

DOES THE SUKUK ISSUANCE IN TURKIYE IMPACT ON ECONOMIC GROWTH?

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ABSTRACT

This study examines the impact of sukuk issued by participation banks and the state on economic growth in Türkiye. In this direction, econometric analysis was conducted between 2013Q1-2022Q4 using Johansen cointegration and VECM Granger causality tests. Our findings show that sukuk issuance and economic growth move together in the long run. Subsequently, according to the long-term coefficient results, the effect of sukuk issued by participation banks on economic growth was found to be positive and significant, while the sukuk issued by the state did not have a significant effect on economic growth. In addition, according to the Granger causality test results, it was determined that there is a one-way causality relationship from GDP to participation banks' sukuk issuance. Our results show that the issuance of sukuk both contributes to and benefits from economic growth.

TÜRKİYE'DEKİ SUKUK İHRAÇLARI EKONOMİK BÜYÜMEYİ ETKİLİYOR MU?

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ÖZ

Bu çalışma, Türkiye'deki katılım bankaları ve devlet tarafından ihraç edilen sukuk/kira sertifikalarının ekonomik büyüme üzerindeki etkisini incelemektedir. Bu doğrultuda Johansen eşbütünlük ve VECM Granger nedensellik testleri kullanılarak 2013Q1-2022Q4 dönemleri arası ekonometrik analize tabi tutulmuştur. Bulgularımız, sukuk ihracı ile ekonomik büyümenin uzun dönemde birlikte hareket ettiğini göstermektedir. Ardından, uzun dönem katsayı sonuçlarına göre katılım bankalarının ihraç edilen sukukların ekonomik büyüme üzerindeki etkisi pozitif ve anlamlı bulunurken, devlet tarafından ihraç edilen sukukların ise ekonomik büyüme üzerinde anlamlı bir etkisine ulaşamamıştır. Ayrıca, Granger nedensellik testi sonuçlarına göre GSYH'den katılım sukuk ihracına doğru tek yönlü nedensellik ilişkisinin olduğu tespit edilmiştir. Elde ettiğimiz sonuçlarımız gösteriyor ki, sukuk ihracı hem ekonomik büyüme katkı sağlarken hem de ekonomik büyümeden istifade etmektedir.

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INTRODUCTION

"Islamic Economics", which emerged with the idea of establishing economic concepts, institutions and organizations and policies in accordance with the Islamic religion, has developed since the first half of the 20th century. It is seen that the focus of the concept of Islamic Economics has shifted to the idea of "Islamic Finance" for many reasons over time. Briefly, Islamic Finance aims to structure financial concepts, institutions-organizations and policies in accordance with the principles of the Islamic religion. It seems that Islamic finance came to the fore especially towards the end of the 1970s (Orhan & Tırman, 2021, p. 230).

Discussions still continue in the field of Islamic Economics-Finance, whose popularity has started to increase with a serious momentum in recent years. The claim that Islamic Economics-Finance, which has experienced significant breakthroughs in Türkiye as well, especially in the last ten years, is a complement or an alternative to the long-existing conventional economics-finance system continues to grow stronger. However, it seems that those who defend the opposite of this claim are still in the majority.

It is seen that Islamic finance succeeded and started to rise during the periods of crisis in conventional financial sector went into. There are many studies claiming that Islamic finance is less risky, more stable and performs better, especially during and after the 2008 global crisis, which is the last global crisis (Chapra, 2008; Hasan & Dridi, 2010; Chazi & Siyed, 2010; Aktaş, 2013; Beck et al., 2013; Alshammari, 2017; Erfani & Vasigh, 2018; Kendirli et al., 2019). In these studies, it is argued that the unique characteristics of Islamic financial instruments are the reason for their better performance. In the emergence of this performance, "Sukuk", which is an alternative to interest-based and fixed-income securities, and which was put into circulation by both the treasury and the private sector in accordance with the principles of "Sharia", that is, "Islamic Law", for the purpose of providing external financing, considered to be crucial driving force (Smaouia & Nechi, 2017, p. 136). The unique characteristics of Sukuk can be stated as (Yılmaz, 2014):

- Regulated in accordance with the principles of Islamic Law (Sharia),
- Obtaining rental income and profit share instead of interest-bearing income,
- Avoiding transactions where uncertainty may be high,
- Not a debt security,
- The capital and profit can't be guaranteed by the issuer.

It can be said that the logic behind Sukuk stems from Islamic finance principles that prohibit interest and recommend profit-loss sharing. When examined etymologically, the word "Sukuk" means paper, which is the plural form of the Arabic word "Sakk" and represents a financial obligation (Safari, 2013, p. 81). In other words, sukuk meaning "Certificates" or "Documents" (often called "lease certificate" in Türkiye) is essentially an asset-backed debt instrument, although similar to stocks and bonds. It can be argued that Sukuk has a structure that can be issued on an asset, service or project that is suitable for securitization and that sukuk combines stocks and bonds (Godlewski et al., 2011, p. 7).

According to one view, it's claimed that the first sukuk (which is also called "Islamic Bonds") appeared in the world first in Jordan in 1978, while it is claimed according to another view that in Malaysia in 1990. The first sukuk issued in Türkiye was implemented by Kuveyt Turk Participation Bank in 2010, and afterwards other participation banks started issuing sukuk in order to take their place in this market. Since 2012, the Undersecretariat of the Treasury has also started issuing sukuk, in a larger amount compared to private sector issuances. Therefore, sukuk can be issued both by private financial institutions such as banks (corporate sukuk) and by the state (sovereign sukuk) (Sümer, 2020, p. 1; Orhan & Tırman, 2021, p. 231).

Considering the types of sukuk, it is striking that each type of sukuk is formed through the contracts (salam, istisna', ijarah, muzaraah, murabahah, mudarabah, musharakah, mugharasah, musaqat and wakala) used by participation banks in collecting and distributing funds (Dilber, 2022, p. 346). There are three different parties in sukuk. The first of these is the originator, the second is the special purpose vehicle (asset rental companies), and the third is the investors. The originator is defined as the party that owns an asset, contract or project and wishes to issue sukuk on it. Special purpose vehicles, which are in the second position of the parties, are called asset leasing companies with securitization authority. In the third party position, there are sukuk investors. Thanks to the sukuk issuance, the originator reaches the investor and collects funds by transferring the asset, project or contract to a special purpose vehicle (asset rental company) and securitization (Tariq & Dar, 2007, p. 207).

In order to facilitate to be understood the functioning mechanism of sukuk, we believe that it would be useful to summarize the application method of "Ijarah Sukuk", which is mostly preferred by participation banks in Türkiye, at this point, the originator must first have an asset available for securitization. A special purpose vehicle

(asset leasing company) issues an ijarah sukuk based on the asset owned by the originator entity. The asset leasing company transfers the funds it collects from the investors in return for the ijarah sukuk to the originator in exchange for the transfer of the asset. The asset leasing company leases the asset which is taken over to the originator. The asset leasing company, which earns rental income due to the aforementioned asset, makes periodic payments to the investor at the rate of the ijarah certificate during the maturity of the sukuk. In ijarah sukuk, when the maturity period expires, the ownership of the asset must be transferred back to the originator. The originator can take over the ownership of the asset again if it pays the principal amount of the asset value and all the accrued but unpaid periodic incomes at the end of the maturity period. This payment is called the closing payment (Dilber, 2022, p. 346-347).

Similar to conventional debt securities, sukuk is also issued for a certain period of time. According to Islamic law, sukuk must be supported by a real entity likewise land, building, equipment, service, project etc. In this way, the buyer and the seller indirectly trade on a real asset and the sukuk trading is no longer just a paper trade. However, it can be said that the existence of some types of sukuk that provide fixed and variable returns and the fact that the stated return is indexed to US Dollar funds or equivalently to benchmark interest rates such as LIBOR is one of the main reasons for the criticism brought about the sukuk instrument (Wilson, 2008, p. 173-177). In general, the problems and criticisms in the implementation of sukuk, which are issued in ways similar to the above-mentioned operating mechanism, continue to exist as a separate topic of discussion (Orhan & Tırman; 2021, p. 234).

The popularity of sukuk, which has shown a steady increase since 2015, continues to rise day by day. Sukuk issuance, which was 188 billion 121 million dollars according to the figures of 2021, reached a total size of 1.6 trillion dollars between 2001 and 2021 (IIFM-Sukuk Report, 2022). Looking at the November 2012-2021 period, it is seen that the sukuk issuance by participation banks in Türkiye is worth approximately 302 billion TL, 4.5 billion USD, and 1.9 billion Malaysian Ringgit. In the same period, T.C. The domestic issuance by the Ministry of Treasury and Finance is approximately 2.6 billion USD and 3.5 billion Euros. In the same period, it is seen that the issuance of sukuk abroad by the Ministry of Treasury and Finance of the Republic of Türkiye is worth approximately 16 billion USD (PBAT- Report of Sukuk Issuance Volume, 2022).

Our study is important, because we believe that increasing volume of sukuk issuance can contribute to the economic development of a country in many ways. First of all, sukuk, just like other financial instruments, activates idle savings and ensures that capital markets function more effectively and financial markets deepen. Thanks to a well-functioning sukuk market, an alternative financing instrument market will emerge for banks to invest in, thus reducing information asymmetry, ensuring more efficient resource allocation, and ultimately supporting economic growth. Since sukuk is an instrument in which profit and loss sharing occurs as previously agreed by the parties, the risk is shared by both the investor and the issuing parties. The inherent risk sharing feature of sukuk encourages investment and therefore economic growth. In addition, thanks to sukuk, the savings of investors who do not want to invest their savings in interest-based instruments and are interest-sensitive are brought into the economy (Smaoui & Nechi, 2017, p. 137). In addition, sukuk is an important alternative financial instrument to facilitate the financing of infrastructure investments. Increasing infrastructure investments can accelerate the economic development of a country or region. At this point, since the underlying assets of sukuk are tangible fixed assets, when investors invest in sukuk, they strengthen not only the real sector but also the financial sector. As a result, a strengthened real sector will stimulate a country's economic growth (Fahrian & Seftarita 2016, p. 258). In addition, another reason why this study is important is that there are very few studies examining the impact of the sukuk instrument, whose transaction volume in Islamic banking is increasing day by day, on the real economy between the periods of 2013Q1-2022Q4 with current data.

In the light of all this information, this study aimed to reveal the effect of sukuk issued by both participation banks and Turkish treasury on economic growth in Türkiye in the 2013Q1-2022Q4 period. The rest of the article proceeds as follows: in the second section, summaries of studies related to the relevant literature are included. In the third section, the results obtained are presented, including the data set, methodology and empirical analysis. In the fourth and last section, the results are listed and solution suggestions are made.

LITERATURE

When it is considered only in a logical framework without considering the issue in depth, we think that it is not unreasonable to conclude that the development in the sukuk market will contribute positively to economic growth. Because, sukuk helps money and capital markets operating more effectively by mobilizing idle savings and financing to long-term fund seekers. It is known that long-term financing is very important for productivity

and growth in an economy. In addition, sukuk, together with the stock and bond markets, provides benefits for the financial system about gaining depth. A properly functioning sukuk market can reduce the information asymmetry of banks, allocate resources more efficiently and additionally banks can have more opportunities for loans (Dilber, 2022, p. 349). The literature showing that the deepening of the financial system has a positive effect on economic growth (Patrick, 1966; King & Levine, 1993; Levine, 1997; Ghali, 1999; Levine, Loayza & Beck, 2000; Calderon & Liu, 2003; Apergis et al., 2007; Iyoboyi, 2013; Hamdi et al., 2014; Ghildiyal et al., 2015; Bakang, 2015; Wang, 2019; Sugiyanto & Yolanda, 2020).

As lease certificates, sukuk are based on risk sharing, which is one of their unique features, where the issuer and the investor share the risk, profit or possible loss between them under agreed terms. It is thought that investments will increase and the economy will grow in a healthy way thanks to the fact that the risk is not burdened by one party, that is, the borrowers and lenders share the commercial risks in return for the profit share. In addition, the savings of individuals who stay away from interest-bearing financial instruments such as bonds and bills, due to their beliefs, flow to the financial markets through sukuk and thereby preventing the savings from being idle. As a result, it seems quite reasonable to think that a developed sukuk market will positively affect economic growth (Dilber, 2022, p. 350).

Considering the studies evaluating the effect of sukuk on macroeconomic parameters, it is seen that the number of studies focusing directly on its effect on economic growth and Türkiye is quite limited. Some of the studies on this subject are researches that are not based on statistical or econometric analyzes with the consideration that they will create positive results on economic growth due to the unique characteristics of sukuk.

Khoutem's (2014) research, which is the first one of non-econometric studies, on Tunisia stated that sukuk is a tool that provides more funding opportunities in the context of financing economic development and combating unemployment and poverty. In addition, it was concluded that the savings to be collected by issuing sukuk will enable participation banks to overcome many problems such as financing risk, liquidity and long-term investments. From the other non-econometric research conducted by Ahmad et al (2015) on the role of sukuk in economic growth and its sustainability in financial crises on Malaysia, it was deduced that sukuk, the use of which is rapidly increasing, will have a positive effect on macroeconomic criteria. As a result of the study (can be included in non-econometric group of studies) conducted by Onagun (2016) on the United Arab Emirates for investors, and the findings were evaluated together with the experts of the subject, it was suggested that sukuk investments would have a positive effect on the UAE economy. From the study of Kantarcı & Eren in 2018, it was concluded that sukuk, which is a very effective financial instrument due to its unique features, and the growth in the sukuk market will have a positive effect on inflation, unemployment, economic stability and ultimately economic development. From the research conducted by Al-Raeai et al. (2018) to determine the macroeconomic parameters affecting the development of the sukuk market, with data on the Gulf Arab States Cooperation Council (GCC) countries between 2001 and 2016, it was deduced that the growth of the sukuk market could trigger economic development.

In the literature, besides the studies that are not based on statistical or econometric analysis, there are also studies examining the relationship between sukuk and economic development through empirical analysis. In the research conducted by Nayan & Norsiah (2014) using panel data analysis, it was concluded that sukuk contributed significantly to economic development. According to the results of the study by Fahrian & Seftarita (2016) using the ARDL model based on data from the period 2009-2015 in Indonesia, the relationship between sukuk issuance and economic growth is negative in the short run, while the direction of the said relationship turns positive in the long run.

In another research done by Echchabi et al. (2016) on Türkiye, United Kingdom (UK), Germany, France, GCC countries, China, Pakistan, Malaysia, Indonesia, Singapore, Brunei, Kazakhstan and Gambia using data from the period 2005-2012, Toda- Yamamoto causality test was applied. In this research, the relationship of sukuk issuance with GDP, gross capital formation and import-export is discussed. According to the results obtained from the research, which involved the evaluations that combining all the country data, it is concluded that there is a causal relationship between the issuance of sukuk and the GDP and gross capital formation, while from the country-based evaluation has been concluded that the issuance of sukuk has no effect on economic development. The same researchers tried to determine the relationship between sukuk issuance and GDP, gross capital formation, import-export only within the scope of GCC countries in 2018 with the same method and for the same period, according to the results obtained from the research it's been stated that there is no relationship between sukuk issuance and GDP, gross capital formation and import-export. Smaoui & Nechi (2017) reported that the total amount issued and the market value of the sukuk had a positive impact on economic development, as a result of the estimation made by GMM using the data of all countries issuing sukuk for the period 1995-2015. Türkiye is among the countries

examined in these two studies explained above. While the period examined in the first study was 2005-2012, in the second study it was 1995-2015. However, sukuk issuances in Türkiye started well after the initial period of these two studies. This situation brings to mind the question of how sukuk data for Türkiye is obtained.

Malikov (2017) used the t-test to determine whether there is a significant difference between the averages of some selected macroeconomic variables before and after the issuance of sukuk in Malaysia and Saudi Arabia, and significant differences were found between the period averages. Since the difference between the two periods in terms of the averages of macroeconomic variables showing economic growth was higher and significant after the issuance of sukuk, it was deduced that the issuance of sukuk positively affected the economic development. To the study conducted by Mitsaliyandito et al. (2017) on Indonesia, sukuk issuance positively affects economic development. One year later, in the study done by Sari et al. (2018) on Indonesia as well, it was emphasized that sukuk is an important alternative financial instrument that supports economic growth in the long run. On the other side, according to the results of the studies conducted by Kartini & Milawati (2020) and Setianingsih & Widyastuti (2020) on Indonesia, it was seen that there is a significant and positive relationship between sukuk and economic development in the long run. According to the findings obtained from the study conducted by Ridlo et al. (2021) on Indonesia, no significant positive or negative relationship was found between sukuk and economic growth.

According to the results of the study in which Ledhem (2020) examined the effect of sukuk financing on economic development by using Static Panel GMM with 2013-2019 period data on Brunei, Malaysia and Indonesia, it was seen that sukuk financing positively supports economic development. As a result of the research conducted on the same countries by Ledhem & Mekidiche (2021), using the non-parametric quantile regression model optimized with Markov Chain Monte Carlo based on the period 2013Q4 -2019Q4, it was stated that as the issuance of sukuk in Islamic capital markets increased, economic development also increased.

In the study conducted by Yıldırım et al. (2020) on the Sukuk market in Türkiye, Pakistan, Kuwait, Jordan, Indonesia, Nigeria, Brunei, Malaysia and Saudi Arabia for 2014Q1-2017Q4, total sukuk issuance figures and sukuk density variables were used as independent variables and GDP was used as dependent variable. As a result of this study, it's been revealed that there is a positive relation between the growth of the sukuk market and economic growth. Similarly, according to the results of Avcı's (2020) study on the Sukuk market in Türkiye, United Arab Emirates, Indonesia, Kuwait, Malaysia, Pakistan, Saudi Arabia and Sudan, based on 2014Q1-2019Q2 period and using the Dumitrescu Hurlin panel causality test, it's been revealed that there is a one-way causality relationship from economic development to the issuance of sukuk. Nevertheless, any separate results specifically for Türkiye were not declared by both of these studies.

In Alkhawaja's (2019) study, which is the first one of the rare studies conducted directly on Türkiye, the data of sukuk issuance for the period of 2010-2017 were used. However, the data in question were not subjected to econometric/statistical analysis, only the rate of the sukuk issuance to GDP (Gross Domestic Product) every year was found, and the course of the rates was followed. As a result, it has been emphasized that the said rate is in an increasing trend from 0.013% to 0.544%. At this point, the research conducted by Orhan & Tirman (2021), which can be said the second another study done directly on Türkiye, examined the correlation (through econometric analysis) between sukuk issued by both treasury and participation banks and economic development using quarterly data between 2010-2019. According to the findings obtained from the study carried out using the ARDL model, the effect of sukuk issued by the treasury on economic growth is negative in the first period, but turns positive in the long run. While the effect of sukuk which are issued by participation banks on economic development is negative in the short term, it follows a decreasing course in the long term. As a result, while the correlation between the sukuk that are issued by the treasury and economic development is positive, the effect of the sukuk issued by the participation banks on the economic development is negative. The third and the last study conducted directly on Türkiye was conducted by Dilber (2022). The results of this study indicates that no significant long-term relationship was found between sukuk and economic growth. In addition, it has been revealed that there's a unidirectional causality relationship from growth to sukuk issuance.

In one of the recent studies in the literature conducted by Naz & Gulzar (2022) on Bahrain, Pakistan, Indonesia, Saudi Arabia and the United Arab Emirates, based on the 2005-2020 period, it was concluded that there is a positive and significant relationship between sukuk and economic growth in the long run. According to the results obtained from another recent study in the literature, which was carried out by Yuliani et al. (2022) on Saudi Arabia, Indonesia, United Arab Emirates, Bahrain and Malaysia based on the period of 2006-2018, it was seen that the development of the sukuk market had a positive effect on economic growth.

As can be understood from the studies in the existing literature, there's still no detailed literature on how sukuk issuances affect economic growth in Türkiye. With this research, we aimed to adress this deficiency and to expand the literature.

ECONOMETRIC METHODOLOGY

Dataset and Variables

The purpose of this study is to examine the effect of sukuk which are issued by participation banks in Türkiye and treasury on economic development. In this direction, control variables associated with their effects on economic growth were also included in the study. In the study, the 2013Q1-2022Q4 periods were analyzed using quarterly data. Data on the issuance of sukuk are obtained from the Participation Banks Association of Türkiye (TPBA) and The Ministry of Treasury and Finance (TMTF). In addition, the nominal values of the sukuk issued by the participation banks and the treasury are taken into account, while the values of the gold and foreign currency sukuk are converted into TL using the current quarterly exchange rates. Data on control variables were obtained from the Electronic Database (EVDS) of the Turkish Statistical Institute (TSI) and the Central Bank of the Republic of Turkey (CBRT). As it's stated below, the sources of the variables and explanations are shown in Table 1.

Table 1: The Sources and Definitions of the Variables

Variables	Symbols	Data Sources
GDP (Chained volume change rate based on 2009 by consumption method)	GDP	TSI 2013Q1-2022Q4
Total sukuk issued by participation banks	Ksukuk	TPBA-TMTF 2013Q1-2022Q4
Total sukuk issued by treasury (sovereign sukuk)	Hsukuk	TKBB-HMB 2013Q1-2022Q4
Trade Openness	TO	TSI 2013Q1-2022Q4
Broad Money Supply (M2)	M2	EVDS 2013Q1-2022Q4
Consumer Price Index	INF	EVDS 2013Q1-2022Q4
Government Final Consumption Expenditures	GFCE	TSI 2013Q1-2022Q4
Gross Fixed Capital Formation (Share of gross fixed capital formation in GDP at current prices)	GCF	TSI 2013Q1-2022Q4

While defining the variables of the research, firstly, the GDP criterion was used as an indicator of economic growth (Barro, 1991: 409). Subsequently, the study took into account sukuk issuances of the participation banks operating in Türkiye and the treasury, representing the development of the sukuk market, were taken into account. The existing literature claims that the development of the sukuk market will be an important factor in the development of the Islamic finance market and will also positively affect the economic development of countries (COMCEC, 2018). Because, considering that the macroeconomic determinants of economic output include consumption, investment, government expenditures and net foreign trade balance; it will be seen that the sukuk issued by the Treasury affects investment and government expenditures, while the sukuk issued by the private sector affects investment and foreign trade (Orhan & Tirman, 2021, p. 239). Finally, control variables consisting of trade openness, broad money supply, consumer price index, gross fixed capital formation and government expenditures are included in the study to take into account other determinants of economic growth. These variables measure the impact of a country's economy, which changes over time.

Method

In the study, the series are tested whether they are stationary before they are included in the model. Generalized Dickey-Fuller (ADF) unit root analysis is used to test stationarity in time series analysis. ADF unit root analysis is the stationarity test used for highly autoregressive processes (Dickey & Fuller, 1981, p. 1065). ADF unit root test null hypothesis is tested as: "H₀: Series contains unit root".

In cases where the series are not stationary at the level but are stationary at the difference, the existence of a long-term relationship between the series is determined with the Johansen cointegration test. In order to detect the existence of a long-term relationship, the lag lengths of the model are determined. In time series analysis, the lag

length is determined by Schwarz Information Criteria (SC), Akaike Information Criteria (AIC) and Hannan-Quinn (HQ).

In the method developed by Johansen (1988), Johansen & Juselius (1990) considering the lag lengths of the model, the existence of a cointegration relationship means that the series move together in the long run.

In order to determine the cointegration coefficient when there is a long-term relationship between the series, the analysis uses the FMOLS long-term coefficient estimator developed by Phillips and Hansen (1990). FMOLS test explains the correlation in regressions in time series analysis (Phillips & Hansen, 1990, p. 99). With the FMOLS long-term coefficient estimator, it is determined that in which direction and to what extent the independent variables affect the dependent variable. The model established to determine the FMOLS long-run coefficient relationship is as follows:

$$GDP_t = \beta_0 + \beta_1 * Ksukuk_t + \beta_2 * Hsukuk_t + \beta_3 * TO_t + \beta_4 * M2_t + \beta_5 * INF_t + \beta_6 * GFCE_t + \beta_7 * GCF_t + \varepsilon_t$$

After determining the long-term relationship between dependent and independent variables, the short and long-term causality relationships were examined with VECM (Error Correction Model) Granger causality analysis. The VECM Granger causality test developed by Engle & Granger (1987) determines the direction of short and long-term causalities between the series. With the causality test, the short and long-term deviations of the variables from the equilibrium can be corrected with the error correction model (Bilgin & Şahbaz, 2009, p. 186). In this context, the direction of the short and long-term causality relationships between dependent and independent variables were examined with the VECM Granger causality test.

EMPIRICAL FINDINGS

In our study, while examining the effect of sukuk issuance on economic growth, in the first stage, the stationarities of the series were examined with the Augmented Dickey Fuller (ADF) unit root test, which is frequently preferred in time series analysis, and the results are presented in Table 2.

Table 2: The Results of the ADF Unit Root Test

Variables	Constant	
	ADF Value	Probability
GDP	-0.3131	0.9133
Ksukuk	-0.9065	0.7755
Hsukuk	-1.7529	0.3974
TO	1.6597	0.9988
M2	1.8739	0.9996
INF	1.8062	0.9994
GFCE	2.0190	0.9998
GCF	1.7812	0.9990
	First Difference	
ΔGDP	-9.2425***	0.0000
ΔKsukuk	-11.8771***	0.0000
ΔHsukuk	-7.9127***	0.0000
ΔTO	-6.1516***	0.0000
ΔM2	-4.3399***	0.0015
ΔINF	-3.4993*	0.0604
ΔGFCE	-5.5007***	0.0001
ΔGCF	-4.3782***	0.0013

Note: * and *** denote statistical significance at the 10% and 1% level, respectively.

Table 2 describes the results of the ADF unit root test. The findings show that the level values of all variables are not stationary in the constant model, in other words, they have a unit root. However, in the first difference, all variables became stationary. Thus, it is concluded that all variables are in the I(1) state.

After proving that the series are integrated in the study, the existence of a long-term relationship between these series was tried to be determined using the Johansen cointegration test developed by Johansen & Juselius (1990). In order to apply the Johansen cointegration test, first of all, the VAR model must be established. Accordingly, the appropriate lag length for the VAR model was determined according to LR (Likelihood Ratio), FPE (Final Prediction Error), AIC (Akaike Information Criteria), SC (Schwarz Information Criteria) and HQ (Hannan-Quinn Information Criteria) levels and the results has been reported in Table 3.

Table 3: Determination of the Lag Length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	386.1720	NA	1.04e-19	-21.00955	-20.65766	-20.88673
1	574.1264	281.9316*	1.16e-22	-27.89591	-24.72887*	-26.79053
2	638.3107	67.75010	2.01e-22	-27.90615	-21.92397	-25.81821
3	750.2356	68.39859	9.78e-23*	-30.56865*	-21.77132	-27.49814*

As a result of the information criteria evaluated, the suitable lag length was chosen as 1 with respect to the Schwarz Information Criteria (symbolized as SC). In this context, it has been observed that there is no autocorrelation and heteroskedasticity problem in the estimated VAR(1) model, that the model has a normal distribution, and that the inverse roots of the AR characteristic polynomial are distributed within the unit circle. After all these pre-test stages, study proceeded to the Johansen Cointegration Analysis step to determine whether there is a relationship between the issuance of sukuk and control variables and economic growth or not. If there is, then it's tried to determine whether they move together in the long run or not. The results are given in Table 4.

Table 4: The Results of the Johansen Cointegration Test

The Number of Cointegration Vector	Trace Statistics	5% Critical Value	Max-Eigen Statistics	5% Critical Value
$r=0$	171.4192**	159.5297	54.70442**	52.36261
$r\leq 1$	116.7148	125.6154	34.21063	46.23142
$r\leq 2$	82.50417	95.75366	28.89768	40.07757
$r\leq 3$	53.60649	69.81889	22.25327	33.87687
$r\leq 4$	31.35322	47.85613	15.40395	27.58434
$r\leq 5$	15.94927	29.79707	7.866179	21.13162
$r\leq 6$	8.083094	15.49471	6.786446	14.26460
$r\leq 7$	1.296649	3.841466	1.296649	3.841466

Note: ** means that the null hypothesis was rejected at the 5% significance level.

As a result of the cointegration analysis, it is seen that both the maximum Eigen and the trace statistics values are greater than the critical value, which indicates the 5% significance level. This shows that the H_0 hypothesis stating that there is no cointegration relationship ($r=0$) will be rejected, but the H_1 hypothesis indicating that there is at most one cointegration relationship ($r=1$) cannot be rejected. In other words, it is reported that there is a cointegration vector between the variables in the long run. To make this result more specific, GDP, Ksukuk, Hsukuk and other control variables act together in the long run, that is, they affect each other.

After confirming the existence of a cointegration relationship between the variables in the Johansen cointegration analysis stage, the long-term cointegration coefficient estimation has been made with the Fully Modified Least Squares Method (FMOLS) developed by Philips & Hansen (1990) in order to determine in what direction and to what extent the sukuk issuance and control variables affect economic growth. FMOLS method is an important long-term coefficient estimator that is frequently used in the literature. The reason for this situation is that it corrects the endogeneity problem arising from the cointegration relationship and the deviations that may arise from problems such as autocorrelation and heteroskedasticity (Mahmood, et al, 2014, p. 29). The results of the FMOLS cointegration estimator are presented in Table 5.

Table 5: The Results of the FMOLS Long Term Estimations

Variable (Dependent Variable, GDP)	Coefficient	T-Statistics	Probability
Constant Term	-2.022511***	-4.569373	0.0001
Ksukuk	0.013038*	1.958707	0.0595
Hsukuk	0.003514	1.347142	0.1880
TO	-0.021743	-0.405858	0.6877
M2	0.059631	0.853287	0.4003
INF	-0.725954***	-4.396324	0.0001
GFCE	-0.312334***	3.129044	0.0039
GCF	0.345343***	4.790263	0.0000
R²	0.98		
Adj. R²	0.96		
SER	0.010		
SSR	0.003		

Note: * and *** denote statistical significance at the 10% and 1% level, respectively.

According to the FMOLS cointegration estimator analysis results, first of all, it is seen that the participation banks' sukuk (Ksukuk) issuance coefficient is positive and statistically significant. This shows that there is a linear connection between growth and participation banks' sukuk issuance in the long run. The 1% increase in the participation banks' sukuk issuances increases the growth rates by approximately 0.013%. Therefore, this finding means that participation banks' sukuk financing positively affects economic growth in Türkiye. On the other hand, while the control variables inflation (INF) and government final consumption expenditures (GFCE) affect growth negatively, gross fixed capital formation (GCF) affects growth positively. While a 1% change in inflation rates will slow down economic growth by 0.72% and a 1% change in government final consumption expenditures will slow down economic growth by 0.31%, on the other side a 1% change in gross capital formation will increase economic growth by about 0.35%. Finally, despite all these results, it was concluded that there is no statistically significant relationship between treasury sukuk issuances (Hsukuk) and other control variables, trade openness (TO) and broad money supply (M2), and economic growth.

At this stage, we can interpret our results obtained in the empirical analysis by comparing them with other studies in the literature. From the results in Table 5, it has been found that the sukuk issued by participation banks (Ksukuk) have a positive and significant impact on economic growth. However, the size of this effect is quite low with a rate of 0.013038%. The primary reason for this low impact - considering that the issuance of sukuk in Türkiye was started in 2010 with the legal regulation - is that the sukuk market is still a newly developing market and accordingly the transaction volumes are small. So, it can be interpreted that when compared with the size of the economy the fact that the sukuk issuance figures are very small and therefore the effect size is low. The fact that the studies conducted in Turkey are almost nonexistent and that most of the studies have not examined in detail make it difficult to compare our findings with the existing literature. However, we can hold a few studies up as examples.

For example, in the study conducted by Yıldırım et al. (2020), the relationship between the sukuk market and economic growth of 9 countries, including Türkiye, was examined. However, they concluded that sukuk issuances have a positive effect on economic growth, without making any distinctions regarding the issuance of sukuk and making a special conclusion for Türkiye. Although this study did not make a detailed examination, its result is similar to our results. From the study conducted specifically for Türkiye by Orhan & Tırman (2021), which is the only study to compare our study, it was concluded that the issuance of participation banks' sukuk negatively affects economic growth. At first glance, it may seem that this result differs from our findings. However, at the end of their studies, Orhan & Tırman (2021) stated that sukuk issued by participation banks will also make a positive contribution to economic growth in the future, since the sukuk market has just begun to develop in Türkiye. As a result of this article we've written, with the increase in the number of sukuk issuances after two years, the finding that sukuk issuances of participation banks have a positive contribution to the economy. Our finding confirms the comment expressed by Orhan & Tırman (2021).

On the other hand, another important result in Table 5 is that there's no significant correlation between the sukuk that are issued by the treasury (Hsukuk) and economic development. We think that factors such as the fact that the issuance of sukuk by the treasury has just started and the coefficients are meaningless during the analysis phase due to the low volume of issuance may have contributed to this result. However, it is seen that there has been a significant increase in the number of sukuk issued by the treasury recently. We are of the opinion that the extent of this effect will probably be more pronounced in future studies. Finally, the results obtained from the control variables are similar to the studies in the literature (Smaoui & Nechi, 2017; Akinsola & Odhiambo, 2017; Karabulut, 2019; Aslan & Altınöz, 2021).

In the last stage of the study, the phase of determining the direction of the causality relationship between sukuk issuance and control variables and economic growth was started. Engle & Granger (1987) stated that if there is a cointegration between two series, there will be at least one causality relationship between the series and the most appropriate method to determine the direction of this relationship is the Granger Causality Test based on VECM. In addition, this test can reveal causality based on VECM even if the coefficients in the lagged differences of the variables are not significant (Ekinçi & Gül, 2007, p. 177). In this context, the long- and short-term causality relationship between the variables was made with the VECM Granger Causality Test and the results are reported in Table 6.

Table 6: The Results of the VECM Granger Causality Test

Short Term Causality									Long Term
	Δ GDP	Δ Ksukuk	Δ Hsukuk	Δ TO	Δ M2	Δ INF	Δ GFCE	Δ GCF	ECT(-1)
Δ GDP	-	3.109* (0.077)	0.324 (0.658)	1.164 (0.280)	2.211 (0.137)	0.166 (0.683)	0.067 (0.795)	3.639* (0.056)	- 0.012*** [-2.818]
Δ Ksukuk	0.267 (0.605)	-	0.587 (0.443)	0.001 (0.966)	0.228 (0.632)	0.047 (0.828)	0.738 (0.390)	3.240* (0.071)	- 0.696*** [-4.234]
Δ Hsukuk	0.252 (0.615)	0.323 (0.569)	-	0.037 (0.845)	0.104 (0.747)	0.003 (0.951)	0.170 (0.680)	0.119 (0.729)	-0.425 [-1.223]
Δ TO	0.528 (0.467)	0.144 (0.704)	4.026** (0.044)	-	0.731 (0.392)	1.220 (0.269)	1.564 (0.211)	3.618* (0.057)	-0.108 [0.171]
Δ M2	0.775 (0.378)	7.691*** (0.005)	0.015 (0.901)	0.030 (0.860)	-	8.320*** (0.003)	6.803*** (0.009)	0.000 (0.981)	-0.059 [0.271]
Δ INF	4.985** (0.015)	0.034 (0.853)	4.187** (0.040)	0.155 (0.693)	0.026 (0.869)	-	5.675** (0.017)	4.816** (0.028)	-0.005 [0.040]
Δ GFCE	1.497 (0.221)	0.532 (0.465)	1.785 (0.181)	0.764 (0.382)	0.028 (0.865)	0.377 (0.539)	-	3.935** (0.047)	-0.302* [-1.641]
Δ GCF	2.710* (0.099)	1.928 (0.164)	0.018 (0.892)	3.689* (0.054)	2.128 (0.144)	1.008 (0.315)	0.585 (0.444)	-	-0.512* [-1.684]

Not: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

The expression ECT(-1) in Table 6 shows the error correction term of the model. Error correction parameter based on T-Statistics in the model is negative and statistically significant as expected. The fact that the error correction parameter is significant indicates that the variables will converge to the long-term equilibrium value. Looking at the short-term causality results, it's seen that there's a one-way causality correlation from GDP to Ksukuk issuance. We can interpret this result as that economic growth is a factor that enables participation banks to increase the issuance of sukuk. This result we obtained is similar to the results obtained by Avci (2020) and Dilber (2022). On the other hand, while there is a one-way causality relationship from INF variable to GDP, there is a bidirectional causality relationship between GDP and GCF variable. Finally, no causality finding was found between other variables and economic growth.

CONCLUSION AND RECOMMENDATIONS

The aim of this study is to determine the impact of issuing sukuk, which has a history of approximately 65 years worldwide and has developed as an alternative financing tool, on economic growth. In this context, the sample of the study consists of sukuk data issued by participation banks and the treasury in Türkiye in the period of 2013Q1-2022Q4. In addition, control variables (inflation, trade openness, broad money supply-M2, government final consumption expenditures and gross fixed capital formation) that are thought to have effects on economic growth are included in the model of the study. In the analysis phase, Johansen Cointegration Test and FMOLS Method, one of the cointegration estimators, and VECM Granger Causality Test were applied.

As a result of the study, it has been revealed that sukuk issued by participation banks have a positive effect on economic growth. To elaborate on this effect, the 1% increase in the sukuk issuance numbers of participation banks increases the economic growth by 0.013038%. However, no significant relationship was found between the sukuk which are issued by the treasury and economic development. We can explain this result by the fact that the sukuk issuance figures are very low compared to the size of the country's economy. Although the size of this impact is very low, we are of the opinion that the findings we have obtained are important for the Turkish economy. On the other hand, while inflation, which is one of the control variables included in the model, causes a decreasing effect on economic growth with a rate of -0.725954% and government final consumption expenditures with a rate of -0.312334%, gross fixed capital formation increases economic growth with a rate of 0.345343%.

The fact that there are very few studies conducted specifically in Türkiye and most of the studies have not been examined in detail makes it difficult to compare our findings with the existing literature. However, we can cite a few studies as examples. For example, according to the result of the research done by Echchabi et al. (2016), compiling the other studies on 17 countries including Türkiye, a positive relationship was found between sukuk issuances and economic growth. Similarly, the findings obtained from studies conducted by Yıldırım et al (2020) and Avci (2020) on more than one country, including Türkiye, are parallel to our study and revealed that there is a positive relationship between sukuk issuances and economic growth. However, since these studies were not

conducted specifically for Türkiye, we think that it is difficult to compare them with our study. On the other hand, in the research conducted by Alkhwaja (2019), which is one of the rare studies conducted specifically for Türkiye on this subject in the literature, it's claimed that sukuk issuances have an increasing effect on economic growth (supporting our result), but no econometric analysis was used in the study. The results obtained from the research conducted by Dilber (2022), which is another one of the rare studies conducted specifically in Türkiye, support the results we obtained in our study. Finally, according to the result of the study conducted by Orhan & Tirman (2021), it was suggested that sukuk issued by participation banks play a role in reducing economic growth. Although this result contradicts our findings, the same study points out that the sukuk market in Türkiye is just developing and infers that the increase in sukuk issuance volume will positively affect economic growth in the future. The results we obtained from our study support this inference as well.

The legal framework for the issuance of sukuk in Türkiye was realized with the communiqué published by the Capital Markets Board (CMB) in 2010. However, in this communiqué, the phrase "lease certificate" has been used instead of "sukuk". Therefore, the issuance of sukuk, known as "lease certificate" in Türkiye, has started to be carried out by participation banks since 2010 and has started to be issued by the treasury since 2012. It is stated in the literature that there will be a relationship between the issuance of sukuk and economic growth. Although the issuance volumes have increased noticeably in Türkiye, especially in recent years, the issuance volumes are still very low compared to other financial instruments worldwide. The possible reasons for the low interest in this instrument in Türkiye and thus the low level of investments in this instrument can be expressed as the late legal framework for the market, the limited information on what the sukuk instrument is in the market, the small scale of the issuances and the investors' lack of sufficient knowledge about the sukuk instrument. At this point, we think that the findings from this study will provide the policy makers and the private sector with the opportunity to make important conclusions regarding the sukuk issuance in Türkiye.

The majority of sukuk issuances in Türkiye are conducted by participation banks. Although there has been an increase in the volume of sukuk issuance by the treasury in various reports on the sukuk market recently, we think that this is not enough and should be increased even more. On the other hand, platforms should be created to provide information to the real sector about the issuance of sukuk, and the real sector should be introduced to the sukuk instrument. We believe that it would be beneficial to comply with the standards published by the Accounting and Auditing Organization for Islamic Financial Institutions regarding the issuance of sukuk. Finally, it is thought that the issuance of sukuk can be encouraged by pricing via taking into account the maturity structures, return rates and risk situation. The development of these and similar policies will increase the issuance of sukuk in Türkiye and will make the impact of this instrument on growth more evident. Therefore, we think that this issue is very important especially for developing countries such as Türkiye, considering the conditions and dynamics specific to Türkiye, and deserves further research.

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Author Contributions

All the authors have equal contributions