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Original Research Article

The Impact of Sukuk Issuance and Governance Quality on Economic Growth in Selected MENA Countries

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This paper examines whether the issuance of Sukuk consistently influences the economic growth of Islamic countries and investigates the role of institutional quality in this regard. The case study focuses on selected MENA countries, including Bahrain, Qatar, Saudi Arabia, Oman, and the United Arab Emirates. Macroeconomic data were obtained from the World Bank, and Sukuk-related data were sourced from the International Islamic Financial Market. The analyses were conducted using a balanced panel data model and the Estimated Generalized Least Squares (EGLS) method. The Principal Component Analysis (PCA) approach was employed to construct the governance quality index. The results indicate that Sukuk issuance, governance quality, inflation rate, and the degree of trade openness all have positive and significant effects on economic growth. These findings confirm the importance of institutional factors in fostering the economic growth of Islamic countries.

Keywords: Balanced Panel Data Model, Estimated Generalized Least Squares (EGLS), Economic Growth, Sukuk, Governance Quality Index, MENA Countries
JEL Classification*:* C23, E69, G15, O49

1 Introduction

One may regard the most important objective of a government as providing welfare for its citizens. Sustainable welfare provision is only possible in the presence of economic growth. According to previous studies, there is a

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positive relationship between economic growth and the level of welfare; in other words, the process of economic growth has had a positive impact on improving welfare (Shahiki Tash et al., 2014). At first glance, economic growth directly reflects the quality of performance of a country's economic institution. However, with a deeper perspective and consideration of the interactions among macro institutions within a country, economic growth is not only the result of the economic institution's performance but also indicates the efficiency of the political and governance institutions, as well as the constructive and reciprocal relationship between the political and economic institutions. Therefore, in cases where fundamental flaws exist in a country's political or economic institutions, or when there is a lack of proper and constructive coordination between them, the country will not be able to achieve sustainable economic growth over time.

Attention to cultural factors-particularly strong religious beliefs in Muslim countries-and the serious emphasis of Islamic teachings on economic and financial issues have led scholars in these countries to focus on developing financing methods compatible with Islamic Sharia. Especially in Southeast and West Asian countries, due to the implementation of religious rules, factors affecting economic growth and the development of financial structures in compliance with Islamic principles have been emphasized by experts. Therefore, the importance of adhering to religious teachings and the fundamental issue of the prohibition of usury (Riba) are highlighted. Considering this, various theories have been proposed to introduce and utilize financial instruments aimed at accelerating economic growth. These theories are generally influenced by Islamic teachings, especially the prohibition of interest in Islamic economics. Consequently, Muslim economists have sought financial instruments to replace interest-bearing bonds, and during the 1990s, Islamic countries began issuing Islamic financial instruments. In Iran as well, efforts began after the imposed war, ultimately leading to the approval and implementation of Islamic financial instruments in 2007.

In addition to emphasizing the necessity of Islamic financing models for influencing economic growth, the study of institutional variables is also of great importance due to their impact on economic growth. Political and economic instability, corruption, violation of property rights, and inefficiencies in the judicial system lead to capital flight and a decline in economic growth. According to the study by Yuliani et al., (2022), the impact of Sukuk on economic growth was examined with three moderating variables-regulatory quality, rule of law, and government effectiveness-in five countries: Indonesia, Malaysia, the United Arab Emirates, Bahrain, and Saudi

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Arabia, over the period from 2006 to 2018. The results of this research indicate that the development of Sukuk, moderated by regulatory quality, has a positive and significant effect on the economic growth of countries. Meanwhile, the other two moderating variables (rule of law and government effectiveness) did not show significant moderating effects. Therefore, regulatory quality reflects the effectiveness of the policies implemented by the studied governments and the innovation in Sukuk instruments.

Furthermore, according to the study by Asghar et al. (2020) , institutional quality has a positive effect on economic growth. This study emphasizes that improving institutional quality is necessary to enhance economic growth in selected developing Asian countries. Additionally, based on another study conducted by Emara and El Said (2021), promoting financial inclusion and developing good governance are identified as top priorities and major challenges in MENA countries.

It can thus be concluded that if institutional variables in a country are appropriate and oriented toward production, financial instruments can contribute to enhancing productive capacity and the economic growth of societies. This enhancement, in turn, leads to improved welfare. However, if institutional variables are unsuitable and not aligned with productive activities-while instead encouraging intermediation and speculative behaviors-then financial instruments will lack the necessary efficiency to promote economic growth.

On the other hand, based on reviews of existing research-particularly those published in the Google Scholar database-although the number of studies conducted on Islamic financial instruments (Sukuk) has significantly increased, there is still room for examination regarding the quality of these studies. In particular, more attention is needed to other factors influencing economic growth and to identifying the challenges and limitations associated with addressing the weaknesses of such instruments (Zulkhibri, 2015). According to a study by Ridlo et al., (2021), the effects of Zakat, Islamic finance, Sukuk, and inflation on economic growth were investigated, with poverty included as a moderating variable. The findings showed that the positive effect of Sukuk and Islamic finance on economic growth was not observed in the sample under study. Therefore, it can be stated that merely developing Islamic financial instruments and increasing their issuance is not sufficient for enhancing economic growth in the target countries. In this regard, a study by Smaoui and Khawaja (2017) titled "Determinants of Sukuk Market Development" indicated that a combination of institutional, structural, and financial factors significantly impacts the Sukuk securities market. As a

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result, countries seeking to strengthen Sukuk markets should work toward developing them through variables such as combating corruption, improving the investment environment, and implementing the rule of law. The researchers also noted that their findings are consistent with previous studies on the development of conventional bond markets.

Additionally, another study by Echchabi et al., (2018), examining the impact of Sukuk financing on economic growth in Gulf Cooperation Council (GCC) countries, revealed that during the study period, Islamic financial instruments (Sukuk) did not have a positive effect on economic growth. Based on the findings of this study, it can be stated that the use of Islamic financial instruments does not necessarily lead to increased economic growth. Rather, the influence of other factors, including institutional economic variables such as the level of corruption and the cultural characteristics of the studied countries, should also be considered as influential variables in future models and research.

According to a domestic study conducted by Hasanzadeh et al. (2021), which aimed to diagnose structural problems related to a specific segment of Sukuk in Iran-referred to as banking Sukuk-it was identified that there are legal, operational, cultural, competitive, and economic challenges at both micro and macro levels. Among the mentioned challenges, the first three are clearly institutional in nature and have caused disruption and inefficiencies in the functioning of Sukuk. Therefore, studying the two important areas of the effectiveness of Islamic financial instruments and the improvement of governance indicators-as representatives of institutional economics-on economic growth constitutes a fundamental issue for developing countries, particularly Islamic nations.

The effectiveness of financial instruments will be efficient only if institutional factors, such as good governance, are implemented within societies. Hence, the core issue lies in examining the impact of these instruments on economic growth through the lens of institutional economics.

This article includes the following sections: The next two sections, the second and third sections, are about a review of theoretical literature and research background, which presents materials on the subject of economic growth, Islamic financing, governance indicators, inflation, trade openness and research conducted on these topics. The fourth section is about the research model and explains what variables the model of this research includes and from which research it is adapted. Also, in the continuation of this section, graphs related to the data used are presented and in the fifth section, tables related to econometric tests and model output are presented. Finally, in the

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sixth section, a summary and conclusion are made according to the model output table and the results obtained related to all variables used in the research model are explained.

2 Literature Review

2.1 Economic Growth, Financing, and Sukuk

Identifying the factors that influence economic growth and determining the contribution of each has been one of the most significant questions in economics, which various scholars have sought to explain through different models. The contemplation of economic growth theory dates back to Ramsey (1928). Subsequently, Harrod (1939) and Domar (1947) attempted to model long-term changes in gross domestic product within the Keynesian framework. Their works are collectively known in economic literature as the Harrod-Domar growth model.

Solow's economic growth theory (1956), which incorporated the assumption of substitutability between labor and capital, is considered the core of modern growth studies. Later, the neoclassical growth theory and newer schools of thought-including the New Classicals, New Keynesians, and thinkers of the Austrian School-have all contributed to clarifying the role of various variables in economic growth. It can be stated that in all growth theories, the two primary factors of production-labor and capital-have consistently played a central role, and the importance of these two essential elements lies at the heart of theoretical frameworks.

Attention to the level of development and depth of the financial structure and market is such that a developed financial market, from the perspective of scholars like Schumpeter and Hicks, is considered a necessary precondition for economic growth, as well as a catalyst and stabilizer of this growth. The centrality of financing in the economy and its importance for economic growth highlight the significance of innovation in financial instruments. The impact of financial structure on the economic structure is so profound that today it is believed that economic growth cannot be achieved without an efficient financial sector (Naeimi et al., 2019). Rousseau and Vuthepadadorn (2005), through their panel data study, also confirmed the dependency of economic growth on financial market development in a sample of 10 Asian countries.

However, in Islamic countries, where policymakers are concerned not only with financing but also with operating within the framework of Shariah, Sukuk-as an Islamic financial instrument-is a key variable in financing, investment, and economic growth, and thus merits special attention. The term

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"Sukuk" is derived from the Arabic word "Sakk," meaning cheque, promissory note, or debt certificate.

The Islamic Financial Services Board (IFSB) defined Sukuk in 2005 as certificates representing the undivided ownership share of their holders in the underlying assets, to which all rights and obligations are directly linked. These certificates are used for investment in tangible assets for productive purposes, and the investment and profit derived therefrom form the fundamental principle of Islamic finance (Mohammadi et al., 2022).

According to another definition, Sukuk are securities with equal financial value, tradable in financial markets, and designed based on one of the Shariah-compliant contracts. The holders of these certificates are collectively the owners of one or multiple assets and the benefits derived from them (Fazeli et al., 2018).

Sukuk can be classified into three main categories: the first group consists of certificates based on the trading of debt; the second group comprises certificates based on the sale and lease of physical assets, such as Ijarah Sukuk; and the third group includes partnership-based contracts such as Mudarabah (Taskhiri, 2007).

This instrument is considered one of the most effective methods for financing large-scale projects and economic activities that are beyond the financial capacity of an individual, private firm, or even government. It also offers an optimal solution for investors seeking to invest surplus funds, while such securities typically have secondary markets for trading. At any point, when an investor (certificate holder) needs all or part of their invested funds, they can sell all or a portion of the certificates and receive the corresponding amount, including principal and profit.

Investment through Islamic instruments ensures compliance with Shariah regulations while allowing wealth and income to circulate more broadly throughout the economy, rather than being concentrated in the hands of a few wealthy individuals. This is one of the primary objectives that Islamic economics continuously pursues (Tohidi and Yarmohammadi, 2017).

At the macroeconomic level, another application of Islamic securities is their use for government financing and reducing the budget deficit. Isavi and Qelich (2015), using the IS-LM model, demonstrated that the effective use of Islamic securities for government financing-particularly Ijarah and Istisna Sukuk-requires that the issuance of such securities by the government be accompanied by financial deepening, reduction of asymmetric information problems, and the mobilization and channeling of small-scale savings.

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2.2 Governance Indicators and Growth

Today, there is almost no doubt that improving the business environment, by encouraging economic agents to invest and attracting capital at the international level, leads to an increase in the capital stock and subsequently economic growth. Investors avoid politically unstable environments, slow and corrupt administrative systems, and places where their property rights are not well protected. A government recognized by citizens as responsible and accountable-with strong and reasonable legislation that responds appropriately to the needs and shortcomings of the economic activity environment-will accelerate the process of democratization and the path of economic and human development.

Veblen(1899), as the founder of institutional economics, shifted attention from simple production factors, namely labor and capital, to the quality of institutions. In particular, the macro-institutions and overarching social and political structures of a society, within which consumers and producers operate, can have a significant impact on the motivations and decision-making of individuals and firms. In other words, in models emphasizing institutional variables such as governance quality, the primary cause of differences in economic growth is differences in capital and investment levels; however, the key point is that these differences in investments emerge due to differences in the quality of institutions in these countries (Emara and Chiu, 2016).

Since the second half of the 1980s, the attention of thinkers and economic theorists has been focused on revealing the impact of social institutions and governance quality on economic growth (Emara and Chiu, 2016). Owens s' study (1987) and Sen's research (1999) showed that political and economic stability have a statistically significant and positive effect on economic growth and development. Many other researchers and scholars have also emphasized the positive relationship between improvements in governance quality and economic growth and have addressed this issue in their studies. For example, the study by Knack and Keefer (1997) demonstrated that property rights and contract enforcement protection both have positive and significant effects on economic growth. Campos and Nugent (1999) confirmed the positive effect of governance quality on economic development. Kaufmann et al., (1999a, 1999b) reached similar conclusions regarding the relationship between governance indicators and economic growth.

One of the important and influential studies on the relationship between economic performance and governance quality of countries was conducted by Acemoglu et al., (2001). This study showed that differences in economic performance across countries can be explained by differences in their

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institutional structures and quality. These researchers found that during the historical colonial periods of various nations by traditional European powers, different methods of colonization led to the creation of varying institutional structures that have persisted until today. Another study by the same researchers in 2008 showed that differences among countries in terms of economic development and income can be explained by differences in the quality and structures of institutions and governance. Acemoglu and Robinson (2008) demonstrated that differences in economic welfare between countries result from differences in the quality of their respective political institutions. Additionally, their 2012 study compared neighboring cities along the United States-Mexico border. The result of this study showed that political and economic institutions and the state of market linkages are the main determinants of the economic and welfare status of a city.

Low economic growth and unsatisfactory economic performance in many developing countries, including those in the MENA region, have been disappointing over recent years. For example, some studies addressing the economic growth issue in MENA countries can be mentioned.

Leenders and Sfakianakis (2002) showed that the International Corruption Transparency Index for Egypt, Morocco, Jordan, Tunisia, and Libya is below the global median of this index. Meanwhile, according to the World Bank study (2003), the economic growth of this group is lower than countries with similar capabilities. Furthermore, Chêne's study (2008) demonstrated that based on World Bank governance indicators data, MENA countries performed above average in political stability, rule of law, and quality of governance structures but performed below average in transparency, accountability, responsiveness, and control of corruption.

Another example is the study by Emara and Jhonsa (2014), which showed that despite the poor economic performance of most MENA countries in nearly all governance indicators published by the World Bank, their per capita income was higher than other countries studied by these researchers. The conclusion of this research was that most of these countries managed to achieve a relatively high level of per capita income, but their standard of living is unfavorable because their income did not originate from a suitable political institution.

Sobhi et al., (2022) showed that in Iran's economy, the improvement of institutional quality led to an increase in national output and a reduction in liquidity volume. Pourali et al., (2020) extended their study to selected developing countries and demonstrated that a composite index of various

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institutional indicators had a positive and significant impact on economic growth.

2.3 Other Variables Used

Based on the review conducted in similar studies, two variables, trade openness and inflation have also been used as secondary variables in this research. The theoretical foundations of the effect of trade openness on economic growth can be observed in the studies of Grossman & Helpman (1991), Khalid (2016), Bahmani-Oskooee and Niroomand (1999), Harrison and Hanson (1999), Vlastou (2010), and Edwards (1992). Based on these studies, it can be briefly stated that the variable of trade openness can have a positive effect on economic growth.

Furthermore, the theoretical foundations of the effect of inflation on economic growth and the varying results obtained can be observed in the research of Phillips (1958), Phelps (1967), Friedman (1968), Tafazoli (2005), Wai (1959), Dorrance (1966), Sidrauski (1967), Mallik and Chowdhury (2001), Rapach (2003), Benhabib and Spiegel (2009), Fischer (1983), Barro (1995), Valdovinos (2003), Aydın et al., (2016), Khan and Senhadji (2001), Gylfason and Herbertsson (2001), Qaiser et al., (2009), Kremer et al., (2013), and Tung and Thanh (2015).

Regarding the effect of inflation on economic growth, it has been shown that the relationship between inflation and economic growth is nonlinear. This means that up to a certain threshold, this relationship is positive, and beyond that, with increasing inflation, the relationship becomes negative. Khan and Senhadji (2001) tested the existence of a threshold effect between inflation and growth for 140 industrial and developing countries during the period 1960 to 1998. These researchers predicted that the threshold would be between one to three percent for industrial countries and between seven to eleven percent for developing countries. Their study results showed that inflation above these levels has a negative effect on growth, while inflation below these levels has no impact on economic growth. Gylfason and Herbertsson (2001) also arrived at similar results among 170 countries during the period 1960 to 1992, showing that an annual inflation rate between ten to twenty percent has a negative effect on economic growth.

Kremer et al., (2013) examined the relationship between inflation and long-term economic growth using data from 1950 to 2004 in 124 industrial and non-industrial countries. These researchers considered the inflation threshold to be about two percent for industrial countries and about seventeen percent for non-industrial countries. Their study found that inflation levels

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below the threshold have no significant effect on economic growth, while inflation above the mentioned threshold has a negative effect on growth. Tung and Thanh (2015) also showed that the inflation threshold level is seven percent, above which inflation has a negative effect on growth.

The most important studies and their results mentioned in the introduction and theoretical foundations sections can be summarized in Table 1.

Table 1
Most Important Studies in the Introduction and Theoretical Foundations Sections

Study Title	Authors	Main Findings
The Impact of International Sukuk on Economic Growth of GCC Countries: Lessons for Iran's Economy	Mohammadi et al., (2022)	Significant effect of sukuk issuance on economic growth in the examined countries.
Diagnosis Of Banking Sukuk and Proposal for a Competitive Sukuk Market to Mobilize Resources in Iran's Banking System	Hasanzadeh et al., (2021)	Challenges of sukuk identified in six operational, legal, cultural, competitive, and economic categories at micro and macro levels; experts suggested solutions including reforming the role of the guarantor, credit rating of sukuk, and increasing the number and variety of issued sukuk.
The Interrelationship Between the Development of Islamic Financial Instruments (Sukuk) And Economic Growth Using ARDL Method In Iran	Naeimi et al., (2019)	Significant positive effect of sukuk issuance on Iran's GDP and economic growth increase
The Impact of Islamic Financing on the Market of Selected Middle Eastern Countries	Fazeli et al., (2018)	Positive and significant effect of sukuk on economic growth of the business market in the studied countries.

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Analytical Review of the Status of the Islamic Securities Market (Sukuk) In Iran and the World	Tohidi and Yarmohammadi (2017)	Analysis of the status of sukuk in Iran and globally
Examining The Relationship Between Economic Growth and Social Welfare Index in Iran Based on Bayesian Approach	Shahiki Tash et al., (2014)	Positive effect of economic growth on welfare in the sample under study.
The Sharia Foundations of Islamic Securities (Sukuk)	Taskhiri (2007)	Sukuk differs from bonds in terms of usury and its returns are linked to the returns of projects and economic activities. Sukuk is categorized into three main groups: debt-based securities, physical asset-based securities, and partnership contract-based securities.
The Impact of Sukuk on Country's Economic Growth with Governance as a Moderating Variable	Yuliani et al., (2022)	Significant positive impact of sukuk development on economic growth with the moderating effect of supervisory quality.
The Impact of Zakat, Islamic Financing, Sukuk, And Inflation on National Economic Growth with Poverty as a Moderating Variable	Ridlo et al., (2021)	Positive and significant effect of zakat on national economic growth, no positive effect of Islamic financing, sukuk, and inflation on national economic growth.
Financial Inclusion and Economic Growth: The Role of Governance in Selected MENA Countries	Emara and El Said (2021)	Positive effect of financial inclusion on per capita GDP growth in selected MENA countries.
Institutional Quality and Economic Growth: Panel ARDL Analysis for Selected Developing Asian Economies	Asghar et al (2020)	Positive effect of institutional quality on economic growth during 1990–2013 for the sample: 13 developing Asian economies
The Impact of Sukuk Financing on Economic Growth: Case Study of GCC Countries	Echchabi et al (2018)	No significant effect of sukuk on economic growth (due to 2012 financial crisis and absence of institutional variable in the estimation model).

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Determinants Of Sukuk Market Development	Smaoui & Khawaja (2017)	Significant Effect of a Significant effect of a combination of structural, institutional, and financial factors on sukuk, negative and significant relationship between sukuk and high interest rates.
Inflation And Economic Growth: A Threshold Panel Analysis in Turkey	Aydin et al., (2016)	Nonlinear and threshold effect of inflation on economic growth.
Government Effect on Economic Growth: Middle East and North African Countries	Emara and Chiu (2016)	Positive relationship between institutional quality and economic growth.
A Combination of Theoretical and Empirical Research on Sukuk	Zulkhibri (2015)	Critical review of the theoretical and empirical literature on sukuk from three perspectives: theory and underlying nature, operational issues and structures involved in sukuk, and its role in economic development.
Examining The Threshold Effect of Inflation on Long-Term Economic Growth	Tung And Thanh (2015)	Determination of threshold level of inflation impact on economic growth.
Does Governance Indicators Explain Development Performance? A Cross-Sectional Analysis	Han and et al., (2014)	Reduced economic growth due to weak governance indicators.
Inflation And Growth: New Evidence Using a Dynamic Panel Model	Kremer et al., (2013)	Comparison of inflation effects on economic growth between developed and less developed countries.
Why Nations Fail? The Origins of Power, Prosperity, And Poverty	Acemoglu et al (2012)	Effect of governance quality on economic indicators.
Governance And Economic Development in MENA Countries	Mehanna et al., (2010)	Examination of governance indicators' effect in MENA countries.
Investment, Financial Market, And Growth: Time Series Evidence From 10 Asian Economies	Rousseau And Vuthepadadorn (2005)	Positive relationship between economic growth and financial market development.
Development As Freedom	Sen (1999)	Positive relationship between political and economic stability and growth.

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Does Social Capital Have a Positive Economic Effect?	Knack and Keefer (1997)	Positive relationship between property rights and economic growth.
Development Performance and Governing Institutions: Evidence from East Asia and Latin America	Campos and Nugent (1999)	Positive effect of governance on growth

Source: Researchers' Studies

3 Literature Review

3.1 Domestic Studies

Gharavi et al., (2023) in their study titled "The Effects of Islamic Bonds (Sukuk) on Economic Growth Based on a Stochastic Dynamic General Equilibrium Model," by presenting a stochastic macroeconomic model, examined the relationship between the Sukuk variable and economic growth in Iran during the period 1991 to 2020. The results of this study showed that Islamic financing instruments have a significant effect on economic growth.

Mohammadi et al., (2022) in a study entitled "The Impact of International Sukuk on Economic Growth of GCC Countries: Lessons for Iran's Economy," by presenting a generalized least squares model (adapted from Smaoui and Nechi's (2017) study), investigated the Gulf Cooperation Council (GCC) countries over the period 2001 to 2020. The results of this research indicate that the issuance of Sukuk has a significant impact on the economic growth of the studied countries and, with proper planning and policymaking, this instrument could also be effective in Iran. Regarding other model variables, the trade openness variable has a positive and significant effect on gross domestic product, inflation does not have a significant effect on the logarithm of GDP, the value of bank credits to the private sector has a negative effect on GDP, and oil revenues have a positive and significant impact on GDP due to the presence of oil-rich countries in the model.

Rajaei-Baghesaei and Safaei-Ilkhchi (2021) in a study titled "The Impact of Macroeconomic Variables and Sukuk on the Profitability of Iranian Banks," using multivariate regression and panel data based on Iran's data from 2012 to 2019, showed that the total effect of traded Sukuk on banking profitability indicators was negative.

Khodadad-Kashi et al., (2020) in a study entitled "The Impact of Government Size and Governance on Economic Growth" covering the period 2006 to 2017, it was found that assuming Barro's optimal limit model and

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using the GMM method, economic growth is influenced by the type of government governance, and in countries with an index below the optimal limit, an increase in government expenditures leads to higher economic growth.

Naeimi et al. (2019) in a study entitled "The Reciprocal Relationship between the Development of Islamic Financial Instruments (Sukuk) and Economic Growth," using the ARDL method in Iran during the period from the fourth quarter of 2010 to the fourth quarter of 2015, examined the mutual effect of the producer price index, gross domestic product, and issued Sukuk variables. It was found that the issuance of Sukuk has a significant positive effect on Iran's gross domestic product and leads to increased economic growth.

Fazeli et al., (2018) in a study titled "The Impact of Islamic Financing on the Markets of Selected Middle Eastern Countries" (including Qatar, Kuwait, Saudi Arabia, Iran, Bahrain, UAE, and Oman), based on statistical data from 2010 to 2015 and using panel data econometrics, concluded that the effect of Sukuk on the business markets of the selected countries is positive and significant. The effect of government expenditures, given the sample size and years studied, on the business markets of the selected countries is negative and insignificant. Additionally, the effect of investment, considering the sample size and years studied, on the business markets of the selected countries is negative and insignificant.

Najafpour (2016) in a study titled "The Impact of Islamic Financing on Economic Growth in Selected Countries," using panel data estimation with a fixed effects model, examined the effects of Sukuk, total investment to GDP ratio, total government expenditures to GDP ratio, inflation, and exports on the logarithm of GDP. They concluded that Sukuk, exports, and inflation have a significant positive effect on economic growth, while investment and government expenditures have no significant effect on economic growth.

Shakeri et al., (2015) Studied the relationship between institutional variables and economic growth in MENA (Middle East and North Africa) countries for the period 2002 to 2011 using panel data. They found that bureaucratic quality has a positive and significant relationship with economic growth. The study also showed that political stability and corruption control have a negative relationship, and government effectiveness, voice and accountability, and rule of law have positive but insignificant relationships with economic growth. Subsequently, another growth model was estimated with a good governance index derived from combining six existing indices

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using principal component analysis. The results indicated a positive and significant relationship.

3.2 Foreign Studies

Ledhem and Mekidiche (2021a) In a study titled "Islamic Finance and Economic Growth: A New Research Experience in Southeast Asia" using nonparametric panel quantile regression, examined Malaysia, Indonesia, and Brunei during 2013 to 2019. Using the Markof Chain Monte Carlo (MCMC) optimization estimation method, they studied the effect of Islamic securities, trade openness, gross capital formation, and consumer price index on gross domestic product. They concluded that the effect of Islamic securities on economic growth is positive and significant, thus confirming Schumpeter's theory regarding the positive impact of financial development on economic growth.

Khavarinezhad et al., (2021) in a study titled "Financing in the Islamic System and Sustainable Economic Development in Selected Islamic Countries," using panel data estimation in 9 Islamic countries, examined the effects of Sukuk, gross capital formation, labor force, and government expenditures on economic growth. The findings showed that Sukuk has a positive and significant effect on economic growth.

Ledhem (2020) Investigated the relationship between Islamic securities financing and economic growth in Indonesia, Brunei, and Malaysia from 2013 to 2019. Using the system GMM panel method, the impact of Islamic securities on gross domestic product (GDP) as an economic growth factor was examined. The results showed that Islamic securities have a positive impact on economic growth.

Yildirim et al., (2020) Calculated the impact of establishing Islamic securities markets on economic growth in 9 Islamic countries during the period 2014 to 2017. They used panel cointegration regression with GDP as the dependent variable to represent economic growth. In this study, the volume and density of Islamic securities were considered as quantitative measures of Islamic securities market growth. Additionally, trade, inflation, and financial pressure were included as control variables.

The results of this research indicate that there is a long-term relationship between the development of the Sukuk market and economic growth. In this regard, the effects of two variables, Sukuk volume and Sukuk density, on economic growth were examined. It was found that Sukuk volume and Sukuk density have a positive impact on long-term economic growth, such that a one-

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unit increase in Sukuk volume increases economic growth by 0.5%, while an increase in Sukuk density raises economic growth by 1.7%.

Naz and Gulzar (2020) in a study entitled "The Impact of Islamic Finance on Economic Growth: An Empirical Analysis in Muslim Countries," using the ARDL estimation method in five Islamic countries from 2006 to 2015, investigated the effects of Islamic bank assets and financing, Sukuk, gross capital formation, final government expenditures, and trade openness. They concluded that Sukuk has a positive and significant effect on long-term economic growth.

Mitsaliyandito et al. (2017) in a study titled "The Effect of Sukuk Market Development on Economic Growth in Indonesia," using VAR estimation for the years 2009 to 2016, examined the effects of issued Sukuk by the public sector and issued Sukuk by the private sector on GDP in Indonesia. The findings showed that shocks from Sukuk positively affect GDP, and public sector Sukuk have a greater effect on GDP compared to private sector Sukuk.

Table 2 presents the titles and results of several other studies that are related to this article in terms of variables examined and data used.

Table 2
Titles and Results of Some Related Studies

Study Title	Authors	Key Findings
Effects of Islamic Bonds (Sukuk) on Economic Growth Based on a Stochastic Dynamic General Equilibrium Model	Gharavi et al., (2023)	Significant effect of Islamic financing instruments on economic growth in Iran during 1991 to 2020
The Impact of Macroeconomic Variables and Sukuk on the Profitability of Iranian Banks	Rajaei-Baghsayee & Safaei-Ilkhchi (2021)	Negative effect of total traded Sukuk on banking profitability indicators in Iran during 2012 to 2019.
The Effect of Government Size and Governance on Economic Growth	Khodadad-Kashi et al., (2020)	Type of governance affects government economic growth, and increased government expenditures lead to higher economic growth in countries with governance index below the optimal threshold.

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The Impact of Islamic Financing on Economic Growth in Selected Countries	Najafpour (2016)	Significant and positive impact of Sukuk, export and inflation on economic growth.
The Relationship between Institutional Variables and Economic Growth in MENA Countries	Shakeri et al., (2015)	Positive effect of governance on economic growth.
Islamic Finance and Economic Growth	Ledhem and Mekidiche (2021a); Ledhem and Mekidiche (2021b)	Positive and significant effect of Islamic securities on economic growth in Malaysia, Indonesia, and Brunei.
Financing in the Islamic System and Sustainable Economic Development in Selected Islamic Countries	Khavarinezhad et al., (2021)	Positive and significant effect of Sukuk on economic growth.
Sukuk and Islamic Banking Finance: Effects on the Real Sector	Trianto & Masrizal (2021)	Positive long-term effect of Sukuk on industrial production.
Does Islamic Finance (Sukuk) Increase Economic Growth?	Ledhem (2020)	Positive and significant effect of Islamic finance on economic growth.
The Impact of Establishing an Islamic Securities Market on Economic Growth	Yildirim et al., (2020)	Positive effect of Sukuk volume and Sukuk density on economic growth.
The Impact of Islamic Financing on Economic Growth	Naz & Gulzar (2020)	Positive and significant long-term effect of Sukuk on economic growth in five Islamic countries during 2007 to 2016
How Do Sukuk and Conventional Bonds Affect Economic Growth? Evidence from Indonesia	Kartini & Milawati (2020)	Positive long-term effect of Sukuk on economic growth; positive short-term effect of conventional bonds on economic growth.
Islamic Financial Instruments and Economic Growth: Evidence from Indonesia	Wahyuningsih & Nurzaman (2020)	Positive and significant effects of sovereign Sukuk, Islamic financing, and zakat on GDP.
The Effect of Sukuk Market Development on Economic Growth in Indonesia	Mitsaliyandito et al. (2017)	Positive effect of Sukuk shocks on economic growth.

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[DOI: 10.61882/jme.19.2.131]

Is Sukuk Market Development a Driver of Economic Growth?	Smaoui & Nechi (2017)	No positive and significant relationship between financial development and economic growth.
Examining the Effect of Trade Openness on Economic Growth in Turkey	Khalid (2016)	Positive short-term effect of trade openness on economic growth.

Source: Researchers' Studies

4 Model Introduction

According to the mentioned studies and the relevant literature, to examine the effect of the issuance volume of Islamic securities and the governance index on economic growth in five selected countries of the MENA region, namely Bahrain, Qatar, Saudi Arabia, Oman, and the United Arab Emirates, the econometric method of panel estimated generalized least squares (panel EGLS) has been used. Furthermore, for selecting the governance index, similar to the study by Shakeri et al., (2015), the principal component analysis (PCA) method was employed. Adapted from the models mentioned in the study of Smaoui & Nechi, (2017) and the study of Ledhem & Mekidish, (2021a), the relationship used for estimating coefficients in this research is as follows:

$$RGDP_t = \propto + \beta_1 lSUK_t + \beta_2 lOPE_t + \beta_3 lGOV_t + \beta_4 lINF_t + \beta_5 lGDP_{t-1}$$

In this equation, $RGDP_t$ represents economic growth, $lSUK_t$ is the logarithm of the amount of sukuk issued by each country in each year, and $lOPE_t$ is the logarithm of the degree of trade openness. The degree of trade openness is calculated by dividing the sum of exports and imports by the gross domestic product of each country in each year. $lGOV_t$ is the logarithm of the governance quality index, the description of which will be provided later. $lINF_t$ represents the logarithm of the inflation rate, and $lGDP_{t-1}$ is the logarithm of gross domestic product, which has been included in the model with a lag as an instrumental explanatory variable.

The data source for sukuk issuance is the International Islamic Financial Market (IIFM) website, while other data are obtained from the World Bank. The study period, considering the available data for the sukuk issuance index, is selected between 2011 and 2021. Data related to sukuk issuance, trade openness, and gross domestic product are all at constant prices.

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The main distinction of the present study compared to similar researches is the simultaneous use of two variables: issued sukuk and the governance index, as well as the use of the weighted generalized least squares econometric method and the principal component analysis method in constructing the governance index variable. The details of these methods will be explained subsequently.

4.1 Principal Component Analysis (PCA) Method

Good governance indicators published by the World Bank consist of six categories: corruption control index, government effectiveness index, political stability and absence of violence index, regulatory quality, rule of law, and voice and accountability. To extract a single index that can solely reflect the quality of governance in each of the countries under study, it is necessary to combine these six indicators into one composite index. There are various methods for this purpose, including averaging. However, a major drawback of the averaging method is that it assumes equal weights for all indicators. Even when using weighted averaging, determining the weight of each indicator is a subject of controversy. Therefore, in this study, the principal component analysis method has been used.

This method relies on the analysis of the correlation matrix, the covariance matrix, and the eigenvalues calculated from these matrices. By analyzing these matrices and their eigenvalues, components are ordered according to the amount of total variance explained. Hence, it is possible to select some governance indicators that explain the majority of the variance (and have higher correlation with the other indicators). In practice, a threshold of $\rho = 0.8$, meaning the indicator explains 80 percent of the variance, or an eigenvalue greater than one ($\lambda > 1$) is considered appropriate (Khazaei & Izadbakhsh, 2009).

For this purpose, the KMO and Bartlett's tests must first be conducted to determine whether the available data are suitable for performing PCA. If the test statistic is greater than 0.5 or the corresponding chi-square test shows an acceptable level of significance, the software output can be trusted. Principal component analysis was performed separately for each year, and the selected principal component for each year was entered into the final model as the good governance index.

4.2 Econometric Model

In this study, given that the subject is the economic performance of selected MENA countries over the period 2011 to 2021, the balanced panel data

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method has been used. In this method, if the data exhibit heteroscedasticity, the estimation method should be weighted least squares instead of ordinary least squares. This issue is explained in the following section. Moreover, reliability tests, the Leamer F-test, tests for fixed or random effects or the Hausman test, tests for absence of serial correlation, and normality tests of the data must be conducted prior to estimation and interpretation of coefficients, all of which have been performed and the results are reported in Table 3. The software used for the PCA section is SPSS, and the software used for estimating the main model is EViews.

4.3 Review of the Data Used

In panel data models, the ideal situation is that the sample members have approximately similar economic and political structures; in this case, it can be assumed that the sample countries under study are more or less homogeneous in variables other than those included in the model, and therefore, the observed variations in their economic growth can be attributed to the estimated coefficients of the model variables. As mentioned in the previous section, the countries under study are Bahrain, Oman, Saudi Arabia, the United Arab Emirates, and Qatar. The explanatory variables of the model include the volume of Sukuk issuance, the degree of trade openness, the governance index calculated according to section 4-1, and the inflation rate. The dependent variable of the model is the economic growth rate of these countries. The study period, considering data limitations especially related to Sukuk issuance, has been selected as 2011 to 2021. The following figures show the trends of the model variables over the study period for the mentioned countries.

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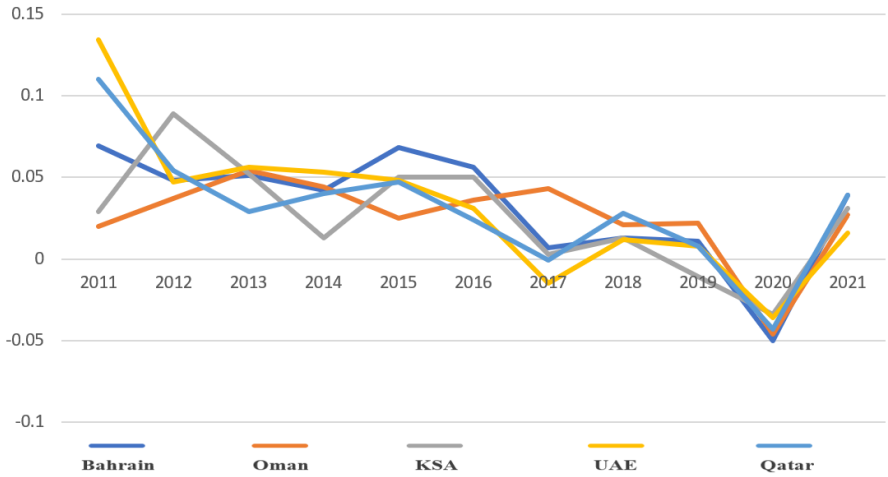

Figure 1. Economic Growth
Source: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG

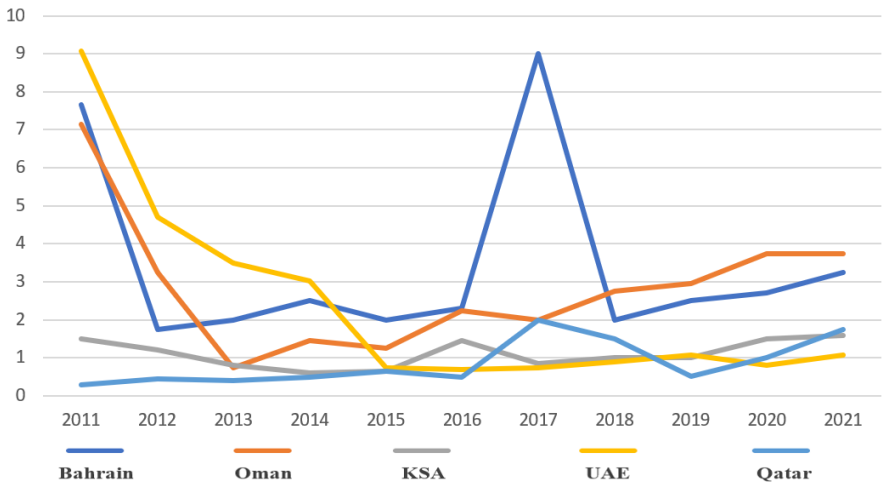

Figure 2. Sukuk Issuance Index
Source: https://iifm.net/sukuk-reports

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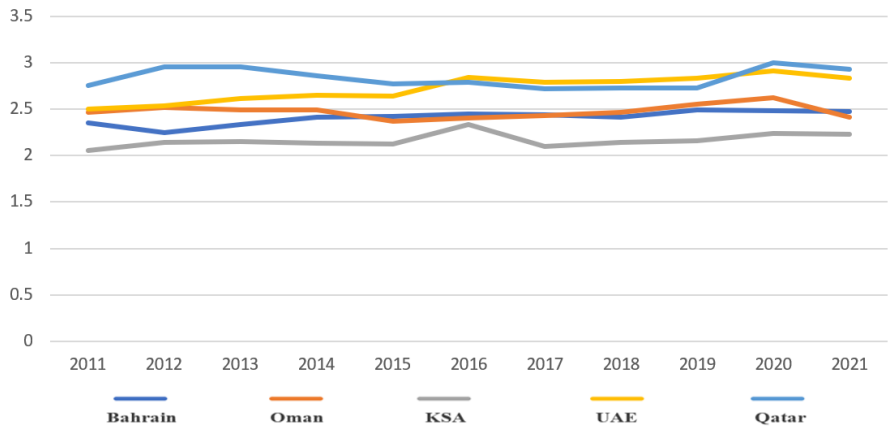

Figure 3. Governance Index
Source:https://www.worldbank.org/en/publication/worldwide-governance-indicators

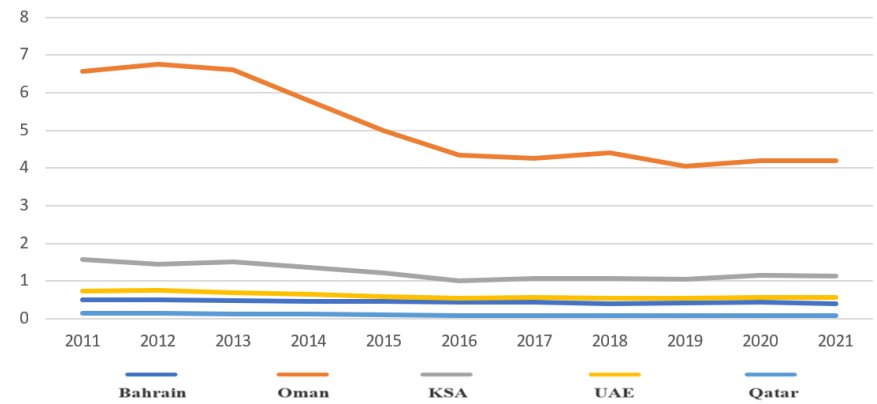

Figure 4. Economic Trade Openness Index
Source: https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS

In addition to the above, it is necessary to clarify that this indicator is based on the Non-Oil Trade Openness Index and is reported at constant prices. This analysis is designed to achieve a more accurate and realistic picture of the domestic production and services sectors in foreign trade. In this regard, the

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large volume of re-exports, as well as the oil, gas and hydrocarbon products group, are completely separated from the calculations of the trade openness index. This methodology is an important part of various economic studies, as it allows us to assess the trade structure and the progress, they have made in reducing oil revenues and the trade intermediaries they have.

Considering this definition of the trade openness index, the ranking of countries appears different compared to general trade openness indices. This change in economic statistics produces different reports. For example, the United Arab Emirates, which usually ranks very high in overall trade openness indices due to its prominent role as a regional trade hub and its very high volume of re-exports, shows a different situation in this figure. Removing re-exports and trade in the oil, gas and hydrocarbons group of goods from the calculations makes the non-oil sector and domestic production of the country a major part of foreign trade. For this reason, if the trade openness index were calculated by fully including the oil and gas group and also taking into account the huge volume of re-exports, the position of the Emirates and other countries in the figure would definitely change and their place, especially the Emirates, would be different.

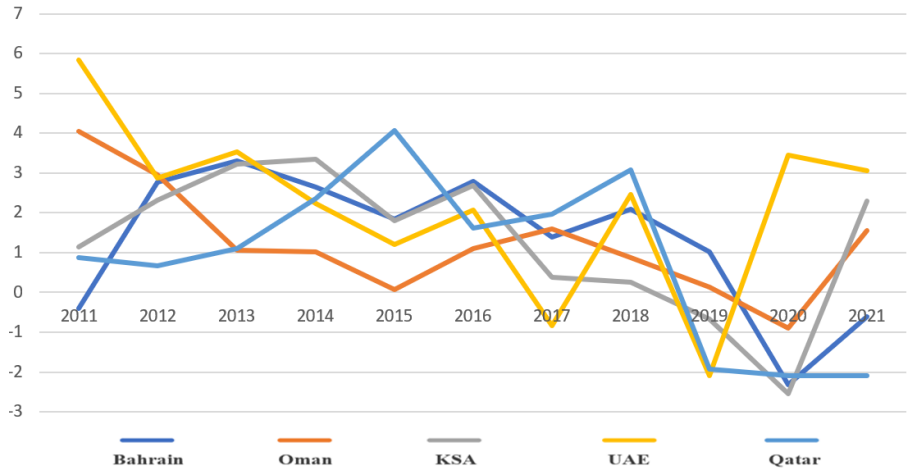

Figure 5. Inflation Rate
Source: https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG

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5 Estimation of Model and Result

The presented equation was estimated using data from selected MENA countries for the period 2011 to 2021. In the estimated model, the F-Limer test was used to distinguish between panel or pooled data models, the Jarque-Bera test was applied to check the normality of the error terms, the Hausman test was employed to determine the presence or absence of fixed effects, and the Breusch-Pagan and Pesaran tests were used to examine the existence of serial correlation. The results of these tests, reported in Table 3, indicate that estimation should be performed using a fixed effects panel data method. Furthermore, the conducted tests confirm the validity of the estimated coefficients for the explanatory variables. The stationarity test, performed by the augmented Dickey-Fuller and Pesaran-Shin methods, shows that all variables used in the model are stationary at level.

Table 3
Statistical Tests of the Model

Test Name	**Significance Level**	**Interpretation**
F-Limer Test for Cross-Sections	0.00	The data are panel data
F-Limer Test for Time Period	0.00	The data are panel data.
Hausman Test for Time Random Effects	0.0095	No random effects exist in time period.
Hausman Test for Cross-Section Random Effects	0.0021	No random effects exist between cross-sections.
Normality Test of Error Terms (Jarque-Bera)	0.92	Error terms are normally distributed
Pesaran Test for Serial Correlation Between Cross-Sections	0.0107	No serial correlation exists in error terms between cross-sections.
Breusch-Pagan Test for Serial Correlation Between Cross-Sections	0.0148	No serial correlation exists in error terms between cross-sections.

Source: Research findings

To examine homoscedasticity as a crucial prerequisite for model validity and thus for coefficient interpretation, the likelihood ratio (LR) test was conducted. The results are presented in Table 4.

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Table 4
Homoscedasticity Tests of Error Terms

Test Name	Test Statistic	Significance Level	Interpretation
LR Ratio Test Between Cross-Sections	2.897	0.715	No heteroscedasticity exists.
LR Ratio Test Over Time	35.96	0.00	Variances are heteroscedastic over time.

Source: Research findings

According to Table 4, due to the presence of heteroscedasticity across time periods, the estimated coefficients are not interpretable. To resolve this issue, instead of the OLS method, the GLS or WLS method must be used. In this method, explanatory variables are adjusted with appropriate weights to address the heteroscedasticity problem. Since the appropriate weights for adjusting the explanatory variables are unknown, it is necessary to derive suitable weights using the dependent variable. Consequently, the estimation method used is the Estimated Generalized Least Squares (EGLS). The estimation results of the model using this method are presented in the following table:

The results of this estimation are summarized in Table 5.

Table 5
Estimated Coefficients of the Model

Explanatory Variable	Estimated Coefficient	Significance Level
Inflation Rate	0.045	0.00
Governance Quality Index	0.056	0.00
Issued Sukuk	0.008	0.003
Trade Openness Index	0.002	0.0463
R^2	0.66	
Adjusted R-squared	0.64	

Source: Research findings

The estimation results of the model indicate that at a 95 percent significance level and based on the data used in this study, the variables of inflation rate, governance quality, Trade openness, and issued sukuk have a positive effect on economic growth.

Furthermore, according to the model estimation results, the explanatory variables collectively are able to explain 66 percent of the variations in the dependent variable, indicating an acceptable explanatory power.

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These results imply that, assuming other conditions remain constant and within the examined sample, a one percent increase in the inflation rate corresponds to an increase of 0.045 percent in the economic growth rate. (This finding is consistent with the research of Qaiser et al., (2009) who studied the relationship between economic growth and inflation in Malaysia during the period 1970 to 2005 using the endogenous[1] threshold autoregressive method. These researchers found that there is a threshold level at which the effect of inflation on economic growth changes: if inflation exceeds this threshold, it negatively impacts growth; below the threshold, it has a positive effect on economic growth.) It should be noted that inflation levels in the selected MENA countries in the present study are low; therefore, it can be inferred that the positive effect of inflation on economic growth in these countries is consistent with theoretical foundations.

For every one percent improvement in the governance quality index, the economic growth rate increases by 0.056 percent. This result aligns with theoretical foundations and studies by Acemoglu and other researchers (Acemoglu, Johnson, & Robinson, 2001; Acemoglu & Robinson, 2008, 2013). Additionally, for every one percent increase in the amount of issued sukuk, the economic growth rate increases by 0.008 percent. This result is consistent with the findings of Ledhem and Mekidiche (2021a), Ledhem and Mekidiche (2021b), Naeimi et al., (2019), Mohammadi et al., (2022), and Najafpour (2016), and thus conforms with theoretical frameworks.

For trade openness, each one percent increase in international trade corresponds to a 0.002 percent increase in the economic growth rate. This finding is similar to results obtained by Grossman & Helpman (1991), and other researchers, and is consistent with theoretical principles.

6 Summary and Conclusion

This study examined the effect of sukuk issuance on economic growth. Since the literature review indicated that in some studies the effect of sukuk on economic growth is not necessarily positive, and considering the theoretical foundations emphasizing the importance of governance indicators on growth, the aim of this paper was to investigate the effect of two factors: Islamic financial securities issuance (sukuk) and the governance quality index (as a representative of institutional factors) on economic growth.

For this purpose, the impact of sukuk issuance and the governance quality index on economic growth was analyzed among selected MENA countries

[1] endogenous threshold autoregressive (TAR)

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(including Bahrain, Qatar, Saudi Arabia, Oman, and the United Arab Emirates). Given the data sample used, the balanced panel method was employed. Regarding the governance index, since the World Bank publishes six indicators as governance quality indices[1], it was necessary to aggregate these six indicators into a single composite index. Various methods exist for this task, including averaging. Due to the considerations explained in section 4, the principal component analysis method was used. Moreover, since a logarithmic transformation based on the natural logarithm was applied to all variables in the model, the estimated coefficients represent elasticities. The initial estimation of the model indicated heteroscedasticity among the error terms. Therefore, the panel feasible generalized least squares (Panel EGLS) method was ultimately applied. The estimation results showed that issued sukuk, inflation rate, trade openness, and governance quality index all have a positive and significant effect on economic growth in the studied countries during the examined period.

To promote investment, increasing financing methods, including sukuk issuance, is the main recommendation, which has been empirically and statistically confirmed as a growth enhancer in this study. Therefore, increasing the volume of sukuk issuance and diversifying the types of issued sukuk constitute the essential recommendations of this research.

Another important recommendation is the improvement of governance indicators. Enhancing these indicators through the protection of property rights, acceleration of business processes, increasing predictability, strengthening the credibility and legitimacy of laws, and boosting political and economic stability will not only increase the productivity of existing capital but also attract new domestic and international investments. Therefore, both capital productivity and capital stock increase, resulting in strengthened economic growth. Hence, a key recommendation of this study is the pursuit of governance quality improvement. According to the results of this research and consistent with studies such as those by Echchabi et al., (2018), Smaoui & Khawaja (2017), Hasanzadeh et al., (2021), and other similar investigations, in the absence of institutional quality improvement and suitable governance indicators in countries, the positive effect of Islamic financial securities on economic growth may be disrupted or may not occur at all.

The positive effect of trade openness on growth reflects the reality that increased international trade for the countries studied, due to its positive

[1] https://www.worldbank.org/en/publication/worldwide-governance-indicators

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effects such as technology spillovers and enhanced competitiveness of the business environment, accelerates economic growth in these countries.

Finally, given that inflation rates in the studied countries remain at low levels, it can be recommended that controlled levels of expansionary monetary policy, with careful attention to acceptable thresholds, may also have a positive effect on increasing economic growth in the countries under review.

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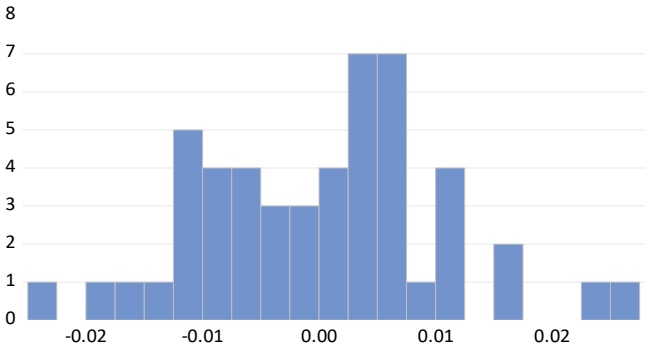
Appendix

Statistical Tests and Software Outputs

Jarque-Bera Test for Normality of Error Terms



Series: Standardized Residuals
Sample 2012 2021
Observations 50

Mean	6.43e-17
Median	0.001807
Maximum	0.026226
Minimum	-0.023294
Std. Dev.	0.010404
Skewness	0.134233
Kurtosis	2.995469
Jarque-Bera	0.150198
Probability	0.927652

F-Limer Test for Pooled or Panel Data

Redundant Fixed Effects Tests
Equation: EQ02
Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.560129	(4,31)	0.0481
Cross-section Chi-square	14.271697	4	0.0065
Period F	7.229973	(9,31)	0.0000
Period Chi-square	56.554369	9	0.0000
Cross-Section/Period F	10.724843	(13,31)	0.0000
Cross-Section/Period Chi-square	85.214806	13	0.0000

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Hausman Test for the Presence of Random Effects Over Time

Correlated Random Effects - Hausman Test
Equation: EQ02
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	15.200305	5	0.0095

Hausman Test for the Presence of Random Effects Across Cross-Sections

Correlated Random Effects - Hausman Test
Equation: EQ02
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	16.841255	4	0.0021

Breusch-Pagan and Pesaran Test for Cross-Sectional Serial Correlation

Residual Cross-Section Dependence Test
Null hypothesis: No cross-section dependence (correlation) in residuals
Equation: EQ02
Periods included: 11
Cross-sections included: 5
Total panel observations: 55
Note: non-zero cross-section means detected in data
Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	21.41007	10	0.0184
Pesaran scaled LM	2.551370		0.0107
Pesaran CD	3.452087		0.0006

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Test for Homoscedasticity Across Cross-Sections

Panel Cross-section Heteroskedasticity LR Test
Null hypothesis: Residuals are homoskedastic
Equation: EQ02
Specification: RGDP LINF LGOV LSUK LOPE LGDP(-1)

	Value	df	Probability
Likelihood ratio	2.897173	5	0.7158

LR test summary:

	Value	df
Restricted LogL	114.9363	45
Unrestricted LogL	116.3849	45

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Model Coefficients Output

Panel Period Heteroskedasticity LR Test
Null hypothesis: Residuals are homoskedastic
Equation: EQ02
Specification: RGDP LINF LGOV LSUK LOPE

	Value	df	Probability
Likelihood ratio	35.96351	5	0.0000

LR test summary:

	Value	df
Restricted LogL	116.8883	51
Unrestricted LogL	134.8700	51

Unrestricted Test Equation:
Dependent Variable: RGDP
Method: Panel EGLS (Period weights)
Date: 05/18/24 Time: 14:03
Sample: 2011 2021
Periods included: 11
Cross-sections included: 5
Total panel (balanced) observations: 55
Iterate weights to convergence
Convergence achieved after 23 weight iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LINF	0.045912	0.006115	7.508126	0.0000
LGOV	0.056043	0.012354	4.536563	0.0000
LSUK	0.008486	0.002778	3.054974	0.0036
LOPE	0.002745	0.001213	2.262984	0.0463

Weighted Statistics

R-squared	0.661861	Mean dependent var	0.081370
Adjusted R-squared	0.641971	S.D. dependent var	0.135809
S.E. of regression	0.031593	Akaike info criterion	-4.758911
Sum squared resid	0.050903	Schwarz criterion	-4.612923
Log likelihood	134.8700	Hannan-Quinn criter.	-4.702456
Durbin-Watson stat	1.405090		

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