not affect performance of sukuk either in short and long term.

Based on the results of previous research that has been conducted, it has been proven that there is inconsistency, so the researchers deemed it necessary to conduct a re-study on the topic by combining several macroeconomic variables that were previously tested separately. The contribution of this research is at least in three aspects, namely, first, this research focuses on the outstanding value of Indonesian corporate sukuk with a longer research period of 12 years that has not been conducted by Alqurnia et al. (2023); Apriani et al. (2023); Ardiansyah & Lubis (2017); Suciningtias (2019); and Wahidah et al. (2023).

Second, this research combines the variables of exchange rates, interest rates, inflation, money supply, and world oil prices, which were previously tested separately. As done by Alqurnia et al., (2023), who examined the effects of exchange rates; Smaoui & Khawaja (2016) and Said & Grassa (2013), who examined interest rates on the development of the sukuk market; Wahidah et al. (2023) and Jaafar et al. (2021), who included the inflation variable; Apriani et al. (2023) and Ardiansyah & Lubis (2017), who examined the money supply variable; Suciningtias (2019) and Sukmaningrum et al. (2020), who examined the world oil

price variable on the yield of Indonesian corporate sukuk.

Third, the uniqueness of this research lies in its methodological approach using the Error Correction Model (ECM) to analyze the short-term and long-term effects of each independent variable on the outstanding value of Indonesian corporate sukuk. Meanwhile, in the studies Alqurnia et al. (2023); Ardiansyah & Lubis (2017); and Jaafar et al. (2021), only multiple regression tests the Ordinary Least Squares Model (OLS).

## Literature Review

### The Arbitrage Pricing Theory (APT)

Arbitrage Pricing Theory, developed by Ross (1976), stems from the weakness of the theory Capital Asset Pricing Model (CAPM). Arbitrage Pricing Theory is a theoretical study that is more general in the context of financial markets to explain variations in financial asset prices. Therefore, Chen et al. (1986) assume that macroeconomic variables have a systematic influence on financial assets. Moreover, Darmawan (2022) emphasizes that arbitrage pricing theory provides a series of works to understand the systematic risk factors that affect the price of an asset.

The theoretical basis of arbitrage pricing theory, pioneered by Roll & Ross (1995) there has two types of models, single-factor and multi-factor. The single-factor model can be formulated with the following model:

$$R = E + \beta f + e \quad (1)$$

In the single-factor model, only one macroeconomic variable is used to predict the return of an asset. This equation emphasizes that the return of an asset can be influenced by a single predictor, such as an increase in interest rates. The multi-factor model has more than one macroeconomic and financial indicator that is considered for review. The multi-factor model can be formulated as follows:

$$R = E + \beta_1 f_1 + \beta_2 f_2 + \beta_3 f_3 + \dots + \beta_n f_n + e \quad (2)$$

The multi-factor model emphasizes that the return of an asset can be influenced by macroeconomic factors such as inflation rates, interest rates, foreign exchange rates, economic growth, fuel prices in international markets, and specific events that occur within the company.

Connor & Korajczyk (1995) said that arbitrage pricing theory is an asset pricing theory based on the fact that the return of an asset can be predicted by a linear relationship between the return of an asset and several macroeconomic factors or events in the company.

### Macroeconomic Variables

Various empirical studies conducted by researchers show that the development of the sukuk market can be influenced by macroeconomic conditions (Alqurnia et al. 2023). Therefore, Islamic and conventional financial markets can be directly or indirectly influenced by global macroeconomic conditions (Naifar dan Hammoudeh 2016). The macroeconomic

variables in this study are the exchange rate, interest rates, inflation, money supply, and world oil prices.

### *Exchange Rate*

The exchange rate is defined as the price of a currency against another country's currency (Mankiw 2010). Exchange rates are one of the factors that can affect the performance of the sukuk market, because the increase in exchange rates raises doubts and skepticism about the resilience of capital market products and the financial market as a whole (Agrawal 2010). What's more, the exchange rate reflects the balance of demand and supply in the foreign currency market. Therefore, excessive or uncontrolled increases in the exchange rate cause economic instability (Kurniati dan Hardiyanto 2003). Thus, a low exchange rate will have an impact on increasing the company's production costs (Hong, Niu, dan Zeng 2019). So that this will directly respond to the decline in the value of outstanding sukuk because the increase in raw goods can reduce company profits, especially the returns provided to investors.

This opinion is supported by research by (Ardiansyah dan Lubis 2017; Kurniawan, Masitoh, dan Fajri 2020; Mahfiroh dan Ratno 2021), which states that exchange rate instability can shrink corporate profits this making the outstanding value of sukuk decrease.

### *Interest Rate*

The effect of interest rates on the outstanding value of Indonesian companies' sukuk, the BI rate is a benchmark interest rate set periodically by Bank Indonesia, which tends to reflect all economic activities in Indonesia. From a monetary economics point of view, interest rates are one indicator that has an impact on various economic activities, one of which is the decision to invest (Wijaya 2020). Therefore, the interest rate is a measure of the investment an investor earns and also a measure of the cost of capital that a company incurs to use funds from investors.

The relationship of interest rates to Islamic bonds is explained by Longstaff et al. (2018), which reveals that high interest rates result in an increased cost of capital borne by the company. The opinion is affirmed (Said dan Grassa 2013) when the value of the company's cash flow decreases due to high interest rates, not many companies can issue sukuk, moreover, the interest rate is used as a reference in making decisions of capital owners to invest in real assets or financial assets. Thus, high interest rates negatively impact investment decisions (A. Conrad 2021). Because the increase in interest rates pushes market sentiment to the negative (Suciningtias 2019).

This opinion is supported by research by (Latifah et al. 2021; Muhammad, Permana, dan Nugraheni 2019), which states that if the interest rate negatively affects the outstanding value of the sukuk, this certainly shows that rising interest rates can hinder sukuk market diffusion.

### ***Inflation***

The relationship of inflation to the development of the sukuk market can be explained from two aspects. First, increasing inflation will reduce people's interest in investing because the inflation rate is higher than the returns received by investors. Second, in conditions of rising prices, investors are more likely to sell securities, including sukuk, because of the need in the real sector.

In more detail, (Modigliani dan Cohn 1979) revealed that a high rate of inflation can lead to low market returns. In addition, high inflation can reduce the level of public welfare, lead to poor income distribution, and disrupt economic stability. Shih & Hoang (2021) affirm that higher inflation can increase production costs and product selling prices. As well as reducing people's purchasing power (Fuad dan Yuliadi 2021). The rationale behind this statement is the low profit obtained by investors or a high subjective risk premium due to the impact of high inflation. Therefore, high inflation will directly reduce the company's net income, so that the impact will affect people's investment decisions.

Thus, high inflation makes people's purchasing power low, so this impact results in a reduced net profit for the company. A decrease in net profit means a decrease in the company's performance, and in the end, the company's outstanding value decreases. This supports the research conducted by Aisyaturrahmah & Aji (2021); Khudari (2017); and Rakhmadita et al. (2021) that, in times of inflation, companies prefer not to issue securities in the form of sukuk.

### ***Money Supply***

Boediono (2014) emphasized that the amount of money in circulation is the amount of money circulating in an economy in a certain period or the total nominal amount of money that has been issued and circulated by the Central Bank. Broadly, the money supply has a positive effect on the economy of a country, especially Indonesia (Wahidah, Haryono, dan Tahir 2023). This is confirmed by Ranto (2019) an increased money supply will stimulate the economy and will raise corporate earnings. Moreover, increasing community investment activities (Karim 2015).

As a positive response for the company, increasing investment activities will stimulate issuers to issue sukuk as an additional source of funds used to cover the company's budget deficit and, moreover, for development. Thus, if the circulation of money in the community increases by a reasonable amount, then the outstanding value of outstanding sukuk in circulation increases in response to increased activity in the fields of production and trade (Koti dan Bixho 2016). This supports research by Ardiansyah & Lubis (2017); Muhammad et al (2023); and Kurniawan et al (2020) that the money supply positively affects the outstanding value of sukuk.

### ***World Oil Price***

The influence of world oil prices on the circulating value of Indonesian company Sukuk. Oil is one of the commodities that is widely traded on an international scale in

both developed and developing countries. As a commodity that not all countries have, crude oil is a much-needed energy source. Because the results of crude oil processing can be used as production activities (Safitri, Anwar, dan Abbas 2022). Moreover, oil is also one of the commodities that is very important in moving the wheels of the economy (Sartika 2017).

See its vital role in economic activity. Nizar (2015) revealed that fluctuations in world oil prices are formed because there is market demand and supply. In more detail, when viewed in terms of supply, the surge in oil prices causes the marginal cost of production to increase. This is corroborated by Brown & Yu'cel (2002); Doğrul & Soytaş, (2010); Lardic & Mignon, (2008) revealed that the increase in production costs will reduce the company's production quality. The impact of this phenomenon implies that economic performance is declining, so it is assumed that investors are reluctant to invest because the predicted profit is small. Of course, this impact will decrease the outstanding value of sukuk.

In addition, when viewed from the aspect of export-import demand, Berument & Tasc (2002) assume that the activity is a transfer of wealth. This means that the demand for oil in the importing country decreases while the demand for oil purchasing power in the exporting country increases. This effect will cause a decrease in demand for purchasing power, slow down the rate of economic growth, and ultimately reduce the outstanding value of the company's sukuk. In line with the arguments of Kilian, (2010); Othman et al., (2013); Sadorsky, (1999) which reveal that the increase in oil prices fundamentally reduces national aggregate demand, thereby decreasing consumption and purchasing power and increasing production costs. This condition causes the company's profits or revenues to decrease or even cause losses. Thus, the increase in production costs will cut the company's production quantity, which in turn decreases the public's desire to invest in capital market products (sukuk).

### **Aim and Hypotheses**

This research examines the response to the impact of exchange rate changes, interest rates, inflation, money supply, and world oil prices on the outstanding value of Indonesian corporate sukuk. Therefore, the hypothesis is formulated:

- H1: The exchange rate has a negative effect on the outstanding value of Indonesian companies' sukuk for the period 2011-2022.
- H2: Interest rates have a negative effect on the outstanding value of Indonesian companies' sukuk for the period 2011-2022.
- H3: The inflation has a negative effect on the outstanding value of Indonesian companies' sukuk for the period 2011-2022.
- H4: The money supply has a positive effect on the outstanding value of Indonesian companies' sukuk for the period 2011-2022.

H5: Oil prices negatively affect the outstanding value of Indonesian sukuk companies for the period 2011-2022.

## Research Methods

This research is quantitative. This study examines the influence of macroeconomic variables consisting of exchange rates, interest rates, inflation, money supply, and world oil prices on the outstanding value of Indonesian companies' sukuk. The population and sample in this study are corporate sukuk published by the official website of the Financial Services Authority (OJK) for the period 2011-2022. The data obtained are as many as 660 data points covering the total outstanding value of corporate sukuk, exchange rates, interest rates, inflation, money supply, and world oil prices from January 2011 to December 2022.

Exchange rate data, interest rates, inflation, money supply, from Bank Indonesia ([www.bi.go.id](http://www.bi.go.id)) and ([bps.go.id](http://bps.go.id)) with monthly data types, world oil price data using West Texas Intermediate (WTI) prices from the Energy Information Administration ([www.eia.gov](http://www.eia.gov)) in dollars. Meanwhile, sukuk data is obtained from the Financial Services Authority ([ojk.go.id](http://ojk.go.id)).

**Table 1.** Research Sample

| No. | Code | Name            |
|-----|------|-----------------|
| 1.  | SKK  | Sukuk Corporate |
| 2.  | EXC  | Exchange Rate   |
| 3.  | IR   | Interest Rate   |
| 4.  | CPI  | Inflation       |
| 5.  | JUB  | Money Supply    |
| 6.  | WTI  | World Oil Price |

**Table 2.** Variable Operation Definition

|    |                 |                                                                                                                     |
|----|-----------------|---------------------------------------------------------------------------------------------------------------------|
| Y  | Sukuk Corporate | The total value of outstanding corporate sukuk is expressed in units of trillion rupiah.                            |
| X1 | Exchange Rate   | The exchange rate of national money (Rupiah) against foreign currency (USD), expressed in units of Rupiah per USD.  |
| X3 | Interest Rate   | Variable interest rates are proxied with the value of the BI rate announced by Bank Indonesia.                      |
| X4 | Inflation       | Inflation uses monthly data with percentage units (%)                                                               |
| X5 | Money Supply    | Money in the form of currency, current accounts, deposits, and savings (M2), expressed in units of a billion rupiah |
| X6 | World Oil Price | Oil prices are proxied by West Texas Intermediate (WTI) prices announced by the Energy Information Administration.  |

The data analysis technique used in the data analysis of this study is the Error Correction Model (ECM) using the E-views 10 application. The Error Correction Model (ECM) was popularized by Engle et al. (1987), which is used to solve time series data problems that are not stationary at sequence levels and to solve direct regression problems. The function of this model is to identify the existence of long-term and short-term relationships between

independent variables and dependent variables. To be able to test this model, the conditions that must be met by the data are that the variable must have a stationary level at the first difference and there is a cointegration between the variables studied (Widarjono 2013).

According to the Engle-Granger approach, the Error Correction Model (ECM) is valid if the sign of the ECT coefficient is statistically significant. The general equation that expresses the relationship between exchange rates (EXC), interest rates (IR), inflation (CPI), money supply (JUB), world oil prices (WTI), to Corporate Sukuk (SKK) is shown by the following equation:

Short-term equation of Engle-Granger's two-step ECM:

$$\Delta(SKK)_t = \beta_0 + \beta_1 \Delta(EXC)_t + \beta_2 \Delta(IR)_t + \beta_3 \Delta(CPI)_t + \beta_4 \Delta(JUB)_t + \beta_5 \Delta(WTI)_t + \beta_6 ECT + e_t \quad (3)$$

Long-term equation of Engle-Granger's two-step ECM:

$$LSKK_t = \beta_0 + \beta_1 LEXC_t + \beta_2 IR_t + \beta_3 CPI_t + \beta_4 LJUB_t + \beta_5 LWTI_t + \beta_6 ECT + e_t \quad (4)$$

Information:

LSKK : Logarithm the outstanding value of the company's sukuk for the t-th period

LEXC : Exchange rate logarithm of the t-th period

IR : t-period interest rate

CPI : t-period inflation

LJUB : Logarithms money supply for period t

LWTI : Logarithms world oil price for period t

$\Delta$  : Differential data

$\beta_0$  : Intercept

$\beta_1, \beta_6$  : Regression Coefficient Value

ECT : Error Correction Term

e : Standard error in period t:

## Finding and Analysis

Table 3. Unit Root Test

| Variable | Augmented Dickey-Fuller |                      | Phillips-Perron |                      |
|----------|-------------------------|----------------------|-----------------|----------------------|
|          | Level                   | 1 <sup>st</sup> Diff | Level           | 1 <sup>st</sup> Diff |
| Log_SKK  | 1.497654                | -15.34869***         | 2.139921        | -15.98202***         |
| Log_EXC  | -1.268515               | -13.18997***         | -1.163311       | -13.56777***         |
| IR       | -1.815652               | -7.102907***         | -1.529323       | -7.236987***         |
| CPI      | -2.348454               | -9.287608***         | -2.115895       | -9.128746***         |
| Log_JUB  | 2.308638                | -16.27611***         | 3.436730        | -16.55592***         |
| Log_WTI  | -1.804482               | -10.18449***         | -1.939871       | -10.06552***         |

Note: The symbols \*\*\*, \*\*, \* indicate the significance of the data at alpha levels of 1%, 5%, and 10%, respectively

(Source: Data Processed)

Based on the test results in table 3, it shows that the variables of outstanding corporate

sukuk value (SKK), exchange rate (EXC), interest rate (IR), inflation (CPI), money supply (JUB), and world oil price (WTI) are stationary at the first difference level with a significance level of 1%. Therefore, the requirements for testing the Error Correction Model (ECM) method are met.

**Table 4.** Cointegration Test Result

| Variable         | MacKinnon's Critical Values |           |           | Prob   | Information      |
|------------------|-----------------------------|-----------|-----------|--------|------------------|
|                  | 1%                          | 5%        | 10%       |        |                  |
| <b>ECT (ADF)</b> |                             |           |           |        |                  |
| -3.999437        | -3.476472                   | -2.881685 | -2.577591 | 0.0019 | Stationary Level |
| <b>ECT (PP)</b>  |                             |           |           |        |                  |
| -3.848188        | -3.476472                   | -2.881685 | -2.577591 | 0.0031 | Stationary Level |

(Source: Data Processed)

In Table 4 it is known that the probability value of the ECT variable is below the significance level of alpha 0.05. This shows that the ECT variables are stationary at the same level or degree, so it states that the variables of corporate sukuk (SKK), exchange rate (EXC), interest rate (IR), inflation (CPI), money supply (JUB), and world oil price (WTI) are cointegrated or have a relationship in the long and short term.

**Table 5.** Short-Term ECM Model Test Results

| Variable   | Coefficient | Srd.Error | t-Statistic | Prob   |
|------------|-------------|-----------|-------------|--------|
| D(LOG_EXC) | -0.142632   | 0.331565  | -0.430176   | 0.6677 |
| D(IR)      | 0.006832    | 0.034948  | 0.195480    | 0.8453 |
| D(CPI)     | -0.894575   | 1.303874  | -0.686091   | 0.4938 |
| D(LOG_JUB) | 0.434281    | 0.539892  | 0.804385    | 0.4226 |
| D(LOG_WTI) | -0.021603   | 0.058901  | -0.366763   | 0.7144 |
| ECT(-1)    | -0.110771   | 0.040185  | -2.756524   | 0.0066 |

(Source: Data Processed)

Table 5 shows that the ECT value passes at a significance level of 0.05 with a probability value of 0.0066. The ECT value of -0.110771 means that the ECM model formed is valid and a long-term relationship or cointegration occurs. The effect in the short term is concluded that the dependent variables consisting of exchange rates, interest rates, inflation, money supply, and world oil prices have no influence on the outstanding value of the company's sukuk, it is based on the resulting probability value is greater than the significance level of 0.05.

**Table 6.** Long Term ECM Model Test Results

| Variable | Coefficient | Srd.Error | t-Statistic  | Prob   |
|----------|-------------|-----------|--------------|--------|
| LOG_EXC  | -1.953504   | 0.416626  | -4.688862*** | 0.0000 |
| IR       | -0.001742   | 0.025103  | -0.069402    | 0.9448 |
| CPI      | -2.267715   | 1.365401  | -1.660842    | 0.0990 |
| LOG_JUB  | 2.757026    | 0.240825  | 11.44826***  | 0.0000 |
| LOG_WTI  | -0.093796   | 0.068442  | -1.370455    | 0.1728 |

|   |           |          |           |        |
|---|-----------|----------|-----------|--------|
| C | -13.92034 | 1.310721 | -10.62037 | 0.0000 |
|---|-----------|----------|-----------|--------|

(Source: Data Processed)

Based on Table 6, the following results are obtained: First, the exchange rate has a coefficient value of -1.953504 with a significance value of  $0.0000 < 0.05$ . A significance value smaller than 5% indicates that the null hypothesis is rejected and that, in the long run, the exchange rate negatively affects the outstanding value of the company's sukuk. Secondly, the interest rate shows a negative coefficient of -0.001742 and a probability value of  $0.9448 > 0.05$ . A significance value of more than 5% and a result marked negative indicate that in the long run, interest rates do not affect the outstanding value of the company's sukuk. So it was concluded that the null hypothesis was accepted. Third, the value of the negative inflation coefficient is -2.267715, and the probability value of  $0.0990 > 0.05$ . The probability value is greater than 5%, and the result marked negative indicates that inflation in the long run does not affect the outstanding value of the company's sukuk; therefore, it can be concluded that the null hypothesis is rejected. Fourth, the money supply has a coefficient value of 2.757026 and a probability value of  $0.0000 < 0.05$ . The probability value is shown to be less than the significance level of 5%, or  $0.0000 < 0.05$ . This means that the null hypothesis is accepted: that in the long run, the money supply affects the outstanding value of the company's sukuk. Fifth, the value of the world oil price coefficient is -0.093796 with a probability value of  $0.1728 > 0.05$ . This means that the null hypothesis is rejected and that, in the long run, the world oil price does not affect the outstanding value of the company's sukuk.

**Table 7. Regression Coefficients**

|                           |          |                           |          |
|---------------------------|----------|---------------------------|----------|
| <b>R-Squared</b>          | 0.935431 | <b>Mean dependent var</b> | 9.529011 |
| <b>Adjusted R-Squared</b> | 0.933092 | <b>S.D. dependent var</b> | 0.687694 |

(Source: Data Processed)

Table 7 shows an R-squared value of 0.935431. This shows that the ability of the independent variable to explain the dependent variable is 93.5%, and the remaining 6.5% is explained by other variables outside this study.

**Table 8. Multicollinearity Test**

| <b>Variable</b> | <b>Centered<br/>VIF</b> |
|-----------------|-------------------------|
| D(LOG_EXC)      | 1.461252                |
| D(IR)           | 1.042454                |
| D(CPI)          | 1.080795                |
| D(LOG_JUB)      | 1.203784                |
| D(LOG_WTI)      | 1.187437                |
| ECT (-1)        | 1.095637                |

(Source: Data Processed)

Table 8 above shows that there is no multicollinearity problem. It is proven that the correlation value between variables produces a Variance Inflation Factor (VIF) value of  $< 10$

for each variable.

**Table 9. Heteroskedasticity Test**

| <b>Heteroskedasticity Test: Breusch-Pagan-Godfrey</b> |          |                      |        |
|-------------------------------------------------------|----------|----------------------|--------|
| F-statistic                                           | 0.243283 | Prob. F(6,136)       | 0.9613 |
| Obs*R-squared                                         | 1.518528 | Prob. Chi-Square (6) | 0.9583 |
| Scaled explained SS                                   | 16.08073 | Prob. Chi-Square (6) | 0.0133 |

(Source: Data Processed)

Based on Table 9, the results of the interpretation of the model found that the probability value of chi-square is  $0.9583 > 0.05$ . Thus, it is concluded that this model is free from the problem of heteroscedasticity.

## Discussion

### The Effect of Exchange Rate on the Outstanding Sukuk Value of Indonesia Companies

The first hypothesis in this study states that the exchange rate negatively affects the outstanding value of the company's sukuk. Based on the estimation results, it was found that in the short term, the exchange rate does not affect the value of the company's outstanding sukuk. The exchange rate does not affect the outstanding value of the company's sukuk because the issuance of sukuk is based on underlying assets, making it minimally exposed to the risk of changes in fluctuating exchange rates. These results are in line with research by Bhattacharyay (2013) that in the Asian region, exchange rates have no significant relationship to the growth of outstanding sukuk values. Moreover, Kartini & Milawati (2020) in their research confirmed that sukuk is a financial instrument with minimal risk from global and regional uncertainty.

Meanwhile, in the long run, it was found that the exchange rate variable had a significant negative effect on the outstanding value of Indonesian company sukuk. This means that this finding is in line with the theory and hypothesis that the increase in exchange rates raises doubts and skepticism about the robustness of capital market products and financial markets as a whole (Agrawal 2010).

Thus, as one of the systematic risks to the return of an asset, an increase in the exchange rate causes the risks of the company to rise, because the increase in exchange rates describes performance in the money market under pressure (Hong, Niu, dan Zeng 2019). High corporate risk due to the strengthening of the value of the local (domestic) currency leads investors to tend to be more cautious in making investments, and exchange rates reflect a balance between supply and demand. Thus, an uncontrolled exchange rate rise leads to economic instability (Kurniati dan Hardiyanto 2003). This impact reflects the decline in public demand for investment in capital market products, especially sukuk.

In line with the opinion of Ghazo et al. (2021), exchange rate instability reflects the company in improvement, so that it directly shrinks the company's profits. This means that

exchange rate stability plays an important role in assessing the health of the domestic bond and sukuk markets on the grounds that the exchange rate has a direct impact on the inflation rate of the economy, which will stimulate the import price of goods. This condition also implies that exchange rate instability occurs due to an increase in the price level (Sunaryati dan Munandar 2023). These results are in line with research by Ardiansyah & Lubis (2017; Kurniawan et al., (2020); Mahfiroh & Ratno, (2021) that the unstable exchange rate causes capital outflows, whose impact will reduce investor demand to invest in the sukuk market.

### **The Effect of Interest Rates on the Outstanding Sukuk Value of Indonesia Companies**

Based on the test results, it was found that variable interest rates in the short and long term have no influence on the outstanding value of Indonesian company sukuk. This means that this finding is certainly not consistent with arbitrage pricing theory (APT), which states that interest rates are one of the systematic risks that affect the return of an asset (Darmawan 2022). Even the results are also not in accordance with the hypothesis built in this study.

Interest rates have no influence on the outstanding value of Indonesian company sukuk, of course, the results of this study have a contradictory influence with theory and a lot of previous research literature, such as A. Conrad (2021) which reveals that low interest rates indicate higher profits for the company. What's more, it is theoretically described by Ahmad & Muda, (2013) that the performance of bonds or sukuk is good when interest rates fall, this means that the interest rate reduction is responded positively by the company to increase its production. Increased production, the profit that the company generates is higher, so that the profit distributed to investors will be high.

On the other hand Longstaff et al., (2018) illustrates that high interest rates result in an increase in the cost of capital borne by the company. An increase in interest rates will suppress company profits, the effect of a decrease in the value of cash flow, so that the impact of systematic risk causes the amount of investor demand for sukuk to decrease, as a result of which the outstanding value of the company's outstanding sukuk has decreased (Said & Grassa, 2013). Research Wahidah et al (2023) prove that monetary contraction has an impact on the share price and outstanding value of sukuk outstanding. Because the increase in interest rates pushes market sentiment to negative (Suciningtias, 2019). It even inhibits the diffusion of the sukuk market which has the impact of reducing the outstanding value in circulation (Latifah et al., 2021).

However, Conrad (2021) reasoning and some of these findings cannot be used as rationalization for the results in this study. This is due to the different characteristics of sukuk that all companies that register or issue certificates of assets based on sharia principles stipulated in Fatwa DSN-MUI No.32/DSN-MUI/IX/2002 and POJK No. 3 of 2018. On this basis, low and high interest rates do not affect investor demand to invest in the sukuk market because investing in corporate sukuk has investor rights, one of which is the right to still get returns in accordance with the agreement at the beginning of the contract. Based on contracts and tangible assets, it shows that sukuk is more liquid than other

financial instruments and is immune to shocks and changes in market conditions stemming from external factors, such as the pressure of the Covid-19 pandemic (Sholiha dan Hanifah 2021). In line with the statement by Apriani et al (2023), strengthening that sukuk is one of the long-term investment instruments that is immune to pressure or shocks due to economic recession.

### **The Effect of Inflation on the Outstanding Sukuk Value of Indonesian Companies**

The third hypothesis in this study suggests that inflation has a significant negative effect on the outstanding value of Indonesian companies' sukuk. Based on the results, it was found that inflation has no influence on the outstanding value of Indonesian companies' sukuk in the short or long term. Inflation has no effect either in the short or long term, explaining that the results found are not in line with the theories and hypotheses built in this study, that the expected rate of return is closely related to the level of risk contained in an asset (Ross 1976). In this regard, the results reject the structural theories and arguments of Modigliani & Cohn (1979), which reveal that a high inflation rate leads to low market returns. In line with research by Shih & Hoang (2021) that high inflation harms companies because of the high burden of production costs incurred.

The findings in this study lead to the conclusion that inflation does not affect the outstanding value of outstanding sukuk, normatively described as inflation having no impact if the inflation rate is not more than 10%, which is called mild inflation (Atmadja 1999). This means that controlled (stable) inflation will be responded by the public/investors to keep holding their funds and prefer to invest in financial assets as a way of hedging (Kumar dan Sahu 2018). This discovery is in line with research by Astari & Badjra (2018); Sanjaya (2016); and Yuliah et al. (2020), which states that inflation does not affect investors' decisions on the level of demand for circulating sukuk.

### **The Effect of Money Supply on the Outstanding Sukuk Value of Indonesian Companies**

The short-term results of the variable money supply were found to have no influence on the outstanding sukuk value of Indonesian companies. The findings are certainly not in line with the theory and hypothesis built that an increased money supply with a reasonable portion will stimulate the economy and increase company revenues (Ranto, 2019). The findings are contrary to the research of Muhammad et al. (2023); Nafisah et al. (2020); and Ulfah et al. (2022) but consistent with the results of the study Ependi & Thamrin (2020) and Wahidah et al., (2023) that the money supply has no influence on the outstanding value of sukuk in circulation or the volume of corporate sukuk issuance in Indonesia.

The most likely reason for this result is that stakeholders and investors have different responses to movements and changes in the money supply in making future decisions by referring to sukuk as one of the liquid Islamic capital market instruments for economic development, especially in providing a fixed return.

Meanwhile, the influence of the money supply variable on the value of sukuk issued by Indonesian companies in the long term was found to have a significant positive impact.

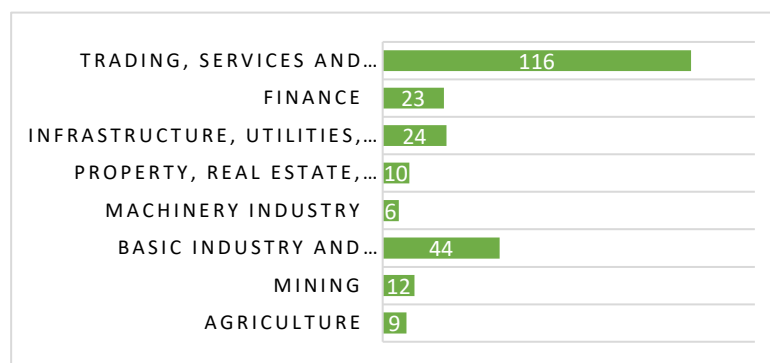
The findings of this study confirm that, in line with the theories and hypotheses built from the point of view of arbitrage pricing theory (APT) a high money supply indicates a high level of return with low risk. In line with the findings of Ardiansyah & Lubis (2017); Godfrey (2021); Kurniawan et al. (2020); Muhammad et al. (2023); Nafisah et al. (2020); Ranto (2019); and Ulfah et al. (2022).

According to the findings of Ranto (2019), the increased circulation of money stimulates economic activity, which is also a positive signal of increasing corporate profits. The economic stimulus in question is an increase in people's purchasing power of an asset. Qing & Kusairi (2019) confirm the above statement that expansionary monetary policy has encouraged the economy to increase public cash flow, so that the outstanding value of outstanding sukuk has increased.

### **The Effect of World Oil Prices on the Outstanding Sukuk Value of Indonesian Companies**

The results of the partial test estimates obtained that in the short and long term, the variable world oil price has no influence on the outstanding value of Indonesian company sukuk. The findings of this study are certainly not in line with the theory and hypothesis built that world oil prices have a negative impact on the outstanding value of Indonesian company sukuk. The results are also inconsistent with the studies conducted by Othman et al. (2013) and Sukmaningrum et al. (2020), which found that world oil prices have a negative impact on the outstanding value of outstanding sukuk companies in circulation. It even rejects the argument of Kilian (2010), which revealed that rising oil prices fundamentally reduce demand for aggregated nationally, consumption and purchasing power decline, which has the effect of reducing company revenues and profits.

It has no short-term and long-term influence because not all sukuk issuers use oil raw materials as production activities. This confirms that sukuk consists of several issuers with varied business sectors, based on the issuance of several business sectors as follows:



**Figure 2.** Sukuk Issuers by Sector (KSEI Processed Data)

Figure 2 above shows that the majority of sukuk issuers are engaged in the trade, service, and investment business sectors. Thus, the results are consistent with the study by Arshad et al. (2017), which found that world oil prices had no influence on the outstanding value of sukuk in the Malaysian capital market. Aligned research Fuad & Yuliadi (2021)

found that world oil prices have no influence on global capital market conditions in Indonesia.

## Conclusion

This study examines macroeconomic factors that affect the outstanding value of corporate sukuk in Indonesia, such as exchange rates, interest rates, inflation, money supply, and world oil prices. The research period was conducted for eleven years, namely January 2011 to December 2022. Theoretically, the exchange rate has a negative impact on the outstanding value of the company's sukuk; this means that the increase in the exchange rate raises doubts and skepticism that can reflect the decline in public demand for investment, which makes the outstanding value of the company's sukuk decrease. However, the results in this study found that the exchange rate has two different influences, namely, in the short term, it has no influence on the outstanding value of the company's sukuk, while in the long run, the effect of the exchange rate is consistent with the theory built. The next variable is interest rate; The results showed that variable interest rates had no influence on the outstanding value of short-term and long-term sukuk of Indonesian companies. It is possible that the characteristics of sukuk are different from other financial instruments, so that low or high interest rates do not affect investors making investments. Moreover, all companies that are registered or issue certificates of assets based on Sharia principles stipulated in Fatwa DSN-MUI No.32 / DSN-MUI / IX / 2002 and POJK Number 3 of 2018. Next is inflation; The high rate of inflation confirms a low market return because the burden of production costs incurred by the company is high, so that it makes the outstanding value of the company's sukuk decrease. However, the results of the study contradict the theory and literature of previous research that, in the short and long term, it was found that the results of inflation did not have an influence on the outstanding value of corporate sukuk in Indonesia. While the variable money supply was found to have a different influence, namely positive in the long run and not having an influence in the short term; Having a positive influence when the circulation of the amount of money in the community is high, it stimulates economic activity and will trigger the company's operational productivity, so that people's purchasing power of an asset will increase. Furthermore, the variable world oil price; one of the fundamental factors whose increase can reduce the demand for aggregated nationally, so that the impact causes the company's revenue and profits to decrease. However, the variable world oil price was found to have no effect on the value of outstanding sukuk companies in Indonesia, both in the short and long term.

The findings of this study show that the 5 independent variables and 5 hypotheses studied from a variable are not always in line with the theory built. It is possible that in one study period, a variable may have a different impact. For this reason, the description related to the results of this research can be used as additional support for existing theories and can raise the possibility of different influences from previous theories in addition to scientific insights on the investment sector in the sukuk market in particular. This result emphasizes

the importance of looking at macroeconomic conditions in making decisions to invest, because basically these variables are risks that must be considered, even though under certain conditions, an increase in these variables is not something bad.

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